

Canadian ophthalmology resident experience during the COVID-19 pandemic

The ongoing worldwide pandemic of coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has greatly affected our lives. At the time of writing this report, there have been 18 166 298 confirmed cases and 690 953 deaths worldwide owing to SARS-CoV-2, with 118 966 cases and 8995 deaths in Canada.¹

During the height of the pandemic in Canada, from March to June 2020, the federal government initiated policies and procedures to limit the spread of SARS-CoV-2, such as restricting travel, encouraging the use of face masks in public areas, and providing financial benefits for those unable to work.² Only persons providing essential services (i.e., health care workers, police, firefighters) continued to actively work in the field, often in challenging conditions, and at risk to themselves and their families.

Resident physicians specializing in ophthalmology were among the health care workers on the front lines, but with a shift in practice patterns owing to a reduction in ambulatory clinics, the shutdown of elective surgeries, and the transitioning from in-person group teaching to online formats. To our knowledge, there has not been a formal assessment of the impact of the pandemic on ophthalmology residents. The purpose of this study was to provide an overview of this impact on ophthalmology residents across Canada, from the resident perspective.

A cross-sectional survey study was conducted. All ophthalmology residents in Canada (N = 217) were emailed a short, anonymous survey (Google Forms), from May 6 to June 13, 2020.

The survey was created to assess the ophthalmology resident experience during the COVID-19 pandemic. Themes included the availability/use of personal protective equipment (PPE), testing for the SARS-CoV-2 virus among residents, status of medical and surgical rotations, stressors related to the pandemic, coping strategies, and attitudes of residents regarding COVID-19. This survey was reviewed by 2 academic ophthalmologists and 2 senior ophthalmology residents. In our literature review, there were no similar, validated studies on this subject matter.

Survey data were exported to Microsoft Excel 2013 (Redmond, WA). All descriptive statistics were performed using Microsoft Excel.

Of 217 residents, 102 (47.0%) responded to the survey, representing residents from all 15 residency programs in Canada. Residents from all 5 years of training were equally represented. There was a greater proportion of residents from larger programs (>20 residents) who responded (>20

residents 37.3%, 11–15 residents 28.4%). Table 1 summarizes the survey findings.

There were 32 residents (31.4%) who were tested for SARS-CoV-2 during the 4 months of the study, of whom only 1 tested positive (1.0%). There were 20 residents (19.6%) who examined patients confirmed positive for SARS-CoV-2. Outbreaks of SARS-CoV-2 that resulted in other positive cases or preventative quarantines were present in the departments of 27 residents (26.5%). A small proportion of residents (4.9%) were assigned to work in a COVID unit for up to 1 month.

Most residents (93.0%) felt that they had adequate access to PPE. When examining symptomatic patients, residents either used gloves, gown, eye protection, and a surgical mask (42.2%) or used gloves, gown, eye protection, and an N95 mask (42.2%).

As of June 2020, most residents (51.0%) returned to their scheduled rotations, working at reduced volumes. At the time of survey completion, 65% of residents on surgical rotations had not operated in the previous 2 weeks.

The majority of residents were worried about being infected by SARS-CoV-2 (58% agree/strongly agree). Residents were also concerned about spreading the virus to patients (74% agree/strongly agree), or family and friends (86% agree/strongly agree). Residents felt isolated owing to social distancing measures (53% agree/strongly agree). Most residents had increased anxiety compared with before the pandemic (70% agree/strongly agree).

Furthermore, residents were concerned about their surgical skills deteriorating owing to the shutdowns (55% agree/strongly agree) but were less worried about losing clinical skills (43% agree/strongly agree). Most residents (51%) stated that they did not have access to a surgical simulator or wet lab to maintain their skills in the operating room. Senior residents were concerned about finding jobs and fellowships owing to COVID-19 (62% agree/strongly agree).

The majority of residents felt that they would receive sufficient training to become a competent ophthalmologist by the end of their residency (83% agree/strongly agree).

Residents had mostly positive coping strategies for their stress during the pandemic, including speaking regularly with family and close friends (69%), cooking (65%), exercising (60%), and spending time outside (54%). Negative coping strategies included increased alcohol intake (15%), use of sleeping aids (5%), and use of other substances (1%).

This survey revealed that a small proportion of residents were physically affected by SARS-CoV-2. A small proportion of residents were tested (31%), and only 1% of residents surveyed were confirmed positive for COVID-19. Reasons for this may be related to adequate availability/use of PPE as well as a low rate of examining COVID-

Table 1—Survey results of the resident experience during the COVID-19 pandemic in Canadian ophthalmology residency programs

Question	Residents, n	%
1. Which postgraduate year are you enrolled in? (n = 102)		
• PGY1	18	17.6
• PGY2	26	25.5
• PGY3	16	15.7
• PGY4	27	26.5
• PGY5	15	14.7
2. How do you identify your gender? (n = 102)		
• Male	51	50.0
• Female	50	49.0
• Prefer not to answer	1	1.0
3. How many residents are in your residency program? (n = 102)		
• 5 or less	13	12.7
• 6–10	17	16.7
• 11–15	29	28.4
• 16–20	5	4.9
• More than 20	38	37.3
4. Was there an outbreak of SARS-CoV-2 in your ophthalmology department? (i.e., confirmed positive case among staff/patient that resulted in other positive cases or preventative quarantines) (n = 102)		
• Yes	27	26.5
• No	75	73.5
5. Have you been tested for SARS-CoV-2 in the past 4 months? (n = 102)		
• Yes	32	31.4
• No	70	68.6
6. If you answered yes to the above question, did you test positive? (n = 32)		
• Yes	1	3.1
• No	31	96.9
7. Is there an adequate supply of PPE in your ophthalmology department for staff? (n = 102)		
• Yes	95	93.1
• No	7	6.9
8. Are all patients wearing masks in clinic? (n = 102)		
• Yes	68	66.7
• No	34	33.3
9. What PPE do you use to examine asymptomatic patients? (n = 101)		
• Gloves + face-shield/goggles + surgical mask	35	34.3
• Face-shield/goggles + surgical mask	25	24.5
• Gloves + surgical mask	18	17.6
• Gloves + gown + face-shield/goggles + surgical mask	12	11.8
• Surgical mask only	11	10.8
10. What PPE do you use to examine symptomatic patients? (n = 99)		
• Gloves + gown + face-shield/goggles + N95 or equivalent filtering system	42	41.2
• Gloves + gown + face-shield/goggles + surgical mask	42	41.2
• Gloves + face-shield/goggles + surgical mask	6	5.9
• Face-shield/goggles + surgical mask	3	2.9
• Have not examined symptomatic patients	4	3.9
• Gloves + surgical mask	1	1.0
• Surgical mask only	1	1.0
11. Have you examined a patient who was confirmed positive for SARS-CoV-2? (n = 102)		
• Yes	20	19.6
• No	82	80.4
12. For residents on surgical rotations, have you operated in the past 2 weeks? (n = 81)		
• Yes	28	34.6
• No	53	65.4
13. For residents on clinical rotations, what is the current status of clinical rotations at your hospital? (n = 96)		
• Residents returned to subspecialty clinic/scheduled rotation, reduced volume	52	51.0
• All residents emergency care only (red eye clinic), working in shifts (i.e., 1 week on, 1 week off)	29	28.4
• All residents on emergency care only (red eye clinic), working full time	8	7.8

(continued)

Table 1—Continued

Question	Residents, n	%
• Residents returned to subspecialty clinic/scheduled rotation, full volume	5	4.9
• Residents are not seeing patients	2	2.0
14. Have you worked in a COVID unit in the past 2 months? (n = 102)		
• Yes	5	4.9
• No	97	95.1
15. I am worried about catching SARS-CoV-2. (n = 102)		
• Strongly agree	9	8.8
• Agree	49	48.0
• Neutral	27	26.5
• Disagree	15	14.7
• Strongly disagree	2	2.0
16. I am worried about spreading SARS-CoV-2 to my family/friends. (n = 102)		
• Strongly agree	43	42.2
• Agree	45	44.1
• Neutral	7	6.9
• Disagree	4	3.9
• Strongly disagree	3	2.9
17. I am worried about spreading SARS-CoV-2 to my patients. (n = 102)		
• Strongly agree	28	27.5
• Agree	48	47.1
• Neutral	15	14.7
• Disagree	8	7.8
• Strongly disagree	3	2.9
18. I feel isolated owing to social distancing measures. (n = 102)		
• Strongly agree	14	13.7
• Agree	40	39.2
• Neutral	28	27.5
• Disagree	15	14.7
• Strongly disagree	5	4.9
19. My level of anxiety has been higher during the past 2 months (owing to changes related to COVID-19) compared with before the pandemic. (n = 102)		
• Strongly agree	5	4.9
• Agree	53	52.0
• Neutral	8	7.8
• Disagree	18	17.6
• Strongly disagree	18	17.6
20. I have done the following to cope with stress owing to the pandemic. (Please check all that apply)		
• No change	10	9.8
• Speak regularly with family and close friends	69	67.6
• Cook	66	64.7
• Exercise regularly	61	59.8
• Spend time outside	55	53.9
• Attend “Zoom parties”	39	38.2
• Increase alcohol intake	15	14.7
• Speak to a therapist/counsellor	9	8.8
• Use sleeping aids	5	4.9
• Speak to a religious figure	2	2.0
• Start prescription medications or modify existing medications	1	1.0
• Other: Using phone less (n = 1), spending time with dog (n = 1), recreational activities (n = 1), spending time with kids (n = 1), regular Zoom teaching webinars (n = 1), substance use (n = 1)		
21. How are you keeping up your clinical skills? (Check all that apply)		
• Reading American Academy of Ophthalmology Basic and Clinical Science Course Manuals	79	77.5
• Seeing patients in clinic	77	75.5
• Webinars	72	70.6
• Journal articles/research	49	48.0
• None of the above	0	0.0
22. How are you keeping up your surgical skills?		
• I have not had access to any of the above	52	51.0
• Actual cases in the operating room	21	20.6
• Surgical simulator (Eyesi)	20	19.6
• Practice in wet lab	19	18.6
• Other: Does not apply to me (n = 2), YouTube videos (n = 1), not doing anything (n = 1)		

(continued)

Table 1—Continued

Question	Residents, n	%
23. I worry that my clinical skills will deteriorate owing to the shutdown.		
• Strongly agree	2	2.0
• Agree	32	31.4
• Neutral	28	27.5
• Disagree	28	27.5
• Strongly disagree	12	11.8
24. I worry that my surgical skills will deteriorate owing to the shutdown.		
• Strongly agree	24	23.5
• Agree	34	33.3
• Neutral	19	18.6
• Disagree	9	8.8
• Strongly disagree	0	0.0
• Not applicable	16	15.7
25. For senior residents: I am worried about finding a job/fellowship owing to COVID-related shutdowns.		
• Strongly agree	18	34.6
• Agree	14	26.9
• Neutral	12	23.1
• Disagree	8	15.4
• Strongly disagree	0	0.0
26. I will get sufficient training to become a competent ophthalmologist by the end of my residency.		
• Strongly agree	28	27.5
• Agree	56	54.9
• Neutral	12	11.8
• Disagree	3	2.9
• Strongly disagree	3	2.9
27. I am concerned that I will have to repeat rotations owing to lost time during the pandemic.		
• Strongly agree	5	4.9
• Agree	27	26.5
• Neutral	25	24.5
• Disagree	37	36.3
• Strongly disagree	7	6.9
28. I expect that clinical and surgical volumes will be significantly increased by the end of summer, to the point where lack of exposure will not affect my training.		
• Strongly agree	10	9.8
• Agree	34	33.3
• Neutral	24	23.5
• Disagree	27	26.5
• Strongly disagree	7	6.9
PPE, personal protective equipment.		

19 positive/symptomatic patients. Despite the low prevalence of infection among residents, levels of anxiety were higher compared with before the pandemic. This is likely multifactorial and included anxiety related to contracting the virus, spreading it to family/friends, isolation owing to social distancing, and increased burden of working with PPE. Senior residents were the most affected by the pandemic, owing to reduction in surgical exposure caused by shutdowns in elective surgery, the travel restrictions for international fellowships, job stress, and the postponed Royal College examinations. Importantly, most residents stated that they did not have adequate availability of surgical simulation or access to a wet lab to maintain their

surgical skills. We recommend that this should be rapidly explored further by individual programs and rectified given the indeterminate timeline of the pandemic.

Thankfully, despite the added stressors and changes brought by the pandemic, there was guarded optimism among residents, with the feeling that they would have adequate training and be competent ophthalmologists by the end of their residency.

The 47.0% response rate, although high for national resident surveys,^{3,4} represents half of all residents, which limits generalizability of the results. As with most survey studies, information is subject to recall bias. There was more representation from larger programs in cities that had a larger prevalence of COVID-19.

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Originally received Sep. 1, 2020. Final revision Oct. 12, 2020. Accepted Oct. 20, 2020.

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Footnotes and Disclosure

We thank Dr. Majd Mustafa and Dr. Irfan Kherani for their help with survey review and distribution.

The authors have no proprietary or commercial interest in any materials discussed in this article.