

PRIMARY CARE & HEALTH SERVICES SECTION

Original Research Article

Improving Access to Chronic Pain Services Through eConsultation: A Cross-Sectional Study of the Champlain BASE eConsult Service

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Abstract

Objective. To describe the impact of the Champlain BASE (Building Access to Specialists through eConsultation) eConsult service on access to specialist care for patients with chronic pain.

Design. A cross-sectional descriptive study

Setting. The Champlain Local Health Integration Network, comprising Ottawa, Canada, and the surrounding region.

Subjects. All eConsult cases submitted to chronic pain specialists by primary care providers between April 15, 2011 and June 30, 2015.

Methods. Usage data and provider responses to a mandatory closeout survey were analyzed to determine response times, case outcomes, and provider satisfaction.

Results. Ninety-three primary care providers submitted 199 eConsults to four chronic pain specialists during the study period. Submitted cases had median response times of 1.9 days. Thirty-six percent of cases resulted in an unnecessary referral being avoided, and over 90% of cases were rated by primary care providers as being of high or very high value for their patients and themselves.

Conclusion. The eConsult service improved access to specialist care for patients with chronic diseases. By facilitating prompt communication between primary care providers and specialists, eConsult can help mitigate the negative effects of long wait times experienced by patients with chronic pain.

Key Words. Electronic Consultation; eConsult; Primary Care; Chronic Pain; Referral and Consultation; Wait Times

Introduction

Chronic pain is a serious problem in many countries around the world, including Canada and the United States [1,2]. Approximately 100 million Americans are affected by chronic pain, and the treatment and impact

of this condition costs the country \$600 billion each year [2]. Likewise, one in five Canadians suffer from chronic pain, and costs associated with the condition are estimated to be between \$50–\$60 billion [3]. Despite the high prevalence of chronic pain in patients, many primary care providers (PCPs) express discomfort or concern in managing patients with chronic pain [4,5]. PCPs face a number of barriers to providing treatment for patients with chronic pain, including a lack of formal training in pain management, concerns of opiate abuse or patient addiction, fear of scrutiny or reprisal from regulatory bodies, and challenges in accessing advice and support from experts [6,7].

Likewise, patients struggle to access timely specialist advice for chronic pain. Wait times for multidisciplinary chronic pain clinics are extremely long, ranging from 6 months to 5 years [8]. Chronic pain specialists face enormous patient populations; a survey of 102 multidisciplinary pain clinics across Canada found that on average, these clinics serve approximately 258,000 Canadians [9]. This discrepancy between demand and supply causes significant backlogs that lead to poor access and delays in treatment. These delays can have serious consequences for patients, many of whom suffer significant deteriorations in quality of life while awaiting treatment for their conditions [10].

Electronic consultation technologies have the potential to bridge the care gap between patients and specialists by allowing PCPs to communicate with specialists via a fast, secure online platform, in many cases eliminating the need for a face-to-face consultation [11–13]. Studies have associated electronic consultation with reduced wait times, better communication between PCPs and specialists, and greater access to specialist care [14–17].

The Champlain BASE (**B**uilding **A**ccess to **S**pecialists through **e**Consultation) eConsult service is an electronic consultation service developed in Ottawa, Canada. This secure Web-based application enables asynchronous (i.e., not occurring in real-time) communication between primary care and specialist providers. Launched as a proof of concept in 2010 [11], the eConsult service has grown to encompass 835 PCPs (including 703 family doctors and 132 nurse practitioners) who have access to advice from 80 different specialty groups. The service has reduced wait times from months to days [18], and received positive feedback from PCPs [19] and specialists [20]. In light of the service's success, eConsult team members have partnered with the sole academic pain clinic operating in the Champlain Local Health Integration Network (LHIN) to help address its long wait list, which currently contains over 1,200 patients, necessitating waits of over 2.5 years.

The purpose of this article is to describe the impact of the Champlain BASE eConsult service on access to specialist care for patients with chronic pain.

Methods

Design

We conducted a cross-sectional study consisting of a review of all eConsult cases submitted to chronic pain specialists by PCPs registered with the service.

Setting

The Champlain LHIN is one of 14 regional health districts in Ontario, Canada. Located in the easternmost part of the province, the Champlain LHIN is over 16,000 square kilometers in size and has a population of approximately 1.2 million [21], roughly half of whom reside in the city of Ottawa and half in the surrounding smaller cities and rural communities. Most of the region's specialists practice within Ottawa, requiring many individuals who reside outside the city to travel as much as 2 hours by car to attend face-to-face specialist appointments.

Participants

The eConsult service is currently available to all PCPs in the Champlain region (including family doctors and nurse practitioners), as well as a select group of providers from across Ontario and some remote Northern communities in support of various ongoing research initiatives. Initially, Champlain BASE team members recruited PCPs through provider engagement. Continuous growth in registered PCPs has occurred organically, mostly through word of mouth, as new users deliberately seek out the service to enhance current practices. As this study focuses exclusively on patients with chronic pain, only cases submitted by PCPs to chronic pain specialists have been included. This includes all cases completed between April 15, 2011 (when the eConsult service began collecting PCP and specialist data) and June 30, 2015.

The eConsult Service

The Champlain BASE eConsult service allows PCPs to submit patient-based questions to specialists via its secure Web-based platform. To use the eConsult service, PCPs log in and complete a standardized electronic form outlining a patient-specific clinical question, attaching any applicable files if deemed useful (e.g., digital images, test results, health histories). A designated assigner directs the PCP's question to a specialist from one of the 80 different specialty groups currently available. The specialist receives a notification by email about the eConsult and replies within 1 week. When replying to eConsults, specialists have three options. They can: 1) provide advice to the PCP for a course of action in treating the patient; 2) request additional information; or 3) recommend a face-to-face referral. Specialists are remunerated at \$200 an hour prorated to the amount of

time they report taking to answer the eConsult. Currently, the three pain specialists providing eConsult services are anesthesiologists with specialized training in chronic pain management. They were recruited through word-of-mouth, and reply to eConsult cases in addition to their regular practice.

Data Collection

Data for this study were drawn from the eConsult service. For each eConsult case, the service collects data from PCPs (number of eConsults previously submitted, provider type) and specialists (specialty group), as well as usage data about the case itself (specialists' response time, case outcome). Additionally, the eConsult service saves a log containing the complete exchange between PCPs and specialists, which can be reviewed by both parties.

At the conclusion of each case, PCPs complete a mandatory closeout survey containing five questions. The first question solicits information on the eConsult's outcome. PCPs can choose whether the eConsult: 1) confirmed their originally chosen course of action; 2) suggested a new or additional course of action; 3) was not very useful; or 4) none of the above. The second question allows PCPs to choose from six different options identifying whether or not they: 1) had originally contemplated a referral; and 2) ultimately referred the patient based on the advice they received from the eConsult. The third and fourth questions ask PCPs to rank the eConsult's value for their patients and themselves, respectively, using a five-point Likert scale. The fifth question provides an optional free-text field allowing PCPs to leave any additional comments they may have.

We calculated median and interquartile response times for eConsult cases included in the study. For all other outcomes, we tabulated counts and averages, as appropriate. The Ottawa Health Science Network Research Ethics Board and Bruyère Continuing Care Research Ethics Board provided approval for this study.

Results

A total of 93 PCPs submitted 199 eConsults to four chronic pain specialists between April 15, 2011 and June 30, 2015. PCP demographics are described in Table 1. Compared with the overall sample of PCPs who submitted eConsult cases during this period, PCPs who submitted to chronic pain specialties were less likely to be nurse practitioners (8% versus 16% of total sample) and more likely to practice in urban areas (90% versus 87% of total sample). The patients to whom the eConsult cases pertained had a mean age of 51.6 years (SD = 15.3), and 59% of them were women.

Frequency of eConsult cases submitted for chronic pain specialties grew steadily over the course of the study period (Figure 1), with an average of 12 cases per month closed during the last 12 months of the study

Table 1 Demographics of primary care providers (PCP) who submitted eConsult cases to chronic pain specialists between April 15, 2011 and June 30, 2015

Characteristic	PCPs submitting to chronic pain [% (N)] ^a	All PCPs [% (N)] ^b
Gender		
Female	73% (68)	73% (368)
Male	27% (25)	27% (136)
Provider Type		
Family Doctor	92% (86)	84% (422)
Nurse Practitioner	8% (7)	16% (82)
Rurality^c		
Urban	90% (84)	87% (440)
Rural	10% (9)	13% (64)

^aOf a total of 93 primary care providers.

^bOf a total of 504 primary care providers.

^cRurality determined by Rurality Index for Ontario Score.

versus an average of two cases per month from October 2012 to September 2013 (only one eConsult case was directed to chronic pain specialties prior to October 2012).

Specialists provided quick responses to PCPs' questions. The median response time between the initiation of the eConsult case and the specialist's first response was 1.9 days. In 75% of cases, the first response arrived within 4.1 days, and the longest wait for a response was 16.2 days. In over half of all cases, specialists reported taking between 10 and 20 minutes to provide their response (Figure 2).

In 74% of cases (n = 147), PCPs received advice suggesting a new or additional course of action, compared with 24% of cases (n = 47) in which PCPs confirmed a course of action they had originally intended. In 3% of cases, PCPs either reported the response was not useful (n = 2) or selected "none of the above" (n = 3) (Figure 3). PCPs were able to avoid referring patients for a face-to-face specialist visit that they had originally planned in 36% of cases. Only 44% of eConsult cases resulted in a patient referral. In 94% of cases that resulted in face-to-face specialist visits, the PCP was already contemplating a referral.

An analysis of the clinical content of eConsult cases submitted to chronic pain specialists is outside the scope of this study. Figure 4 depicts a case drawn from the dataset to exemplify the type of questions and responses posed via the eConsult service.

The vast majority of PCPs responded favorably to the eConsult service. On a scale from one (minimal) to five (excellent), 90% of PCPs gave the service a rating of four or five on its overall value for patients, and 92%

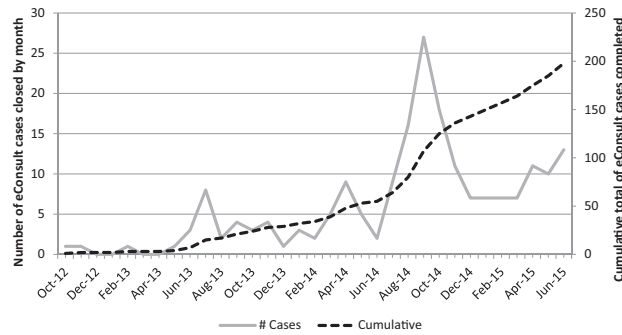


Figure 1 Number of eConsult cases directed to chronic pain specialties by month and cumulatively over time.

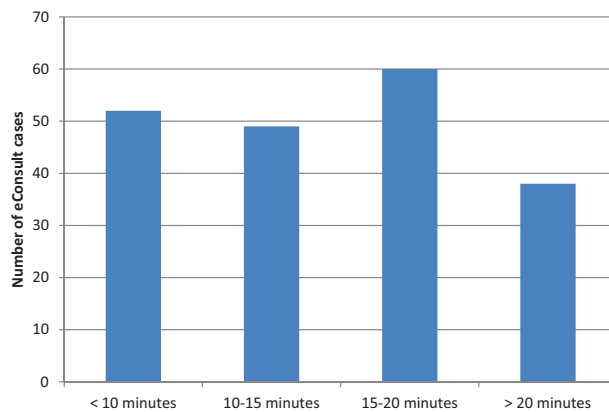


Figure 2 Specialists' self-reported response times for eConsult cases (n = 199).

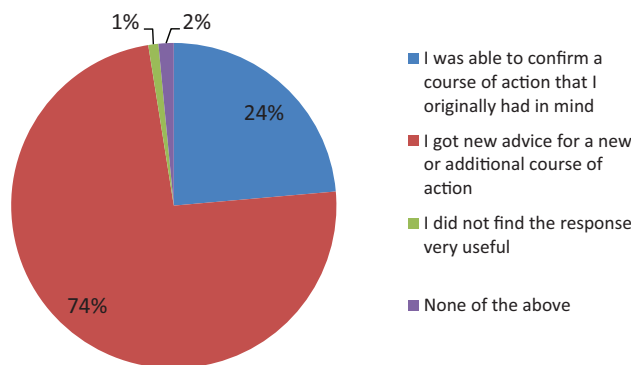


Figure 3 Outcome of eConsult cases reported by primary care providers.

gave it a rating of four or five on its value for them as providers (Figure 5). The average rating of the service's overall value for patients and providers was 4.57 and 4.64 out of 5, respectively. Responses to the fifth question, which allowed for optional free-text feedback, were almost entirely positive, with the vast majority of respondents offering thanks and expressing satisfaction

with the service. We have included two sample quotations illustrating PCPs' attitudes toward the service:

- "This was an excellent option because a referral for a pain medicine consult takes a very long time or often just never happens. This was very useful."

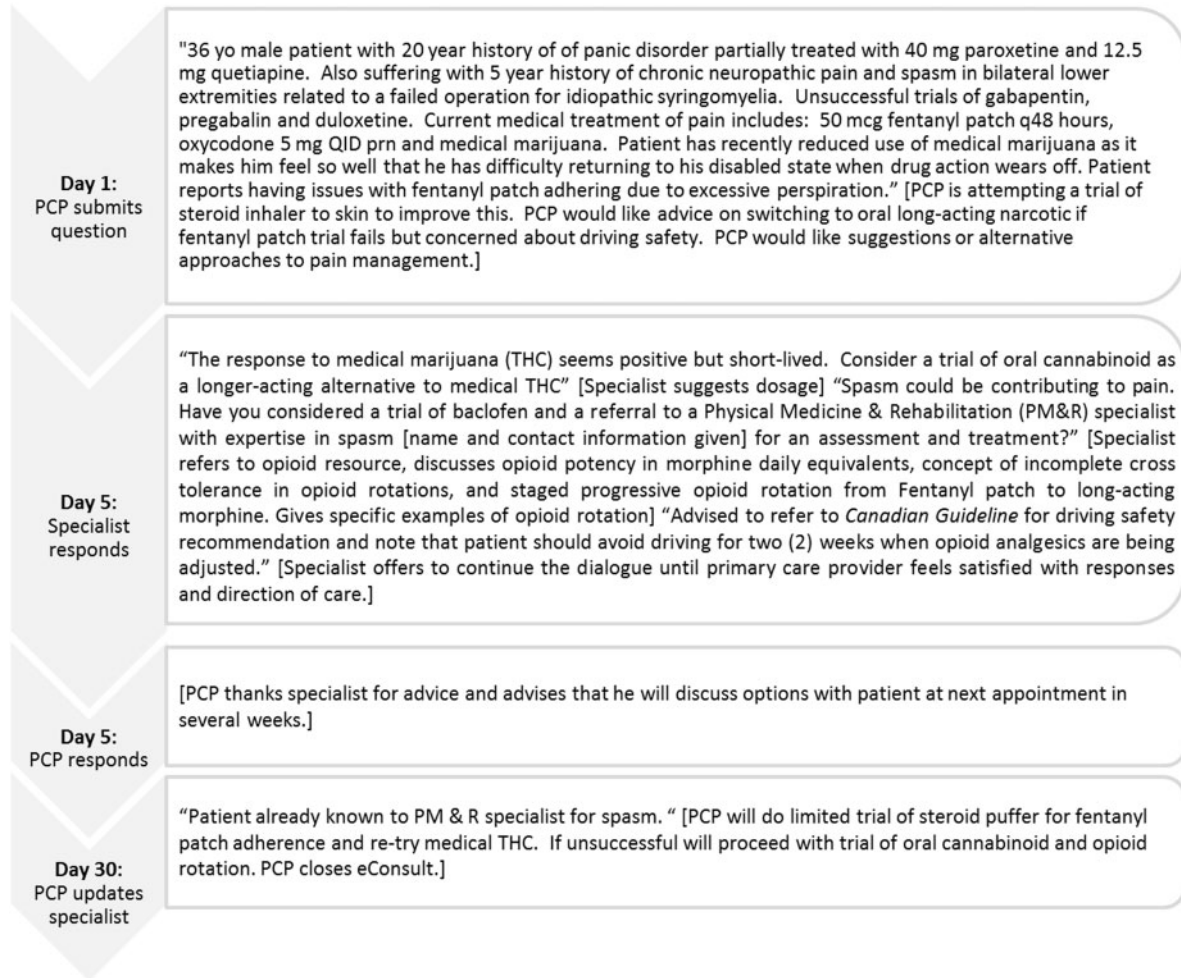


Figure 4 Example of a case submitted to a chronic pain specialist via the eConsult service.

- "An extremely helpful consultation! Plotted out the entire course of action I can follow over the long run including safety hatch for me!"

Discussion

Our study found that eConsult greatly improved access to chronic pain services. Half of the consults submitted by providers on behalf of their patients were responded to in under 2 days, and the vast majority of PCPs rated the service as having high overall value for themselves and their patients. Our findings coincide with previous studies on the eConsult service examining measures of access and satisfaction on the complete user population [18]. A recent cross-sectional study of all eConsult cases submitted to our service between April 15, 2011 and December 31, 2013 found that eConsult led PCPs to consider a new or additional course of action in the majority of cases, though the percentage was smaller than among chronic pain eConsults alone (57% versus 74%). Likewise, a similar percentage of eConsults resulted in an originally contemplated referral being

avoided in both studies (41% of all cases versus 36% of chronic pain cases). While caution must be exercised in drawing comparisons between studies due to their differing sample sizes (2,044 cases versus 199 chronic pain cases), both studies underscore an encouraging trend in eConsult’s ability to deliver prompt access to specialist care.

Recent literature suggests that asynchronous consultation services such as eConsult can have a significant impact on wait times. A number of studies have reported that eConsult services provide prompt access to care, with average response times ranging from hours to days [13,15,22–24]. Studies comparing eConsults to conventional wait times found dramatic improvements in access. One study of a teledermatology service found wait times for the program averaged only 12.3 days, compared with 88.6 days for traditional referrals [25]. High levels of patient and provider satisfaction with eConsult services have also been consistently reported [26–29]. Less has been written on the economic benefits of eConsult services, though some preliminary

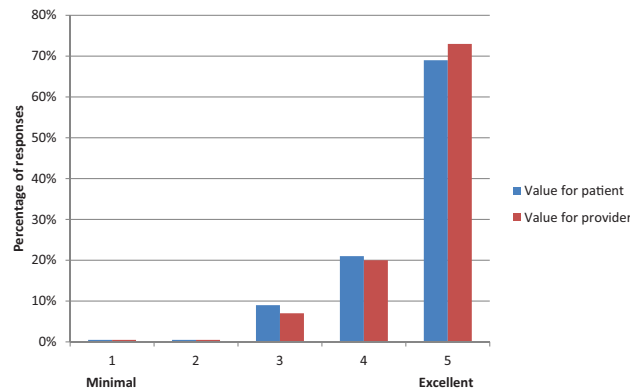


Figure 5 PCPs' ratings of the overall value of the eConsult service to their patients and themselves on a five-point Likert scale.

findings suggest such services can lead to cost savings [30,31]. When considering the tremendous economic and social impact that waiting for specialist care has on patients with chronic pain, a platform providing swifter access to specialist advice seems likely to have a substantial positive impact.

The eConsult service offers promising improvements in specialist access for patients with chronic pain, who have traditionally faced particular challenges in accessing timely specialist care. Wait times for chronic pain clinics exceed 1 year at over one-third of Canada's publically funded pain clinics [9], despite the fact that the Canadian Pain Society's Task Force on Wait Times considered waiting for more than 6 months to treat chronic pain to be medically unacceptable [32]. Delays in accessing care are exacerbated by the suffering many patients experience while awaiting treatment [33]. This takes a toll on patients' well-being, often resulting in reduced quality of life [1], depression [10], and high levels of suicidality [34,35]. Untreated chronic pain also carries a substantial economic burden [36], both for the health care system and for patients themselves through travel costs, lost wages, and out-of-pocket expenses. Studies have estimated the total cost of chronic pain in Canada to range from \$4–\$60 billion a year [3,37]. This problem extends far beyond Canada's borders, with studies in Europe, the United States, and Australia reporting billions of dollars lost each year from employee absences or reduced employee performance resulting from chronic pain [38–40].

The eConsult service also has the potential to improve patient safety among individuals experiencing chronic pain. Deaths from non-medical use of prescription opioids—a common treatment for chronic pain—have increased significantly over the last decade in Canada and the United States [41,42]. In Ontario, 58% of all drug-related deaths between 2006 and 2008 resulted from opioid use [43]. Likewise, over 11,000 people in the United States died from overdoses of opioids in 2007, accounting for 42% of all drug-related deaths

[44]. Research has suggested that variance in prescribing patterns among family physicians can influence opioid-related mortality. A recent study of family physicians found that the 20% most frequent prescribers issued 55 times more prescriptions to patients than the 20% least frequent prescribers [45]. By providing prompt access to advice from chronic pain specialists, the eConsult service can help guide PCPs in their prescribing and provide knowledge of current guidelines on prescribing in use in their jurisdictions, such as the Canadian Guideline for Safe and Effective Use of Opioids for Chronic Non-Cancer Pain [46]. Our study did not include an evaluation of the clinical content of eConsult cases, and hence we cannot speak to the number of cases in which opioids were discussed. Further analysis of the clinical content of eConsult questions is underway. However, as a common treatment for chronic pain, opioids were likely discussed in many cases, and more informed prescribing could have a substantial benefit on patient safety.

Our experience implementing and evaluating the eConsult service has yielded several insights that may be of interest to those looking to establish similar services in their own jurisdictions. First, focus on the access issues specific to the target community. Patient need should be the ultimate driver of the service, rather than building around an established technology. Second, engage the local primary care community. As users of the service, PCPs can provide vital insight into the needs of the patient population, and their input should be sought throughout the implementation process. Lastly, explore opportunities for capacity building. This is essential to keep the service sustainable and ensure it provides for patients' needs.

This study has some limitations. Our team did not have access to data on the total number of traditional referrals to the Academic Pain Clinic, precluding an assessment of eConsult's population-level impact; however, it is clear that a substantial number of referrals for chronic pain can be directed toward the service. We were also

unable to report on what proportion of specialists' suggestions were implemented by PCPs and undertaken by patients. This point is worth considering, as a 2005 study of fax-based recommendations sent by chronic pain specialists found that only 32% of PCPs acted on the advice they received [47]. Furthermore, the data collected by our service are at the provider level, and the service's value for patients can thus only be appraised indirectly through the perspective of the PCP. However, evidence of patient interest in eConsult has been previously reported. In a recent study using waiting room surveys, most patients felt wait times significantly exceeded what they considered acceptable, and half considered electronic consultation a viable alternative to face-to-face visits [48]. Our research team is currently conducting further research to acquire patient perspectives on the eConsult service directly. Further study is also needed to provide a detailed taxonomy of the types of questions posed to chronic pain specialists via eConsult and to determine which types of chronic pain questions are best suited to the service.

Conclusions

The eConsult service improved access to specialist care for patients with chronic diseases. PCPs who submitted eConsult cases to chronic pain services experienced median response times of 1.9 days. Thirty-six percent of cases resulted in an unnecessary referral being avoided, and over 90% of cases were rated by PCPs as being of high or very high value for their patients and themselves. By facilitating prompt communication between PCPs and specialists, eConsult can help mitigate the negative effects of long wait times experienced by patients with chronic pain.

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