Evaluation of Canadian family practice anesthesia training programs: can the Resident Logbook help?

Évaluation des programmes canadiens de formation en anesthésie pour les médecins de famille: le Resident Logbook peut-il aider?

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Abstract

Purpose Without a core curriculum for the training and evaluation of Canada's family practice anesthesiologists, little is known regarding the training process of these physicians. This article offers a description of the variety of cases and procedures experienced by family practice anesthesiology (FPA) residents during their training year based on records in the Resident Logbook.

Methods Data were extracted from the Resident Logbook, an online program wherein FPA residents across Canada record their daily activities. Data were extracted for four residents from 2009/2010 and four from 2010/2011 who had recorded the largest number of patient encounters for the academic year. Medians were calculated for cases and procedures relevant to the practice of a family practice anesthesiologist.

Results Residents in FPA use the Resident Logbook inconsistently. The trainees we selected entered a median

of 1,418 encounters for 2009/2010 and 1,074 for 2010/2011. Residents appear to have most of their clinical encounters with cases and procedures relevant to FPA. There is still a need, though, to improve areas previously cited as requiring augmentation, such as trauma management and peripheral nerve blocks.

Conclusions Although FPA residents use the Resident Logbook inconsistently, the data obtained offer an initial description of the composition of the FPA training year. We believe that the Resident Logbook offers an excellent tool for furthering the goal of a standardized curriculum and assessment program for FPA training.

Résumé

Objectif Sans un programme d'études en anesthésiologie pour la formation et l'évaluation des médecins de famille au Canada, on sait peu de choses sur le processus de formation de ces médecins. Cet article propose une description de différents cas et procédures rencontrées par des médecins de famille résidents en anesthésiologie (FPA) au cours de leur année de formation à partir des entrées dans leur registre de travail du Resident Logbook.

Méthodes Les données ont été tirées du Resident Logbook (le registre de travail des résidents), un programme en ligne grâce auquel les résidents en FPA enregistrent leurs activités quotidiennes. Les données ont été extraites pour quatre résidents en 2009/2010 et pour quatre autres en 2010/2011 qui avaient enregistré le plus grand nombre de rencontres avec des patients pendant l'année universitaire. Des valeurs médianes ont été calculées pour les cas et procédures pertinents pour la pratique de l'anesthésie en médecine familiale.

Résultats Les résidents en FPA ont utilisé le Resident Logbook de façon irrégulière. Les stagiaires que nous avons sélectionnés avaient saisi une médiane de 1418

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contacts pour 2009/2010 et 1074 pour 2010/2011. Il semble que la majorité des contacts cliniques des résidents concernaient des cas et procédures en rapport avec la FPA. Il existe néanmoins toujours une nécessité d'amélioration dans des domaines précédemment cités comme la gestion des traumatismes et les blocs nerveux périphériques.

Conclusions *Même si les résidents en FPA utilisent de façon irrégulière le Resident Logbook, les données obtenues offrent une première description du contenu de leur année de formation en FPA. Nous pensons que le Resident Logbook constitue un excellent outil pour faire avancer l'objectif d'un programme d'études standardisé et d'un programme d'évaluation de la formation en FPA.*

Without a standardized core curriculum for the training and evaluation of Canada's family practice anesthetists, little can be known about the training process of these physicians. On two occasions in recent history, stakeholder meetings were convened to consider Canada's family practice anesthesiology (FPA) training programs. In 1988, the Canadian Medical Association hosted an invitational committee chaired by Dean William Weber of UBC.^A Again, in 2001, the Society of Rural Physicians of Canada (SRPC), the College of Family Physicians of Canada (CFPC), and the Canadian Anesthesiologists Society (CAS) coauthored a joint position paper (JPP) on training for rural family physicians in anesthesia.¹ In both instances, the stimulus to convene these meetings was the perception among experts and evidence that FPA training programs could be improved.

The 1988 meetings published a generic curriculum for the training of family practice anesthetists that was endorsed in 2001 in the JPP. The JPP concluded that, "Rural Canada is poorly served by its present system of isolated, independent training programs for FPAs. Training programs in Family Practice Anesthesiology should be nationally accredited and should provide successful trainees with verification of their qualifications based on national standards and will be portable across Canada."

Recognizing that implementation of these recommendations would require continued collaboration between the SRPC, the CFPC, and the CAS, the Collaborative Committee on Anesthesia (CCA) was formed. Among its goals was supporting the development of national standards and training for family practice anesthetists.² Over the next

several years, the CCA evolved into the Collaborative Advisory Group for General and Family Practice Anesthesia (CAGA), which was housed within the CFPC. The CAGA was mandated to represent the interests of family practice anesthetists and to encourage discussion about issues relevant to the speciality.³

After 23 years, national meetings, and serious efforts at collaboration, there is still no national curriculum or assessment program. The College of Family Physicians has established standards of accreditation for FPA training programs, as published in the "Red Book." However these standards function as guiding principles, not formalized curricula.⁴ In addition, not all FPA programs are accredited, nor does an assessment program for graduates exist ensuring that trainees have met the standards outlined in the Red Book. Family practice anesthesiology programs are still isolated "independent training programs."¹

The use of a logbook in which trainees record their clinic experiences has emerged as a tool in medical education.⁵ In Royal College anesthesiology residency programs, residents record their daily cases/procedures using an online tool created by the Association of the Canadian University Departments of Anesthesiology (ACUDA) called the Resident Logbook. This Logbook (www.residentlogbook.com) allows residents to self-monitor the breadth of their experience. It can also be used by educators to track a resident's exposure to the core competencies identified in a national curriculum⁶ and for interprogram comparisons of case loads when there are sufficient numbers of entries by the residents. Although use of the Resident Logbook is an established practice in the specialty anesthesia programs, its use remains informal and voluntary in FPA training programs.

Using case and procedure volumes reported in the Resident Logbook, this article provides the first description of the number of cases/procedures performed during one year of training in a sample of FPA training programs in Canada. The cases and procedures residents encounter during their training year are related to the practice profiles of family practice anesthetists in Canada as reported in the published literature.

Methods

The Queen's Health Science Research Ethics Board approved this study in October 2011 (REF #6006312).

A computer programmer familiar with the Resident Logbook extracted data for FPA residents across Canada for the academic years 2009/2010 and 2010/2011. Family practice anesthesiology residents were ranked based on the number of clinical encounters they entered in the Resident Logbook during a year of training. For the purpose of this

^A Weber W, Chair. Report of the invitational meetings on the training of general practitioner/family physicians to provide anesthetic services. In: Reports to the General Council of the Canadian Medical Association, Appendix B. Canadian Association Annual Meeting, August 1988, Vancouver.

study, a clinical encounter was defined as an entry in the logbook of a surgical case for which anesthesia was provided, and/or a regional anesthetic was performed, and/or an airway was managed, and/or a monitoring procedure (i.e., central/arterial line) was performed. For example, if a resident provided an anesthetic for a laparotomy that required oral intubation and an arterial line, it would be analyzed as three encounters (anesthetic for general surgery, oral intubation, arterial line placement).

The quality of data obtained from the Resident Logbook depends on the consistency of a resident's daily recordings; hence, the number of clinical cases logged was used as a measure of how reliably their entries reflected the comprehensiveness of their training program. Looking at all FPA programs in Canada, data were extracted for four residents from each academic year who entered the most data. As there was a significant difference in the number of entries between these eight entrants and their cohorts, it was decided to choose these eight. The data from these eight residents were used to calculate medians for cases and procedures encountered during an FPA training year. The results are displayed in Tables 3–5.

We extracted data that focused particularly on those cases and procedures relevant to the practice of a family practice anesthetist (Table 1) and areas that have been cited as requiring augmentation during FPA training (Table 2). A search of the literature identified airway procedures, central neuraxial techniques, and cases for general surgery, gynecology, obstetrics, orthopedics, ophthalmology, and ear-nose-throat (ENT) procedures as being central to the practice of a family practice anesthetist.^{7,8} A survey of family practice anesthetists trained in Ontario showed that trauma care/resuscitation, peripheral nerve blocks, and chronic pain were areas that require additional focus during training.⁹

If there were no entries listed under a specific category, we assumed it meant that the resident had no exposures to this procedure/anesthetic in their training.

Table 1 Top procedures and cases undertaken by Family Practice Anesthetists in Canada^{7,8}

General Surgery
Endoscopy
Herniorrhaphy
Appendectomy
Gynecology
Dilation and curettage
Obstetrics
Cesarean delivery
Orthopedics
Dental
Ophthalmology

Table 2 Procedures and cases cited as requiring augmentation during FPA training⁹

Pediatrics
Neonatal medicine
Trauma management
Regional blocks
Chronic pain
Intensive care

FPA = family practice anesthesiology

Results

Data were extracted for seven FPA residents from across Canada who had the most recordings during the academic year in question. One resident was ranked as a top recorder in both the 2009/2010 and 2010/2011 academic years owing to a training period that, although only a year in length, spanned two academic years. These data were included only once in the calculations. Three residents were from Queen's University, three were from the University of Ottawa, and one was from the University of Saskatchewan.

The median numbers of encounters entered by the top four recorders were 1,418 during 2009/2010 and 1,074 during 2010/2011. We attribute this variation to incomplete recording, not to the number of clinical exposures. There was a large variation among the number of encounters recorded by FPA residents, with some residents logging fewer than 100 encounters during the year. This suggests that not all FPA residents use the Resident Logbook, and when used the documentation is usually incomplete.

The yearly median numbers of cases recorded by FPA residents during their training year are shown in Table 3. For the top cases and procedures prevalent in the practice of a family practice anesthetist (Table 1), residents had substantial exposure during their training. In descending order of exposure, residents undertook more than 60 cases in each of obstetrics, orthopedics, general surgery, and ENT. There was less exposure to gynecological (35 cases), urological (30 cases), and dental (12 cases) surgeries. Residents had the least experience with ophthalmology, seeing a median of only five cases per year. Of those five cases, four were for strabismus repair.

Techniques used by family practice anesthetists include general and regional anesthesia.⁷ For general anesthesia, residents had considerable exposure to airway procedures (Table 4), documenting a median of 391. Most of the exposures consisted of standard oral intubations ($n = 127$) and laryngeal mask airways ($n = 103$). Residents were exposed to alternative airway techniques, including nasal

Table 3 Clinical cases recorded by FPA residents 2009-2011, listed by speciality

Procedure	Median 2009-2011 (min, max)
ENT	62 (37, 115)
Dental	12 (0, 49)
General surgery	76 (30, 161)
Gynecology	35 (20, 86)
Orthopedics	91 (55, 143)
Urogenital	30 (20, 49)
Ophthalmology	5 (0, 20)
Obstetrics	121 (44, 208)
Labour analgesia	72 (32, 124)
Operative delivery	34 (11, 54)
Cesarean delivery	33 (8, 51)
Cesarean delivery and hysterectomy	0 (0, 1)
Forceps/instrumental delivery	1 (0, 3)
Chronic pain	0 (0, 6)

FPA = family practice anesthesiology; ENT = ear-nose-throat

Table 4 Airway procedures recorded by FPA residents 2009-2011

Procedure	Median 2009-2011 (min, max)
Standard oral intubation	127 (94, 279)
Laryngeal mask airway	103 (42, 130)
Nasal intubation	23 (13, 47)
Inhalational induction	34 (10, 81)
Mask ventilation (no airway)	24 (7, 42)
Rapid sequence induction	39 (18, 65)
Special oral intubation	19 (5, 41)
Glidescope	9 (2, 23)
Fibreoptic bronchoscope	2 (0, 8)
Lighted stylet	3 (0, 8)

FPA = family practice anesthesiology

intubation or the use of a glidescope, a lighted stylet, or fibreoptic bronchoscope, but these encounters were more limited.

Residents had many opportunities to use central regional anesthetic techniques, reporting a median of 99 epidurals and 58 subarachnoid blocks (Table 5). There were fewer exposures to peripheral nerve blocks, with brachial plexus blocks being the most commonly performed ($n = 4$).

Many family practice anesthesiologists are involved in providing analgesia and anesthesia for intrapartum care.⁷⁻⁹ Residents reported being involved in 72 cases of analgesia during labour. For operative delivery, residents reported a median of 34 cases, most of which were Cesarean deliveries (33 cases).

Table 5 Yearly regional procedures recorded by FPA residents 2009-2011

Regional procedure	Median 2009-2011 (min, max)
Subarachnoid block	58 (42, 147)
Epidural	99 (73, 172)
Brachial plexus block	4 (0, 14)
Ankle block	1 (0, 2)
Bier block	1 (0, 2)

FPA = family practice anesthesiology

Residents still have limited experience with cases and procedures previously cited as requiring augmentation during training (Table 2). Although data are not available for pediatrics, neonatal care, or intensive care, residents reported few exposures to regional blocks, trauma management, or chronic pain. Residents undertook a median of only six resuscitations during their training year: three for cardiac problems (advanced cardiac life support) and three for trauma care (advanced trauma life support). Most of the cardiac resuscitations were done on adults (three cases), with a median of zero cases involving children and zero involving neonates. There was a median of zero exposures to cases of chronic pain during training. Only one resident recorded exposure to a case of chronic pain (six encounters); epidural steroid injections were given in each case.

Discussion

We have documented the yearly average number of cases/procedures encountered by FPA residents based on their recordings in the Resident Logbook. Although residents appear to have substantial exposure to most cases, procedures, and techniques common to the practice of a family practice anesthesiologist (Table 1), there are still gaps in areas previously cited as requiring augmentation (Table 2).

Additionally, we found the Resident Logbook to be underutilized by FPA residents. Canada has approximately 14 training positions each year,^A but few of the residents during the study period registered enough data in the Resident Logbook to indicate any attempt at completeness.

The context for these findings is an observation that the arena of the family practice anesthesiologist is changing. Perhaps it is associated with the closure of many of rural Canada's small surgical programs.^B Traditionally, family practice anesthesiologists worked in small communities and balanced their time in the operating room with a full

^B Proceedings of the invitational meeting on rural surgical services, June 2007, Vancouver, BC. Vancouver: Centre for Rural Health Research, 2008.

service family practice.^{10,B} These doctors comprised the family practice anesthetists described in the JPP. A pilot survey of 10 family practice anesthetists in Ontario, conducted at Queen's University, was completed in 2010.^C Five of the six family practice anesthetists in that survey who were trained during the last five years reported that anesthesia comprised more than 80% of their practice. Also, with more practice time dedicated to anesthesia in larger surgical programs, they appeared to be undertaking more complex cases, with one family practice anesthetist reporting a practice that includes neurosurgical (spinal) cases.

If programs are now training full-time family practice anesthesiologists for a more advanced scope of practice, it has large implications for our training programs. It is even more important that training institutions establish a standardized curriculum and a formalized assessment process appropriate to the modern practice profiles of family practice anesthetists. Although the consensus of experts has repeatedly recommended this change, it has yet to be implemented.

In the authors' view, the current training programs for family practice anesthetists struggle with two problems.

1. Faculty in training programs need documentation or verification of the training provided. More consistent reporting (? mandatory) in the Logbook can help with this.
2. With the possibility that the practice profiles of family practice anesthetists have changed, it may not be clear what the goals of training should be for them. Research on the current demographics and practice profiles of Canada's family practice anesthetists is needed.

We acknowledge important limitations to this study. We must be cautious in drawing conclusions from the recorded experiences of seven residents in three training programs. Use of the Resident Logbook is encouraged by FPA program directors, but it is not a mandatory requirement for successful completion of the program. Thus, all data from each resident per year is likely an underreporting of the true number of cases/procedures accomplished. In addition, residents may vary in their recording practice in the Resident Logbook. Some residents might record every exposure to a certain procedure/anesthetic, whereas others record only their first. Still others likely have recording habits that lie somewhere between these two extremes.

Individual experiences vary by resident and by training program, and the volumes of cases/procedures reported herein do not represent those of all trainees. There appears

to be considerable opportunity for increased utilization of the Logbook by FPA residents, but until this happens there will be no opportunity to examine a trainee's exposures or the variations among FPA training programs.

Although we have documented the number of experiences of a few residents, we are not able to comment on the adequacy of this exposure. Whereas specialist anesthesia programs have established a national curriculum with essential areas of competence that residents should meet during their five years of training,⁶ these areas are not addressed in most FPA programs.

In the absence of a national training curriculum, the Resident Logbook offers a means of documenting what Canada's FPA residents are experiencing in their training programs. Although their utilization of the Resident Logbook is inconsistent, what evidence there is appears to confirm that training is appropriate to the historical profiles of what family practice anesthetists will encounter. The programs are still struggling, however, in areas previously cited as requiring augmentation. With the role of today's family practice anesthetist likely expanding, the Resident Logbook offers an excellent tool for furthering the goal of a standardized curriculum and assessment program for FPA training.

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