

Telemedicine in a Rural Memory Disorder Clinic—Remote Management of Patients with Dementia



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ABSTRACT

Background

There are many reasons to develop telemedicine clinics for assessment and management of dementia. Time constraints, location, and poor weather conditions can all impact on the ability of patients and providers to attend rural clinics. The utility of telemedicine in the diagnosis of dementia and subsequent follow-up appears promising in the literature, as it provides a viable means of assessing cognition in patients in remote areas with limited access to medical specialists.

Methods & Results

This study explored the feasibility of introducing a telemedicine memory disorder follow-up clinic in a rural community. The evaluation of 32 clinic sessions found high levels of satisfaction, with over 90% of physicians and patients indicating that they'd be willing to use video conferencing again. Physicians overwhelmingly felt the sessions provided enough information to assist in clinical decision-making (96%), and patients and CCAC Case Managers/Geriatric Assessors felt able to present the same information by video conferencing as in person (92% for both groups). The telemedicine clinic provided a number of favourable results such as: timely access to specialist care in the patient's own community; fewer cancelled clinics; enhanced care transitions between the follow-up clinic and primary care with the support of a case manager/geriatric assessor; and enhanced follow-up for a complex patient population. In addition, the telemedicine initiative freed up spaces for "in-person" clinics. This allowed them to focus on new patient assessments.

Conclusions

The high satisfaction rates amongst all key stakeholders affirm that telemedicine is a viable option and worth continued efforts

at shaping and developing, particularly in regions where local physician specialists are a scarce resource.

Key words: telemedicine, dementia, remote management

INTRODUCTION

With the increasing prevalence of dementia, waiting lists for memory disorder clinics are growing. Time constraints, location, and poor weather conditions all impact on the ability of both patients and providers to attend rural clinics. Telemedicine is increasingly being used to provide the follow-up care that will help elderly people and those with chronic conditions maintain their independence and continue living in their own homes.^(1,2) Home care has been found effective for improving clinical indicators and reducing health service use.^(3,4) A recent review found Veterans Health Administration telemedicine interventions to be advantageous when "ongoing monitoring of patient symptoms is needed" and noted that telemedicine also appeared to enhance patient access to healthcare professionals.⁽⁵⁾

Telemedicine is the use of telecommunication technology for medical diagnosis and patient care. From its beginnings telemedicine has been used in a variety of health-care fields. While technological aspects of the interventions appear reliable and well-accepted by patients, the clinical benefits are less well-established.⁽²⁾ In addition, issues relating to satisfaction with this care modality require further exploration from both client and provider perspectives.⁽⁴⁾

This study explored the feasibility of introducing a telemedicine memory disorder clinic in a rural community, and the results of a four-year evaluation are described. The specific goal of the clinic was to provide timely access to follow-up care for patients who have been previously assessed at the Champlain CCAC Memory Disorder Clinic in Cornwall, Ontario by a Geriatrician. Issues related to cognition, medication management, driving safety assessment, future planning, ongoing support, and other related health concerns were addressed through the telemedicine clinic.

The evaluation of the clinic was based on feedback from patients, the CCAC Assessors who managed the clinic and were at the site with the patient during the telemedicine follow-up, and the Geriatricians. Additional details, such as the reason for the telemedicine appointment, were also captured. Information about the time commitment involved in setting up and conducting the telemedicine clinic was provided by the CCAC Assessors and the Geriatricians.

METHODS

This program evaluation study involved the prospective enrollment of patients who were initially assessed in person by a Geriatrician at a memory disorder clinic and referred for follow-up at a telemedicine clinic. The partners were the Regional Geriatric Program of Eastern Ontario (RGPEO), The Ottawa Hospital (Host Site), the Champlain CCAC Memory Disorder Clinic and Tri-County Mental Health in Cornwall (Patient Site), and the Ontario Telemedicine Network. To be included in the study, patients needed first to be identified by the Geriatrician as suitable for telemedicine follow-up care. They had to be medically stable with non-complex conditions, and present with mild cognitive impairment (cognitive change but with no impact on functional level), or mild dementia (a score of 20–24 on the MMSE). They needed to consent to a telemedicine appointment. Referrals were also accepted for patients who could potentially benefit from anti-dementia medication review. Patients were excluded if they were new consultations, clinically unstable, or had severe cognitive impairment. Patients who did not wish to be seen through telemedicine had the option of being seen at the regular memory disorder clinic.

Approximately 15% of patients were flagged for telemedicine follow-up during the initial office visit by the Geriatrician. In consultation with the Family Physician and Geriatrician, a CCAC Case Manager/Assessor created a list of potential patients for referral which was faxed to the Geriatrician two weeks prior to the clinic. Physicians were reimbursed through OHIP billings. The Case Managers/Assessors had all participated in the Geriatric Assessor Training Program of the RGPEO.

The patient site was responsible for notifying the patient's family/caregiver of the date and time of the appointment, and advising them to bring the patient's medications, as well as to arrive 30 minutes in advance of the appointment. The additional 30 minutes allowed the Geriatric Assessor time to explain the telemedicine process to patients and to obtain consent. During this time, the Assessor also gathered pertinent medical history, administered cognitive tests such as the 3MS or MMSE,^(6,7) measured vital signs, gathered results from ADL and IADL functional assessments, obtained the medication list, and interviewed the primary caregiver.

Evaluation Tools

The Geriatrician and CCAC Case Managers/Assessors independently rated each video-conference clinic. The

Geriatrician provided details on the specific issues being addressed for each patient, and the Assessors indicated why the client was a good candidate for telemedicine. The total time required for the video conference was recorded on the clinic questionnaire completed by the physician, and the assessor questionnaire provided details regarding time needed to set up/take down equipment, explain or reassure the patient, and any other required activities. Physicians also recorded whether the clinic might have been cancelled had it not been held by video conference.

All surveys involved respondents rating their agreement with a number of statements on a 5-point Likert scale, in which "1" indicated they strongly disagreed with the statement and "5" indicated they strongly agreed. Physicians and Assessors rated each clinic on a number of items, such as how smoothly the clinic ran. Physicians also completed a detailed questionnaire about the telemedicine experience for each patient assessment. Patients completed an anonymous survey in which they were asked to include some personal information and indicate their level of agreement with 19 statements related to their telemedicine appointment. All questionnaires included space for respondents to provide comments and suggestions. Although there was no caregiver survey, caregivers occasionally provided feedback in the comments section of the patient survey.

Completed questionnaires were sent to the RGPEO program evaluator for analysis using SPSS PAWS 17.0. Mean and median scores were calculated for each item.

RESULTS

Results were collected for 32 clinics held between Nov 2006 and Nov 2010 involving a total of 99 patients. The most frequent reasons for the telemedicine follow-up appointment were:

- assessment/reassessment for cognitive decline
- assessment of patient's suitability for initiating new medication
- follow-up of patient's response to dementia therapy
- driving safety
- home safety and future planning
- other medical concerns: nutrition, falls, CHF, osteoporosis, continence

In almost all cases (91%), the physician identified more than one reason for the appointment.

The Patient Perspective

Completed surveys were received from 50 of 99 patients (51%) and 48 respondents provided some personal background information. Given the many challenges faced by this group of patients, this was considered a good response rate. More than one-half (58%) were between 75–84 years of age,

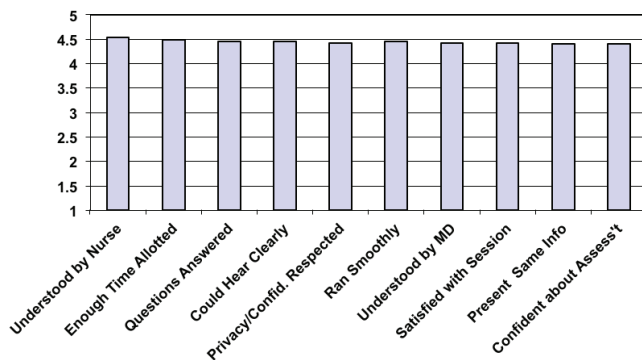
29% were between 65–74 years, and 13% were 85 years or older. Sixty percent (60%) were female. It was the first video session for over two-thirds of the patients (69%), and their satisfaction ratings were consistently positive.

Figure 1 presents the 10 items that received the highest average rating by patients. Overall, 92% of the respondents were satisfied with the session, and almost all indicated that they would be willing to use video conferencing again (94%). One patient commented, “This is a great way to serve the people of Cornwall—neither they nor the doctor need to drive to Ottawa for a follow-up. I would like to see more of this type of work and innovative ideas”. Another stated, “I was well prepared for the visit. [The assessor] had explained everything to me—how it would work. I thank all of you ... for helping me get back to my old self again.”

On a few occasions, the OTN video link didn’t work or the screen froze, which impacted on a patient’s ability to see the doctor. This likely resulted in slightly lower satisfaction rating given to this item (88%).

Clients felt they were understood by the on-site nurse (96%) and the physician who was being teleconferenced (94%). Almost all patients agreed that their privacy and confidentiality were respected (98%), although a small number stated they would have preferred to see their doctor alone (16%). In terms of their sense of involvement in their care, most patients felt that their questions were answered by the doctor (98%), that the video conference session ran smoothly (98%), and that the appointment provided enough time to deal with everything that needed to be covered (92%).

Items with the greatest variability in responses were those related to patient preferences. While most felt that they were able to present the same information they would have provided in person (92%), a slightly smaller number said that they felt as confident about the doctor’s assessment through video as they would an in-person assessment (88%). Thirty percent stated that they were more anxious with the video session than if they had seen the doctor in person, and over one-quarter (28%) felt that they would have preferred to see their doctor in person. Comments related to this aspect of the appointment included “better in person—we see better the doctors’ reactions on the patient”, and “I feel I have no choice, but it was OK”.



Note: Average rating out of 5: 1 = Strongly Disagree, 5 = Strongly Agree.
 FIGURE 1. Patients’ perceptions

The Clinic Processes

Details related to the clinic processes were captured through the CCAC Assessor and the Physician Clinic Summary Surveys. Usually, physicians saw 3–4 patients and spent about two hours video conferencing, per clinic. CCAC Case Managers spent an average of 51 minutes: setting up/taking down equipment (12 min); explaining video conferencing to patients and providing reassurance (22 min); debriefing patients at the end of their session (13 min); and 4 minutes on other clinic activities. Three clinics encountered technical problems that required significantly more time on the part of the CCAC Assessor.

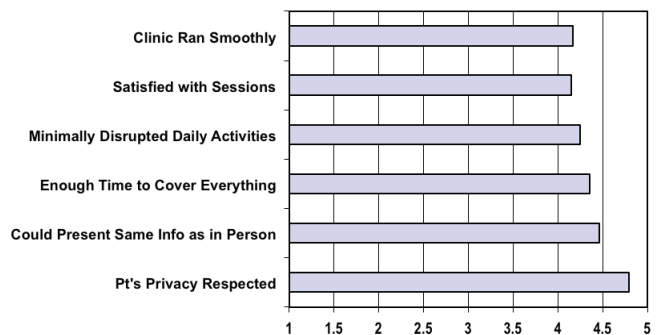
The CCAC Assessors were generally more conservative than patients in their rankings of the clinic experience, with 79% agreeing or strongly agreeing that they were satisfied with the sessions. Figure 2 shows the Assessors’ average ratings to key aspects of the telemedicine clinic. It was not surprising to find a strong correlation between the Assessors’ satisfaction with the clinic and their perception as to whether it ran smoothly.

Physician Perspective

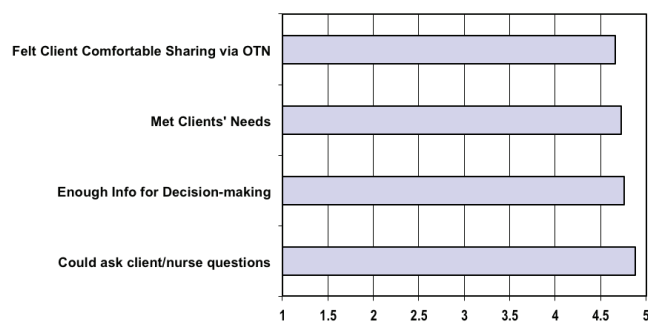
Physicians provided feedback on 30 of the 32 clinics, and for the most part felt that the clinic ran smoothly (88%). They indicated that 17 of the 30 clinics would likely have been cancelled had the Geriatrician needed to travel to the clinic site. This was most often due to time constraints. This is an important finding, given that the objective of providing telemedicine to the target population was to provide more timely access to care.

Minor technical problems were identified by the Geriatrician for 7 of the 30 clinics. On two occasions the video link did not work at all and cases were discussed by phone instead.

In addition to rating the clinic experience, physicians also provided feedback on their session with each patient, for 91 of the 99 patients. As Figure 3 shows, physicians agreed or strongly agreed that video conferencing provided them with opportunities to ask the patient/CCAC Assessor questions (100%). They generally felt that the appointments



Note: Average rating out of 5: 1 = Strongly Disagree, 5 = Strongly Agree.
 FIGURE 2. Assessors/nurses’ perceptions



Note: Average rating out of 5: 1 = Strongly Disagree, 5 = Strongly Agree.

FIGURE 3. Geriatricians' perceptions

met their needs (96%), and that they were able to get enough relevant information to assist in clinical decision-making (96%). For the most part, they agreed that “video conferencing met the patient’s needs” (96%), and that “the patient was comfortable talking about his/her problems using video conferencing” (93%).

The physician comments provide additional insight into some of the issues they encountered. The patient’s nervousness with the technology was noted on three occasions. Issues around privacy were identified in two comments: “I had the patient’s wife in the room ... I could notice the tension and conflicting stories between them”, and “I felt the caregiver’s son was a bit uncomfortable. Perhaps he wanted to ask more questions in private.” Another significant challenge, especially with this older population, was the issue of hearing loss, which was identified as a problem for seven patients.

DISCUSSION

As a result of scarce Geriatric health-care human resources within small urban and rural communities, there is the need to explore viable clinical options such as telemedicine. The use of telemedicine provides an extension of specialized geriatric services into communities that previously would not have had access to these resources unless the patient and family travelled to larger urban sites. The Champlain Local Health Integration Network (of which Cornwall is a part), reports that one-third of its 1.2 million population live in smaller cities, towns, and rural areas. As a result “many have challenges accessing health-care services, either due to lack of proximity or lack of transportation.” The LHIN notes also that a growing seniors’ population and increasing rates of chronic diseases are putting pressure on current health-care resources. The Eastern Counties (the catchment area for the study population) Clinical Services Distribution Plan identified building geriatric capacity as one of two clinical priorities.⁽⁸⁾ To date, the strategy has had limited success and, at present, there is not a geriatric primary care physician champion within the community. The Geriatric Services Action Plan includes a recommendation to continue developing the telemedicine initiative and expand its scope of service.

The challenges are further compounded when the targeted population is patients who have been assessed and identified with some degree of cognitive impairment. The burden is multiplied when major life-altering issues, such as driving safety, home safety, living at risk, future planning, caregiver and/or family stress, need to be addressed in a timely and responsive manner. Telemedicine, in conjunction with the support of Case Managers/Geriatric Assessors can improve care transitions between the specialist and primary care physicians.

Although the expectation was that the incorporation of telemedicine as a follow-up care strategy for this patient population would pose challenges given the patients’ complex health status and limited exposure to this type of technology, this was not found to be the case: 94% of the patients involved with the initiative agreed that they would use video conferencing again. The majority of patients agreed that they felt understood by the doctor during the video session and felt there was adequate time to deal with everything that needed to be covered. Almost all the patients felt that their privacy and confidentiality were respected throughout the video conferencing session.

Nine out of 10 patients reported that they felt confident that their assessment by the doctor through video conferencing was comparable to an assessment being delivered in person. However, three out of 10 patients acknowledged that they felt more anxious with video conferencing than an in-person session.

Technical limitations such as connection difficulty, images freezing, delays in establishing connections, and connections being lost did impact on overall satisfaction. However, these issues arose infrequently and are continually being addressed as the technology advances.

This study has a number of limitations: the sample size is small and data were obtained from a single venue, using questionnaires developed specifically for the study rather than standardized satisfaction surveys. The intent was to assess the receptivity among patients, physicians, and case managers/assessors to using telemedicine for follow-up in a memory disorder clinic. Further research is needed to determine the generalizability of this approach and its cost-effectiveness.

CONCLUSION

In summary, there are many reasons to develop telemedicine clinics for assessment and management of dementia.^(2-5,9) For instance: long wait times for appointments at rural clinics to see a specialist; commuting distances for rural populations; the stresses of driving to and in an unfamiliar city or location; and financial constraints for many older persons who are on a fixed income. The utility of telemedicine in the diagnosis of dementia and follow-up in the literature appears to be very promising.⁽¹⁰⁻¹⁴⁾ Telemedicine provides an acceptable means of assessing mental status of patients in remote areas.⁽¹²⁾

The findings do show that the telemedicine follow-up clinic provided a number of favourable results such as timely

access to a follow-up clinic in the patient's own community, fewer cancelled clinics, access to a geriatric specialist, and enhanced care transitions between the follow-up clinic and primary care with the support of the Case Manager/Assessor. The technology ensured that specialist medical follow-up was available to this complex, geographically dispersed, patient population. The telemedicine initiative also freed up spaces within the "in-person" clinics, allowing these clinics to focus more on new assessments. The high satisfaction rates amongst all key stakeholders (patients, physicians, and case managers/geriatric assessors) affirm that telemedicine is a viable option and worth continued shaping and developing, particularly in regions where local physician specialists are a scarce resource.

CONFLICT OF INTEREST DISCLOSURES

The authors declare that no conflicts of interest exist.

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