

National survey of Canadian ophthalmology residency education

Kim Le, MD, MPH,* Lulu Bursztyl, MD, FRCSC,[†] Daniel Rootman, MD, MS, FRCSC,[‡] Mona Harissi-Dagher, MD, DABO, FRCSC[§]

ABSTRACT • RÉSUMÉ

Objective: To describe the current clinical, surgical, and other educational activities of Canadian ophthalmology residents.

Design: Cross-sectional study.

Participants: Canadian ophthalmology residents postgraduate year (PGY) 2 to 5.

Methods: An online survey was sent to residents in 2011 and 2014. The data sets were merged and analyzed using descriptive statistics.

Results: The response rate was 41% with an equal distribution across sexes and PGY level. Residents from each program responded. Clinical rotations were led by emergency and comprehensive ophthalmology. The least number of days were spent in oncology, refractive, and low-vision clinics. The mean number of full cases performed by PGY5 was 324 cataracts, 9 trabeculectomies, and 48 horizontal muscles. Most PGY2 to PGY5 students performed more than 10 laser procedures of each type surveyed. Subspecialty surgical volumes varied and were lowest for scleral buckle, refractive laser, penetrating keratoplasty, and floor fracture. The majority of residents received up to 10 hours per week of teaching and 4 to 6 weeks of Royal College study time. Most respondents attended at least 1 funded conference annually and met with program directors twice a year. Research time and grand rounds presentations varied greatly. Forty-six percent of residents had fellowship plans.

Conclusions: This study describes the current clinical, surgical, and other educational activities across Canadian ophthalmology residency programs. The data allows individual programs to evaluate their training models in relation to broader national trends.

Objectif : Cette étude a pour but de décrire les activités cliniques, chirurgicales et autres activités éducatives des résidents en ophtalmologie canadiens.

Nature : Participants à l'étude transversale : Des résidents en ophtalmologie canadiens de la 2e à la 5e année de formation postdoctorale (FPD).

Méthodes : Un sondage en ligne a été envoyé aux résidents en 2011 et en 2014. Les ensembles de données ont été fusionnés et analysés à l'aide de statistiques descriptives.

Résultats : Le taux de réponse a été de 41 %, et la répartition était égale entre les sexes et le niveau de FPD. Des résidents de chaque programme ont répondu. Les stages cliniques ont surtout été effectués dans des cliniques d'urgence ophtalmologique et en ophtalmologie générale. C'est en oncologie, en chirurgie réfractive et dans les cliniques de basse vision qu'ils ont passé le moins de jours de stage. Le nombre moyen de cas complets effectués par les FPD5 est de 324 cataractes, 9 trabéculéctomies et 48 chirurgies des muscles horizontaux. La plupart des résidents de la FPD2 à la FPD5 ont réalisé plus de 10 interventions au laser de chacun des types précisés dans le sondage. Le nombre d'interventions chirurgicales subspecialisées était variable, les moins fréquentes étant la boucle sclérale, la chirurgie réfractive au laser, la kératoplastie transfixiante et la fracture du plancher orbitaire. La majorité des résidents ont reçu jusqu'à 10 heures par semaine d'enseignement et de 4 à 6 semaines de temps d'étude du Collège royal. La plupart des répondants ont assisté à au moins un congrès subventionné par année et ont rencontré leurs directeurs de programme deux fois l'an. Le temps consacré à la recherche et aux réunions scientifiques départementales varie considérablement d'une personne à l'autre. 46 % des résidents prévoient faire un stage postdoctoral (fellowship).

Conclusions : Notre étude décrit les activités cliniques, chirurgicales et autres activités éducatives des résidents des programmes d'ophtalmologie du Canada. Les données recueillies permettront aux programmes d'évaluer leurs modèles de formation par rapport aux grandes tendances nationales.

Canadian ophthalmology residents and educators spend 5 years actively engaged in the complex process of clinical and surgical training, yet sparse information about their experiences is available in the medical education literature. Some studies address resident satisfaction,¹ job placements,²⁻⁴ surgical simulation,⁵ and the residency application process,^{6,7} but details about clinical rotations and procedural volumes are lacking. In the United States, the Accreditation Council for Graduate Medical Education (ACGME) requires each resident to perform a minimum

number of core surgeries during residency. In contrast, each Canadian program determines its own curriculum under the guidance of the Royal College of Physicians and Surgeons of Canada (RCPSC); there is no threshold number of surgeries needed to graduate. Although Canadian postgraduate surgical programs are among the strongest in the world,^{8,9} publishing national data enables individuals, programs, departments, and universities to evaluate their education in relation to broader national trends.

The Council of Canadian Ophthalmology Residents (CCOR), a committee of the Canadian Ophthalmological Society (COS), has resident representatives from each Canadian ophthalmology residency program. The medical education research subcommittee was created to conduct needs assessments. Its first publication compared external course participation among Canadian ophthalmology residents.¹⁰ This committee has executed two national surveys, in 2011 and 2014, concerning the clinical, surgical, and general training environment for ophthalmology residents. The present study summarizes findings from these surveys.

METHODS

In this cross-sectional observational study, two cohorts of Canadian ophthalmology residents were surveyed in 2011 and 2014, respectively. A survey instrument was constructed consisting of 10 sections. These sections included questions assessing various aspects of individual training environments and future training plans. The questions related to resident demographics; length of clinical rotations; number of procedures performed as primary surgeon; time spent on research, teaching, and studying; conference attendance; grand rounds presentations; meetings with the program director; and fellowship plans.

All postgraduate year (PGY) 2 to 5 residents enrolled in a Canadian ophthalmology program were invited via email to participate in this web-based survey. Responses collected from 2011 and 2014 were merged and analyzed using descriptive statistics. Subgroup analysis was performed on the PGY5 residents for the surgical volume questions; these results are presented separately.

RESULTS

Baseline characteristics of the 129 respondents were similar for 2011 and 2014 and are displayed in [Table 1](#). The overall response rate from individual residents was 41%; however, 100% of the residency programs were represented. Sex and PGY distribution were equal, and the average age of respondents was 29 years. Responses from the 29 PGY5 residents were used for surgical volume subgroup analysis.

Clinical rotations

Residents indicated how much time was devoted to each subspecialty block over the entire course of residency. Emergency “red eye” clinics and general ophthalmology rotations occupied the greatest amount of training time, with a mean of 8.9 and 6.7 months, respectively. Most subspecialty rotations including glaucoma, retina, cornea, and oculoplastics averaged 3 to 4 months, with more time spent in pediatrics and less time spent in neuro-ophthalmology. One month or less on average was

Table 1—Baseline Characteristics of Respondents

	All N=129	2011 n=71	2014 n=58
Postgraduate year, n			
2	29	18	11
3	37	21	16
4	34	17	17
5	29	15	14
Age, mean (SD)	29 (2)	29 (2)	-
Sex, n			
Male	65	35	30
Female	64	36	28
Program, n			
Alberta	8	6	2
British Columbia	12	4	8
Calgary	7	4	3
Dalhousie	6	3	3
Laval	10	8	2
Manitoba	2	0	2
McGill	14	6	8
McMaster	2	2	0
Montréal	8	3	5
Ottawa	7	4	3
Queen's	7	5	2
Saskatchewan	8	5	3
Sherbrooke	6	4	2
Toronto	25	15	10
Western	7	2	5

dedicated to uveitis, pathology, oncology, refractive surgery, and low vision. Refer to [Fig. 1](#) for the mean duration of each rotation.

Surgical volumes

Residents reported the number of core laser procedures completed at the time of the survey, which is displayed in [Figure 2A](#). The majority had already performed 10 to 49 of each of the following: yttrium aluminum garnet (YAG) capsulotomies, YAG peripheral iridotomies, panretinal photocoagulation (PRP), and barrier of retinal tears. Slightly fewer Argon laser trabeculoplasties (ALTs) or selective laser trabeculoplasties (SLTs) had been completed compared with the other laser procedures. Subgroup analysis in [Figure 2B](#) showed that by PGY5, 62% had done 10 to 49 ALTs or SLTs, 10% to 45% had completed more than 50 procedures across laser categories, and less than 14% reported fewer than 5 lasers across categories.

The core surgeries outlined by ACGME, including cataract extraction, trabeculectomies, and horizontal muscles, are seen in [Table 2](#). At the time of the survey for PGY2 to PGY5 respondents, the mean number of cataracts performed as primary surgeon was 101. The mean number was 3 for trabeculectomies and 24 for horizontal strabismus surgery. Subgroup analysis of PGY5s revealed a mean of 324 cataracts, 9 trabeculectomies, and 48 horizontal muscle surgeries performed over the course of residency.

As highlighted in [Figure 3A](#), with respect to non-laser retinal procedures, residents had ample experience performing intravitreal injections (most had performed 10 to 49); however, they performed relatively few core

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