

**Utilization of Eye-Care Providers by Ontario Residents in 2019: A Population-based Study**

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**Introduction:** Eye-care services in Canada are provided by ophthalmologists, optometrists, primary care providers (PCPs, including family physicians, pediatricians, and nurse-practitioners), and emergency-physicians. For ophthalmic conditions, the utilization of each eye-care provider remains unclear. This study utilizes population-based billing data to address this gap.

**Methods:** Using 2019 physician billing data from the Ontario Health Insurance Plan (OHIP) and eye-related diagnostic codes, we calculated the annual number of eye-visits (including revisits) and distinct eye-related patients (excluding revisits) per 100 population. Results were stratified by urban/rural residency, age, physician-specialty, and visit-type (emergency/non-emergency, determined by whether the visit occurred in an emergency room).

**Results:** "In 2019, there were 11.5 million provincially funded non-emergency visits and 139,023 emergency visits in Ontario. The annual number of eye-visits per 100 population was 76.9 for non-emergency cases and 0.9 for emergency cases. Excluding revisits, the number of distinct eye-related patients per 100 population was 25.1 for non-emergency and 0.8 for emergency cases. On average, each patient had 3.1 visits for non-emergency cases and 1.2 visits for emergency cases.

Among non-emergency OHIP visits, 57% of eye-care was provided by ophthalmologists (6.6 million visits or 14,133 visits per ophthalmologist), 35% by optometrists (4.0 million visits or 1,525 visits per optometrist) and 8% by PCPs. Emergency care was mainly provided by PCPs (with training in emergency medicine, 74.7%), emergency-physicians (16.6%), and ophthalmologists (7.7%).

In non-emergency cases, rural patients (55.3%) received slightly fewer ophthalmologist services than urban patients (57.4%). For emergency cases, ophthalmologist care received by rural patients (4.7%) was nearly half of urban patients (8.3%).

For children aged 0-4 and 5-19, optometrists were the primary providers for non-emergency OHIP visits (48% and 80%, respectively), with the top diagnoses being refractive error and conjunctivitis. In adults, ophthalmologists were the primary provider (45%-74% for age groups 40-64, 65-79 and 80+), with glaucoma and retinal disease being most prevalently diagnosed. Corneal foreign body and conjunctivitis were among the top 3 emergency diagnoses in all age-groups.

**Conclusions:** In 2019, about 1 in 4 individuals received non-emergency eye-care in Ontario's public healthcare system, while 1 in 100 obtained emergency eye-care. In general, over half of non-emergency care was provided by ophthalmologists and about 1/3 by optometrists. Emergency eye-care was predominantly provided by PCPs and emergency-physicians, particularly in rural areas. Ophthalmologist utilization for emergency cases was nearly half in rural vs urban patients. Common diagnoses were refractive errors and conjunctivitis for Ontarians under 20, and glaucoma and retinal diseases for adults.