EDUCATION

The Obstetrics and Gynaecology Resident as Teacher

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Abstract

In this article we discuss the role residents play in the clinical training and evaluation of medical students. A literature search was performed to identify articles dealing with research, curriculum, and the evaluation of residents as teachers. We summarize the importance of resident educators and the need to provide appropriate resources for house staff in this role, and we review evidence-based literature in the area of residents as teachers. Specific attention is given to the unique circumstances of the obstetrics and gynaecology resident, who is often faced with teaching in an emotionally charged and stress-filled environment. We present examples of curricula for residents as teachers and describe barriers to their implementation and evaluation.

Key Words: Curriculum, medical education, residents as teachers, teaching

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Résumé

Dans le cadre de cet article, nous discutons du rôle que jouent les résidents dans la formation clinique et l'évaluation des étudiants de médecine. Une recherche documentaire a été menée en vue d'identifier les articles traitant de la recherche, du curriculum et de l'évaluation des résidents à titre d'enseignants. Nous résumons l'importance des résidents éducateurs et la nécessité de fournir des ressources appropriées au personnel interne dans ce rôle, et nous analysons la littérature factuelle dans le domaine des résidents agissant à titre d'enseignants. Une attention particulière est accordée aux circonstances particulières dans lesquelles se trouve le résident en obstétrique-gynécologie, lequel doit souvent enseigner dans un milieu où les émotions et le stress atteignent leur paroxysme. Nous présentons des exemples de curriculum à l'intention des résidents en tant qu'enseignants et décrivons les obstacles que l'on doit surmonter pour en assurer la mise en œuvre et l'évaluation.

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INTRODUCTION

Medical school faculties rely on postgraduate trainees for the clinical training of medical students. Prior to 2000, little attention was given to the training of residents as effective teachers for medical students. In recent years, however, the postgraduate accreditation bodies in the United States, Canada, and the United Kingdom have identified the need to train resident house staff in the role of educator (Table 1).[1–3]

Studies of the interactions between students and residents highlight the importance of the role that residents play in medical student education. Clerkship medical students have estimated that 20% to 60% of their teaching was done by a resident (approximately 50% in obstetrics and gynaecology),[4] and residents have estimated that 20% to 25% of their time is devoted to teaching, supervision, and evaluation of medical students, interns, and other residents.[5] Additionally, students have estimated that one third of knowledge gained during their core clinical rotations was contributed by interns and residents.[6] Medical students have reported that surgical residents were significantly more active in their education than the attending staff, and have rated residents higher than attending staff in exhibiting teaching behaviours.[7,8] In one obstetrics and gynaecology program, faculty in an ambulatory setting were more likely than residents to act as appropriate clinical role models, emphasize evidence-based learning, and be enthusiastic about teaching and patient care, whereas residents were more likely to incorporate students into direct patient care (performing Pap smears and pelvic and breast examinations).[9]

The settings in which residents teach medical students and the types of educational activities vary. Wilkerson et al.[10] observed internal medicine residents during work rounds, and found that residents modelled appropriate communication skills and confirmed clinical findings at the patient bedside. Away from the bedside, residents frequently gave students brief lectures. Giving feedback, demonstrating skills and procedures, referring to literature, and asking questions occurred less frequently. The authors concluded that residents exhibited few of the teaching behaviours and skills that promote effective learning. In another survey of internal medicine residents, Apter et al.[11] reported that the most frequent teaching setting was at the patient's bedside (45%), during one-to-one supervision of junior residents and students (25%), and at sit-down ward rounds (24%). Other venues in which residents teach and interact with students include the operating room, the labour and delivery suite, ambulatory settings, the classroom, and orientation.

It is evident that residents play a significant role in the clinical training of medical students. The spectrum of teaching skills and behaviours needed to achieve this goal is an extension and modification of that required by faculty educators. These skills include providing formal and informal instruction, teaching in an ambulatory setting, teaching operative skill, giving feedback, and conducting evaluations.

ABBREVIATIONS

DHR	duty hour regulation
OSTE	objective structured teaching examination

METHODS

We performed a search of PubMed for English language articles published up to May 2008 relating to resident teaching, with periodic searches thereafter to include the most current publications. The following search terms were used: resident, teaching, medical education, and residents as teachers. Articles describing resident-as-teacher research studies, curricula, and evaluation were reviewed and additional publications were then identified using the bibliographies of these articles.

DISCUSSION

Residents as Teachers: How Do We Measure Outcomes?

Governing educational bodies (Accreditation Council for Graduate Medical Education,[1] Liaison Committee on Medical Education,[2] and The Royal College of Physicians and Surgeons of Canada[3]) have identified that effective teaching is an important skill that all residents should possess; however, the most practical and effective method of developing this skill has not yet been determined.

Traditionally, most academic physicians are not trained to be skilled educators, as they are often hired for their research or clinical expertise when joining medical school faculty. Through a literature review from 1990 to 2004, Busari and Scherpbier[12] tested the hypothesis that skilled teachers are more likely to become competent clinicians than skilled clinicians are to become competent teachers. Although they did not find a direct link that teaching skills improved clinical competence, the evidence suggested that teaching skills improved the perception of clinical competence, and that the components of effective teaching contribute to cognitive skills, clinical proficiency, and teaching ability (Figure). They comment that expertise in medical knowledge and clinical skills are the cornerstones of teaching in the clinical setting. As most residency programs have focused on clinical competencies, this framework helps to explain why many physicians lack effective teaching skills after completing their training (right side of the Figure). They conclude that

Table 1. Summary of accrediting bodies' requirements for the role of residents as educators

Accrediting body and requirement	Expectations, recommendations, and explanations
Liaison Committee on Medical Education[2] Educational Directive 24: Residents, graduate students, and postdoctoral fellows in the biomedical sciences who serve as teachers or teaching assistants and supervise or teach medical students must be familiar with the educational objectives of the course or clerkship and be prepared for their roles in teaching and evaluation.	Minimum expectations for achieving compliance: a. residents and other instructors who do not hold faculty ranks (such as graduate students and postdoctoral fellows) receive a written copy of the course or clerkship objectives and clear guidance from the course or clerkship director about their roles in teaching and evaluating medical students; and b. institutions and relevant departments provide resources such as workshops and written materials to enhance the teaching and evaluation skills of residents and other non-faculty instructors. There should be central monitoring of instructor participation in activities to enhance their teaching and evaluation skills. The Liaison Committee on Medical Education encourages formal assessment of the teaching and evaluation skills of residents and other non-faculty instructors, with opportunities provided for remediation if their performance is inadequate. Assessment methods could include direct observation by faculty, feedback from students through evaluation forms or focus groups, or any other suitable method.
Royal College of Physicians and Surgeons of Canada[3] CanMEDS*: As *scholars,* physicians demonstrate a lifelong commitment to reflective learning; to the creation, dissemination, application, and translation of medical knowledge; and to facilitating the learning of patients, families, students, residents, other health professionals, the public, and others, as appropriate.	Physicians are expected to be able to: a. Describe principles of learning relevant to medical education b. Collaboratively identify the learning needs and desired learning outcomes of others c. Select effective teaching strategies and content to facilitate others' learning d. Demonstrate an effective lecture or presentation e. Assess and reflect on a teaching encounter f. Provide effective feedback g. Describe the principles of ethics with respect to teaching
Accreditation Council for Graduate Medical Education/Residency Review Committee[1] General competencies: Practice-based learning and improvement: Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and through constant self-evaluation and life-long learning to continue to improve patient care. Residents are expected to develop skills and habits necessary for participating in the education of patients, families, students, residents, and other health professionals.	This requirement for specific teaching skills is linked to practice improvement, because patients who have been educated effectively by their physician to understand their condition and who can be partners in their own care are more likely to have better outcomes than those who have not been educated. Similarly, physicians who can effectively educate consulting physicians rather than just ask for a yes or no answer are more likely to get the information they need to provide better care.

*CanMEDS is the current official name for this program. The form "CanMEDS 2000: Canadian Medical Education Directions for Specialists" is no longer in use.

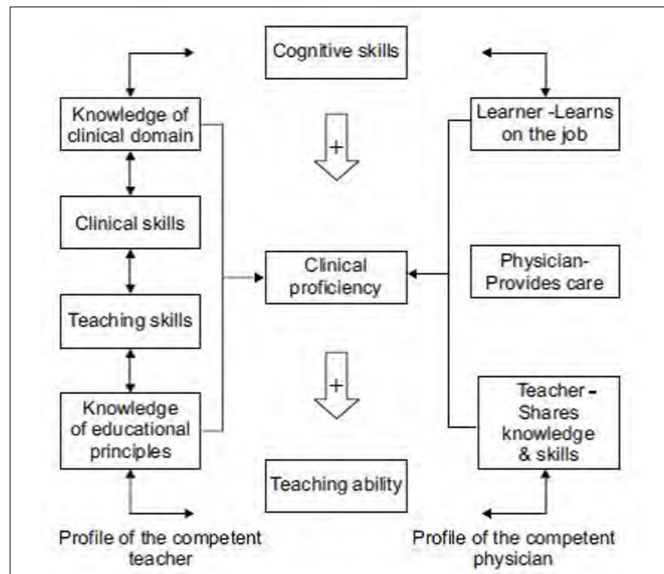
physicians who taught effectively were perceived as competent, and that physician training in teaching was essential.

Other outcomes of resident-as-teacher curricula include improved perception of the specialty by students,[9,13] increased subject matter mastery among the residents,[14,15] and improved perception of the resident as a clinician.[16] Resident-as-teacher curricula produced positive outcomes, enhanced resident effectiveness as clinicians and educators, and apparent improvement in the education of future medical professionals. Few studies have addressed whether improved learning outcomes such as examination scores are seen in medical students; therefore, further studies are needed to determine whether resident-as-teacher curricula ultimately improve medical students' learning.

Barriers to Resident Teacher Effectiveness

Several factors, such as the implementation of duty hour regulation and conflicting feelings and responsibilities of the resident, adversely affect resident teaching of medical students. Brasher et al.[17] collected end-of-rotation evaluations in a surgical clerkship that compared student reports of individual residents before and after implementation of DHR. Items evaluated included teaching effectiveness,

A visual representation of the "Physician as Teacher Rule" from Busari and Scherpbier[12] illustrating the inputs of effective teaching and how they contribute to clinical competence.



*Permission has been granted by Dr Albert Scherpbier and the Journal of Postgraduate Medicine to use this figure.

amount of feedback, and quality of interactions. They found significantly more negative comments regarding the resident's role as a supervisor and teacher after DHR implementation than before, raising concerns about the negative effect of DHR on the role of residents as teachers.

In a qualitative study, Yedidia et al.[18] found that internal medicine residents felt conflicted in attempting to fulfill their teaching roles. Three categories of conflict were identified:

1. as learners themselves, residents felt uncomfortable teaching material they were only beginning to fully understand;
2. as medical team leaders, residents needed to balance the service and education components of their schedule; and
3. as patient care providers, residents needed to optimize patient care even at the expense of medical student and intern education.

Residents felt that one of their primary responsibilities was to teach medical students and that they learned from this practice but lacked time for proper preparation.

Other obstacles to effective resident teaching include time-consuming ward and clinic duties, exhaustion from being on call, and personal commitments.[11] Having dedicated time to teach, being given opportunities to improve teaching skills, and seeing a commitment to resident teaching on the part of faculty have also been reported by residents as areas needing further attention.[16,19]

Curriculum Structure, Format, and Content

A majority of training programs report some form of resident-as-teacher curriculum. In 2001, Morrison et al. surveyed Accreditation Council for Graduate Medical Education-accredited residency programs in family medicine, psychiatry, general surgery, obstetrics and gynaecology, and offices of graduate medical education, and found that 55% of program directors offered formal instruction in teaching skills.[20] The breakdown by specialty was as follows: internal medicine-pediatrics combined programs 88%, pediatrics 80%, internal medicine 65%, psychiatry 62%, family practice 52%, obstetrics and gynaecology 38%, and surgery 31%. Of those offering formal training, 86% indicated the programs were mandatory. Residents received an average of 11.5 hours of instruction during their training (ranging from four to six hours per year). The most common formats of instruction were lectures and workshops, followed by small-group interactive discussions, role-play, and critiqued teaching. Longitudinal programs, large-group interactive discussions, and the use of standardized students were the least common.

Additional studies describe a variety of resident-as-teacher curricula, from courses ranging in length from approximately three to seven hours to retreats lasting eight to 13 hours.[21–26] Longitudinal curricula and electives for residents interested in furthering their skills in medical education have also been described and evaluated.[27–29]

Mann et al.[28] developed a four-week elective for postgraduate trainees interested in medical education. From their three-year experience with the elective, they provided 12 tips for designing resident-as-teacher programs. The tips provide a road map for organizing such a program, beginning with the identification of program needs and ensuring support and input from faculty involved in residency education. When assessing needs, it is important to identify the target audience. Mann et al.[28] at Dalhousie University offered their medical education elective to more senior residents because they felt these residents would have a better grasp of their discipline than more junior residents. Goals of the elective should be refined using the input from faculty and residents. They also stressed the importance of identifying and removing challenges to participation. When determining the content of the program, existing models of education and current literature can be used to guide the curriculum. Once the content is in place, it can be sequenced so as to encourage building on existing knowledge and the linking of concepts. The teaching and learning method is selected using a variety of instructional methods and resources such as faculty from other divisions or departments. Planning for experience and practice, in addition to discussing the theory

Table 2. Examples of educational approaches for residents to plan or initiate teaching opportunities with learners

GNOME mnemonic[22]	Teaching skills checklist[25]	Microskills of teaching[30] / One-minute preceptor[31]	Three Function Model[32]
Goals: set a goal. **N**eeds assessment: assess the learning level and needs of the learners. **O**bjectives: define specific objectives based on the goal and the needs assessment. **M**ethods: select methods and strategies to meet the objectives **E**valuation: build in a system of evaluation to assess how well objectives are met	1. Diagnose the patient: Focus: establish expectations; provide guidelines for presentations. Wait: listen to the student's presentations; clarify issues. 2. Diagnose the student: What: ask the student to make a commitment or decision. Why: probe for evidence to support the commitment or decision. 3. Teach the student: Whenever: teach general rules or practical applications; identify a key point or emphasis from the case and link the identified element to a teaching point or practical application. Feedback: provide specific feedback to the student; reinforce positive behaviours; correct mistakes or misconceptions.	1. Get a commitment: ask learners to articulate their own diagnoses or plans. 2. Probe for supporting evidence: evaluate the learner's knowledge or reasoning. 3. Teach general rules: teach the learner common "take-home points" that can be used in future cases, aimed preferably at an area of weakness for the learner. 4. Reinforce what was done well: provide positive feedback. 5. Correct errors: provide constructive feedback with recommendations for improvement.	1. Prepare: What is your purpose? What do you want learners to be able to do? How will you "hook" it? How will it be relevant to them? 2. Perform: Conduct the learning exercise; this is dependent on the content of the exercise. 3. Process: Ask questions that focus on the material being presented and taught; look for responses that indicate the learners' Mastery, Understanding, and Synthesis of, and Involvement with the material.

behind teaching and learning, is also important. Mann et al.[28] also discuss building residents' awareness of themselves as teachers, and anticipating challenges that may arise during the program. Finally, the program should, with the collection of regular feedback, plan follow-up and program evaluation.

Frameworks exist to help teachers plan teaching and structure activities for students, whether it is at the bedside, in the clinic, in the operating room, or within a classroom setting. Examples of these approaches are provided in Table 2, and include "microskills of teaching" as well as the mnemonic "GNOME" (Goals-Needs assessment-Objectives-Methods-Evaluation).[22] Using teaching models for the emerging resident educator provides an educational framework residents can use to further develop and refine their teaching skills. The ultimate goal is the application of these skills in any setting, allowing the resident teacher a multitude of opportunities to educate his or her learners. Recently, Post et al.[33] published a review of studies published from 1975 to 2008 with the goal of providing an evidence-based curriculum for residents as teachers. They identified 24 studies (11 uncontrolled trials, seven randomized controlled trials, and six non-randomized controlled trials) meeting their inclusion criteria for curricula and evaluation of resident-as-teacher programs. The mean number of participants was 39.6, and the methods of evaluation varied (OSTE, videotaped evaluations, learner evaluations, and self-questionnaires). The mean intervention time of the curricula was 7.6 hours and the most common intervention used was the one-minute preceptor model.[33]

Regardless of the format or content, the design of any curriculum must take into account the needs of the particular program, available time, and resources. More commonly described tools include surveys and evaluations from students and residents regarding their perceptions of various aspects (existence, quality, frequency, effectiveness) of resident teaching. Such needs assessments aid in the design of targeted educational experiences that fit any particular program. Use of existing expertise, personnel, or programs from a medical school's graduate medical education department, office of medical education, or other training programs may provide resources that help facilitate the design and implementation of a resident-as-teacher program.

The resident-as-teacher curriculum should incorporate the principles of adult-learning theory, and consider length, frequency, format, and topics to maximize the transmission

Table 3. Structure and components of possible resident-as-teacher curricula

Course length	Frequency	Format	Topics*	Comments*
Short course (1–4 hours)	Annual Biannual (refresher at 6 months)	Didactic Workshop One or two topics Part 1 in-depth, Part 2 brief refresher	Adult learning Anatomy of a teacher Feedback Ambulatory teaching Teaching at the bedside Questioning techniques Microskills teaching Teaching in the OR Charting skills Performance evaluation	Sessions should be learner-centred Avoid long didactic sessions without learner involvement Schedule academic protected time Hold off site if possible Ensure nutrition if held at meal times Do needs analysis by resident/faculty survey Review student/faculty evaluations of resident teaching Set definite goals and objectives for curricula and session Pager sign out/shut off Provide a syllabus, workbook or laminated teaching cards as learning resources
Half- or full-day course	Quarterly Monthly	Didactic Workshop Variable topics Role play In-depth examination of one/two topics with practise		
Retreat (1–2 days)	Annual	Keynote speaker (educational specialist) Multiple topics Workshops, breakouts Role play		
Longitudinal (1–1.5 hours)	Weekly Bi-weekly	Multiple topics Videotaped role play with discussion Group presentations Didactic sessions		

*Suitable for all lengths, frequencies, and formats of curricula.

of information to the resident teacher. Examples of types of programs described in the literature are outlined in Table 3.

Assessment of Resident-as-Teacher Curricula

Evaluation of teaching skills and teaching programs for residents will be essential to answer questions regarding the effectiveness of curricula, the competence in skills, and the sustainability of knowledge. Resident self-assessment (e.g. pre- and post-intervention) and student assessment of resident-teacher effectiveness are two of the most commonly used methods of course evaluation.[34] Additional methods used to evaluate the effectiveness of resident teaching curricula are detailed in Table 4.

Wamsley et al.[14] conducted a comprehensive review of educational studies published from 1975 to 2003 to determine which methods have been used to evaluate the effectiveness of resident teaching courses. They reviewed 14 studies that included eight uncontrolled studies, three non-randomized controlled studies, and four randomized controlled studies. Outcome measures included resident self-reporting of teaching skills and attitudes pre- and post-intervention, student evaluation of resident teaching, videotaped analysis, direct observation of resident–student teaching encounters, and OSTE. The authors concluded that resident teaching courses improve resident self-assessed teaching behaviours and teaching confidence, and correlate with improved teaching assessments of residents by learners. However, the appropriate format, length, time, and content of resident teaching courses and the effect of acquired teaching skills on learner performance have yet to be determined.

These findings support the need for ongoing evaluation of the effectiveness of any resident-as-teacher curriculum. Whether programs use resident or learner evaluations, direct or videotaped observations, or more structured or standardized means, measuring outcomes will ensure that the goals of these programs are being met and will indicate areas for improvement and modification.

Residents as Teachers in Obstetrics and Gynaecology

Obstetrics and gynaecology provides trainees with a variety of learning arenas, including labour and delivery suites, the operating room, and inpatient and outpatient settings. It is therefore important that both faculty and residents are

Table 4. Examples of methods used to determine teaching curriculum effectiveness

Author	Type of study	Evaluation Method	Comments
D'Eon[35]	RCT	Videotaped session before and after workshop on teaching skills	Small sample size Suggests workshop likely made a difference in performance Variable time for videotaping amongst residents
Morrison et al.[36]	Objective structured teaching examinations adapted from the Stanford Faculty Development Program (SFDP-26)	Measured reliability and validity of OSTEs for generalist resident teachers	OSTE tailored for generalist resident is a valid and reliable tool to assess teaching skills
Morrison et al.[37]	Randomized control trial Two phases: Pilot (2001–2002) Study (March 2002–May 2003)	13 hour curriculum (twice weekly for 6 months) 3.5 hour, 8 station objective structured teaching examination pre- and postintervention	Combined results: The intervention group outscored the control group on overall performance (0.68; 95% CI 0.55 to 0.81) The majority of residents were in internal medicine, but the study also included family medicine pediatrics No "real life" assessment was done
Morrison et al.[38]	Qualitative analysis Grounded theory	Post-intervention of RCT of 2004 above Semi-structured interviews of 12 intervention residents and 9 control residents	Intervention group expressed more enthusiasm for teaching, more learner-centred approaches, and richer self-awareness of teaching principles. Control group (no training) tended not to enjoy teaching or to plan to teach after residency, and often expressed cynicism towards students.

equipped with the necessary skills to maximize learning. Reports indicate that obstetrics and gynaecology residents are expected to teach and be evaluated on their abilities, yet have less formal instruction than other specialties on how to do so.[22] This issue, along with the accreditation requirement that residents be given opportunities to teach, underscores the pressing need to design and implement resident-as-teacher curricula into obstetrics and gynaecology programs.

In examining predictors of excellent obstetrics and gynaecology resident teachers, Ogburn et al.[13] found that older, male residents with previous work experience were more likely to be identified as excellent teachers by students. Whether intern candidates enter training programs as excellent teachers or develop teaching skills during training, the authors suggest that excellent resident-teachers may improve students' perception of obstetrics and gynaecology as a specialty and career choice.

Many types of curricula are available to improve teaching by residents, and these can be applied to obstetrics and gynaecology. The following publications summarize various resident-as-teacher curricula reported in the obstetrics and gynaecology literature.

Katz et al.[39] performed a needs assessment of obstetrics and gynaecology resident teaching skills in an ambulatory setting by direct observation of resident–student interactions using an 18-item checklist. Five categories of teaching behaviours were observed (introductions, instruction matching learning objectives, active learning, professional behaviour, and feedback). Items relating to orientation and feedback were observed less frequently, with no differences observed in various skills among different resident training levels.

Hammoud et al.[40] reported on the positive effects of a one-day workshop on "Teaching Residents How to Teach" for obstetrics and gynaecology residents. The workshop included interactive sessions using small groups and student practise. Topics included qualities of a good teacher, student objectives and examinations, and giving feedback. Residents were required to switch off their pagers, and the workshop was held at an off-site facility. The investigators found that the overall quality of the clerkship, as rated by the students, significantly increased at three months, but this increase did not persist at nine months. The quality of resident teaching also increased, but the increase did not reach statistical significance. Overall, residents' evaluations of the workshop were positive and the majority of residents felt that their commitment to teaching increased after the workshop.

Gaba et al.[33] conducted a controlled evaluation of an obstetrics and gynaecology resident-as-teacher curriculum using a standardized student OSTE. The 10.5 hour workshop included an introduction followed by six workshops (teaching in the setting of a case presentation, teaching a skill, bedside teaching, giving a mini-lecture, giving feedback, and orienting a learner). Each workshop was structured using a three-function model (prepare, present, process) and included interactive sessions, videotape assessments of teaching, and

Table 5. Possible resident-as-teacher curriculum in obstetrics and gynaecology

Teaching competency	Educational methodology	Outcome measure
The resident will orient the student to the obstetrics and gynaecology clerkship	Mini-lecture Demonstration Problem-based learning	Medical student assessment of resident Videotaped assessment
The resident will demonstrate a variety of questioning methods to ensure student understanding of a concept, diagnosis, or procedure	Role play Demonstration Online learning module	Direct observation Videotaped assessment
The resident will be able to give an effective presentation using elements of adult-learning theory	Mini-lecture Mock presentation with feedback Role play	Pre- and posttest of student performance Medical student assessment of resident Direct observation Objective structured teaching encounter
The resident will provide effective feedback to student	Mini-lecture Online learning module Role play	Objective structured teaching encounter Medical student assessment of resident Self-report
The resident will demonstrate, explain, and model the appropriate methods to teach skills and procedures	Mini-lecture Role play Video-clips Online learning module	Videotaped assessment Student objective structured clinical encounter pre- and post teaching Objective structured teaching encounter
The resident will be able to provide appropriate evaluation of the student's clinical performance	Mini-lecture Problem-based learning online learning module	Objective structured teaching encounter Written assignment Videotaped assessment

role play. The authors found the program to be highly effective in improving residents' teaching skills as scored by the OSTE.

Frattarelli et al.[41] conducted a 4.5 hour program for obstetrics and gynaecology residents that covered topics suggested by residents and weaknesses identified by students. The topics focused on problem-based learning microskills, preparation and presentation of "microlectures," and teaching of basic suturing and knot tying to unskilled volunteers. Resident surveys and student evaluations before and after intervention revealed that although residents rated themselves as better teachers, students did not report an improvement in their teaching skills.

Mass et al.[42] conducted a randomized trial examining the effect of student evaluation (oral, written, or none) on obstetrics and gynaecology resident teaching in seven domains. Scores were evaluated for one year, and resident attitudes towards the feedback were collected at baseline, six months, and one year. After one year of feedback, a trend towards improvement in several teaching categories and overall evaluations was seen. A significant increase was seen among those residents receiving any feedback (oral or written) who viewed the student feedback as adequate or useful. This study concluded that feedback (including an award system for excellent teachers) improved resident teaching performance, enhanced perception of the role of residents as teachers, and increased resident satisfaction.

These studies indicate success in design, implementation, and evaluation of resident-as-teacher curricula in obstetrics and gynaecology residency programs. The ideal structure and format for any program should take into account the needs, resources, and ultimate goals of each program. Regardless of the content, incorporation of resident-teacher training into any obstetrics and gynaecology program appears to be beneficial to both the resident-teacher and the student-learner alike.

A possible obstetrics and gynaecology resident-as-teacher curriculum is shown in Table 5. This curriculum is designed using previously reported data and is meant as a guide for program directors in obstetrics and gynaecology departments. Educational competencies with possible methods of teaching and assessing each competency are listed. The competencies should be reviewed more than once during residency because teaching skills and enthusiasm for teaching tend to decline with time. Ongoing feedback from faculty regarding the resident's teaching abilities is essential. Finally, the practical issues of implementing such a

curriculum into current academic programs will also require consideration.

CONCLUSION

It is clear that teaching courses improve resident self-assessed teaching behaviours and self-confidence as a teacher, and they result in higher learner evaluations of residents. Attention should be given to the potential barriers and pitfalls that any educational program may encounter. Of utmost concern is the dedicated educational time commitment for both residents and faculty, and the support required by the faculty to create and teach the courses.

Although the ultimate benefit in improving undergraduate medical student educational outcomes through resident-as-teacher curricula has yet to be determined, many advantages have been seen with implementation of such programs. Residents have had and continue to play a critical role in student education. Whether driven by accreditation mandates or the circumstances by which clinical medicine is taught and learned, the continuing education of medical students by residents underscores the need to design, implement, and improve resident-as-teacher curricula in all training programs.

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