Feasibility of a Regional Approach to an Obstetrics and Gynecology Transition to Residency Course

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ABSTRACT

OBJECTIVE: To demonstrate the feasibility of a regional Obstetrics and Gynecology (Ob/Gyn) Transition to Residency Course (TRC) through compliance, satisfaction, and sustainability.

METHODS: We implemented a two-week, multi-institutional regional TRC (RTRC) for fourth-year medical students matched in Ob/Gyn or Family Medicine from four New England medical schools. Curriculum was developed to meet Ob/Gyn Milestone One (M1) and Core Entrustable Professional Activity (CEPA) objectives. Compliance, satisfaction, and sustainability were identified as feasibility outcomes.

RESULTS: From 2015-2018, a total of 63 fourth-year students have participated. The number of students remained stable each year. All students attended 100% of sessions. There was an average of >9/10 in all satisfaction metrics all four years. The number of faculty members from each institution remained stable over the four years.

CONCLUSION: A RTRC is feasible as measured through compliance, satisfaction and sustainability.

KEYWORDS: obstetrics, gynecology, residency, education, regional

BACKGROUND

Transition to residency courses (TRCs) have been developed in many specialties such as general surgery, neurosurgery, and otolaryngology to help prepare rising postgraduate year-1 (PGY-1) residents for the responsibilities and demands of their respective residency programs.[1-9] These TRCs have increased in popularity over the last decade to address the wide variability of the fourth year medical school curricula and concern among residency program directors about the preparedness of incoming post-graduate year one (PGY1) residents.[10-11] In response to the emerging literature documenting a performance gap at the transition point between medical school and residency training, the Association of American Medical Colleges (AAMC) defined the Core Entrustable Professional Activities (CEPAs) in 2013. These are 13 activities that all medical students should be able to perform upon entering residency, regardless of their future career specialty. Furthermore, specialty-specific objectives, such as the Milestone objectives in Obstetrics and Gynecology (Ob/Gyn), were developed by the AAMC and specialty organizations (American Board of Obstetrics and Gynecology (ABOG) and the American Congress of Obstetricians and Gynecologists (ACOG)) to standardize trainee evaluation and advancement in their field.

Milestone One objectives (M1) outline skills that all matriculating Ob/Gyn PGY1s are expected to have mastered. While a TRC constructed upon the M1 objectives would be the most efficient approach in preparing Ob/Gyn PGY1s, the development of such a course at a single institution can be limited by cost, facility resources, availability of faculty, and the relatively low number of students entering Ob/Gyn.[12] Multi-institutional collaboration for *Regional* Transition to Residency Courses (RTRCs) allows for pooling of resources for a larger number of learners, and also encourages innovative teaching methods, inter-professional education, and networking opportunities.[7] Leaders in Neurosurgery, a specialty also with a relatively low number of students entering its field annually, have published on their success in development and implementation of RTRCs at six locations for rising PGY1 residents.[8,9]

We conducted a multi-institutional Ob/Gyn RTRC to assist fourth-year medical students in the transition to residency. Our aim is to describe and evaluate the development and implementation of this regional approach and to demonstrate feasibility through compliance, satisfaction, and sustainability of the RTRC. To our knowledge, our curriculum is the only RTRC that exists in the field of Ob/Gyn.

METHODS

Setting and Participants

The multi-institutional Ob/Gyn RTRC has been held annually since April 2015. The course is conducted at the University of Vermont Larner College of Medicine (UVM) in Burlington, Vermont. Regional institutions whose faculty and students participate in the course include UVM in Burlington, Vermont; Warren Alpert Medical School of Brown University (AMS) in Providence, Rhode Island; Tufts University School of Medicine (Tufts) in Boston, Massachusetts; and as of 2018, University of Massachusetts (UMass) in

Worcester, Massachusetts. These regional institutions are approximately a 0-hour, 4-hour, 3-hour, and 3.5-hour drive from UVM, respectively. Five institutions were asked to participate based on pre-existing professional relationships amongst faculty, with one declining because they already ran a similar single-site course at their own institution.

Case-based sessions are conducted in the Larner Classroom, a multimedia classroom specially equipped for team-based learning. All simulations occur at the UVM Clinical Simulation Laboratory. The Simulation Laboratory occupies 9,000 square feet and includes inpatient and outpatient rooms for high-fidelity simulation and standardized patient sessions, a multi-purpose room that can be an emergency room, operating room, or intensive care unit, a laparoscopic skills training room, and large debriefing rooms for low-fidelity simulation. The Simulation Laboratory is also equipped with video/audio capabilities for interactive teaching and live feedback.

This course is made available to all fourth-year UVM, AMS, and Tufts medical students matched into a residency program in Ob/Gyn or Family Medicine. In 2018, this course was also made available to UMass students. The course is advertised via email from clerkship directors at each institution. Students from AMS, Tufts, and UMass are able to register for the course through the Visiting Student Application Service (VSAS).

Participating faculty are across multiple specialties, including midwifery, nursing, and anesthesiology and are invited from all participating institutions. Faculty lead case-based sessions, simulation, and small group discussion based on their areas of expertise, and are recruited by the clerkship directors at the respective institutions.

Intervention

The RTRC is a two-week curriculum aimed to cover all Ob/Gyn M1 and CEPA objectives. The curriculum includes 30 hours of case-based learning, 30 hours of high- and low-fidelity simulation including sessions with standardized patients, and 20 hours of small group discussion (**Tables 1 and 2**). Small group discussions focus on topics of professionalism, communication, and reflection domains.

Participants' knowledge and confidence were assessed before and immediately after completion of the RTRC. Knowledge was assessed with the APGO Preparation for Residency Knowledge Assessment Tool, a 107-question interactive, web-based examination to measure the didactic knowledge of incoming Ob/Gyn interns based on the ACGME level 1 Milestones. Confidence in three domains, M1 and CEPA objectives, ability to perform technical skills, and ability to perform duties of an intern, was assessed with a 77-question survey using a 10-point Likert scale with "1" indicating strongly disagree and "10" indicating strongly agree. Participant's satisfaction with each session was assessed using a 5-question survey for the small group and case-based sessions and a 6-question survey for the skills and simulation sessions. These surveys measured faculty engagement, knowledge of subject area, presentation of material, and relevance of session to residency training, using

Table 1. Sample Week 1 curriculum schedule

WEEK 1	Monday	Tuesday	Wednesday	Thursday	Friday
8:00–9:00	Handoffs	L&D Communication	Patient Safety	Informed Consent	Giving Bad News
9:00–10:30	Case #1: Prenatal Care	Case #1: Postpartum Care Breastfeeding Contraception	Case #1: Annual Exams	Case #1: Pelvic Pain	Case #1: FHT
10:30–12:00	Case #2: Normal Labor	Case #2: Postpartum Complications	Case #2: Contraception	Case #2: Vulvar/Vaginal Complaints	Case #2: IOL, VBAC, Postdates
12:00–1:00	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
1:00–4:00	Station #1: Rule Out Labor Station #2: OB Exam Station #3: NSVD Second birthing	Anatomy lab: Abdominal Wall, Pelvic Spaces and Structures	Station #1: NSVD, shoulder dystocia, breech maneuvers Station #2: Role-playing—Lactation Station #3: Knots/Suturing	Station #1: Breast Exam Station #2: Pelvic Exam Station #3: Role-playing—Contraception Station #4: IUD Placement	Station #1: C-section Station #2: Role-playing–Informed Consent Station #3: Circumcision Station #4: Role-playing–Giving bad news
4:00–5:00	Burnout	Relationships	Work/Life Balance	Residents as Teachers	Teams

Table 2. Sample Week 2 curriculum schedule

WEEK 2	Monday	Tuesday	Wednesday	Thursday	Friday
8:00–9:00	OB Anesthesia	OB Handoffs	Residents as Teachers	Communication, Inter-professional Education	Careers
9:00–10:30	Case #1: Abnormal Labor	Case #1: Bleeding in Pregnancy	Case #1: Abnormal Pap/ Squamous	Case #1: Urinary Incontinence, Pelvic Prolapse	Case #1: Abnormal Uterine Bleeding
10:30–12:00	Case #2: Fetal Assessment	Case #2: Hypertension in Pregnancy	Case #2: Abnormal Pap/Adeno	Case #2: Paging Curriculum	Case #2: Pelvic Mass
12:00–1:00	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
1:00–4:00	Station #1: C-section Station #2: Fetal Heart Tracing Station #3: Episiotomy, Laceration repair	Station #1: Postpartum Hemorrhage/Atony Station #2: Eclamptic Seizure Station #3: OB ultrasound	Station #1: LEEP, Office procedures Station #2: Knots/Suturing Station #3: Scrub training, aseptic technique	Station #1: Pelvic Exam, Pessary Fitting Station #2: Knots/Suturing Station #3: Laparoscopy Station #4: Cystoscopy	Station #1: Gyn Instruments Station #2: Gyn U/S Station #3: Laparoscopy Station #4: Hysteroscopy, D&C
4:00–5:00	Mentoring	Research & Fellowships	Feedback	Sterile technique, Patient positioning, Foley catheter insertion	Debrief, Evals, Feedback of Bootcamp

a 10-point Likert scale with the same numbering system as the confidence survey. Results of the knowledge and confidence measures will be reported in a separate manuscript.

Logistics and Cost

Students and faculty from institutions other than UVM provided their own travel to UVM and were responsible for personal food costs during the course. UVM students and faculty provided housing for all non-UVM participants (faculty and students) free of charge. Sessions in which non-UVM faculty participated were scheduled over consecutive days to maximize convenience. For 2015 and 2016, each of the 3 institutions contributed $500 for the costs of simulation supplies, compensation for standardized patients and materials for team building activities. For 2017 and 2018, the cost of the course was supported through an education innovation grant from Tufts University School of Medicine.

Feasibility outcomes

Compliance, satisfaction, and sustainability of the RTRC were identified as feasibility outcomes. Compliance is measured by the percentage of participants completing the majority of sessions. The course is defined as feasible if compliance is greater than 75%.[13] Satisfaction was measured using the satisfaction surveys described above. Sustainability of the RTRC was assessed by evaluating faculty participation and repeat participation in subsequent years, number of participants and faculty across each year, and change in cost.

RESULTS

From 2015 to 2018, a total of 63 fourth-year students have participated, 52 of which were matched into an Ob/Gyn residency and 11 of which were matched into a Family Medicine residency. These students were from UVM (n=39), AMS (n=15), Tufts (n=8), UMass (n=1).

Compliance

In our RTRC, between 2015 and 2018, we had 100% compliance with all students (n=63) attending 100% of sessions.

Satisfaction

Student perception of effectiveness of faculty engagement, knowledge of subject area, presentation of material, and session relevance to residency averaged at least 9.0/10 for all four years and for all session types (small group discussions, case-based sessions, and simulation sessions). Student perception of effectiveness of preparatory material in facilitating learning during the sessions averaged >8.7/10 all four years. Student perception that the simulation sessions improved their confidence in the targeted skills averaged >8.9/10 all four years.

Sustainability

The total number of faculty members that participated 2015- 2018 was 29, 34, 35 and 34, respectively. 62%, 80%, and 67% of faculty from UVM, AMS, and Tufts attended multiple RTRCs, respectively. The number of students that

Table 3. Sample RTRC Budget

	Number	Cost	Total
Team-building exercise materials			
Coffee mugs	50	$4/mug	$400
Team shirts	20	$4/shirt	$80
Standardized Patients			
Patient volunteers	6 hours	$0/hr	$0
UVM-employed, non-invasive exams	21 hours	$23/hr	$483
UVM-employed, invasive exams	9 hours	$46/hr	$414
Larner Classroom		$0	$0
Simulation Center		$0	$0
Simulation supplies			
C-section	8 models	$31.25/model	$250
Circumcision (Miniature hot dogs)	20 models	$0.50/model	$10
Vaginal laceration repair (Beef tongue)	20 models	$1/model	$20
Hysteroscopy (Butternut squash)	20 models	$2/model	$40
Endometrial biopsy (Papayas)	20 models	$2/model	$40
Total			**$1737**

participated from 2015–2018 was 13, 17, 17 and 16, respectively. The budgets for 2015, 2016, 2017 and 2018 remained unchanged (**Table 3).**

DISCUSSION

To our knowledge, we have developed the first RTRC in the field of Ob/Gyn and have demonstrated feasibility in terms of compliance, satisfaction, and sustainability. The number of students and faculty (local and visiting) has remained stable over the past four years with high rates of compliance and satisfaction for all sessions each year. Since 2015, our RTRC has maintained a high faculty to student ratio with the majority of faculty from all institutions returning for at least one additional year. Impressively, eighty percent of visiting faculty returned for at least one additional year. It is important to note that any variation in faculty members is due to availability rather than dissatisfaction with the course.

We believe our RTRC has many benefits. While this course was designed to improve knowledge, technical skill, and confidence acquisition, it also provides opportunities for networking, wellness, and professional identity formation. A large component of the success of this course can be attributed to the generosity of students and faculty who are willing to host. This significantly minimized costs for visiting students and faculty while concurrently encouraging networking opportunities**.** Over the last four years, it has been apparent that students are motivated to optimize their preparation for residency as demonstrated by the high participation rate of UVM students and the willingness of non-UVM students to travel to and attend a two-week course at another institution. Finally, the state-of-the-art facilities at UVM are able to accommodate large groups and multiple simultaneous sessions which has allowed us to efficiently cover the wide range of topics in M1 and CEPA in only two weeks. A limitation to our data collection may be that there is inherent bias in satisfaction scores since all students had already matched in their respective residency programs.

While the regional approach to our curriculum is unique in Ob/Gyn and shown to be feasible in the Northeast region, the geographic proximity between institutions may be more of a barrier in other regions such as the Northwest or Midwest where distances are greater between institutions. Nevertheless, the literature has shown that faculty are willing to donate the time for such courses, and they draw benefits themselves by participating (Deutsch et al. 2013). These benefits include ability to demonstrate teaching efforts for curriculum vitae (CV) building and promotion, exposure to curricular development at other institutions, and opportunities to network with educators in their region to build a regional and national reputation.

At this time, the field of neurosurgery has made it a requirement for their incoming residents to attend one of the six established RTRCs around the country (Fontes et al. 2014; Selden et al. 2011). We believe that the field of Ob/Gyn can adapt a similar model. With the implementation of M1 objectives in Ob/Gyn, there are clear guidelines upon which to build a curriculum for incoming residents as we have done. With the assistance of leaders in ACOG, Association of Professors of Gynecology and Obstetrics (APGO), and Council on Resident Education in obstetrics and Gynecology (CREOG), this curriculum could be delivered regionally in April and May of the fourth year with a mandate that matched students attend one session. Additionally, to bridge the gap between undergraduate and graduate medical education, students could be evaluated with an assessment documenting the student performance of the M1 and CEPA objectives sent to both the medical school and the residency program. Knowledge gaps and weaknesses across regions, or even nationally, can be identified to improve undergraduate medical education in the clerkship or fourth year. By demonstrating the feasibility of our RTRC curriculum, we encourage our leaders in medical education to implement similar regional courses nationally in order to better standardize the preparedness of incoming Ob/Gyn residents.

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