
Survey on allied health personnel in Canadian ophthalmology: the scalpel for change

William F. Astle,* MD, FRCS(C), Dipl. ABO; Sherif El-Defrawy,† MD, PhD, FRCS(C);
G. Robert LaRoche,‡ MD, FRCS(C); Marc D. Lafontaine,§ COMT; Lynn D. Anderson,|| PhD;
Margaret Dukes¶; Inika Anderson**; Nicholas Weirens,|| MPNA

ABSTRACT • RÉSUMÉ

Objective: To determine the recruiting and training needs for ophthalmic medical personnel (OMP), assess the value of their certification, and compare the ophthalmic practice productivity and performance of non-certified and certified OMP, as rated by both ophthalmologists and OMP.

Design: Comparative analysis.

Participants: One hundred and sixteen Canadian ophthalmologists and 98 OMP.

Methods: An invitation to complete an online survey on OMP recruitment, training, certification, and productivity performance in a clinical setting was sent to 1081 ophthalmologists and OMP.

Results: Fifteen percent of ophthalmologists and 31% of OMP completed the survey. Ophthalmologists (61%) reported difficulty hiring OMP; employee referrals was the best method (40%). Awareness of formal OMP training programs was high and 50% of respondents supported developing additional training programs; 55% of OMP were encouraged by their employers to obtain certification. Personal challenge and achievement (79%) and improved skills (71%) were the main reasons for OMP to obtain certification. The majority of OMP and ophthalmologists felt that certified OMP enhanced most practice productivity measures. Higher wages associated with certification were reported by 73% of respondents.

Conclusions: Training of qualified OMP was identified as a need by ophthalmologists. Ophthalmic practices can increase their overall productivity by adding certified OMP to their staff.

Objet : Établir les besoins de recrutement et de formation du personnel médical en ophtalmologie (PMO), d'évaluer la valeur de leur agrément et de comparer la productivité et le rendement des membres du PMO avec et sans agrément, selon les ophtalmologistes et les membres du personnel.

Nature : Analyse comparative.

Participants : Cent seize ophtalmologistes canadiens et 98 membres du PMO.

Méthodes : Une invitation a été adressée à 1 081 ophtalmologistes et aux membres du PMO leur demandant de répondre à un sondage en ligne sur le recrutement, la formation, l'agrément et le rendement en milieu clinique.

Résultats : En tout, 15 % des ophtalmologistes et 31 % des membres du PMO ont répondu au sondage. 61 % des ophtalmologistes ont signalé la difficulté d'embaucher le PMO avec la meilleure méthode (40 %), soit les recommandations du personnel. La sensibilisation aux programmes officiels de formation du PMO était élevée et 50 % des répondants ont soutenu l'élaboration de programmes additionnels de formation. Plus de la moitié des membres du PMO (55 %) étaient encouragés par leurs employeurs à obtenir un agrément. Les principales raisons du PMO de rechercher l'agrément étaient le défi et la réalisation personnelle (79 %) et l'accroissement des compétences (71 %). Une majorité de membres du PMO et d'ophtalmologistes estimaient que le PMO contribuait davantage aux mesures de rentabilité de la plupart des cabinets alors que 73 % associeraient aussi la hausse salariale à l'agrément.

Conclusions : Les ophtalmologistes ont reconnu le besoin de former un PMO compétent. Les cabinets ophtalmologiques pourraient accroître leur productivité en augmentant leur personnel agréé.

The number of practicing ophthalmologists is decreasing in Canada, creating a tremendous obstacle for patient access to quality care and physician health care delivery options. This is of increasing concern as the baby boomers begin to enter retirement age, presenting a new challenge to the delivery of appropriate ophthalmic care. The suggested optimal ratio of ophthalmologists to population is 3.6:100 000.¹ However, the number of Canadian ophthalmologists is projected to decrease from 3.38:100 000 in 2006 to 3.07:100 000 by 2021.² With an expected increase in the

population aged ≥ 65 years comes an increase in patients requiring ophthalmic care; this will increase the ophthalmologist to patient ratio from 1:4301 in 2006 to 1:7576 in 2021.³

One way to improve care and patient access, mitigate the shortage of ophthalmologists, and expand health care delivery options is to enhance efficiency by increasing the number and use of ophthalmic medical personnel (OMP).⁴ Since the 1960s, the need for OMP and the increased productivity they bring to a practice has been recognized.^{5,6} Ophthalmologists recognize that, "with the increasing demand for eye care

From the *Alberta Children's Hospital, Calgary, Alta.; †Queen's University Hotel Dieu Hospital, Kingston, Ont.; ‡IWK-Grace Health Centre, Halifax, N.S.; §Focus Eye Centre, Ottawa, Ont.; ||Joint Commission on Allied Health Personnel in Ophthalmology Inc., St. Paul, Minn.; ¶Canadian Medical Association, Ottawa, Ont.; and **Canadian Ophthalmological Society, Ottawa, Ont.

Originally received Sep. 27, 2010. Final revision Dec. 16, 2010

Accepted Dec. 21, 2010

Available online Jan. 31, 2011

Correspondence to Lynn D. Anderson, PhD, JCAHPO, 2025 Woodlane Dr., St. Paul, MN 55125; landerson@jcahpo.org

Can J Ophthalmol 2011;46:28–34
doi:10.3129/i10-126

services and the realization that ophthalmic examinations are very technically oriented, OMP and their skills have become an important component of eye care delivery.⁷ While this is a potential solution, the challenge lies in recruiting, hiring, training, certifying, and retaining high-quality OMP who are high in demand, but low in numbers.

OMP are trained to perform medical and diagnostic tasks in an ophthalmic practice or hospital under the supervision of an ophthalmologist. OMP perform measurements, administer medications, and assist in patient care, in addition to their administrative duties. Furthermore, OMP play an important role in practice productivity. OMP can effectively complete the time-consuming gathering of data and information so that an ophthalmologist can diagnose and treat more patients.

Data on the effect of certified OMP on medical practice productivity is limited. However, a 2008 study on OMP, conducted by the Joint Commission on Allied Health Personnel in Ophthalmology (JCAHPO), reported that nearly 4 out of 5 ophthalmologists (79%) indicated that certified OMP made their practices more productive. Ophthalmologists believed that OMP had a significant impact on productivity in 5 key areas: triage screening, trouble-shooting rapport, doctor productivity, number of patients per hour, and effective patient flow.⁸

Our study was designed to obtain data from Canadian ophthalmologists and OMP on their perception of the following: hiring and recruiting OMP, the need for additional academic OMP training programs, productivity measures and observed comparisons between certified and non-certified OMP, OMP compensation, and reasons OMP become certified. The results provide a starting point for future initiatives aimed at establishing more formal training programs, encouraging OMP certification, and improving practice productivity and efficiency. The ultimate goal for efficient use of OMP is to enhance effective ophthalmic patient care for the benefit of patients and ophthalmology practices during these increasingly complex times.

METHODS

A joint task force formed by the JCAHPO, Canadian Ophthalmological Society (COS), Canadian Medical Association (CMA), and Canadian Society of Ophthalmic Medical Personnel (CSOMP) developed a survey based on a 2008 productivity study conducted by the JCAHPO. Two parallel surveys were designed for 2 target audiences, ophthalmologists and OMP, and were validated using input from focus groups consisting of ophthalmologists, clinic administrators, and experienced OMP. The parallel surveys were divided into 5 segments, with both surveys including questions on 3 segments: demographics, training, and productivity. Survey segments 4 and 5 differed in that ophthalmologists were asked questions on OMP recruiting and the need for OMP training programs, and

OMP were asked questions on the value of certification and compensation. The study's 9 productivity measures included patient satisfaction, doctor productivity, trouble-shooting rapport, triage screening, patient flow, reduced patient complaints, increased referrals, number of patients per hour, and patient follow-up. Ophthalmologists and OMP were asked whether non-certified or certified OMP contributed more to the practice for each productivity measure or whether there was no difference between the groups.

The Canadian ophthalmologist and OMP population sampled included the entire membership databases of COS ($n = 765$), CSOMP ($n = 50$), and JCAHPO Canadian certified OMP ($n = 266$) (Fig. 1). Currently, there are 1137 ophthalmologists in Canada; approximately 67% are COS members. All CSOMP members who work at a level of ophthalmic assisting were surveyed and 50% of those are certified at 1 of JCAHPO's 3 core levels and 50% are non-certified. Of JCAHPO's 266 Canadian certificants, 121 are certified ophthalmic assistants (COA), 79 are certified ophthalmic technicians (COT), and 66 are certified ophthalmic medical technologists (COMT). Duplicate OMP responses were addressed.

Invitations to complete the electronic surveys were sent to the population sample by email in March 2010. A second email request was sent 2 weeks later to those who had not responded. QuestionPro software was used for the survey and the types of questions included multiple choice single answer, open ended, select all that apply, and rank order responses.

RESULTS

The ophthalmologist survey, sent to 765 ophthalmologists, had a 15% completion rate which is approximately 10% of all Canadian ophthalmologists. The OMP survey, sent to 316 OMP, had a 31% completion rate with only 3% indicating that they are not certified. The CI of the study was $\pm 95\%$.

Ophthalmologist demographics

The majority (41%) of ophthalmologists who completed the survey were in the age range 50–59 years. Percentages for the other age ranges were 21% for both 34–41 years and 42–49 years, 14% for ≥ 60 years, and 3% for 26–33 years. The female:male ratio was 0.39:1; 28% of the respondents were female and 72% were male. In comparison, the estimated female:male ratio of Canadian ophthalmologists in 2005 was 0.22:1, with a higher ratio of 0.41:1 among ophthalmologists under the age of 45 years.⁹ Most of the respondents (44%) have practiced for ≥ 21 years, 31% for 11–20 years, and 25% for 1–10 years. Of the ophthalmologists sampled, 66% were in private solo or private group practices and 32% reported a hospital or university clinic setting. The majority (39%) were located in Ontario and 45% practiced in cities with a population $\geq 1\,000\,000$ (Table 1).

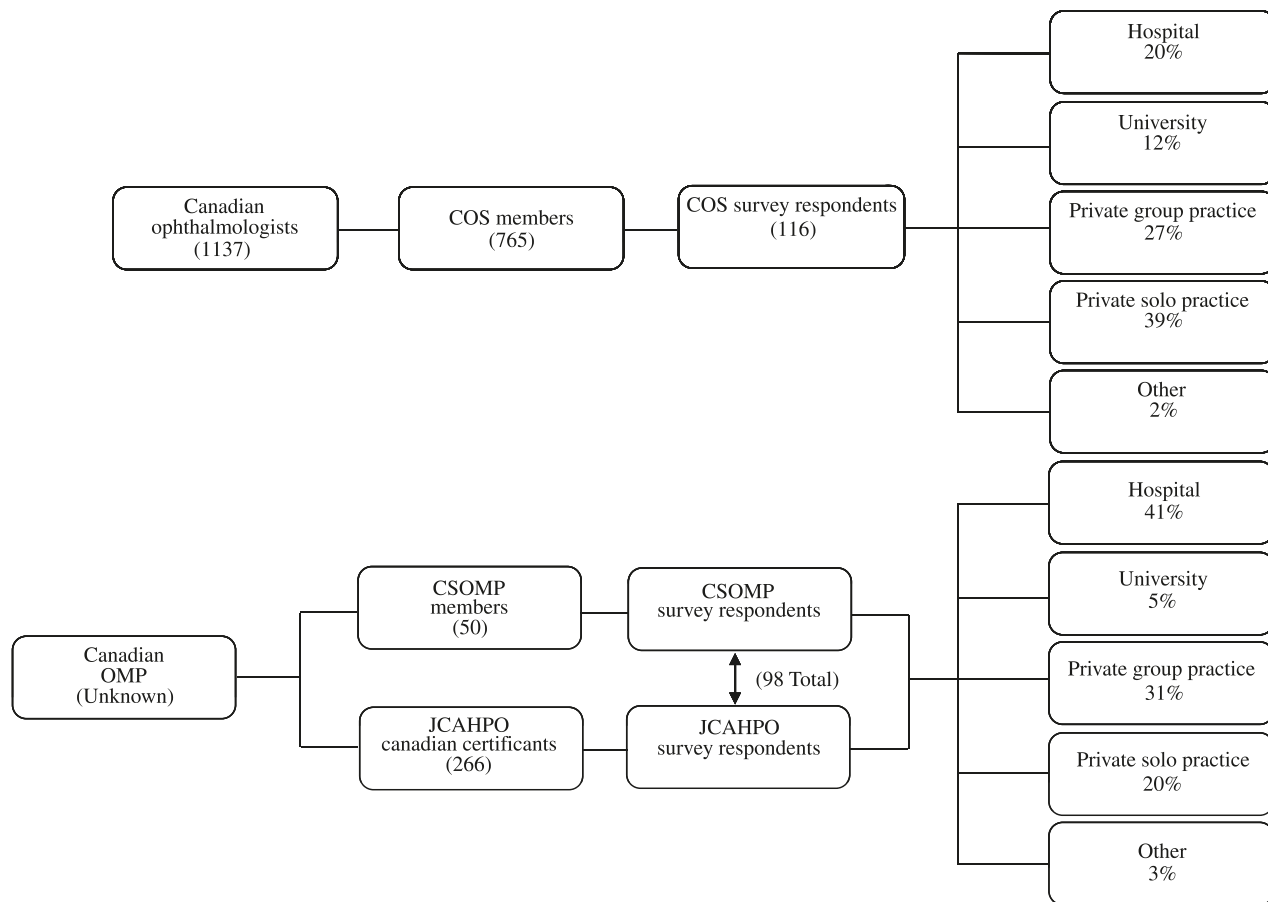


Fig. 1—Survey population and respondents.

A wide range of practices and staffing was represented. The majority of ophthalmologists (55%) described their practice specialty as comprehensive. No other specialty (glaucoma, pediatric/strabismus, retina, cornea, neuro-ophthalmology, uveitis, plastics, and refractive) was represented by more than

12% of respondents. When queried about secondary specialties, the largest respondent group indicated glaucoma (15%). The practices collectively represented a total of 473 ophthalmologists. The average number of ophthalmologists in a practice was 4.1, with a median of 2, and a maximum of 31.

The ophthalmologist respondents employed an average of 4 certified OMP (median 2) and 2.4 non-certified OMP for all practices, and OMP respondents reported that an average of 6 certified and 4 non-certified OMP were employed in all practices (Table 2). Table 2 also presents a breakdown of certified and non-certified OMP employed in private solo and group practices. The maximum number of OMP employed ranged from 12 non-certified OMP to 80 certified OMP.

On average, ophthalmologists see 6.5 patients per hour. Ophthalmologist respondents indicated that their OMP see 5.9 patients per hour on average.

OMP demographics

Of the 98 OMP respondents, 62% were 42–59 years of age, 19% were 34–41 years of age, 12% were 26–33 years of age, about 3% were in 18–25 years of age, and about 3% were ≥ 60 years of age. The majority of OMP were female (83%) and were employed in Ontario (37%). Table 1 shows geographic and population data.

Location	Ophthalmologist	OMP
Ontario	39%	37%
Alberta	16%	26%
British Columbia	13%	16%
Quebec	11%	1%
Nova Scotia	9%	11%
Manitoba	6%	0%
New Brunswick	2%	2%
Saskatchewan	2%	1%
Newfoundland	2%	0%
Prince Edward Island	1%	2%
Northwest Territories	0%	5%
Nunavut	0%	1%
Yukon	0%	0%
Population	Ophthalmologist	OMP
> 2 500 000	27%	6%
1 000 000–2 499 999	18%	30%
500 000–999 999	13%	14%
250 000–499 999	11%	13%
150 000–249 999	7%	9%
50 000–149 999	14%	18%
10 000–49 999	10%	11%

Note: OMP, ophthalmic medical personnel.

Of the respondents, 41% worked in a hospital setting, 31% in a private group practice, 20% in a private solo practice, and 8% in university clinics or other settings. Thirty-nine percent were employed in a comprehensive practice, 11% each in retina and refractive specialties, and 9% in pediatric/strabismus specialty practices. The majority (26%) reported that their employer did not have a secondary specialty, while comprehensive practice was reported by 21%.

OMP reported that 44% of their work week was dedicated to patient care and 25% to performing special testing and administrative duties. Other duties included performing A-scans, clerical work, teaching, training staff, surgical assisting, and equipment maintenance. While the vast majority of OMP (68%) do not play a supervisory role, 20% supervise 1–5 employees and 12% supervise ≥ 6 employees.

Almost all OMP respondents (97%) held some form of certification; 58% COA, 37% COT, 30% COMT, and 16% Certified Orthoptist. One-third of OMP (33%) indicated that they hold more than one certification from the major certification organizations, JCAHPO and Canadian Orthoptic Council (see Appendix 1 for certifications offered). All other ophthalmic certifications were held by < 6% of respondents and only 3% of respondents were not certified. Table 3 shows positions held by OMP respondents according to certification. Eighty-seven percent were employed full-time, 11% part-time, and 2% were unemployed.

Table 2—Number of OMP employed by ophthalmologists

	All practices (average)	All practices (median)	Private solo practice (average)	Private group practice (average)
Ophthalmologist response				
Certified	4	2	1	3
Non-certified	2	1	2	6
OMP response				
Certified	6	4	2	8
Non-certified	4	2	3	9

Note: OMP, ophthalmic medical personnel.

Table 3—Positions held by OMP according to certification

Task/job title	Certification			
	COA	COT	COMT	OC(C)
Tasks performed requiring certification	59%	52%	49%	44%
General ophthalmic tasks	38%	10%	10%	3%
Special testing	27%	16%	19%	5%
B-scan	27%	4%	15%	0%
A-scan	30%	17%	18%	7%
Visual field	35%	18%	15%	8%
Contact lens technician	13%	25%	13%	0
Photographer	27%	16%	16%	5%
Scribe	50%	13%	13%	0
Surgery scheduler	60%	0	7%	0
Clinic administrator	38%	10%	14%	10%
Management	23%	7%	27%	13%
Front desk	50%	13%	13%	0
Research	27%	18%	18%	9%
Billing	67%	0	11%	0%

Note: OMP, ophthalmic medical personnel; COA, certified ophthalmic assistant; COT, certified ophthalmic technician; COMT, certified ophthalmic medical technologist; OC(C), orthoptist.

OMP respondents are a highly educated and experienced cohort. Almost half (49%) reported ≥ 16 years of experience; 40% reported 6–15 years; and only 12% reported 1–5 years of experience. The vast majority (67%) have college diplomas or undergraduate degrees. Ten percent hold graduate (7%) or post-graduate (3%) degrees. Nearly half (46%) entered ophthalmic assisting through a formal training program. The remaining respondents completed independent study courses (Canadian 18%, American 10%), on-the-job training (12%), or a combination of both (14%).

OMP recruitment, hiring, and training

Ophthalmologists were also asked about expected changes to OMP staff size during the next year. The majority (74%) indicated they expected the number of OMP to stay the same. The number of OMP staff was expected to increase in 26% of the practices; this was evenly distributed between hospital-based practices, private group practices, and private solo practices. No respondent planned to decrease staff.

Sixty-one percent of ophthalmologists reported difficulty recruiting new OMP. Recruitment strategies most used by ophthalmologists were employee referrals (40%), newspapers (38%), colleague referrals (38%), social networking (26%), online advertising (25%), training programs (22%), and professional recruitment firms (6%). Twelve percent reported using other methods.

Ophthalmologists were highly aware of Canadian OMP training programs, with the average ophthalmologist being aware of 3.6 training programs (Fig. 2). Fifty percent of the ophthalmologists surveyed agreed that additional OMP training programs should be established; only 11% do not think additional programs are needed. Ophthalmologists

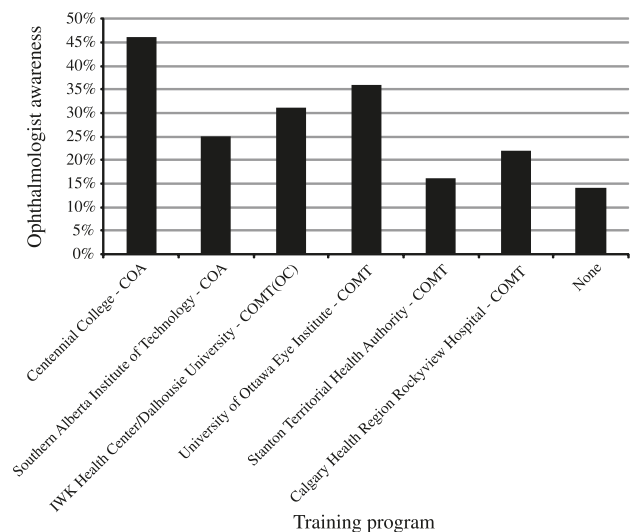


Fig. 2—Ophthalmologists awareness of OMP training programs. (COA, certified ophthalmic assistant; COMT, certified ophthalmic medical technologist; OC, orthoptist; OMP, ophthalmic medical personnel.)

indicated that the training programs most required were COA (34%), COT (23%), Certified Orthoptist (23%), and COMT (20%).

Productivity and value

The ophthalmologists sampled were familiar with both certified and non-certified OMP, reporting that on average they employ twice as many certified OMP as non-certified OMP (4 certified OMP to 2.4 non-certified OMP). Of ophthalmologist respondents, 41% agreed that certified OMP perform a greater variety of tasks than non-certified OMP, while 19% disagreed and 40% indicated that the question does not apply to their situation. Eighty-five of the 116 ophthalmologist respondents (82%) also indicated that certified OMP add more value to their practice than non-certified OMP.

Ophthalmologists were also asked if certified OMP contribute more than non-certified OMP in 9 productivity measures (Fig. 3). In 4 measures, certified OMP contributed more than non-certified OMP: doctor productivity (72%, 70 ophthalmologists), number of patients seen per hour (57%, 55 ophthalmologists), trouble-shooting rapport (76%, 71 ophthalmologists), and triage screening (66%, 63 ophthalmologists). Over 50% of ophthalmologists identified “no difference” between the 2 groups in 5 measures: patient satisfaction, reduced patient complaints,

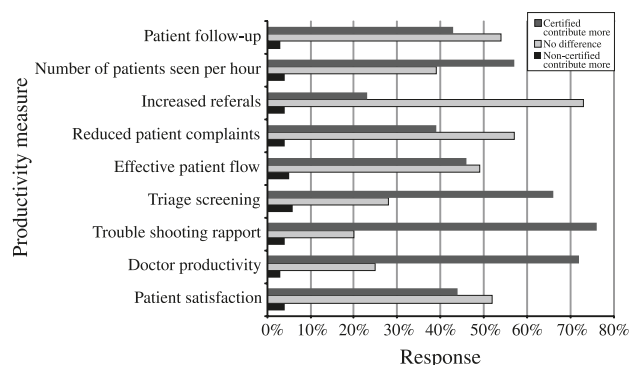


Fig. 3—Ophthalmologist results comparing 9 productivity measures.

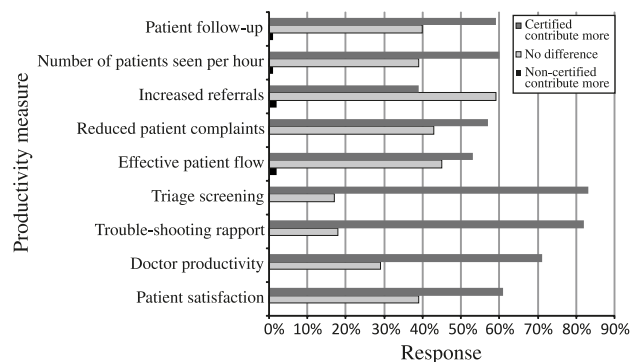


Fig. 4—Ophthalmic medical personnel results comparing 9 productivity measures.

patient follow-up, effective patient flow, and increased referrals. No productivity measure had a greater contribution from non-certified OMP.

Mirroring the ophthalmologist’s questions, OMP were asked; “Based on your observations, do certified or non-certified OMP contribute more to 9 productivity measures in their practice?” (Fig. 4). In contrast to the ophthalmologists, certified and non-certified OMP respondents felt that certified OMP contributed more in 8 of the 9 measures: patient satisfaction (61%), doctor productivity (71%), trouble-shooting rapport (82%), triage screening (83%), patient flow (53%), reduced patient complaints (57%), number of patients per hour (60%), and patient follow-up (59%). The only productivity measure where the majority (59%) felt that being certified had no impact was increased referral.

Ninety-two percent of OMP respondents believe that patient satisfaction in their practices is high (57% very satisfied, 35% satisfied). Only 5% of patients were described as very unsatisfied and 3% were neutral.

Certification and compensation

When OMP survey respondents were asked their reasons for initially achieving JCAHPO certification, most (79%) cited personal challenge and achievement, closely followed by increased skills (71%), increased marketability (62%), and respect from peers (48%). Other reasons included increased responsibility and autonomy (45%), better compensation (41%), and respect from patients (40%).

Sixty-three percent of OMP indicated interest in pursuing a higher level or additional certifications, while 37% have no such interest. Of those expressing interest, 28% and 21% would seek COT and COMT certification, respectively. Thirteen percent indicated interest in the registered ophthalmic ultrasound biometrist (ROUB) certification.

OMP perceive strong employer support for certification; the majority (55%) reported that their employers encourage certification and 41% require it. Only 1% indicated that their employers are not interested in certification. OMP respondents were asked whether certified OMP receive higher compensation from their employer than non-certified OMP. A large majority (73%) said yes while only 27% said no. The majority of the OMP (88%) who completed the survey provided their hourly wage or salary; most (70%) are paid an hourly wage and the balance (30%) are paid a salary. Table 4 shows average compensation of JCAHPO certification levels.

Certification level	Number (%)	Average hourly wage	Average annual salary
COA	31 (36)	\$21.43	\$44 220
COT	28 (33)	\$33.23	\$68 000
COMT	27 (31)	\$37.58	\$73 875

Note: JCAHPO, Joint Commission on Allied Health Personnel in Ophthalmology; COA, certified ophthalmic assistant; COT, certified ophthalmic technician; COMT, certified ophthalmic medical technologist.

Most OMP (52%) reported receiving raises annually, 26% rarely or occasionally, and 18% every 2 years. OMP reported receiving performance reviews once a year (43%), less than once a year (32%), and never receiving reviews (24%).

Respondents were split almost evenly on employers paying for certification. While 49% answered yes, 51% answered no. Similarly, 43% said their employers pay for recertification, while 57% do not. A majority of respondents (63%) said their employers pay for yearly continuing education. In contrast, 18% said their employers never pay for continuing education, while 12% pay for continuing education every 3 years and 7% pay every other year.

The most common employment benefits listed by respondents were paid vacation (80%), paid sick leave (77%), and paid statutory holidays (75%). Only 64% indicated receiving health insurance, while a slightly smaller number (61%) reported receiving dental insurance. Benefits, received by fewer than 60% of respondents, included life insurance, disability insurance, retirement plan, uniform or clothing allowance, and travel expenses.

DISCUSSION

This study demonstrates that OMP certification supports the ophthalmologist as a provider of high-quality patient care. Credentialing plays an important role in public accountability and builds a positive reputation for the ophthalmologist and the practice. In Canada, certification and credentialing of ophthalmologists is mandatory. This guarantees the public an ophthalmic care standard, while helping ophthalmologists attain appropriate skills to deliver up-to-date ophthalmic patient care. Therefore, OMP should also attain certification and credentialing for exactly the same reasons. Ophthalmologists should demand and expect the best for themselves, their employees, their practices, and their patients. The impact of OMP certification on patient care is significant; healthcare professionals are able to focus on delivering higher quality care when supported by a certified OMP. In addition, there is a strong case that certified OMP should receive higher compensation than non-certified OMP given their increased skill set.

Other important issues were highlighted by this survey. Although only 26% of respondents plan to hire new OMP within the next year, 61% of all respondents have found it difficult to hire new OMP. Although various recruitment methods were mentioned, there was no consistent way for ophthalmologists to easily access well-trained certified OMP. In addition, although ophthalmologist awareness of training programs is high, the use of training programs as a recruitment method and the number of training program graduates are comparatively low. The lack of visibility and awareness could be a fault not only of the training programs, but of the profession for not promoting program graduates. While there are many good COA and COMT programs, and only one newly launched COT

program, there is great need for additional COA and COT training programs across the country.

This study's limitation may be the sampling process. Because those sampled were members of COS or CSOMP, or were JCAHPO certified there may be some bias not found in a random sample of all ophthalmologists and all OMP. However, the sample's demographics included a cross-section of ophthalmologists and OMP by geographical region, population, and subspecialty. The small response rate from COS ophthalmologists may be due to lack of interest in the subject as 40% of COS ophthalmologist members viewed the survey, 22% started the survey, but only 15% completed it. With 50% of CSOMP's membership being non-certified, their low response rate also may bias the results toward the importance of training and certifying OMP; however, the low response rate from non-certified OMP is representative of their lack of involvement and commitment to their career, patients, and job. Although the authors have professional relationships with the organizations who conducted the survey, teach in OMP training programs, or are involved with OMP certification, the survey was developed and validated to ensure no bias.

The survey results demonstrate that both ophthalmologists and OMP were familiar with both certified and non-certified OMP and that both ophthalmologists and OMP believe that employing certified OMP enhances practice quality and productivity. No respondents rated non-certified OMP as contributing more on any of the 9 productivity measures. This substantiates that ophthalmologists and OMP believe certification is advantageous to their practices and adds value to employees. The correlation between OMP certification and practice productivity shows that certification is an important investment with clear benefits, and the use of certified OMP is an essential part of providing efficient, high-quality patient care; this is especially important in the constantly changing landscape of Canadian health care.

The need for additional training programs across Canada is high, especially at the COT level. OMP graduates possess the appropriate skill set to positively impact an ophthalmology practice. Awareness of all programs and the ability to access program graduates needs to be a national priority for the ophthalmology profession. This will be a win-win proposition for ophthalmologists, OMP, and patients. This is especially true in light of current demands placed on health care delivery and the increasing demand and need for ophthalmic care as the Canadian population ages.

As leaders in ophthalmology, we can affect change in many ways to improve patient care and access. Even though many implementation strategies present us with challenges to ensure adequate resources, money, and time, we can affect change by implementing a human resources strategy. Ophthalmologists' strong commitment to resident training programs can be duplicated and extended to the recruitment, training, education, and certification of OMP staff. Key strategies should include the following:

- strengthen partnerships among our leadership in organizations such as COS, CMA, CSOMP, and JCAHPO;
- work with local colleges to establish regional OMP training programs;
- encourage OMP training programs to expand their enrollment;
- promote awareness of a national database of OMP jobs;
- require OMP staff to be certified and maintain their continuing education requirements; and
- support CSOMP, JCAHPO, COS, and other organizations in their efforts to provide continuing education programs by volunteering to serve as faculty and teachers.

Employing well-trained, certified OMP is no longer a luxury; it is a necessity of the modern day ophthalmic practice. Organizations like the COS, CSOMP, and JCAHPO should be leaders in this crusade.

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

REFERENCES

1. Anderson DP. Challenges for the future of eye care in Canada. *Can J Ophthalmol.* 2003;38:261–3.
2. Bellan L, Buske L. Ophthalmology human resource projections: are we heading for a crisis in the next 15 years? *Can J Ophthalmol.* 2007;42:34–8.
3. National Coalition for Vision Health. Foundations for a Canadian Vision Health Strategy. January 2007. Available at: <http://www.visionhealth.ca/projects/documents/Foundations-For-A-Canadian-Vision-Health-Strategy.pdf>. Accessed Aug. 2, 2010.
4. Buys YM, Nicolela M. Interprofessional care and collaboration: are ophthalmologists and optometrists ready? *Can J Ophthalmol.* 2009;44:254–6.
5. Allen HF. Ophthalmic Assistants. *Arch Ophthalmol.* 1967;78:419.
6. Stein HA. The need and training of ophthalmic assistants. *Can J Ophthalmol.* 1968;3:105–7.
7. Trobe JD, Kraft RE, Crandall LA, Marks RG, Krischer JP, Demaris A. Proficiency and patient acceptance of ophthalmic medical assistants. *Ophthalmol.* 1990;89:53A–60A.
8. Woodworth KE, Donshik PC, Ehlers WH, Pucel DJ, Anderson LD, Thompson NA. A comparative study of the impact of certified and noncertified ophthalmic medical personnel on practice quality and productivity. *Eye & Contact Lens.* 2008;34:28–34.
9. Baerlocher MO, Noble J. Does sex affect the success rate of Canadian ophthalmology residency applications? *Can J Ophthalmol.* 2006;41:163–8.

APPENDIX 1—OPHTHALMIC MEDICAL PERSONNEL (OMP) CERTIFICATION LEVELS OFFERED BY THE JOINT COMMISSION ON ALLIED HEALTH PERSONNEL IN OPHTHALMOLOGY (JCAHPO) AND THE CANADIAN ORTHOPTIC COUNCIL (COC)

JCAHPO's three core levels of certification:

Certified Ophthalmic Assistant (COA)

COA is the entry level of certification for ophthalmic assisting. COAs work under the supervision and direction of an ophthalmologist to perform ophthalmic clinical duties. They are trained to take patient histories, administer tests and evaluations, provide patient services, maintain instruments, take eye measurements, and perform a variety of clinical tasks.

Certified Ophthalmic Technician (COT)

COT is the second level of certification. COTs have either worked as a COA for at least a year or graduated from an accredited training program for Ophthalmic Technicians. They are trained to do all COA level tasks, plus contact lens fitting and other more advanced technical tasks.

Certified Ophthalmic Medical Technologist (COMT)

COMT is the highest level of certification. COMTs are among the better trained and educated personnel in the ophthalmic allied health profession. COMTs have either worked as a COT or graduated from an accredited training program for Ophthalmic Medical Technologists. They are trained to do all COA and COT tasks and are more advanced in all of these areas and are able to see more difficult cases. COMTs perform all ophthalmologic tests necessary for preliminary and highly specific eye

exams, assist in ophthalmic surgery, and supervise other technical staff.

Additional JCAHPO certifications:

Ophthalmic Surgical Assistant (OSA)

OSA is a subspecialty certification in the principles and fundamentals of ophthalmic surgical assisting. An individual must be certified at one of JCAHPO's 3 core levels of certifications in order to test for OSA.

Registered Ophthalmic Ultrasound Biometrist (ROUB)

This certification is for A-scan biometry on the eye and measures knowledge in biometry and physics.

Certified Diagnostic Ophthalmic Sonographer (CDOS)

This certification is for diagnostic B-scan sonography on the eye and measures knowledge of the principles and instrumentation needed to perform eye exams using high-frequency sound waves.

Canadian Orthoptic Council certification:

Orthoptist

The Canadian Orthoptic Council (COC) is the group sanctioned by the Canadian Ophthalmological Society to govern and certify orthoptists in Canada. The orthoptic training centres in Canada are accredited by the Canadian Medical Association. The orthoptist certification credential is OC(C).