

Perspectives of Champlain BASE Specialist Physicians: Their Motivation, Experiences and Recommendations for Providing eConsultations to Primary Care Providers

Erin KEELY^{a,b,1}, Paul DROSINIS^c, Amir AFKHAM^d and Clare LIDDY^{c,e}

^a *Department of Medicine, University of Ottawa, Ottawa, Canada*

^b *Division of Endocrinology/Metabolism, The Ottawa Hospital, Ottawa, Canada*

^c *C.T. Lamont Primary Health Care Research Centre, Bruyère
Research Institute, Ottawa, Canada*

^d *The Champlain Local Health Integration Network, Ottawa, Canada*

^e *Department of Family Medicine, University of Ottawa, Ottawa, Canada*

Abstract. Electronic consultation can improve access to specialist care. However, specialists have been identified as less likely to adopt electronic solutions in clinical settings. We conducted an online survey to explore the perspectives of specialists who use the Champlain BASE eConsult service in Eastern Ontario, Canada. Specialists were asked their opinions on experience with the service, their current consult/referral practices, recommendations for change and expansion of the service, and compensation models. We tabulated descriptive statistics from the multiple choice and Likert scale responses and performed a content analysis with an emergent code strategy for open-text responses. Specialists (n=34, 77% response rate) agreed that the Champlain BASE eConsult service is a feasible way to improve access to specialist care (94%), improves communication between specialists and primary care providers (PCPs) (94%), has educational value for PCPs (91%), and is user friendly (82%). A majority of specialists (88%) felt the service should be expanded provincially and 67% felt it should allow specialist-to-specialist consultation. 88% of specialists agreed that the current compensation process is best. This study provides an in-depth look at the perspective of the specialist physicians who use the Champlain BASE eConsult service. Specialists stated specific recommendations for change that will allow us to ensure the service remains sustainable.

Keywords. electronic consultation, eConsult, specialist care, access to care, wait times

Introduction

Reform of the referral-consultation process is needed as access to specialty care remains a major barrier to effective health care in Canada. In the Canadian universal

¹ Corresponding author: ekeely@toh.on.ca.

health insurance programs, access to a specialist requires a referral from a primary care provider (PCP) or other physician. With the traditional referral-consultation process, the patient must meet with the specialist before recommendations are provided to the PCP.

Canada has the second longest wait times for seeing a specialist compared to ten other countries [1]. Forty-one percent of patients waited over two months to see a specialist and 73% of PCPs identified long waits to see a specialist as a frequent barrier to patient care [2,3]. Excessive wait times, inequitable access depending on geographic location, and poor communication between providers leads to patient anxiety, delays in diagnosis, duplication of services, dissatisfaction among providers, and ultimately poor patient care [2,3].

Innovative specialist care services that are population-based, centrally organized, and integrated with emerging technologies such as eConsult can greatly improve access to specialist care [4-13]. However, physician engagement remains a key barrier to implementation of new ideas and technology [8]. Specialist physicians have been identified as being less likely to adopt electronic solutions in clinical settings, and there is very little information on what motivates specialists to become involved in electronic services such as eConsult [11,14].

In order to reduce wait times for access to specialist advice, we developed a novel eConsult service, Champlain BASE (**B**uilding **A**ccess to **S**pecialists through **e**Consultation). We have recruited and retained over 50 different specialty services that have provided over 4600 eConsults to date. Physician engagement and commitment was essential for the success of this project. The goal of this study was to explore the perspectives of specialist physicians who currently provide eConsults, understand what motivated them to become involved in and continue to provide this service, and use these perspectives to help inform the planning of eConsult services in other regions.

1. Methods

The study was based in the Champlain Local Health Integration Network, which is one of 14 regional health districts in Ontario, Canada. It has a population of 1.2 million people [15].

We administered a 25-item, web-based questionnaire to specialist physicians registered to use the Champlain BASE eConsult service on or before May 20, 2014 if they had responded to at least one eConsult. Specialists who had not yet completed the survey received two reminder emails.

1.1. The eConsult Service

The Champlain BASE eConsult service is an asynchronous web-based application that allows PCPs (family doctors or nurse practitioners) to submit a patient-specific question to a specialty. PCPs fill out a four-field electronic form and have the option to attach any other pertinent electronic files (e.g. laboratory results, digital images). The case is assigned to an individual specialist who is asked to respond within a week. Specialists have the option to request more information, provide a recommendation, or suggest a face-to-face referral (not necessarily to their own clinic). The communication between the PCP and the specialist is iterative, with each provider receiving a

notification email to alert them about new information of pending action. The full details of the eConsult service development have been reported elsewhere [5,9,13].

In Ontario's universal health insurance system, access to a specialist generally requires a referral from a PCP or other physician. Most specialists are paid based on fee for service with some physicians or practices compensated in other ways depending on their practice model (e.g. capitated, salaried). The fee structure varies depending on the specialty type. A novel compensation model was implemented for the Champlain BASE eConsult service that is separate from the provincial billing program: all specialists are remunerated on a quarterly basis using a standard hourly rate (\$200 per hour) that is pro-rated to the self-reported time it takes the specialist to complete the eConsult. PCPs are not remunerated.

1.2. Survey Design

The 25 item survey was developed based on a review of available literature and designed to answer questions raised by policy makers, specialists, funders, and the eConsult project team. Specialists were asked their opinions in four key areas: experience with the service, current consult/referral practices, compensation models, and recommendations for change and expansion of the service. Questions were answered via a mix of rank ordering, multiple choice, Likert scale, and open text.

1.3. Analysis

Descriptive statistics were generated by exporting the data collected in FluidSurveys. For questions that were answered using the 6 point Likert scale, we recoded the answers into a binary variable by collapsing Likert values 1-4 (chose not to answer to neither agree nor disagree) and values 5-6 (agree or strongly agree). One specialist did not complete the entire survey so we analyzed their answers where appropriate.

As different specialists joined the eConsult service at different times, we examined response bias between responding and non-responding specialists by comparing both demographic characteristics and familiarity with the service (length of time registered and number of eConsults answered). Statistical testing was done via the Wilcoxon Rank Sum Test and Fisher's Exact test where appropriate. All statistical tests were performed using SAS version 9.4 (SAS Inst. Inc., Cary, NC).

In 13 questions there was an opportunity for the specialists to expand on their multiple choice answer or to leave an open text comment. We performed a content analysis with an emergent code strategy based on these written responses. Two reviewers coded the responses separately and met regularly to develop and define the codes. The entire team met on multiple occasions to obtain consensus on the codes and resolve any disagreements.

2. Results

Forty-five specialists were eligible to participate, of whom one was a principal investigator and thus excluded. Thirty-four specialists answered the survey (response rate 77.3%) representing 23 different specialty services including internal medicine subspecialties, surgical services, pediatrics, obstetrics, radiology, and psychiatry. The majority worked in a university-based practice, slightly more participants were male,

and most were between the ages of 30-49 (see Table 1). The current estimated wait time for a non-urgent appointment was reported as greater than 6 months for 45% of respondents, 3-6 months for 21%, 1-3 months for 24%, and less than one month for only 6%.

Responding and non-responding specialists showed no significant differences based on gender ($p=0.73$) or number of years registered to use the service ($p=0.62$). However, specialists who responded to the survey had answered more eConsult cases compared to non-responding specialists ($p=0.046$).

Table 1. Characteristics of specialist physicians who participated in the study.

Characteristic	Distribution	
<i>Gender [% (No.)]</i>		
Female	47.1 (16)	
<i>Age [% (No.)]</i>		
30-49	58.8 (20)	
50+	41.2 (14)	
<i>Number of eConsults answered per specialist [median (IQR)]</i>	43.5 (16-143)	
<i>Time registered in service [years (IQR)]</i>	2.43 (0.6-3.4)	
<i>Type of Practice [% (No.)]</i>		
University-based practice	82.4 (28)	
Community Hospital based	11.8 (4)	
Community-office based group practice with other specialists	8.8 (3)	
Community office based mixed practice with specialist and primary care provider member	8.8 (3)	
Community office based solo practice	5.9 (2)	
Other	2.9 (1)	
Specialties Represented (%)		
Pediatrics (9)	Orthopedic Surgery (3)	Pediatric Hematology/Oncology (3)
Neurology (6)	Gynecology (3)	Medical Genetics (3)
Endocrinology (6)	Gastroenterology (3)	Psychiatry (3)
Cardiology (6)	Hematology (3)	Nephrology (3)
Dermatology (6)	Neuroradiology (3)	Ear, Nose, and Throat (3)
Infectious Diseases (6)	Radiology (3)	Adolescent Medicine (3)
Internal Medicine (3)	Pain Medicine (3)	Internal Medicine/Thrombosis (3)
Pediatric Cardiology (3)	Rheumatology (3)	Chose not to answer (12)

2.1. Using the Champlain BASE eConsult Service

The majority of specialists stated that their motivation to sign up for the service was that it allowed them to provide innovative patient care (79%) and improved their communication with PCPs (70%). When asked for their top 3 reasons for continuing to be involved in the eConsult service, 56% listed improved access for primary care, 21% ongoing positive feedback from PCPs, and 15% the potential to integrate into referral/triage process (see Figure 1). Eighty-two percent felt the service is user friendly and 79% felt eConsult is easily integrated into clinical workload. Over 90% of all specialists agreed or strongly agreed that the eConsult service improved access to specialist care, resulted in improved communication between providers, and was a good mechanism for providing education to PCP.

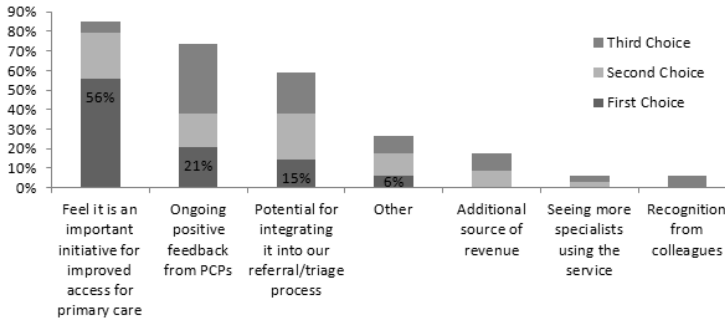


Figure 1. Top three motivations for specialists' continuing involvement in the eConsult service. (n=34)

2.2. Compensation Models

Eighty-eight percent of specialists agreed that the current compensation process is best, 67% felt that the current compensation rate was fair, and 85% agreed the current frequency of payments is reasonable.

While many specialists (67%) were satisfied with the rate of compensation they received for eConsult, some felt payment should be higher. Though most specialists felt that eConsults were easier to answer than traditional consultations, they expressed differing opinions on whether this justified a lower rate of compensation. Some felt the pay should be increased in order to ensure competitiveness of the service, while others argued that they should receive a premium given the rapidity and timeliness of their responses. Similarly, other specialists noted that while the current compensation is fair, the fee is still significantly less than it would have been had they seen the same patient face-to-face: "I appreciate that eConsults is not as onerous a process as an in person consultation and we are not the [most responsible physician] but there does seem to be a substantive discrepancy. That being said I agree that the manner in which payments are tracked and dispersed is good."

In contrast, specialists who were satisfied with the amount of pay they received cited the non-monetary value of the service: "we are never going to make as much money as face-to-face time. But this is way easier, more useful and kind of fun." Other comments on compensation included suggestions for modifying how the timing is tracked, creating specific billing codes for eConsult, and remunerating PCPs.

2.3. Next Steps

There was strong support for expanding the service to other regions and allowing for specialist to specialist eConsults (67%). The main reasons given for supporting expansion was the eConsult service's value in reducing unnecessary face-to-face consultations, ease of use, and ability to provide education and reassurance to PCPs.

Suggestions for changing the current service included improving the technical aspects of the site, increasing discussions around privacy and legal issues, adding folders to save responses to common questions, and allowing for increased feedback from PCPs.

3. Discussion

The Champlain BASE eConsult service is the first multispecialty service of its kind in Canada and is improving access to specialist advice and enabling access to care within days instead of months. Our study is one of the first to examine specialists' perspectives on an asynchronous eConsult service across a diverse range of speciality services. We found that specialists who use our service are satisfied with it, motivated to participate, and highly supportive of expansion. Specialists supported the current compensation model and method of tracking payments. Some asked for increased compensation to ensure competitiveness while others appreciated the nonmonetary value of the service. Suggestions for change included modifying the overall feel of the application and exploring ways of saving responses to common questions.

The traditional referral process is rife with poor communication between primary and specialty care, which has led to dissatisfaction [16]. In our study, specialists expressed interest in finding new solutions to ensure good communication between PCPs and specialists, a crucial step in improving access for patients and building collegiality between providers [17]. These findings are similar to other studies [12,18].

Previous studies have reported PCPs' perspectives on single-specialty eConsults. Whited et al. reported that 55% of providers found an educational benefit when performing eConsults (compared to 35% for usual care) [19] and van der Heijden et al. stated in 85% of cases general practitioners noted a positive educational effect [20]. Our study, which reports on multiple specialties, reflects these findings.

Sustaining new services of health care delivery such as eConsult requires new models of funding. Dependency on face-to-face visits as a required element of reimbursement is less critical now, with increases in telemedicine/virtual visits and store-and-forward type eConsult services. Our findings reflect the need to compensate specialists for their time and suggest uniformity between the specialist groups is acceptable as is a time-based payment model. In order for new technology initiatives to succeed, the user must not perceive that the new system is more onerous or takes more time than the traditional model. Our specialists reported that the system is easy to use and the majority found it was easily integrated into their regular workflow.

Our study has several strengths. We have assessed the perspectives of specialist physicians on a number of different dimensions in order to provide recommendations to provincial partners in concert with the multiple, ongoing, and completed research studies on our service. Our examination of the open text comments has yielded rich information that we can use to ensure the service can be sustainable. Our specialists represent a fully engaged population that have answered many eConsults.

Though our sample of specialists are engaged and have great experiences with the service, they are a select group from the underlying population of specialist physicians in our region, and may have responded more positively to the eConsult service than would non-respondents, those who had yet to complete an eConsult, or those were not interested in registering with the service. Selection bias may therefore affect our results, which could limit our study's generalizability.

Future research is needed to examine those specialists who did not readily adopt the eConsult service in order to understand barriers to participation in this type of technology. Additionally, several specialists requested the ability to save answers to common responses, suggesting that PCPs are consistently asking the same or similar questions. Future research should therefore examine the types of questions being asked in order to provide greater targeted education to PCPs.

Conclusion

Specialists are satisfied with the Champlain BASE eConsult service and recognize the value of providing improved access to patients and providers. They are highly supportive of expanding eConsult across Ontario and stated specific recommendations for change that will allow us to ensure the service remains sustainable.

Acknowledgements

Thanks to Lois Crowe for assistance with survey design, data analysis, and manuscript preparation, and to Justin Joschko for assistance with analysis and manuscript writing.

References

- [1] Schoen C, Osborn R. *The commonwealth fund 2010: international health policy survey in eleven countries*. London: Commonwealth Fund; 2010.
- [2] Jaakkimainen L, Glazier R, Barnsley J, Salkeld E, Lu H, Tu K. Waiting to see the specialist: patient and provider characteristics of wait times from primary to specialty care. *BMC Fam Pract* 2014;15(1):16.
- [3] Schoen C, Osborn R, Squires D, Doty M, Rasmussen P, Pierson R, et al. A survey of primary care doctors in ten countries shows progress in use of health information technology, less in other areas. *Health Aff (Millwood)* 2012;31(12):2805-16.
- [4] Abbott KC, Mann S, DeWitt D, Sales LY, Kennedy S, Poropatich RK. Physician-to-physician consultation via electronic mail: the Walter Reed Army Medical Center Ask a Doc system. *Mil Med* 2002;167(3):200-4.
- [5] Keely E, Liddy C, Afkham A. Utilization, Benefits, and Impact of an e-Consultation Service Across Diverse Specialties and Primary Care Providers. *Telemed J E Health* 2013;19(10):733-8.
- [6] Caffery LJ, Smith AC. A literature review of email-based telemedicine. *Studies Health Technol Inform* 2010;161:20-34.
- [7] Chen AH, Murphy EJ, Yee HF, Jr. eReferral - a new model for integrated care. *N Engl J Med* 2013;368(26):2450-3.
- [8] Horner K, Wagner E, Tufano J. *Electronic Consultations Between Primary and Specialty Care Clinicians: Early Insights*. London: Commonwealth Fund; 2011.
- [9] Liddy C, Maranger J, Afkham A, Keely E. Ten steps to establishing an e-consultation service to improve access to specialist care. *Telemed J E Health* 2013;19(12):982-90.
- [10] Stoves J, Connolly J, Cheung CK, Grange A, Rhodes P, O'Donoghue D, et al. Electronic consultation as an alternative to hospital referral for patients with chronic kidney disease: a novel application for networked electronic health records to improve the accessibility and efficiency of healthcare. *Qual Saf Health Care* 2010;19(5):e54.
- [11] Palen TE, Price D, Shetterly S, Wallace KB. Comparing virtual consults to traditional consults using an electronic health record: an observational case-control study. *BMC Med Inform Decis Mak* 2012;12:65.
- [12] Angstman KB, Adamson SC, Furst JW, Houston MS, Rohrer JE. Provider satisfaction with virtual specialist consultations in a family medicine department. *Health Care Manag (Frederick)* 2009;28(1):14-8.
- [13] Liddy C, Rowan MS, Afkham A, Maranger J, Keely E. Building access to specialist care through e-consultation. *Open Med* 2013;7(1):e1-e8.
- [14] Osborn M, Day R, Westbrook J. Are specialist physicians missing out on the e-Health boat? *Intern Med J* 2009;39(10):655-61.
- [15] Bains N, Dall K, Hay C, Pacey M, Sarkella J, Ward M. *Population Health Profile: Champlain LHIN*. Toronto, ON: Ministry of Health and Long-Term Care; 2008.
- [16] Gandhi TK, Sittig DF, Franklin M, Sussman AJ, Fairchild DG, Bates DW. Communication breakdown in the outpatient referral process. *J Gen Intern Med* 2000;15(9):626-31.
- [17] College of Family Physicians of Canada, Royal College of Physicians and Surgeons of Canada. *Guide to Enhancing Referrals and Consultations Between Physicians*. Mississauga, ON: The College of Family Physicians of Canada; 2009.

- [18] Straus SG, Chen AH, Yee H, Jr., Kushel MB, Bell DS. Implementation of an electronic referral system for outpatient specialty care. *AMIA Annu Symp Proc* 2011;2011:1337-46.
- [19] Whited JD, Hall RP, Foy ME, Marbrey LE, Grambow SC, Dudley TK, Datta SK, Simel DL, Oddone EZ. Patient and clinician satisfaction with a store-and-forward teledermatology consult system. *Telemed J E Health* 2004;10(4):422-31.
- [20] van der Heijden JP, de Keizer NF, Bos JD, Spuls PI, Witkamp L. Teledermatology applied following patient selection by general practitioners in daily practice improves efficiency and quality of care at lower cost. *Br J Dermatol* 2011;165(5):1058-65.