

Aging and feminization of the physician workforce in Canada: Comparing ophthalmologists to all other physicians

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ABSTRACT • RÉSUMÉ

Objective: To describe the changing demographic of ophthalmologists compared with all other physicians in Canada.

Design: Cross-sectional study.

Participants: Ophthalmologists and all other physicians listed in the Canadian Institute for Health Information (CIHI) and Canadian Medical Association (CMA) databases.

Methods: The CIHI database was used to determine the yearly number, mean age, and sex of licensed ophthalmologists and all other physicians in Canada from 1970 to 2011. The CMA database was used to determine the 2011 provincial sex distribution of ophthalmologists.

Results: The mean age of physicians is increasing over time; however, the mean age of ophthalmologists has been greater than all other physicians since 1972 by a mean of 2.4 years. In 2011, the mean age of all ophthalmologists was 53.1 years compared with 50.4 years for all other physicians. The yearly mean age of female ophthalmologists (48 in 2011) and all other female physicians (46.1 in 2011) was younger than males. The proportion of female ophthalmologists has increased from 3.1% to 20.5% from 1970 to 2011. This is significantly less than all other specialties where the proportion increased from 7.8% to 36.8% ($p < 0.001$). The proportion of female ophthalmologists varies significantly among the provinces from 7.1% in Newfoundland and Labrador to 31.1% in Quebec in 2011.

Conclusions: The mean age of all physicians is increasing over time with ophthalmologists being, on average, 2.3 years older than other physicians. Although the proportion of female physicians is increasing, the rate of increase is less in ophthalmology compared with all other physicians and varies significantly between provinces.

Objet : Description de l'évolution démographique des ophtalmologistes comparativement à celle des autres médecins du Canada.

Nature : Étude transversale.

Participants : Les ophtalmologistes et les autres médecins inscrits dans la liste de l'Institut canadien d'information sur la santé (ICIS) et ceux de la base de données de l'Association médicale canadienne (AMC).

Méthodes : La base de donnée de l'ICIS a servi à déterminer le nombre annuel, la moyenne d'âge et le genre des ophtalmologistes et des autres médecins du Canada entre 1970 et 2011. La base de données de l'AMC a servi à déterminer la répartition provinciale des genres des ophtalmologistes en 2011.

Résultats : La moyenne d'âge des médecins augmente avec le temps mais celle des ophtalmologistes a été plus importante que celle de tous les autres médecins depuis 1972, par en moyenne 2,4 années. En 2011, la moyenne d'âge de tous les ophtalmologistes était de 53,1 ans comparativement à 50,4 ans pour tous les autres médecins. La moyenne annuelle d'âge des femmes ophtalmologistes (48 en 2011) et celle de toutes les autres femmes médecins (46,1 en 2011) était inférieure à celle des hommes. La proportion des femmes ophtalmologistes a augmenté, passant de 3,1 % à 20,5 % entre 1970 et 2011. Cela est significativement inférieur à celle des autres médecins dont la proportion féminine a augmenté de 7,8 % à 36,8 % ($p < 0,001$). La proportion des femmes ophtalmologistes varie significativement d'une province à l'autre, entre 7,1 % à Terre-Neuve et Labrador et 31,1 % au Québec en 2011.

Conclusions : La moyenne d'âge de tous les médecins augmente avec le temps; les ophtalmologistes ont en moyenne 2,3 années de plus que les autres médecins. Bien que la proportion de femmes médecins augmente, le taux d'augmentation est inférieur en ophtalmologie comparativement à celui de tous les autres médecins et varie considérablement entre les provinces.

The demographics of physicians are changing, with an aging and feminization of the workforce.¹ It is necessary to understand the implications of these changes for effective physician resource planning. Bellan et al.² recently published an update from a previous study³ providing both a snapshot of the current population distribution of ophthalmologists in Canada and projections leading up to 2030. The main outcome was reported using headcounts that assume an equal capacity for patient care; however, changes in work time may be influenced by age and sex.

In 1993, the proportion of females enrolled in first year at Canadian medical schools exceeded 50% for the first time and steadily increased to 59.2% in 2001 and 2003 followed by a gradual decrease to 54.3% in 2011.⁴ A recent bulletin from the Canadian Medical Association (CMA) highlighted this trend, stating that females now make up 36.9% of the medical workforce and that females now outnumber males in 7 specialties including family practice, endocrinology, geriatrics, medical genetics, pediatrics, gynecologic oncology, and obstetrics/gynecology.¹

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This study was undertaken to get a clearer perspective of the changing demographic of ophthalmologists in Canada and to compare this with all other physicians in Canada.

METHODS

The Canadian Institute for Health Information (CIHI) database was used to determine the yearly number, mean age, and sex of licensed ophthalmologists and all other physicians in Canada from 1970 to 2011.⁵ This database includes all active physicians in clinical and nonclinical practice (e.g., research and academia) and excludes residents, physicians in the military, semiretired and retired physicians, those with incomplete data on sex or age, and those younger than 20 or older than 90 years. Data before 1970 and after 2011 were not available.

Cell counts from 1 to 4 are suppressed to safeguard privacy and confidentiality. Because of suppression in regional data, the CMA Masterfile database was used to determine the 2011 provincial sex distribution of ophthalmologists.

Data are presented as headcounts, mean age, and proportions. Comparisons were made between the mean age by sex within ophthalmology and all other physicians, mean age by sex between ophthalmology and all other physicians, proportion of ophthalmologists and all other physicians ≥ 65 years, and changes in proportion of women in ophthalmology versus all other physicians using the Student *t* test.

RESULTS

Since 1970 there has been a steady increase in the number of physicians in Canada. The number of ophthalmologists has increased 143% from 491 in 1970 to 1,194 in 2011. This compares with a 203% increase in all

other physicians from 23,391 to 70,963 during the same period.

The mean age of physicians is also increasing, as illustrated in Figure 1. The mean age of ophthalmologists has increased from 44.7 years in 1970 to 53.1 years in 2011. In comparison, the mean age of all other physicians increased from 44.8 to 50.4 years during the same time interval. Since 1972 the mean age of ophthalmologists has been older than all other physicians by a mean of 2.4 ± 0.9 years. The proportion of physicians aged ≥ 65 years has also been increasing, as shown in Figure 2. In 1970, 3.1% of ophthalmologists were ≥ 65 years, and this proportion increased 7-fold to 21.4% in 2011. For all other physicians, this proportion has also increased but to a significantly lesser degree, from 5.2% to 13.7% during this same period ($p = 0.0015$).

Figure 3 compares the yearly mean age by sex for ophthalmologists and all other physicians. The yearly mean age of female physicians is consistently younger than male physicians. Since 1970 male ophthalmologists were, on average, 7.0 ± 2.2 years older than female ophthalmologists. In comparison, for all other physicians males were, on average, 5.9 ± 1.8 years older than females, and this difference between ophthalmologists and all other physicians was statistically significant ($p < 0.001$) with regard to mean age. In 2011, the mean age of male ophthalmologists was 54.4 years compared with a mean of 48 years for female ophthalmologists. For all other physicians, the mean age of males versus females in 2011 was 52.9 versus 46.1 years, respectively.

Figure 4 illustrates the yearly proportion of females in ophthalmology and all other physicians. The proportion of females in ophthalmology has increased, on average, $0.43\% \pm 0.41\%$ per year from 3.1% in 1970 to 20.5% in 2011. This compares with an increase of $0.71\% \pm 0.25\%$ per year for all other physicians from 7.8% in 1970 to 36.8% in 2011. Although the proportion of women is increasing in both ophthalmology and all other physicians,

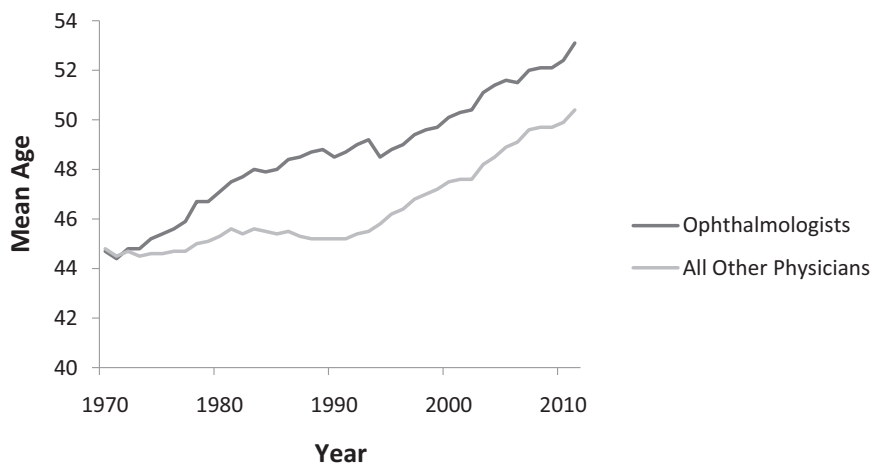


Fig. 1—Yearly mean age of Canadian ophthalmologists versus all other Canadian physicians.

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