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Research Article

Enhancing Spinal Cord Injury Primary Care through E-Consultation: A Pilot Study

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Abstract

This pilot study explored the feasibility of using an e-consultation service to link family physicians with physiatrists to improve timely access to information and advice regarding SCI care. Sixteen family physicians and two tertiary care physiatrists were recruited. Family physicians could access physiatrists using a secure e-consultation system. Following pilot testing, nine physicians and two physiatrists completed an individual interview to obtain their perceptions of the service. The number and reasons for e-consultation were tracked. A total of 14 e-consultations were completed, most frequently for bladder (n=4) and bowel issues (n=4). Analysis generated six themes regarding e-consultation: (i) provides improved access to SCI information and expertise, (ii) can avoid specialist referrals and emergency department visits, (iii) is easy and convenient to use, (iv) is a secured system; (v) is facilitated by dedicated resource support, (vi) is limited by the system (technological) constraints. A SCI specific e-consultation service can provide family physicians with timely access to advice not otherwise easily available and that has a direct impact on patient care. Larger scale studies are needed to explore impacts on capacity building in primary care, health system utilization, and patient health and well-being.

Keywords: Primary care; Spinal cord injury; E-consultation; Quality improvement; Health services

1. Introduction

Despite the primary care being best positioned to provide positive health outcomes for those with spinal cord injuries (SCI) [1], health professionals have limited knowledge of the care needs of individuals with SCI [2]; physicians perceived themselves as unprepared to manage SCI care and low patient volumes within medical practices contribute to low motivation to build clinical capacity for optimal SCI care [3]. Access to primary care for those with SCI is important as they are at high risk for comorbid health conditions (obesity, diabetes, cardiovascular disease) and secondary complications such as pressure ulcers, autonomic dysreflexia, fractures, neurogenic bladder and bowel, and pain [4]. Family physicians can be better supported to provide care for individuals with SCI with greater access to SCI specialists [3]. Electronic-consultations (e-consults), in which physicians communicate with specialists using secure email or web-based requests, provide an opportunity for family physicians to access clinical advice in a timely manner. Dermatology, gynecology, psychiatry, and rheumatology are among various health disciplines that have been serviced in e-consultations [5-8], though no studies are known to have examined the use of e-consultation to support SCI care. Reported benefits of e-consultation include quicker response time from specialist and thus more timely clinical care, decrease in unnecessary specialist visits, decrease in travel for patients and facilitation of knowledge translation [9-11]. This preliminary study explored the feasibility of using e-consultation for family physicians to access rehabilitation specialists to enhance SCI care. For this study, the Ontario Telemedicine Network (OTN) e-consultation service was utilized [12]. This system is a secure password protected web-based email system that is part of the larger OTN, which is an independent not-for-profit organization funded by the government of Ontario with proven experience in providing telemedicine solutions to improve and link healthcare. Using the platform, family physicians submit a patient-specific clinical question via e-mail, to which documentation may be attached if relevant, to a specialist and receive clinical advice in a timely manner.

2. Methods

This study employed a qualitative descriptive design. Sixteen family physicians practicing in a Family Health Team in Kitchener, Ontario, Canada, and two physiatrists practicing in a rehabilitation program in Toronto, Ontario, Canada, were trained to use the e-consult service. After the seven-month pilot project ended, all physicians were invited to participate in an individual telephone interview in which they were asked to comment on their experience with e-consultation.

2.1 Outcome measures

The number of and reasons for the e-consultations were tracked. Interview questions were designed to elicit respondents' perceptions of e-consultation as related to ease of use and value to clinical practice.

2.2 Data analysis

Interviews, which were all conducted by one research associate (LMH) to ensure consistency, were audio-recorded and transcribed. The interviews were an average of 20 minutes (range=12-45 minutes). Recruitment ceased when saturation was reached (no new information was generated from the final interviews). Interview transcriptions were analyzed by two authors (CB and LMH) using inductive qualitative content analysis, to organize, categorize and summarize the informational content of responses and to identify reoccurring themes in the data [13, 14]. An audit trail of decisions related to recruitment, data collection and analysis, and feedback from the research team on the results and interpretation and implications ensured study rigor.

This study was approved by the Hamilton Integrated Research Ethics Board, McMaster University.

3. Results

Fourteen e-consultations were completed, with the range of consultations per family physician being 0 to 6. Reasons for the e-consultation were: bladder (4) and bowel (4) issues, spasticity (2), sexual function (1), and miscellaneous issues (2). Interviews were completed by 9 family physicians, 2 specialists (61% response rate). All of the family physicians had been in practice for greater than 6 years and had on average 2 patients with SCI within their practice. The specialists had been in practice for more than 15 years. One physiatrist worked exclusively with patients with SCI, the majority of patients in the other physiatrist's practice were spinal cord injured. Six themes arose from the qualitative analysis of the interviews: (1) Improved access to SCI information and expertise; (2) Avoidance of specialist referrals and Emergency Department (ED) visits; (3) Easy and convenient to use; (4) Secured system for sharing patient information; (5) Use is facilitated by dedicated e-consultation support within the practice setting; and (6) System limitations challenged use.

3.1 Improved access to SCI information and expertise

The e-consultation service facilitated timely access to specialist advice for physicians and was considered particularly relevant for those who have few patients with SCI and who lack knowledge and experience with SCI-related health issues; without access to e-consultation these needs for advice would otherwise have gone unmet.

> *"I think it added to the care of the patients where a consultation, the threshold for asking an important question would be lower because sometimes a formal consultation is a lot of bother and we reserve it for when there's something big. Sometimes there's still something important that should be answered, but it's not asked because its, it's a lot of bother to go through a formal consultation."* [FP ID2]

> *"I think it could be very useful for primary care clinicians who only have a few of these people in their practice."* [Specialist ID2]

"Timeliness of it to me, like the support that can be provided in a timely manner. Sometimes the person doesn't actually need to be seen, it could be just a quick advice." [FP ID5].

3.2 Avoidance of specialist referrals and Emergency Department visits

Access to e-consultation was thought to alleviate the need for a specialist referral and could potentially prevent emergency department (ED) visits by facilitating the timely management of issues through primary care. This was viewed as particularly relevant for patients with SCI as travel to see specialists in larger urban centres is often difficult.

"I think it does facilitate access to a specialist for a community practitioner, and it might be more efficient for the health care system as a whole if it ends up avoiding some of the things that you mentioned, such as having a formal face to face consultation or hospitalization or an ED visit. So theoretically by facilitating the specialist input you might be able to reduce some of that." [Specialist ID1]

"I think it's amazing to be able to have access to specialist physicians that we normally have to wait a very long time for patients to see and to be able to ask them questions and maybe prevent a visit, I think is just fantastic!" [FP ID3]

"I think there's, maybe more so in spinal cord injury than in other patients, actually a lot of times where an e-consultation is appropriate and preferable to an in-person visit because of mobility issues, length of time of travel for the patient. It's just a lot more cumbersome for them to be seen in person and often times its more of a knowledge question and I just don't have that knowledge and there may not be a need for the physician to see the patient." [FP ID3].

3.3 Easy and convenient to use

The e-consultation system was described as easy to access and use. Moreover, e-consultation does not have the same time constraints as other modes of communication, allowing physicians to use the service any time of day.

"I think it was good that it went through regular email as far as how to login, that made it fairly straightforward." [FP ID2]

"For me, it's time saving and it gives me the luxury of requesting the consult at the leisure of my own time. I'm doing a lot of my paperwork either, for example, today I'm off, or most time in the evenings. Even if it's late in the evening, it just allows me to send that information whenever it's convenient for me.' [FP ID4]

3.4 Secured systems for sharing patient information

E-consultation was preferred over regular e-mail as it provided security for sharing confidential information. Specialists valued the feature allowing physicians to add attachments so that they had all of the information needed to respond to the query.

> *"I think e-mail is inadequate because number one, it isn't private, there are huge concerns that way. I would not feel comfortable using email at all for consultation just based on that. And medically legally because of that privacy concern there aren't good ways of tracking emails to have the records and everything; it would be much more cumbersome and I think that if you have just general e-mail, then it may not be responded to as well as an e-consultation would, it's more official, more work related, more professional."* [FP ID3]

> *"I think the added value is that I can actually attach documents, even with the patient identifiers on there like it has the specific information."* [FP ID4]

> *"The problem with email is that it's not secure, what my understanding is, from a medical, legal point of view, you can't identify patients, and you don't want any sensitive information, so I don't think I could e-mail* [test] *results with the patient information on it."* [FP ID7].

3.5 Use is facilitated by dedicated e-consultation support within practice setting

The availability of a nurse dedicated to supporting the OTN service made it easy for physicians to use the service and troubleshoot technical issues that arose and facilitated the billing process.

> *"We have a dedicated nurse at our clinic who deals with a lot of OTN e-consultations for lots of different specialists and so she's able to coordinate things, help set up the log in information for me, attach any imaging that I want attached. That was a huge help to reduce the barriers because I find all these different portals that we're getting for different* [services]*, whether it's a specialized service for spinal cord or rheumatology or whatever, any time we need to do a separate login for that it takes time. It's another login and password to remember, and it is a bit of a barrier that way, but at our clinic we're lucky to have* [nurse] *and she's able to help us with that."* [FP ID3]

> *"We're very fortunate in our group that we're big enough so that we can align resources to it, our nurse is our go-to person so she's very familiar with the process and who is actually available."* [FP ID5]

> *"To be honest, I didn't really do it* [send the e-consultation request] *because we have a staff member who helps us do it. Which again, I don't think it's a bad thing. I can't be an expert in everything, I think if you have a team you have someone on your team who knows how to do it, and it works very well."* [FP ID7].

3.6 System limitations challenged use

Limitations to the service included the inability to upload attachments directly from the electronic medical record (EMR), requirements to reset passwords every 90 days, lack of a notification system when specialists are not available for consultation, and lack of clarity on some system features.

> *"It wasn't built right into the EMR system, which would be an ideal thing, so that you could just, more naturally attach information."* [FP ID2]

> *"I guess my own personal experience was I had some difficulties at first logging in with my password, and interacting with OTN the tech support to rectify the situation, and it took more time and I guess that's the biggest issue for me is that I'm so busy."* [Specialist ID1]
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> *"Once you're in the system is lovely. It was just getting my logon and getting it to stay valid because they have you update your OTN password I think every 90 days. So that part is a nuisance. I don't understand why if you have these highly secure passwords and a good private network why you can't have one for a year…. I will do 2-3 consults, and then I won't do them for a while, and I'll go back to go in and my password isn't valid, I have to go in and do it, get on the phone with them and the thing that made the e-consult very appealing goes away because I have now spent 25 minutes getting my password updated. So that to me was a barrier."* [Specialist ID2].

4. Discussion

This pilot study demonstrated that an e-consultation service can provide family physicians with access to advice related to SCI not otherwise easily accessible that has a direct impact on patient care, namely improved management in primary care thereby potentially preventing specialist referral and ED visits. This type of service addresses the challenges associated with providing primary care for patients with SCI, and supports capacity building consistent with chronic disease management models in which specialists are utilized for high intensity issues and the majority of mild-moderate intensity issues are managed in primary care [15]. This study demonstrated that the use of e-consultation in primary care is feasible for a low prevalence condition. With system improvements to optimize functionality, e-consults have the potential for increased, repeated and sustained usage. Moving forward, our research program will explore the functionality of other existing e-consultation systems, test service expansion to other practice settings, and evaluate changes to physician capacity to manage secondary complications independently and impact on health system utilization. There are a number of study limitations. The sample size for this study was small; however, it was adequate for a preliminary feasibility study. The volume of e-consults was low during the project, but this was to be expected given that SCI is a low prevalence condition and the study length was short. Evidence of the impact of this service on health system utilization is anecdotal; future studies will include empirical data to support changes in health system utilization (referral avoidance) and resulting cost savings.

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6. Disclosure

The authors have no conflicts of interest to declare.

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