

Electronic consultation questions asked to addiction medicine specialists by primary care providers

Retrospective content analysis

Cynthia Chan MD CCFP Grace Zhu MD CCFP Clare Liddy MD MSc CCFP FCFP
Daniel T. Myran MD MPH CCFP FRCPC Erin Keely MD FRCPC Arun Radhakrishnan MDCM MSc CCFP

Abstract

Objective To determine the major themes among clinical questions asked to addiction medicine specialists sent by primary care providers (PCPs) via the Champlain Building Access to Specialists through the eConsultation (BASE™) electronic consultation (eConsult) service and the PCP-perceived benefits of this service.

Design A descriptive, retrospective study of the eConsult cases submitted to addiction medicine specialists between January 1, 2020, and December 31, 2021.

Setting Champlain region of eastern Ontario.

Participants Primary care providers who sent an eConsult to addiction medicine.

Interventions The BASE™ eConsult service was used to facilitate communication between PCPs and addiction medicine specialists.

Main outcome measures The classification of question types and clinical topics asked in eConsult cases sent to addiction medicine specialists by PCPs, and the answers in the close-out surveys completed by PCPs after eConsult was completed.

Results Primary care providers sought advice regarding opioids (38.0%) and alcohol (34.9%). The most common question types involved pharmacologic (77.5%) and nonpharmacologic (65.1%) management of patients with substance use. Electronic consultations were most frequently related to the clinical topic of chronic pain (28.7%). Over 95% of eConsults were answered by a specialist within 7 calendar days. Providers reported finding the eConsult responses helpful, with nearly one-third of PCPs reporting a potential referral was avoided following an eConsult from specialists.

Conclusion This study demonstrates that PCPs sought advice on management regarding opioids and alcohol, reflecting the challenges in controlled substance prescribing during an opioid crisis, with alcohol use disorder being the most prevalent substance use disorder in Canada. The eConsult service provided an accessible, timely, and beneficial process for PCPs to obtain addiction medicine specialist advice. Given the overlap with the COVID-19 pandemic and the study timeframe, further studies to examine postpandemic eConsults will allow for better generalizability of the findings.

Questions posées en consultation électronique à des spécialistes en médecine des dépendances par des professionnels des soins primaires

Analyse rétrospective de contenu

Cynthia Chan MD CCFP Grace Zhu MD CCFP Clare Liddy MD MSc CCFP FCFP
Daniel T. Myran MD MPH CCFP FRCPC Erin Keely MD FRCPC Arun Radhakrishnan MDCM MSc CCFP

Résumé

Objectif Déterminer les principaux thèmes qui se dégagent des questions cliniques posées à des spécialistes en médecine des dépendances par des professionnels des soins primaires (PSP) dans le cadre du programme d'amélioration de l'accès à des spécialistes de la région de Champlain et de son service de consultation électronique eConsultation (BASE™) (eConsult), de même que les avantages de ce service tels que perçus par les PSP.

Type d'étude Une étude descriptive rétrospective sur les cas d'eConsult soumis à des spécialistes en médecine des dépendances entre le 1^{er} janvier 2020 et le 31 décembre 2021.

Contexte La région de Champlain de l'Est ontarien.

Participants Les professionnels des soins primaires qui ont demandé une eConsult en médecine des dépendances.

Interventions Le service eConsult BASE™ a été utilisé pour faciliter la communication entre les PSP et les spécialistes de la médecine des dépendances.

Principaux paramètres à l'étude La classification des types de questions et des sujets cliniques en cause dans les cas d'eConsult envoyés par des PSP à des spécialistes de la médecine des dépendances et les réponses données par les PSP dans les sondages de clôture une fois le service eConsult rendu.

Résultats Les professionnels des soins primaires ont demandé des conseils concernant les opioïdes (38,0 %) et l'alcool (34,9 %). Les types de questions les plus fréquents portaient sur la prise en charge pharmacologique (77,5 %) et non pharmacologique (65,1 %) des patients ayant un trouble de consommation de substances. Les consultations électroniques avaient le plus souvent trait au sujet clinique de la douleur chronique (28,7 %). Plus de 95 % des eConsult ont reçu la réponse d'un spécialiste dans les 7 jours de calendrier suivant la demande. Les cliniciens ont signalé avoir trouvé utiles les réponses d'eConsult et près du tiers des PSP ont indiqué qu'une demande de consultation avait été potentiellement évitée grâce à l'eConsult avec des spécialistes.

Conclusion Cette étude démontre que les PSP ont sollicité des conseils sur la prise en charge en ce qui avait trait aux opioïdes et à l'alcool, ce qui reflète les défis entourant la prescription de substances contrôlées durant une crise des opioïdes et alors que le trouble de consommation d'alcool est le problème d'abus de substances le plus prévalent au Canada. Le service eConsult a offert aux PSP un processus accessible, en temps opportun et bénéfique pour obtenir des conseils de spécialistes en médecine des dépendances. Étant donné le chevauchement de la pandémie de la COVID-19 et de la période visée par l'étude, d'autres études pour examiner les eConsult ultérieurs à la pandémie permettront de mieux déterminer si les constatations sont généralisables.

An estimated 21% of Canadians will meet criteria for a substance use disorder (SUD) in their lifetime.^{1,2} Over the past decade, the use of alcohol, opioids, cocaine, and methamphetamine have resulted in increased mortality, morbidity, and health care costs in Canada.³ Alcohol use disorder (AUD) is the most common SUD^{2,4} and is associated with the highest substance-related health care costs along with rising rates of emergency department visits and hospitalizations.^{3,5} Concurrently, Canada is experiencing an opioid crisis driven by the rising use of prescription opioids and unregulated, increasingly toxic opioids,^{1,6,7} resulting in more opioid-related emergency department visits, hospitalizations, overdoses, and deaths.^{3,7,8}

There are unmet treatment needs for SUDs stemming from stigma, low perceived need, and barriers to accessing care such as financial constraints and availability of providers.⁹ Mental health care is commonly provided by primary care physicians (PCPs), yet the Canadian 2010 National Physician Survey reported only 30% of Canadian PCPs offer SUD care despite it being within their scope of practice.^{10,11} Interviews with 8 recent Canadian residency graduates revealed discomfort with managing addiction and mental health concerns, often due to minimal exposure during their training.¹² These findings suggest PCPs benefit from access to addiction medicine expertise.

The COVID-19 pandemic has created a larger need for SUD care while also highlighting the value of virtual SUD care. Since the pandemic was declared in 2020, there has been an increase in inpatient and outpatient care related to alcohol and opioid use.^{8,13,14} It also encouraged PCPs to rapidly adopt the use of virtual medicine to minimize viral transmission. Studies have found virtual medicine to be at least as effective as face-to-face consultations, including the use of telemedicine for AUD motivational interviewing.¹⁵⁻¹⁸

The Champlain region within eastern Ontario has an approximate population of 1.3 million people.¹⁹ First piloted in 2011, the Champlain Building Access to Specialists through eConsultation (BASE™) service is an asynchronous, confidential platform allowing PCPs in this region to request electronic consultations (eConsults) from specialists in various fields. In 2020, the eConsult service began providing access to addiction medicine specialists, nearly coinciding with the start of the COVID-19 pandemic.^{20,21}

Studies involving the BASE™ service identified that questions posed to chronic pain and care of elderly specialists frequently sought diagnostic clarification and treatment options, and the service resulted in improved access to specialist advice and reduced need for face-to-face referrals.^{22,23} However, the clinical questions being asked to addiction medicine experts since the service's inception along with the perceived benefits of using such a system have not been investigated. This study

aims to examine themes within the clinical questions asked in addiction medicine eConsults sent by PCPs, as well as PCP-perceived benefits of this service.

— Methods —

Study design

We conducted a retrospective analysis of available eConsult cases submitted to addiction medicine specialists within the Champlain BASE™ eConsult Service platform between January 1, 2020, and December 31, 2021.

Case identification

Eligible cases submitted through the service to addiction medicine specialists during the study period were included for analysis. Cases were excluded for the following reasons: duplicate case, missing information, no specific question asked, and an eConsult sent as a follow-up to another eConsult.

Data collection

Case-level data collected included demographic information of patients and PCPs, specialist response time, and responses to mandatory close-out surveys completed by referring PCPs. Electronic consultation referral content written by PCPs were collected for analysis.

Data analysis

A modified version of a validated classification tool, the Taxonomy of Generic Clinical Questions, using the International Standard for Primary Care-3, was developed to categorize clinical questions relevant to addiction medicine.²⁴ Chronic pain and addiction medicine specialists were consulted to gauge the face validity of these modifications. This classification tool was further refined to capture nuances that emerged after 3 authors (C.C., G.Z., A.R.) piloted the tool by independently coding 20 cases. The final coding tool was used by C.C. and G.Z. to independently code 129 cases, who met to resolve conflicts in iterations of 20 cases. Descriptive statistics were used to analyze demographic data of patients and PCPs, data from the close-out surveys, and classification of the eConsult questions, including question type and content classification.

— Results —

Of 138 eConsults submitted by PCPs, 9 cases were excluded and 129 cases were included in the analysis. **Table 1** summarizes patient and PCP demographic characteristics. Specialist responses were received within 7 calendar days in 95.3% of cases (n=123), and all cases received a response within 11 calendar days. The average response time was 2.7 days. Most cases were closed by PCPs after 1 iteration of communication between PCPs and specialists (n=91, 70.5%). The remaining cases were resolved with 2 (n=30, 23.3%),

3 (n=6, 4.7%), or 4 (n=2, 1.6%) iterations. Most cases closed within 7 calendar days (n=67, 51.9%), with an average of 12.3 days for case closure.

Question types and themes

Table 2 presents the frequencies of the substances for which PCPs sent eConsults. The 3 most common substances were opioids (n=49, 38.0%), alcohol (n=45,

34.9%), and stimulants (n=11, 8.5%). About half of the eConsult cases asked more than 1 question type (n=66, 51.2%). The most common question types were about drug treatment (n=100, 77.5%) and nonpharmacologic management (n=84, 65.1%) (**Figure 1**). The most frequent drug treatment questions consisted of how to prescribe a specific drug (n=54, 41.9%), such as approaches to opioid tapering, followed by which drug to choose for a particular condition (n=39, 30.2%), such as selecting an appropriate medication for chronic relapse prevention. The most common nonpharmacologic management question types were about general management (n=38, 29.5%), such as approach to managing patients with problematic substance use, and managing concurrent disorders (n=32, 24.8%), such as seeking advice for managing pain with concurrent opioid use disorder. Questions on diagnosis and referral each made up 7.8% of cases (n=10).

Classification of cases by clinical topics is presented in **Table 3**. Clinical topics were categorized into 4 general categories of chronic pain and controlled substances, long-term management, short-term management, and concurrent disorders. The most common clinical topics discussed in consultations were chronic pain (n=37, 28.7%), anti-craving (n=33, 25.6%), prescribing controlled substances (n=31, 24.0%), and withdrawal (n=28, 21.7%). Most eConsults involved 2 or more clinical topics (n=101, 78.3%).

Perceptions of PCPs

Primary care providers rated the eConsult service as very helpful in guiding their patient management in 94.6% of cases (n=122), with a mean rating of 4.7 out of 5. Nearly all PCPs (n=124, 96.1%) reported they planned on implementing the advice received from the responding specialist, with 88 cases (68.2%) reporting the advice was added to their original course of action (**Table 4**). Providers

Table 1. Patient and PCP demographic characteristics

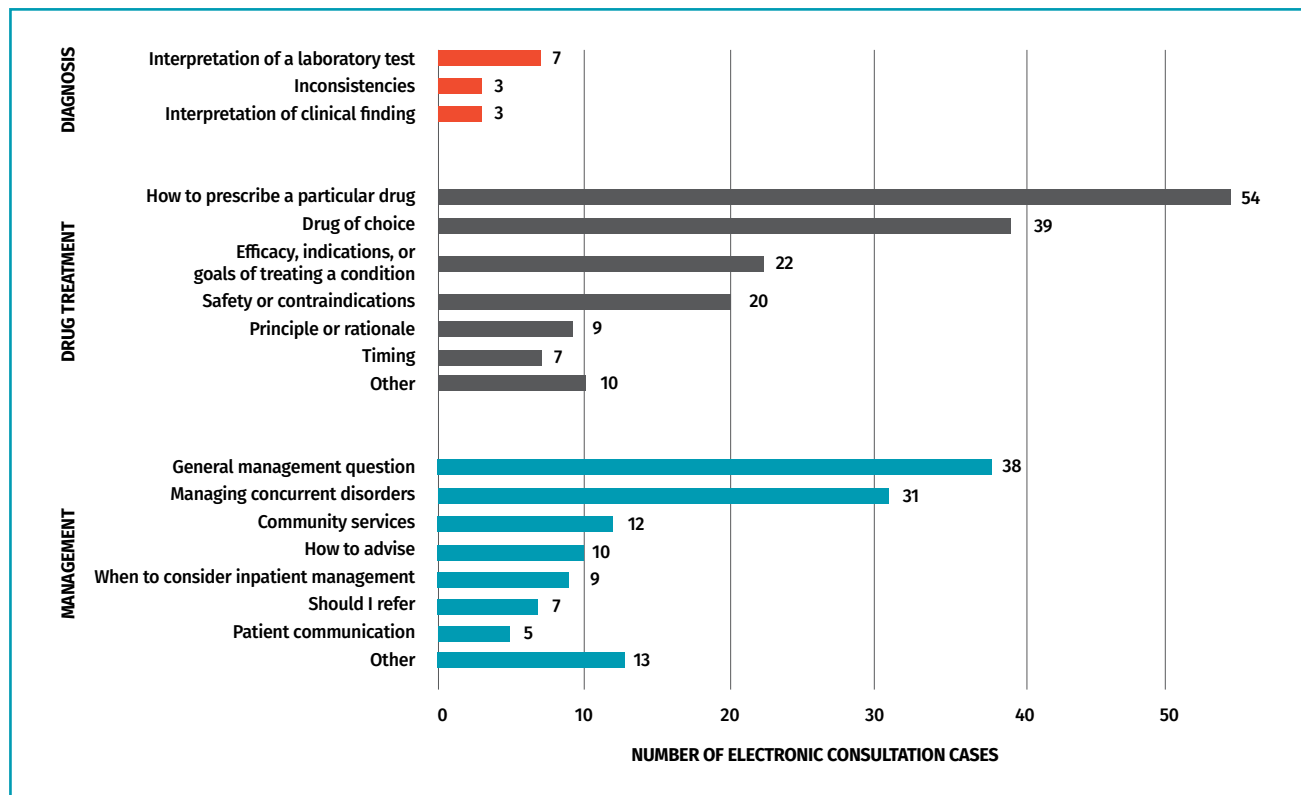
PARTICIPANT CHARACTERISTIC	NO. OF CASES	PERCENTAGE OF CASES
PCP (n=99)		
Type		
• MD	113	87.6
• NP	16	12.4
Region of practice		
• Champlain	123	95.3
• Toronto Central	4	3.1
• Mississauga Halton	2	1.6
Patient (n=129)		
Gender		
• Female	60	46.5
• Male	69	53.5
Age		
• ≤20	1	0.8
• 20 to 39	47	36.4
• 40 to 59	60	46.5
• 60 to 79	19	14.7
• ≥80	2	1.6
Concurrent conditions		
• Mental health conditions	73	56.5
-Depression	44	34.1
-Anxiety	38	29.5
-PTSD	12	9.3
-Insomnia	7	5.4
• Chronic pain	49	38.0
• Concurrent substance use*	37	28.7
• No reported concurrent condition	29	22.5

NP—nurse practitioner, PCP—primary care provider, PTSD—posttraumatic stress disorder.

*Concurrent substance use includes patient cases where PCPs submitted electronic consultations regarding the use of a primary substance and reported concurrent substance use, as well as cases where PCPs submitted electronic consultations regarding the use of multiple substances. Concurrent substance use includes use of substances that do not necessarily meet the criteria for a diagnosed substance use disorder. Some cases may consist of multiple concurrent conditions, so the sum exceeds the total number of cases (n=129).

Table 2. Primary substance(s) for which primary care providers sent an electronic consultation to addiction medicine specialists

SUBSTANCE	NO. OF CASES	PERCENTAGE OF CASES
Opioid	49	38.0
Alcohol	45	34.9
Stimulant	11	8.5
Cannabis	8	6.2
Polysubstance use	8	6.2
Benzodiazepines	3	2.3
Other substances	2	1.6
Tobacco	1	0.8
Non-substance addiction (ie, gambling)	1	0.8

Figure 1. Classification of addiction medicine electronic consultation cases by question type (diagnosis, drug treatment, and management)

reported that in 42 cases (32.6%), referral was originally contemplated but avoided, compared with 4 cases (3.1%) in which the eConsult resulted in a new referral.

— Discussion —

Through retrospective content analysis of eConsults, we illustrate the types of questions and clinical topics asked to addiction medicine specialists. Primary care providers primarily asked questions about pharmacologic and nonpharmacologic management with emphasis on chronic pain and anti-craving, specifically regarding opioid and alcohol use. Our study is the first to assess the clinical questions asked to addiction medicine specialists via eConsult in North America and may reveal potential SUD gaps of knowledge for PCPs.

High proportions of eConsults addressing management of anti-craving and withdrawal management for alcohol and opioid use disorder suggest a low comfort in addiction medicine management among PCPs, in keeping with only 30% of Canadian family physicians offering SUD care.¹¹ We suspect that PCPs require less assistance with diagnosis owing to available diagnostic and screening tools (eg, *Diagnostic and Statistical Manual of Mental Disorders*, CAGE questionnaire, Fagerström Test for Nicotine Dependence).²⁵⁻²⁷ Our study found about 8.5% of eConsults were related to stimulants, but

it is unclear how this number has been influenced by the pandemic due to the absence of prior data. It appears there is an increasing need for stimulant-related expertise based on a recent Ontario study demonstrating a 15-fold increase in amphetamine-related emergency department visits throughout the past 2 decades.²⁸

The most common primary substance among eConsults were opioids followed by alcohol, despite AUD being the most common North American SUD.² The emphasis on opioids in eConsults may be related to the increasing challenges PCPs face when prescribing opioids during an ongoing opioid crisis.²⁹ In 2017, the chronic noncancer pain guideline recommended restricting opioid prescribing to less than 90 mg of morphine equivalents daily, and regulatory actions have been taken against PCPs for inappropriate opioid prescribing.^{30,31} This context likely contributes to the volume of eConsults sent to addiction medicine inquiring about chronic pain management, even for patients where opioid use disorder has not been diagnosed. Similar to our study, eConsults sent to chronic pain specialists from 2011 to 2014 via the Champlain BASE™ eConsult Service noted opioid prescribing and management to be a major theme among the clinical questions, reflecting the ongoing challenges in safe opioid prescribing and substance dependence.²² Taken together, these studies demonstrate PCPs may benefit from more support and education surrounding prescribing opioids for chronic pain.

Table 3. Categorization of addiction medicine electronic consultation cases by clinical topic

CATEGORY	CLINICAL TOPIC	DESCRIPTION	NO. OF CASES	PERCENTAGE OF CASES
Chronic pain and controlled substances	Chronic pain management	Treatment of noncancer chronic pain	37	28.7
	Prescribing controlled substances	PCP-prescribed controlled substances (narcotic, stimulant, benzodiazepine) that are non-opioid agonist treatments	31	24.0
	Opioid tapering—medication management	Medical approach to decreasing prescribed opioid dosage over time	17	13.2
	Harm reduction	Strategies aimed at reducing negative consequences associated with drug use (including safe supply)	9	7.0
	Opioid tapering—patient communication and decision making	Advice for discussing opioid tapering with patients	2	1.6
Long-term management	Anti-craving	Medical management for chronic relapse prevention (generally for alcohol)	33	25.6
	Accessing resources	Community-based or inpatient patient programs to assist in substance use management	21	16.3
	OAT	Medical management of opioid use disorder; use of OATs (ie, buprenorphine, methadone, SROM)	18	14.0
	Abstinence	Advice to achieve patient goal of refraining from problematic substance use	10	7.8
Short-term management	Withdrawal	Advice on prevention and management of symptoms developed when patient stops or cuts down on a substance for which they have developed physical tolerance	28	21.7
	Rehabilitation or detoxification	Management of physical and psychological effects of stopping an addictive substance (inpatient or outpatient)	15	11.6
	Intoxication	Pattern of physical, behavioural, or psychological changes produced by active drug use	7	5.4
Concurrent disorders	Concurrent psychiatric disorders	Medical history includes psychiatric conditions that are complicating substance use management	25	19.4
	Medical complications	Substance use-related medical complications (eg, liver cirrhosis with alcohol use disorder)	11	8.5
	Concurrent medical disorders	Medical history includes conditions that are complicating substance use management	8	6.2
Other	NA	Unlisted clinical topics including safety (return to work, driving), urine drug screens, and non-substance addiction	19	14.7

NA—not applicable, OAT—opioid agonist therapy, PCP—primary care provider, SROM—slow-release oral morphine.

Our findings highlight that the eConsult platform is a valuable avenue for PCPs to receive timely and beneficial advice from addiction medicine specialists. A rapid specialist response can be an incredible asset in SUD management, especially for acute withdrawal and prescribing controlled substances. These results are comparable to the general data collected by the Champlain BASE™ eConsultation Service with about 93.1% of PCPs reporting a high value of the service and about 65% of cases resolving without a specialist referral.^{32,33} A 2020 study examining the acceptance of a mobile-based eConsult service for managing SUD in India during the COVID-19 pandemic lockdown demonstrated differences in patient

demographic characteristics and question types compared with our study, illustrating the influence social and political environments have on substance use.³⁴ Health care providers in this study found the eConsult tool to be acceptable, reliable, and time saving.³⁴ Within this study and across the literature, there is consensus that eConsult services improve accessibility and timeliness when receiving advice from specialists.³³⁻³⁵

Strengths and limitations

The strength of this study is our research methodology that emphasized an iterative and consensus-based approach. Our coding framework was developed with

Table 4. Referral outcomes of electronic consultations as reported by primary care providers

RESULT OF ELECTRONIC CONSULTATION	NO. OF CASES	PERCENTAGE OF CASES
I was able to confirm a course of action that I originally had in mind	36	27.9
I got good advice for a new or additional course of action that I will be implementing	88	68.2
I got good advice for a new or additional course of action that I am not able to implement	4	3.1
None of the above	1	0.8
Referral was originally contemplated but now avoided at this stage	42	32.6
Referral was originally contemplated and is still needed	29	22.5
Referral was not originally contemplated and is still not needed	50	38.8
Referral was not originally contemplated, but electronic consultation resulted in a referral being initiated	4	3.1
Other	4	3.1

addiction medicine and chronic pain expert consultation, coding was performed independently and in duplicate, and incongruence in coding was discussed between the primary researchers to achieve consensus. Limitations of our study include that some addiction medicine-related eConsults were possibly not captured if they were sent to other specialties on the eConsult platform, such as chronic pain or psychiatry. Additionally, the specialty of the consulting physician, whether psychiatrists, chronic pain specialists, family physicians, or otherwise, was not available through the program. Another limitation of the study is that the sample was restricted to the Champlain region and included only 2 years of case data. Furthermore, because the addiction medicine service was established shortly before the start of the COVID-19 pandemic, and substance use patterns have changed with the COVID-19 pandemic, we are unable to assess whether there are changes in trends resulting from the pandemic, challenging the generalizability of our findings outside of this timeframe.^{13,14} Demographic characteristic data of patients and PCPs were largely unavailable, such as socioeconomic status and geographic location. Together, these reduce the external validity of the study. However, our results on the benefits of eConsults in addiction medicine remain consistent with other studies.³³⁻³⁵ Future steps may include using keyword searches to identify cases sent to other specialties to improve inclusion of SUD-related cases and increase sample size and include further years beyond the pandemic timeframe. A larger sample size through a longer study duration or broader geographic region will also allow for more nuanced analysis including subgroup analysis and trends within different patient demographic groups.

Conclusion

With the rising prevalence of problematic substance use exacerbated by the COVID-19 pandemic and opioid crisis, PCPs may encounter more patients who would benefit from addiction medicine expertise. Our study found that PCPs

generally sent eConsults to addiction medicine specialists to inquire about pharmacologic and nonpharmacologic management regarding opioids and alcohol. Our study also demonstrated that PCPs often requested assistance with chronic pain management from addiction medicine specialists. This information can be used to inform continuing professional development as it may reflect potential gaps in SUD knowledge among PCPs and discomfort in prescribing opioids for chronic pain. An eConsult service can support PCPs by providing an accessible, efficient process for obtaining timely addiction medicine advice. 

Dr Cynthia Chan is a family physician practising in Ontario. **Dr Grace Zhu** is a family physician practising in British Columbia. **Dr Clare Liddy** is Chair and Professor in the Department of Family Medicine at the University of Ottawa in Ontario, Clinician Investigator in the CT Lamont Primary Health Care Research Centre at the Bruyère Health Research Institute, and Co-Executive Director of the Ontario eConsult Centre of Excellence. **Dr Daniel T. Myran** is a public health and preventative medicine physician at the Ottawa Hospital, and Research Chair and Assistant Professor in Social Accountability in the Department of Family Medicine at the University of Ottawa. **Dr Erin Keely** is an endocrinologist at the Ottawa Hospital, Professor in the Department of Medicine at the University of Ottawa, and Co-Executive Director of the Ontario eConsult Centre of Excellence. **Dr Arun Radhakrishnan** is a family physician and Assistant Professor in the Department of Family Medicine at the University of Ottawa, Investigator at the Bruyère Health Research Institute, and Lead for Clinical Research in the Department of Family Practice at the Ottawa Hospital.

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Contributors

Drs Erin Keely and **Clare Liddy** are co-founders of the Champlain BASE™ eConsultation service. **Dr Clare Liddy** conceived this idea for the project and provided oversight throughout the project including design, acquisition, and analysis of the data. **Dr Arun Radhakrishnan** was the Family Medicine Resident Scholarly Project supervisor and provided addiction medicine expertise and input at every stage of the project. **Dr Daniel T. Myran** provided expertise to develop the coding framework and help contextualize the results. **Drs Cynthia Chan** and **Grace Zhu** were involved in developing the study objectives, developing the coding framework for data analysis, coding, statistical analysis, interpretation of data, and writing of the manuscript. **Drs Grace Zhu, Cynthia Chan, Arun Radhakrishnan, Daniel T. Myran, and Clare Liddy** were involved in the critical revision of the manuscript.

Competing interests

This study was funded by the Canadian Institutes of Health Research. **Drs Clare Liddy** and **Erin Keely** are co-founders of the Champlain BASE™ eConsult Service, which serves the region of Eastern Ontario. They have no commercial interest in the service and do not retain any proprietary rights. **Dr Keely** is the Executive Director and **Dr Liddy** the Evaluation Lead of the Ontario eConsult Centre of Excellence and both receive salary support from the Ontario Ministry of Health. **Dr Keely** answers occasional eConsults (fewer than 1 per month) as a specialist through the service, for which she is reimbursed. As co-founders of Champlain eConsult BASE™ and senior leaders of the service, **Drs Liddy** and **Keely** have a perceived conflict of interest.

CorrespondenceDr Arun Radhakrishnan; email aradhakr@uottawa.ca**References**

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