

## Supplemental materials for

Liddy C, Mitchell R, Guglani S, Mihan A, Sethuram C, Miville A, Keely E. The provincial spread and scale of the Ontario eConsult service: evaluation of the first 2 years. *Ann Fam Med*. 2022;20(3):262-265.

## Supplemental Appendix 1. Ontario eConsult

### History of the Service

Ontario eConsult began as a small proof-of-concept called the Champlain BASE™ eConsult service, which was launched in the Ottawa region of Eastern Ontario in 2010. Usage grew steadily, and the service became a full pilot in 2011, with infrastructure support from the region and province soon following. The service underwent replication in a new region of Ontario to demonstrate its generalizability in 2016, and in 2018 began full provincial expansion in partnership with the Ontario Ministry of Health and the Ontario Telemedicine Network. This expanded provincial service, called Ontario eConsult, was launched on June 28, 2018, and is the focus of this study.



### How eConsult Works

PCPs can either contact a specific specialist from a directory (called the “direct-to-specialist” model) or select a specialty group and have the case assigned to a relevant specialist based on availability (called the BASE™ model, after the regional Champlain BASE™ service from which it was adopted). In either instance, the PCP poses their question alongside any relevant background information. PCPs may also attach files, such as medical charts, test results, or images. Specialists respond within one week with advice on treatment, recommendations for referral, or requests for more information. PCPs complete a mandatory closeout survey upon completion of each case.

### Eligibility to Use

All PCPs may access Ontario eConsult at no charge. All specialists practicing in Ontario are eligible to join via the direct-to-specialist model, while specialists on the BASE™ model are recruited by the service based on need.

### Remuneration

Specialists are paid based on self-reported billing time using a prorated hourly rate. Specialists are also able to send eConsults to other specialists. All requesting providers complete a mandatory closeout survey after each case, which assesses case outcomes and impact on decision to refer.

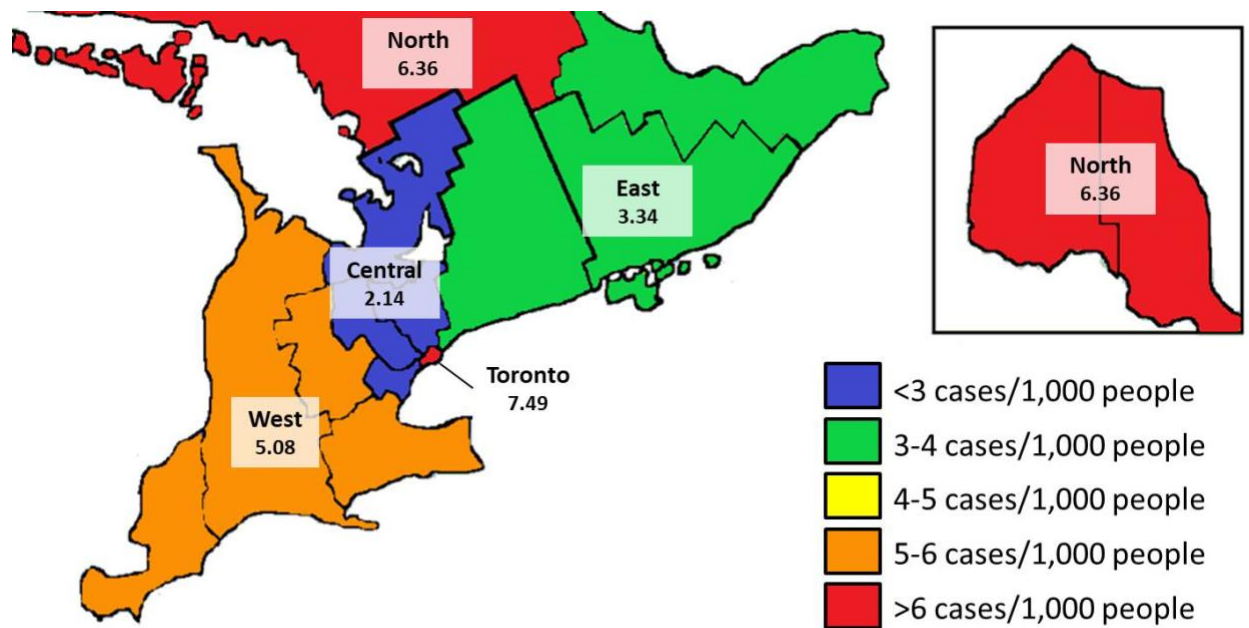
**Data Collected by the Service**

The eConsult service collects utilization data for each case, including providers involved, specialty referred to, specialist response time, and specialist time spent completing the case. Upon registration, additional data is collected from each user, including their specialty, role (e.g., family physician, nurse practitioner), and location. Lastly, PCPs are required to complete a closeout survey at the end of each case. This survey poses three questions:

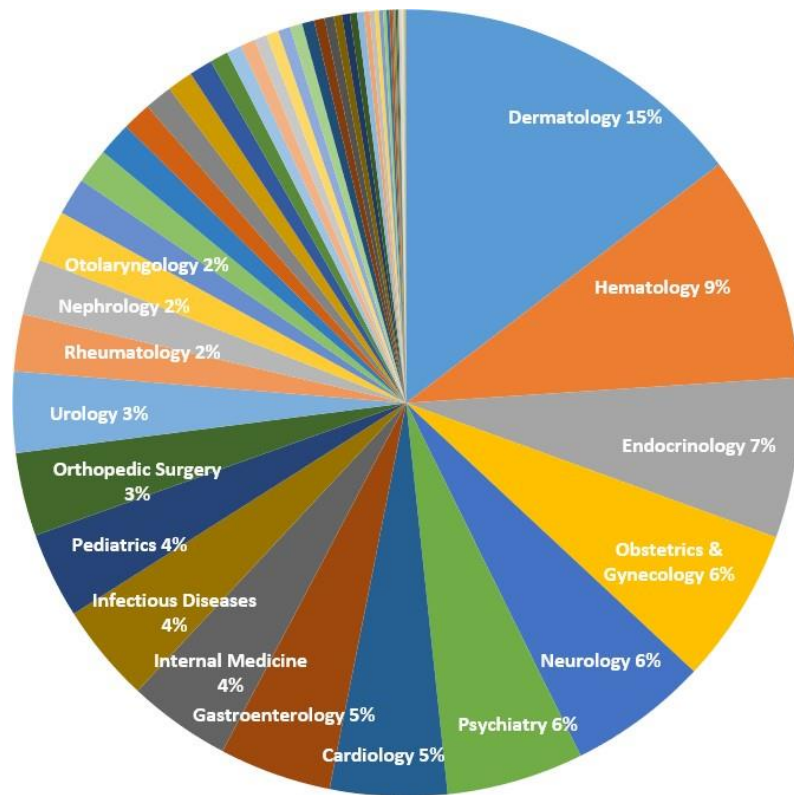
1. Whether the case confirmed an existing course of action, provided advice for a new or additional course of action, or had no benefit
2. Whether the eConsult influenced their decision to refer
3. A free-text field for additional comments (not analyzed in this study)

**Supplemental Table 1.** Description of the RE-AIM Framework's five dimensions and measures for assessing their impact for eConsult

<b>RE-AIM Dimension</b>	<b>Definition</b>	<b>Questions specific to eConsult Evaluation</b>
<b>Reach</b> into the target population	The absolute number, proportion, and representativeness of individuals willing to participate in a given initiative, intervention, or program.	<ul style="list-style-type: none"> <li>• Total number of cases</li> <li>• Monthly caseload over time</li> <li>• Usage by region</li> <li>• Most frequently-accessed specialties</li> </ul>
<b>Effectiveness</b> or Efficacy	The impact of an intervention on important outcomes, including potential negative effects, quality of life, and economic outcomes.	<ul style="list-style-type: none"> <li>• Median specialist response time</li> <li>• Mean specialist billing time</li> <li>• Impact on case outcome (i.e. new/additional information)</li> <li>• Impact on decision to refer</li> </ul>
<b>Adoption by</b> Target settings, institutions and staff	The absolute number, proportion, and representativeness of settings and intervention agents (people who deliver the program) who are willing to initiate a program.	<ul style="list-style-type: none"> <li>• Number of PCPs who submitted cases</li> <li>• Number of active PCPs (<math>\geq 3</math> eConsults in 6-month period) over time</li> <li>• Number of specialists participating over time</li> <li>• Number of specialty groups available over time</li> </ul>
<b>Implementation</b> costs and adaptations made during delivery	The consistency and fidelity to the program protocol, the costs and adaptations made during delivery.	<ul style="list-style-type: none"> <li>• Key steps taken to support implementation</li> </ul>
<b>Maintenance</b> of Intervention effects in individuals and settings over time	The extent to which a program or policy becomes institutionalized or part of the routine organizational practices and policies.	<ul style="list-style-type: none"> <li>• Key steps taken to support maintenance</li> </ul>



**Supplemental Figure 1.** Regional distribution of eConsults sent per 1,000 population.



**Supplemental Figure 2.** Proportions of eConsult cases submitted to different specialty groups

## **Supplemental Appendix 2.** Key actions supporting Ontario eConsult's implementation

### *Partnerships*

To support expansion, Ontario eConsult partnered with organizations across the province to act as Regional Lead Organizations (RLOs), which provided local engagement and change management support to clinicians in their region and oversaw the regional implementation of Ontario eConsult. At the launch of the service, only two RLOs were involved, both in the East region. By June 2020, 7 RLOs across the West, Toronto, East and North were established. To support regional communities of practice, regional BASE™ specialty groups were offered in 3 sub-regions across the West and East regions. Sixty-two percent of eConsults were sent through either provincial or regional BASE™ models, with the remaining 38% being sent through the direct-to-specialist model.

### *Upgrading the platform*

Ontario eConsult operates on the Ontario Telemedicine Network (OTN) Hub platform, an application that predates the formation of the Ontario service. In November 2019, Ontario eConsult performed an upgrade to the platform, which included: (i) improvements to workflows when accessing regional BASE™ managed groups, (ii) automation of case assigning for BASE™ managed groups, and (iii) implementing a maximum billing time of 60 minutes per response.

*Improvements to workflow.* As part of its upgrade, the service made the submission form simpler and more intuitive. A feature was also added allowing Requesting providers to identify regional priorities when submitting cases through the BASE™ model. To evaluate the impact of the new regional workflow, we compared the utilization of regional BASE™ groups from the South East sub-region prior to and after the upgrade. The number of eConsults sent through the

South East regional BASE™ managed groups decreased immediately following the upgrade, with November 2019 eConsults sent to the groups being 33% of monthly average prior to the upgrade (November 2019 = 72 eConsults sent, May to October 2019 monthly average = 220.5 eConsult sent). The number of eConsults increased in the months after, with 169 eConsults submitted in June 2020 to the South East regional BASE™ groups (75% of the monthly average prior to the upgrade). The overall case volumes sent from the South East region were not impacted by the upgrade, with November 2019 eConsults sent for the region being 110% of the monthly average prior to upgrade (November = 338 eConsults sent, May to Oct monthly average = 307 eConsults sent).

*Automation of case assigning.* As the number of specialists grew, there was a need to update how cases submitted through the BASE™ model were assigned. While all cases were originally allocated manually to specialists by a designated case assigner, the process was automated on November 1, 2019 to improve efficiency while ensuring an equitable distribution of cases among participating specialists while respecting their individual needs (e.g., desired case volume, unavailability, and case eligibility criteria). Specialists' overall response rate improved after automatic case assignment was implemented, with the median response interval decreasing from 1.1 days in the 6 months prior to the upgrade to 0.9 days in the 6 months after the upgrade.

*Maximum billing time.* As an additional modification, a 60-minute maximum billing time per eConsult response was implemented; which resulted in a minor decrease of the average billing time per case from 18.5 minutes to 17.8 minutes and the average cost per case from \$61.82 to \$59.36 when comparing 6 months pre- and post-implementation.

### *Addressing needs of specific populations*

The eConsult Centre of Excellence (COE), which oversees eConsult's provincial expansion, established initiatives to support equity of access to specialty care for persons living in long-term care (LTC) homes, correctional facilities, and Indigenous and First Nations communities.(14)

*Long-Term Care.* The eConsult COE collaborated with clinician champions, caregiver partners, policymakers, sector stakeholders, and the eConsult RLOs to guide and support implementation of eConsult in Ontario's LTC homes. Evaluation of eConsult in this setting proved it is feasible and an effective solution for improving access to timely specialist advice for residents living in LTC.(15)

*Correctional Facilities.* In partnership with Correctional Services of Canada, the eConsult COE implemented eConsult in correctional facilities. During the study period, 14 PCPs sent 258 eConsults on behalf of patients in federal correctional facilities.

*Indigenous and First Nations Communities.* With delivery partners, Ontario eConsult collaborated with Health Canada nurses and locum providers who regularly provide care to patients in rural/remote and Indigenous communities to better understand their existing workflows. This allowed for the development of unique engagement and adoption strategies to support these communities in leveraging eConsult to increase access to specialist care.