



Expanding the scope of an eConsult service: acceptability and feasibility of an optometry – ophthalmology pilot project

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Objective: To determine the feasibility and acceptability of connecting optometrists to ophthalmologists on an eConsult service.

Design: Descriptive analysis of utilization data and an anonymous survey.

Participants: All eConsult cases sent by optometrists between March 2019 and February 2020 (utilization data); optometrists and ophthalmologists participating in the eConsult Vision Pilot Project (survey).

Methods: Utilization data for the study period were collected automatically and underwent descriptive analysis. Participating optometrists and ophthalmologists received an email invitation to a survey assessing the project.

Results: Thirteen optometrists from 5 clinics in the southeast region and 7 ophthalmologists were recruited to participate in the pilot project. Optometrists sent 109 eConsults in a 13-month period, representing 33% of all cases submitted to ophthalmology through the eConsult service provincially (March 2019–March 2020). Sixty-eight percent of respondents to an anonymous online survey valued the recruitment and engagement of eye care professionals from the same health region. The influence of the eConsult service was reported to have a “somewhat positive” (27%) to “very positive” (50%) influence on the relationship between the two professional groups.

Conclusion: The eConsult Vision Pilot Project fills a gap in service and provides an opportunity for patients to get access to specialty advice. We demonstrated that allowing optometrists to solicit specialist advice from ophthalmologists was acceptable and feasible.

Access to specialty eye care can be challenging. If undetected or untreated, eye conditions can lead to vision impairment or even blindness.¹ Inequity of access to eye care in Ontario has been exacerbated by such factors as an aging population,^{1,2} restrictions on travel and in-person appointments as a result of the COVID-19 pandemic, challenges accessing specialty care in rural and remote areas, and policies that have deinsured routine eye care examinations, largely affecting populations with a lower socioeconomic status.³ In many jurisdictions, including Ontario, optometrists are often the primary point of entry into the eye care system, and subsequent referrals to ophthalmologists form a vital link in an integrated system. Although many optometrists practice in less populated areas, ophthalmologists, who provide specialty and surgical care for eye conditions, work almost exclusively in highly populated regions. Given the barriers to referral for many patients, enabling telehealth access for optometrists to access ophthalmologists could be an important mechanism to bridge this gap.

Electronic consultation (eConsult) is a secure, asynchronous web-based tool that allows requesting providers,

usually primary care physicians and nurse practitioners, timely access to nonurgent specialist advice for all patients and often eliminates the need for an in-person specialist visit. eConsult has demonstrated an ability to improve access to specialty care, reduce the need for face-to-face visits with specialists, lower costs, and deliver high physician satisfaction.^{4–8} However, to date, only medical doctors and nurse practitioners have been granted access to this system. Optometrists have not had access to the same digital tools as other primary care providers in provincial initiatives.

In March 2019, the Ontario Provincial Vision Strategy Task Force released quality standards for glaucoma care. The development of these standards was fueled by recognition of the growing burden of disease and inequities in delivery of glaucoma care across Ontario.⁹ As a response to these guidelines, Ontario eConsult launched a vision pilot project. This collaborative, multidisciplinary pilot project enabled optometrists in one region of Ontario to connect with ophthalmologists in the same region via eConsult. As part of the pilot project, eConsult questions were extended beyond glaucoma to encompass all areas of ophthalmology. To our knowledge, this is one of the few services in Canada

that provides optometrists with an organized technological platform to request consultations from ophthalmologists. Others, such as Care1, also provide a similar service of asynchronously connecting optometrists with ophthalmologists in multiple provinces in Canada.¹⁰

The eConsult Vision Pilot Project leveraged existing clinics and primary care experts with a roster of patients (optometrists) and connected them with an existing service (Ontario eConsult) that already onboarded specialists for eye care (ophthalmologists). The objective of this evaluation is to determine the feasibility and acceptability of the eConsult Vision Pilot Project, with the aim of improving system integration and patient access to specialty eye care.

Methods

Design

We conducted a descriptive analysis to evaluate the feasibility and acceptability of the eConsult Vision Pilot Project in Southeastern Ontario.⁸

Setting

Ontario is the largest province in Canada, with a population of >14 million. At the time of the pilot, this southeast region was one of 14 health regions known as a local health integration network (LHIN) in Ontario, covering almost 2015 square kilometers and inhabited by approximately 500 000 residents. There were 25 practicing ophthalmologists in the southeast region as of 2019, as reported by the Ontario Physician Human Resources Data Centre, and 72 optometrists, as reported by the Ontario Ministry of Health.^{11,12}

eConsult intervention

To use eConsult, a requesting provider (usually a primary care provider but occasionally a specialist) logs onto the system and completes an electronic form for a nonurgent patient-specific question with an option to attach any relevant patient documents (e.g., laboratory results, images). Providers can submit to >100 specialty groups on the provincial service on behalf of their patients. Optometrists submitting eConsults could request to have their eConsult directed to a specific specialist in the group. In most cases, specialists respond to an eConsult within 1 week and can request additional information. The service is offered at no cost to patients and providers, and specialists are reimbursed at a prorated hourly rate based on their time billed for a response. Family medicine physicians and nurse practitioners who submit an eConsult are able to bill their time for a flat-fee payment using an existing fee code. At the conclusion of each eConsult, the requesting provider closes the case and completes a closeout survey. A full description of the service is available online (<https://econsultontario.ca>).

This intervention expanded the scope from only physicians and nurse practitioners being able to send eConsults

to including optometrists to register and send eConsults to ophthalmologists. Initially planned as a 6-month pilot, the project was extended for an additional 6 months in order to collect additional data and feedback.

Ontario eConsult is publicly funded and free to use for clinicians who receive at least 50% of their income from a publicly funded program, such as the Ontario Health Insurance Plan in order to enroll. While optometrists are paid by patients or private insurers and thus do not qualify under these criteria, the \$875 annual fee requirement was waived for the purpose of this pilot project.

Participants

Participants were recruited using a convenience sample. Contact information was provided by the Queen's University Department of Ophthalmology and retrieved from online public-facing documents posted by the clinics. Optometrists received an email inviting them to participate in an information session, either in person or virtually. The session provided information on the eConsult program, the Vision Pilot Project, and a question-and-answer period from eConsult experts. Interested optometrists were granted access to the eConsult service to allow them to send eConsults to ophthalmologists. Ophthalmologists who were already on the eConsult service in the Kingston region were invited to join the pilot.

Data collection and analysis

We used 12 months (March 2019–February 2020) of routine utilization data from Ontario eConsult. Data variables included user specialty, region, date and time submitted, closeout survey data, and so on. Descriptive statistics (e.g., mean, median) were calculated. Answers from a mandatory closeout survey that optometrists completed after each eConsult also were included in the analysis. The closeout survey asks for the outcome of the eConsult for the patient as well as providing a free text comments option.

In addition to the collection and analysis of the utilization data throughout the study period, we created an additional anonymous online survey entitled "Southeast LHIN Optometry/Ophthalmology eConsult Pilot" using Qualtrics in November 2019. The survey was distributed via email in December 2019 to the participating optometrists (n = 13) and ophthalmologists (n = 8). Two reminder emails were sent approximately 1 month apart, and the survey was closed in March 2020.

The survey questions were generated from an adaptation of previous eConsult project discussion groups in Ontario,⁸ in consultation with ophthalmologists involved in the Care1 telemedicine program based in British Columbia. The first 5 questions were asked of both optometrists and ophthalmologists, pertaining to their motivations for involvement in this pilot, the project's influence on inter-professional relationships, the functionality of the eConsult interface, implications on workflow integration, and an

open-ended request for additional comments. Optometrists were further asked about perceived patient experience, educational value for the practitioner, average time investment per case, and perceptions on compensation. Ophthalmologists were further asked about the efficacy of online referrals compared with those sent via fax, overall clinical efficacy of the remote triage and consultation experience, average time investment per case, and perceptions on compensation.

Ethics

Exemption from ethics approval was provided by the Kingston General Health Research Institute because the project was determined to be a quality-improvement project.

Results

eConsult utilization data

Thirteen optometrists from 5 clinics in the southeast region were recruited to participate in the pilot project, accounting for approximately 18% of optometrists in the region, along with 8 ophthalmologists (28%) in the southeast region. Seven ophthalmologists provided specialty advice for 109 eConsults (range, 1–32 eConsults; median: 5 eConsults) that were submitted by 11 optometrists. The cases were submitted over a 13-month period (March 2019–March 2020), representing 33% of all cases submitted to ophthalmology through the eConsult service provincially (Fig. 1). The median time to receive a specialist response was 5.7 days (range, 3 hours–39.6 days) for the pilot data. The median time billed was 15 minutes, and median cost per eConsult was \$50. A total of 59.3% of cases were responded to in 7 days or less, whereas 96.3% of cases were responded to in 30 days or less. The average age of patients was 61 years, with the youngest patient being 24 years of age and the oldest 91 years of age. The top 3 subspecialties for eConsults were glaucoma (69%), oculoplastic (9%), and neuro-ophthalmology (8%; Fig. 2). The 2 closeout survey questions answered by the optometrists

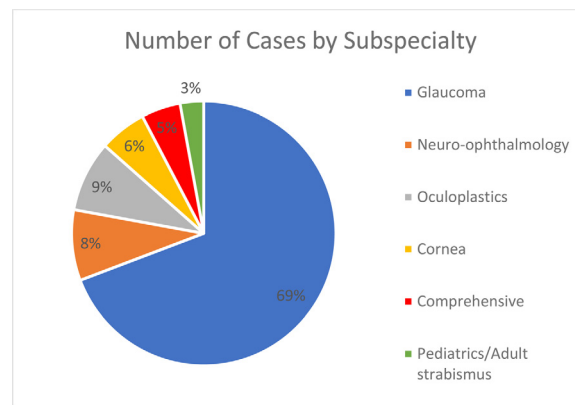


Fig. 2—Subspecialty distribution of ophthalmology cases submitted by optometrists.

demonstrated that optometrists were able to confirm a course of action in 72% of cases (Table 1) and avoided a referral that was originally contemplated in 32% of cases (Table 2).

Anonymous online survey data

Twenty-two responses were received for the anonymous survey from 9 ophthalmologists (113%) and 13 optometrists (100%), implying that some participants potentially completed the survey multiple times. Sixty-eight percent of

Table 1—Results of the closeout survey question 1 answered by the optometrist on closing the eConsult

Which of the following best describes the outcome of this eConsult for your patient?	
Answer	Cases submitted and closed between March 2019 and March 2020 (n = 109)
I was able to confirm a course of action that I originally had in mind.	72%
I got good advice for a new or additional course of action	27%
I did not find the response very useful	0%
Other	1%

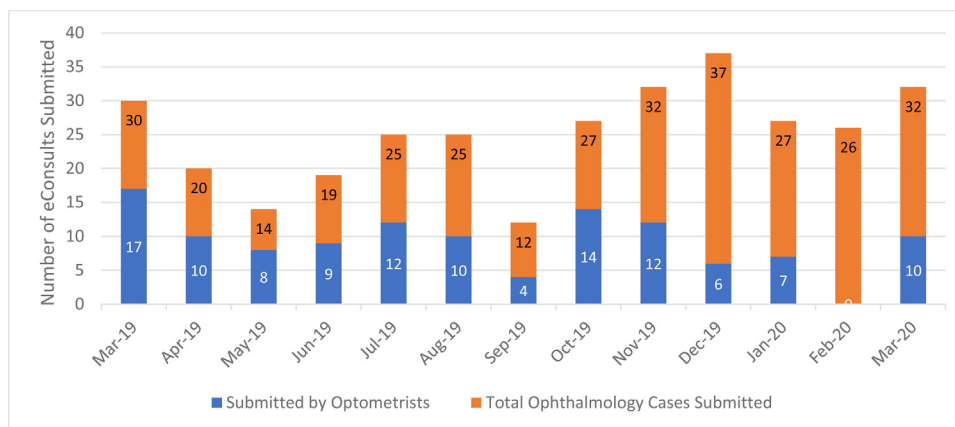


Fig. 1—Total number of eConsults submitted to ophthalmology on the Ontario eConsult Service and the number of eConsults (of the total) submitted by optometrists.

Table 2—Results of the closeout survey question 2 answered by the optometrist on closing the eConsult

As a result of this eConsult would you say that:	
Answer	Cases submitted and closed between March 2019 and March 2020 (n=109)
Referral was originally contemplated but now avoided at this stage.	28%
Referral was originally contemplated and is still needed.	48%
Referral was not originally contemplated and is still not needed.	14%
Referral was not originally contemplated, but the eConsult process resulted in a referral being initiated.	4%
There was no particular benefit to using eConsult in this case.	0%
Other	6%

respondents valued the recruitment and engagement of eye care professionals from the same health region. The influence of the eConsult service was reported to have a “somewhat positive” (27%) to “very positive” (50%) influence on the relationship between the 2 professional groups. The functionality of the online platform was largely described as “somewhat easy” to “very easy” to use, with only 3 participants selecting “somewhat challenging.” Figure 3A reports on findings for collegiality and workflow integration for ophthalmologists and optometrists. Figure 3B reports on findings

for optometrists regarding patient experience, educational value, and remuneration. We also report on results from ophthalmologists on viewing diagnostic tests, triaging and caring for patients, and remuneration (Fig. 3C).

Qualitative responses on the survey were largely positive. There was praise for the ability to share colour diagnostic images (as opposed to the usual low-quality black-and-white faxed images), allowing for a “more thorough and modernized way of sharing patient information between comanaging eye care professionals.” The platform was described as beneficial for saving patients time and giving one optometrist “confidence that I was making the best choice for the patient, as well as being considerate of the specialist’s time.” The system was further described as an “excellent resource to my practice,” an “extremely positive experience,” and “revolutionary in my optometry practice . . . saved me from sending multiple unnecessary referrals and allowed me to more comfortably practice to my full scope.” One participant noted that patients in the participant’s area must drive a minimum of 1 hour to see a subspecialist, whereas another noted that eConsult saved the patients’ and the specialist’s time. Several participants noted things that could be improved, such as developing a mobile-friendly interface, transferring data more easily, diagnostic software integration, and more regular compensation. Two optometrists commented on the response time: “My only recommendation would be to set the alarm for the specialist to respond

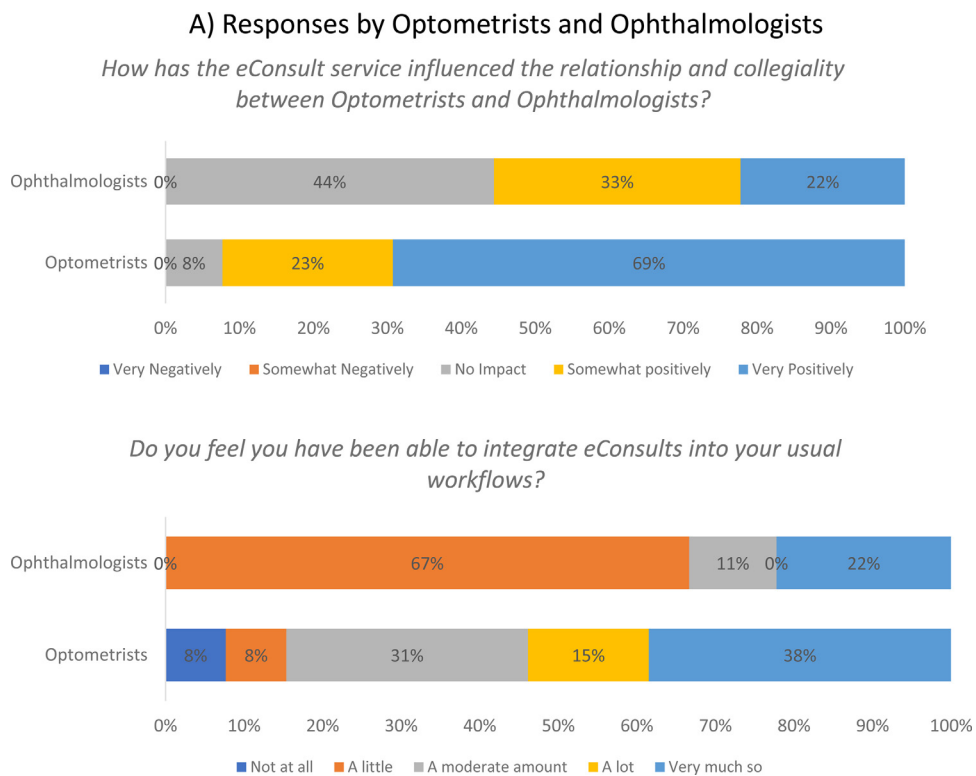


Fig. 3—Survey responses from optometrists and ophthalmologists on an anonymous survey. Answers are reported for question answered by both optometrists and ophthalmologists (A), only optometrists (B), and only ophthalmologists (C). All Survey questions were asked using a 5-point Likert scale. Only the top 2 response (4 or 5) are reported here.

B) Responses by Ophthalmologists

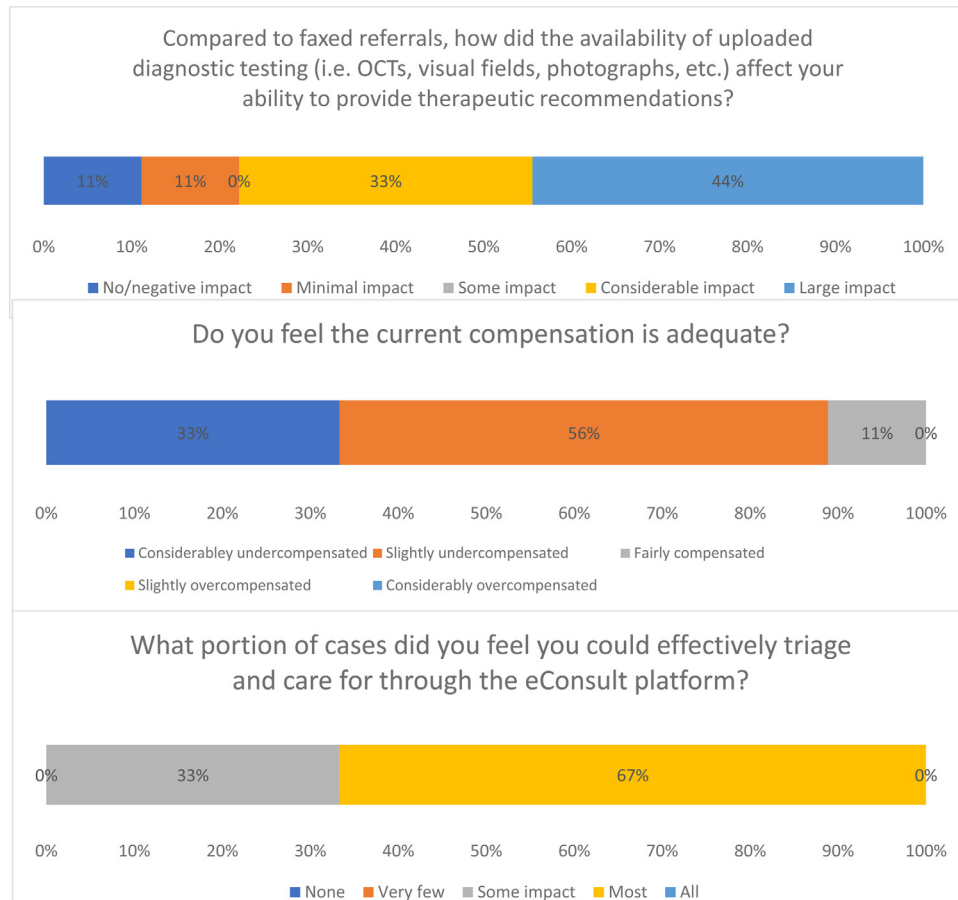


Fig. 3—Continued

to their [e]consults in a slightly timelier fashion” and “OMDs [ophthalmologists] participating need to make checking their eConsult’s part of their daily routine.”

Discussion

Increasing disparities in the delivery of eye care warrant better health care infrastructure and innovative solutions. An aging population, rural and remote living, and the COVID-19 pandemic are a few factors that present challenges to the delivery of specialty eye care.¹ Our study demonstrated the acceptability and feasibility of the eConsult Vision Pilot Project. Originally launched with a focus on glaucoma, the pilot expanded to include several other ophthalmology subspecialties to address gaps in care. There was an overall positive response from the optometrists and ophthalmologist. In 72% of cases closed, optometrists were able to confirm a course of action they originally had in mind, and 77% of optometrists described the pilot as having a lot of educational value.

This is the first study to our knowledge that demonstrates the potential impact of eConsult for improving access to

specialty eye care for patients by connecting optometrists to ophthalmologists. Optometrists are the primary care providers for most eye conditions. The large percentage of ophthalmology questions submitted to ophthalmologists compared with those submitted by physicians or nurse practitioners reflects this. Several telemedicine programs in Canada and around the world have aimed to link patients with ophthalmologists.^{13–17} However, many existing teleophthalmology programs require special infrastructure, are focused on a subspecialty, and require patients to travel to clinics for eye examinations using specialty equipment. Screening for diabetic retinopathy is the most described use of teleophthalmology in the literature. However, glaucoma, macular degeneration, and many other areas have also used the service successfully.^{18,19} A teleglaucoma service in Alberta services patients with suspected glaucoma who present to an optometrist, family physician, or ophthalmologist by assessing the patient and sending the patient’s data—along with fundus photographs—to a glaucoma specialist.^{20,21} In addition, the teleophthalmology service in Ontario has existed since 2017 but is limited in scope, only allowing for retinopathy screening for patients with diabetes in 15 locations across the province.²²

C) Responses by Optometrists

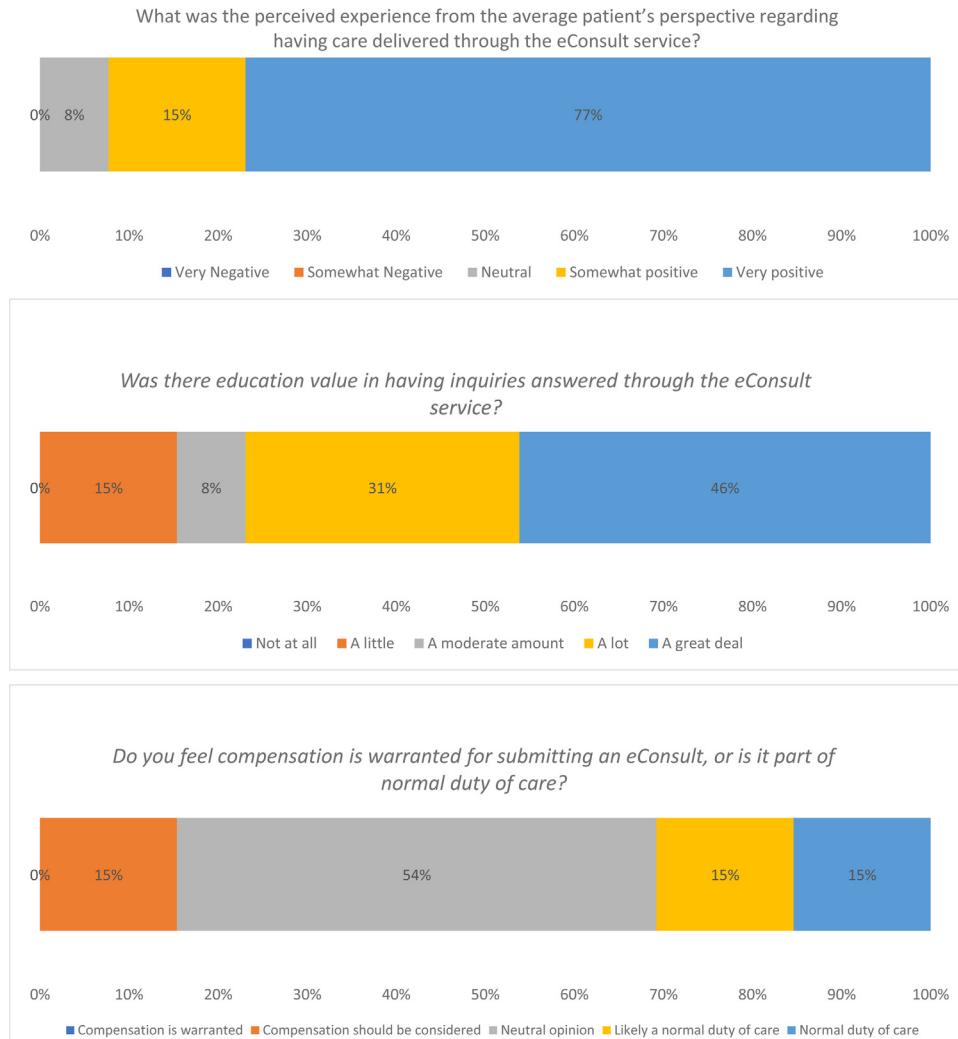


Fig. 3—Continued

Several challenges were identified for the vision pilot project. Current policies require that eConsult users receive 50% or more of their funding from public resources such as the Ministry of Health or Ontario Health Insurance Plan. Optometrists in Ontario did not meet this criterion, so exceptional access was given. Further extension and implementation of the vision pilot would require that the fee continue to be waived. It is worth exploring the benefits and drawbacks of waiving this fee and the attitudes of optometrists, some of whom may consider the fee an acceptable cost for improving their practices. Another challenge involved workflow integration, because some optometrists indicated that they were unable to integrate the project into their usual workflow. An evaluation of how eConsult can be adopted to best fit optometrist workflow would be beneficial. Finally, 89% of ophthalmologists responded in the anonymous survey that they were slightly or considerably

undercompensated. A focus group consisting of primary care providers and specialists in a previous eConsult study found that the majority of participants felt that compensation was fair or even unnecessary.⁸ Remuneration is an important consideration for an eConsult service, and future studies could further examine the perspectives of specialists and primary care physicians on remuneration of eConsults. This study has several limitations. First, the pilot was launched and evaluated using a convenience sample drawn from one region of Ontario and thus may not be applicable to the rest of the province or county and might present a selection bias toward early adopters and those who are more inclined to use telemedicine services. Second, the small scale of this study is not comprehensive and requires more rigorous evaluation, with patient outcomes, qualitative interviews of patients and provincial partners, and a cost-benefit analysis. Additional study of patient outcomes would help us to

understand the impact on vision care, referral outcomes, and satisfaction with the survey. A cost-benefit analysis is also required to better comment on the long-term effectiveness of the pilot as well as the strengths and weaknesses of the program. Third, we did not have a control group for the study, such as optometrists using a different virtual care modality to access specialist advice, and this limits our ability to comment on the effectiveness of our pilot. Finally, we were unable to gather the perspectives of patients who may have had an eConsult sent on their behalf in this pilot. Further studies could look at gathering the patient perspective by obtaining their consent for participation through their primary care provider.

Conclusion

Teleophthalmology is a promising field with the potential to provide care in areas lacking human, physical, and technological infrastructure, thus targeting health inequities due to access issues. The eConsult Vision Pilot Project fills a gap in service and provides an opportunity for patients to get access to specialty advice. We successfully demonstrated that enabling optometrists to receive specialist advice through eConsult from ophthalmologists was acceptable and feasible. An incremental expansion of this pilot into northern Ontario and other rural and remote communities of the greatest need would be the most beneficial.

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Footnotes and Disclosures

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