Managing Expectations of Surgical Training: A National Perspective on Gynaecologic Endoscopy Practice

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Abstract

Objective: To determine if the opinion of obstetrics and gynaecology postgraduate trainees differs from practising gynaecologists with respect to the expected endoscopic surgical skill set of a general gynaecologist upon graduation from residency.

Methods: An electronic survey was designed, validated, and pre-tested. It was sent to 775 Canadian obstetrics and gynaecology residents, fellows, and practising physicians through the Society of Obstetricians and Gynaecologists of Canada's electronic mailing list. Survey respondents were asked their opinion on the level of training (no extra post-residency training vs. fellowship) required to perform various endoscopic procedures.

Results: We received 301 responses (39% response rate). Obstetrics and gynaecology trainees and practising physicians agreed on the training and skill level necessary to perform many endoscopic procedures. However, there were significant differences of opinion among trainees and practising physicians regarding advanced endoscopic procedures such as laparoscopic hysterectomy, cystotomy and enterotomy repair, and appendectomy. More trainees felt that a general gynaecologist without additional post-residency surgical training should be competent to perform such procedures, while practising physicians felt fellowship training was necessary.

Conclusion: Our survey highlights the different expectations of learners versus those in practice with regard to skills required to perform certain endoscopic procedures, particularly laparoscopic hysterectomy. Trainees who responded believed that after graduation from residency any obstetrician-gynaecologist should be able to perform more advanced endoscopic procedures, but practising physicians did not agree. This discordance between learners and practising colleagues highlights an important educational challenge in obstetrics and gynaecology surgical training. Greater clarification of what is expected of our training programs would be beneficial for both residents and training programs.

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Résumé

Objectif : Déterminer si l'opinion des stagiaires postdoctoraux en obstétrique-gynécologie diffère de celle des gynécologues praticiens en ce qui a trait à l'ensemble de compétences en chirurgie endoscopique dont devrait disposer un gynécologue généraliste à la fin de sa résidence.

Méthodes : Un sondage électronique a été conçu, validé et prétesté. Nous l'avons fait parvenir, par l'intermédiaire de la liste de diffusion électronique de la Société des obstétriciens et gynécologues du Canada, à 775 résidents, boursiers et praticiens canadiens du domaine de l'obstétrique-gynécologie. Nous avons demandé aux répondants de nous fournir leur opinion quant au niveau de formation requis (aucune formation post-résidence supplémentaire vs *fellowship*) pour l'exécution de diverses interventions endoscopiques.

Résultats : Nous avons reçu 301 réponses (taux de réponse de 39 %). Les stagiaires en obstétrique-gynécologie et les gynécologues praticiens étaient du même avis quant au niveau de formation et aux compétences nécessaires pour l'exécution de nombreuses interventions endoscopiques. Toutefois, nous avons constaté des différences d'opinion considérables entre les stagiaires et les praticiens en ce qui concerne les interventions endoscopiques avancées (comme l'hystérectomie laparoscopique, la réparation de cystostomie et d'entérostomie, et l'appendicectomie). Un plus grand nombre de stagiaires étaient d'avis qu'un gynécologue généraliste devrait, sans formation chirurgicale post-résidence supplémentaire, disposer de la compétence requise pour mener de telles interventions, tandis que les praticiens estimaient qu'une formation de type *fellowship* s'avérait nécessaire.

Conclusion : Notre sondage souligne les différences en matière d'attentes, entre les stagiaires et les praticiens, en ce qui concerne les compétences requises pour mener certaines interventions endoscopiques (particulièrement l'hystérectomie laparoscopique). Les stagiaires ayant répondu au sondage estimaient que, à la fin du programme de résidence, tout obstétricien-gynécologue devrait être en mesure de mener des interventions endoscopiques plus avancées, mais les praticiens ne partageaient pas cet avis. Cet écart entre les stagiaires et les praticiens souligne l'existence d'un important défi pédagogique en ce qui concerne la formation chirurgicale en obstétrique-gynécologie. Une meilleure clarification des attentes envers nos programmes de formation s'avérerait bénéfique tant pour les résidents que pour les programmes de formation.

INTRODUCTION

The endoscopic approach has become the standard for many gynaecologic surgical procedures. However, mastering the skills necessary to perform these procedures during residency is becoming increasingly difficult. There are several barriers to attaining endoscopic skills, including increasing numbers of residents, lack of trained faculty, decreasing operating room exposure, and financial constraints.[1,2]

Many residents pursue fellowships and extra training to acquire competency in certain endoscopic procedures.[1,3,4] The Royal College of Physicians and Surgeons of Canada maintains a list of core surgical competencies that each resident should master before entering independent practice.[5] However, this list provides limited guidance with regard to endoscopic procedures. Previous studies have identified the need to establish a uniform Canadian endoscopy training curriculum.[1,6] In fact, an expert Canadian consensus has been published outlining core competencies in a gynaecologic endoscopy curriculum for residents.[6] The purpose of this consensus was to provide a basis for a national standardized endoscopy curriculum, but, such a curriculum has yet to be developed.

To date, there is no information about the opinion of trainees in obstetrics and gynaecology regarding core competencies for their endoscopic surgical training programs. Furthermore, the information currently available represents the opinions of expert panels, which may not necessarily reflect the views of community gynaecologists.

This study surveyed the opinions of obstetrics and gynaecology residents, fellows, and practising physicians about which endoscopic skills should be considered core skills for obstetrics and gynaecology residency training programs in Canada. As the curricula and training objectives are defined by experts in endoscopy, we anticipated diverging opinions among obstetrics and gynaecology trainees and practising obstetrician-gynaecologists regarding this matter.

MATERIALS AND METHODS

We constructed a questionnaire for completion by residents, fellows, and practising obstetrician-gynaecologists in Canada. The questionnaire was based on previously published expert consensus on endoscopic curricula and on the RCPSC core surgical competencies list.[5,6] The survey first addressed physician baseline demographics, including level of training and current practice. The main portion of the survey asked respondents to review common endoscopic procedures and to assign them to one of three skill levels, as defined below:

1. Graduating resident level: gynaecologist with no extra post-residency training;
2. Fellowship level: gynaecologist with additional post-residency training in minimally invasive gynaecologic surgery; and
3. Advanced MIS surgeon: experienced tertiary care gynaecologist with expert skills in endoscopic surgical techniques and minimally invasive gynaecologic surgery.

The survey was developed in English and translated into French. The bilingual introduction letter and survey were pilot-tested among residents, fellows, and practising gynaecologists in the Ottawa region for face validity and content validity. The electronic version of the survey was created using the SurveyMonkey online web survey system (SurveyMonkey.com, Palo Alto, CA) and distributed via the Society of Obstetricians and Gynaecologist of Canada to all obstetrician-gynaecologist members who agreed to participate in surveys sanctioned by the Society. The initial survey was sent on June 7, 2012, to 775 physicians, and a reminder was sent two weeks later. As an incentive for survey completion, those who completed the survey were prompted to enter a draw for gift certificates. The survey introduction letter contained details about the survey background and objectives, and participant consent was implied by their following the link to the questionnaire.

Survey response data were compiled, codified, and entered into a survey database. Data analysis was performed using SAS statistical software version 9.2 (SAS Institute Inc., Cary, NC). To determine differences among groups, statistical significance was calculated using chi-square tests and set at $P < 0.05$.

Ethics approval was obtained from The Ottawa Hospital Research Ethics Board.

RESULTS

The survey was sent to 775 Canadian residents, fellows, and practising obstetrician-gynaecologists through the SOGC's electronic mailing list, and generated 301 responses (response rate 39%). Of the 301 responders, 133 (44%) were residents, 9 (3%) were fellows, and 147 (49%) were practising obstetrician-gynaecologists. Twelve responses (4%) were

ABBREVIATIONS

MIS	minimally invasive surgery
RCPSC	Royal College of Physicians and Surgeons of Canada

Table 1. Demographics

Characteristics	Trainees n (%)	Practising obstetrician-gynaecologists n (%)
Language	142	147
English	122 (85.9)	125 (85.0)
French	20 (14.1)	22 (15.0)
Age ($P < 0.01$)	141	147
< 30	80 (56.7)	0 (0.0)
30 to 49	59 (41.8)	95 (64.6)
≥ 50	2 (1.4)	52 (35.4)
Gender ($P < 0.01$)	141	147
Male	34 (24.1)	67 (45.6)
Female	107 (75.9)	80 (54.4)
Region	141	146
Atlantic provinces	3 (2.1)	13 (8.9)
Quebec	31 (22.0)	22 (15.1)
Ontario	74 (52.5)	79 (54.1)
Western provinces	33 (23.4)	32 (21.9)
PGY level	140	
Junior resident (PGY-1, 2, 3)	86 (61.4)	
Senior resident(PGY-4, 5)	45 (32.1)	
Fellow	9 (6.4)	
Type of practice	147	
General obstetrician-gynaecologist		81 (55.1)
Generalist obstetrician-gynaecologist with subspecialty interest		24 (16.3)
Trained subspecialist with generalist practice		19 (12.9)
Subspecialty only practice		23 (15.6)
Involvement in resident training		143
Yes		115 (80.4)
No		28 (19.6)

excluded from analysis because only the first question had been answered. Responses of residents and fellows were grouped as "trainees" because of the low number of fellows who completed the survey. Moreover, for the purpose of simplifying analysis, the "fellowship level" and "advanced MIS surgeon level" response options were combined into a single category: "fellowship trained MIS surgeon."

The demographic characteristics of the respondents are shown in Table 1. Trainees were significantly younger than practising physicians ($P < 0.01$) and more likely to be female ($P < 0.01$). There was no difference in the geographic distribution of respondents. Most of the residents who completed the survey (65%) were postgraduate year three level or higher. Of the practising physicians who completed the survey, most were general obstetrician-gynaecologists (55%) who worked in large cities (55%), had academic/university affiliation (63%), and had residents present at their site of practice (80%). The number of years in practice varied, with 43.5% of respondents having been in practice for less than 10 years, 28% for 10 to 20 years, and 29% for more than 20 years. The majority of practising obstetrician-gynaecologist respondents (73%) spent two to four work days per month in the operating room.

There was agreement among obstetrics and gynaecology trainees and practising physicians regarding the level of skill required to perform basic endoscopic procedures. The majority of all responders agreed that procedures such as various types of laparoscopic entry and minor laparoscopic and hysteroscopic procedure should be mastered by the completion of residency (Table 2). All

Table 2. "Graduating resident" level procedures: agreement among respondents (≥ 80%)

Laparoscopic entry
Veress (closed pre-insufflation)
Hasson (open entry technique)
Left upper quadrant
Laparoscopic procedures
Diagnostic
Sterilization
Salpingectomy/ostomy
Lysis of minor pelvic adhesions
Salpingo-oophorectomy
Ovarian cystectomy
Treatment of stage 1 to 2 endometriosis
Management of endometrioma
Myomectomy (pedunculated fibroid)
Laparoscopically assisted vaginal hysterectomy
Hysteroscopic procedures
Diagnostic
Polypectomy
Endometrial ablation (rollerball/resection/non-hysteroscopic)
Myomectomy (fibroid < 3 cm)
Cystoscopy

Table 3. "Fellowship trained MIS surgeon" level procedures: agreement among respondents (≥ 80%)

Laparoscopic procedures
Tubal reanastomosis
Presacral neurectomy
Utero-sacral nerve ablation
Retropubic urethropexy
Pelvic floor repair
Pelvic node dissection
Lysis of severe pelvic adhesions
Treatment of stage 4 (severe) endometriosis
Hysterectomy fibroid uterus > 12 weeks
Myomectomy of intramural fibroid

respondents agreed that cystoscopy should be within the skill set of a graduating resident.

There was also agreement among all respondents that certain advanced endoscopic procedures, including management of stage 4 endometriosis, intramural myomectomy, and hysterectomy involving a large fibroid uterus, should be performed by fellowship trained surgeons (Table 3).

Canadian obstetrics and gynaecology trainees and practising specialists had significantly different opinions about the skills required to perform certain endoscopic procedures (Table 4). With regard to hysterectomy, significantly more trainees than practising gynaecologists felt that total laparoscopic hysterectomy ($P < 0.01$), laparoscopic supracervical hysterectomy ($P < 0.05$), and laparoscopic removal of a fibroid uterus less than 12 weeks' size ($P < 0.01$) should be "graduating resident" level procedures. Moreover, although 61% of practising gynaecologists felt that appendectomy was a "fellowship trained MIS surgeon" level procedure, only 42% of trainees agreed; 38% of trainees felt that this should be a "graduating resident" level procedure ($P = 0.01$). Fifteen percent of trainees and 16% of gynaecologists felt that appendectomy should not be in the scope of practice of an obstetrician-gynaecologist. There were also significant differences in opinion about laparoscopic cystotomy and enterotomy repair. Forty-seven percent of trainees felt that cystotomy repair should be a "graduating resident" level procedure, while two thirds of practising gynaecologists (67%) felt this should be a "fellowship trained MIS surgeon" level procedure ($P < 0.01$). Only 8% of trainees and 7% of practising gynaecologists felt this procedure should not be in the scope of practice of an obstetrician-gynaecologist. Although most trainees and practising physicians agreed that enterotomy repair is a "fellowship trained MIS surgeon" level procedure, significantly more trainees (20%) than gynaecologists (9%) regarded this as a "graduating resident" level procedure ($P < 0.01$). Sixteen percent of trainees and 8.5% of practising gynaecologists felt that this procedure should not be in the scope of practice of an obstetrician-gynaecologist.

There were discrepancies in opinion regarding hysteroscopic septum resection and lysis of synechiae. Forty-eight percent of trainees felt that hysteroscopic septum resection should be a "graduating resident" level procedure, while most gynaecologists (70%) felt that this should be a "fellowship trained MIS surgeon" level procedure ($P < 0.01$).

Analysis by demographic variables revealed no significant difference by gender or province. For practising physicians, responses did not differ significantly according to the number of days per month spent in the operating room. Age and level of experience influenced responses, but not in a statistically significant manner: older respondents and senior residents seemed to favour "fellowship trained MIS surgeon" levels, while younger respondents and junior residents felt that more procedures should be skills mastered by graduating residents. Moreover, gynaecologists

Table 4. Endoscopic procedures with no consensus among respondents, n (% of responses)

Procedures	Graduating resident		Fellowship trained MIS surgeon		Unsure		Not in scope of obstetrician-gynaecologist		*P*
	Trainees	PG	Trainees	PG	Trainees	PG	Trainees	PG	
Laparoscopic hysterectomy									
Total laparoscopic hysterectomy	94 (71.8)	64 (45.4)	35 (26.7)	70 (49.6)	2 (1.5)	4 (2.8)	0.0	3 (2.1)	< 0.01
Laparoscopic supracervical hysterectomy (LASH)	89 (67.4)	73 (51.4)	38 (28.8)	61 (43.0)	5 (3.8)	7 (4.9)	0.0	1 (0.7)	< 0.05
Fibroid uterus ≤ 12 weeks	109 (83.2)	89 (62.7)	20 (15.3)	49 (34.5)	2 (1.5)	2 (1.4)	0.0	2 (1.4)	< 0.01
Laproscopic procedures									
Cystotomy repair	62 (47.3)	35 (24.8)	56 (42.8)	94 (66.7)	2 (1.52)	2 (1.4)	11 (8.4)	10 (7.1)	< 0.01
Enterotomy repair	26 (19.8)	12 (8.6)	76 (58.0)	112 (80.0)	8 (6.1)	4 (2.9)	21 (16.0)	12 (8.6)	< 0.01
Appendectomy	50 (37.9)	28 (20.0)	58 (43.9)	85 (60.7)	3 (2.3)	4 (2.9)	21 (15.9)	23 (16.4)	< 0.05
Hysteroscopic procedures									
Septum resection	63 (48.1)	39 (27.7)	61 (46.6)	98 (69.5)	7 (5.3)	2 (1.4)	0.0	2 (1.4)	< 0 .01
Lysis of synechiae (Asherman syndrome)	58 (43.9)	39 (27.7)	67 (50.8)	97 (68.8)	7 (5.3)	3 (2.1)	0.0	2 (1.4)	< 0.01

PG: practising gynaecologists

who had been in practice for a longer time tended to feel that more procedures required "fellowship trained MIS surgeon" level skills.

DISCUSSION

The RCPSC maintains a list of core surgical competencies that residents should master before entering independent practice.[5] With regard to endoscopic procedures, this list is very limited and provides little guidance for residents and their programs about which specific procedures should be mastered by the end of residency training. For example, total laparoscopic hysterectomy is not included on the RCPSC list. The only reference to laparoscopic hysterectomy is under the sub-heading "operative laparoscopy," which groups procedures such as laparoscopically assisted vaginal hysterectomy with the management of tubo-ovarian abscess and stage 3 endometriosis. Expert opinions have called for a national surgical curriculum and for providing some framework for surgical skills training, but such guidelines have yet to be developed.[6] Without a contemporary guide for residents and surgical teachers, there is no direction for training programs in Canada. Moreover, the role of fellowship training in minimally invasive surgical procedures cannot be defined without understanding what is expected of a general obstetrician-gynaecologist.

Our survey provides a novel perspective on the debate regarding the mastery of surgical skills by residents. Currently, there is no available information about the opinions of trainees and practising physicians in obstetrics and gynaecology regarding core skills for endoscopic surgical training programs. Our results show that Canadian obstetrics and gynaecology trainees and practising physicians agree on the skills required to perform many endoscopic procedures, most of which are basic laparoscopic and hysteroscopic procedures. The procedures that trainees and practising physicians agreed should require "graduating resident" level skills are also in agreement with the RCPSC's essential competencies list, "Surgical Procedures List A" (Table 5).[5]

The more important information extrapolated from the results is in the discrepancies of opinion regarding more advanced endoscopic skills. These include laparoscopic hysterectomy, laparoscopic cystotomy and enterotomy repair, and appendectomy. According to the RCPSC, "operative laparoscopy" appears on the Surgical Procedures List B (Table 5).[5] Our survey results reveal that the many trainees felt that such "operative laparoscopy" procedures, namely laparoscopic hysterectomy, should

Table 5. RCPSC Essential Competencies List definitions[5]

Surgical procedures	Definition
List A	Procedures that the fully trained resident in obstetrics and gynaecology must be competent to independently perform.
List B	Procedures that the fully trained resident in obstetrics and gynaecology will understand and be able to perform, though he/she may not have actually acquired sufficient skill in residency to independently perform them.
List C	Procedures the fully trained resident in obstetrics and gynaecology will understand but not be expected to be able to perform.

be within the skill set of a graduating resident, and therefore mastered by a practising gynaecologist without any extra surgical training. Practising gynaecologists were in disagreement, as the majority felt these procedures should be performed by a physician with fellowship level surgical training.

While the RCPSC does not include total laparoscopic hysterectomy in its list of competencies and places "laparoscopically assisted supra-cervical hysterectomy" on the Surgical Procedures List C (Table 5),[5] more than 70% of trainees felt that this procedure should be a "graduating resident" level procedure. Practising gynaecologists disagreed with trainees and listed total laparoscopic hysterectomy as a "fellowship trained MIS surgeon" skill. A possible explanation for this discrepancy is that laparoscopic hysterectomy is becoming a more common approach to hysterectomy that residents wish to master and perform in their practice. Residents may feel that the laparoscopic approach for various procedures is the standard of care and, if so, they will want to have the skills to perform hysterectomy via this approach as well. Another explanation could be that trainees have not seen many operative endoscopic procedures, and may not appreciate how complex these procedures can be.

The finding that age and level of experience seemed to influence responses, although not in a statistically significant manner, supports the theory that trainees may not fully appreciate the complexity and skill required to perform advanced endoscopic procedures. Older and more senior residents were more conservative in the number of procedures they thought a graduating resident should master, as were older practising physicians and those who had been in practice longer.

The distribution of results and opinions, even within each group of respondents, illustrates that clear guidance needs to be provided to our trainees and training programs regarding which endoscopic skills are required of a graduating resident. Resident expectations should match the reality of practising gynaecologists. To facilitate the harmonizing of expectations with reality of practice, specific skills and requirements for residency training must be defined.

The limitations of our study lie mainly in the fact that it was based on a survey, with potential for responder bias. However, only 33% of trainees and 18% of practising gynaecologists who responded to our survey expressed an interest in minimally invasive surgery; therefore, the majority of respondents had other interests and backgrounds. A further limitation is that the study population was mainly an academic population. Sixty-three percent of practising gynaecologist respondents had an affiliation with an academic hospital centre. However, because over 80% of them worked with residents regularly, whether in a community or tertiary centre, they were more likely to be familiar with current advanced endoscopic techniques and the realities facing contemporary residency training. Finally, the limitations of our study include the 39% response rate. Such a response rate holds an inherent error of ±7% to ±10% for each question asked.[7] This brings into question the validity of the responses. However, based on the number of respondents (142 trainees and 147 practising gynaecologists), analyses have revealed the chi-square statistics for each procedure in this survey are valid.

CONCLUSION

Although the RCPSC has developed a list of core surgical competencies residents should master before entering independent practice, our survey highlights the different expectations of learners and practising gynaecologists regarding the skills required to perform certain endoscopic procedures, specifically laparoscopic hysterectomy. This discordance between learners and practising specialists highlights an important educational challenge in surgical training in obstetrics and gynaecology, and further highlights the need for a contemporary Canadian gynaecologic endoscopy training curriculum. When resident expectations are matched with the deliverables,

residency programs can adequately prepare trainees for independent surgical practice with increased confidence in surgical skills and decreased need for fellowship training. There is a need for clear guidelines from training centres and from the national education leaders to clarify what is expected of residents, who should be performing specific procedures, and who should be teaching them. These are fundamental questions that must be answered if Canadian gynaecologic surgeons are to keep pace with the rapidly evolving endoscopic surgical practices.

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