

Geriatric Specialists' Perspectives on Telemedicine during the COVID-19 Pandemic: a Concurrent Triangulation Mixed-Methods Study*



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ABSTRACT

During the COVID-19 pandemic, physicians provided virtual care to minimize viral transmission. This concurrent triangulation mixed-methods study assesses the use of synchronous telephone and video visits with patients and asynchronous eConsults by geriatric providers, and explores their perspectives on telemedicine use during the pandemic. Participants included physicians practicing in Ontario, Canada who were certified in Geriatric Medicine, or Care of the Elderly, or who were the most responsible physician in a long-term care for at least 10 patients. Participants' perspectives were solicited using an online survey and themes were generated through a reflexive thematic analysis of survey responses. We assessed the current use of each telemedicine tool and compared the proportion of participants using telemedicine before the pandemic with self-predicted use after the pandemic. We received 29 surveys from eligible respondents (87.9% completion rate), with 75.9% being geriatricians. The telephone was most used (96.6%), followed by video (86.2%) and eConsults (64%). Most participants using telephone and video visits had newly implemented them during the pandemic and intend to continue using these tools post-pandemic. Our thematic analysis revealed that telemedicine plays an important role in the continuity of care during the pandemic, with increased self-reported positive perspectives and openness towards use of virtual care tools, although limited by inadequate physical exams or cognitive testing. Its ongoing use depends on the availability of continued remuneration.

Key words: telemedicine, COVID-19 pandemic, virtual care

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INTRODUCTION

Until the COVID-19 pandemic,⁽¹⁾ telemedicine's uptake in geriatrics was limited by patient unreadiness⁽²⁾ and provider inexperience.⁽³⁾ Telemedicine includes telephone visits, video visits, and electronic consults (eConsults). eConsults allow specialists to provide indirect care through asynchronous communication with referring physicians. During the pandemic, temporary billing codes were introduced to support telephone and video visits^(4,5) for social distancing. In 2020, the proportion of Ontario patients aged ≥ 65 years using telemedicine increased from 19.4% to 27.4%.⁽⁶⁾

We aimed to understand current and prospective telemedicine implementation by geriatric providers, and perspectives on its use during the pandemic.

METHODS

Study Design and Participants

We conducted a concurrent triangulation mixed-methods study using an online survey, between December 22, 2020 and April 30, 2021. We simultaneously collected quantitative and qualitative data for richer and internally validated results. We invited physicians practicing in Ontario, Canada with certification in Geriatric Medicine (Internal Medicine) or Care of the Elderly (COE) (Family Medicine), or who were the most responsible physician to ≥ 10 long-term care (LTC) residents. We excluded retired physicians, trainees due to their limited clinical autonomy, and geriatric psychiatrists given practice differences and earlier adoption of telemedicine.^(7,8) Ethics approval was granted through the Hamilton Integrated Research Ethics Board (December 16, 2020. Project #11154).

Data Collection

We hosted the survey on SurveyMonkey® (Momentive, Waterford, NY), which was piloted by an expert panel of five geriatric specialists. Recruited through listservs, participants received an open weblink containing the consent form and survey. Participation was voluntary, though all participants were offered a \$20 gift card.

We collected baseline characteristics, and free-text responses exploring perspectives on telemedicine. Details regarding our survey administration according to the Checklist for Reporting Results of Internet E-Surveys (CHERRIES)⁽⁹⁾ are in Appendix A.

Analysis

We calculated the participation and completion rates as per CHERRIES.⁽⁹⁾ Our primary quantitative outcome was the implementation rate of each telemedicine tool, defined as having used the tool at least once for geriatric care. Secondly, we assessed the proportion of individuals self-reporting a change in perspective on each tool due to the pandemic. Using McNemar’s test, we evaluated differences between the use of each tool pre-pandemic with self-predicted use post-pandemic.

Free-text survey responses were coded collaboratively by two investigators (VC, SD). Codes were refined by reviewing survey responses iteratively using NVIVO software (version 1.4; QSR International (Americas) Inc., Burlington, MA).

We adopted the 6-phase, reflexive-thematic analysis qualitative research methodology combining a predominantly inductive and constructionist orientation.^(10,11)

RESULTS

Twenty-nine participants completed the survey (Figure 1), with participation and completion rates of 80% (36/45) and 87.9% (29/33), respectively. Participants were largely geriatricians (22/29, 75.86%) practicing in an academic setting

(12/22, 54.5%). Half of the geriatricians were in their first 10 years of practice (Table 1). The telephone was used by most (96.6%), followed by video and eConsults (Figure 2A). Most participants introduced telephone (64.3%) and video visits (72%) during the pandemic.

We identified four themes relating to telemedicine use in geriatrics during the pandemic.

Telemedicine Had a Role During the Pandemic

Telemedicine contributed to patient safety by reducing viral transmission and facilitating continuity of care given restrictions against in-person care.

“Video consults/visits have been essential to providing care and maintaining continuity of care.” (Geriatrician #2)

Video visits were valuable for patients with hearing impairment. The absence of masks enhanced communication via lip reading, and increasing a device’s volume was preferable to masked in-person visits.

“It is easier to communicate and do cognitive testing over video (no masks).” (Geriatrician #10)

Geriatricians emphasized video visits were advantageous over other means of telemedicine as they allowed for some components of the physical exam during the pandemic.

“The video part adds a bit of a physical exam element.” (Geriatrician #13)

Limitations of Telemedicine During the Pandemic

Telemedicine was identified as inadequate for complex patients and new consultations, primarily due to limited physical examinations, leading to patient safety concerns.

“Unable to have physical exam, or even allow for gestalt assessment of how sick a patient may be.” (LTC physician #1)

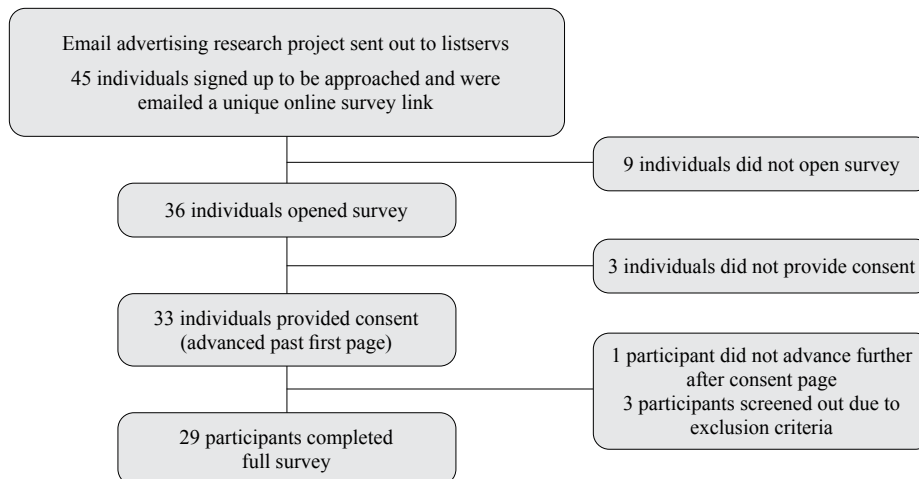


FIGURE 1. Participants were invited to be approached through email mailing lists catered towards geriatrics; individuals who signed up were then sent an open link to the survey; we excluded geriatric psychiatrists, retired physicians and resident trainees

Geriatricians felt telephone visits are limited in their scope to follow-up care, owing to limitations in cognitive and physical assessments. Ultimately, telemedicine cannot fully replace in-person care for comprehensive geriatric assessments.

“Has met a need and has a place in the future but will never completely replace the need for in person medicine.” (Geriatrician #4)

“Telephone visits however, are not helpful for other cases such as falls or movement disorders where a physical exam is necessary.” (Geriatrician #8)

Improved Perspectives on Telemedicine During the Pandemic

Pre-pandemic, participants identified concerns with telephone visits due to perceived limitations such as inadequate assessments and remuneration. Some identified a role in follow-up care.

“Concern about lack of physical exam and cognitive testing.” (Geriatrician #12)

“Did many follow-up phone calls, but was frustrating that wasn’t reimbursed.” (Geriatrician #18)

During the pandemic, participants, especially geriatricians, felt confident using telephone visits and found them helpful.

“I have a lot of experience and am pretty comfortable with them now. I’m more confident this is a good option in the right circumstance.” (Geriatrician #10)

Participants were divided in their openness towards video visits pre-pandemic. Although open-minded, many identified their limited experience or set-up prevented use. Others worried about patient accessibility or ability to provide comprehensive care.

“Concerned that [video visits] could not facilitate a comprehensive assessment. Also concerned about patients’ access to (and ability to use) technology.” (Geriatrician #12)

Participants recognized its use and benefits during the pandemic and thereafter.

“Now that it has become widespread, there are certain advantages (both to the patient/families and provider) that will make it worthwhile to continue.” (Geriatrician #2)

Pre-pandemic perspectives on eConsults were heterogeneous. Some participants were close-minded due to perceived limitations, yet others found eConsults helpful and efficient.

“Tried to avoid them because they had limitations.” (Geriatrician #17)

“Open and happily used the service.” (Geriatrician #5)

TABLE 1. Baseline characteristics of study participants

<i>Baseline Characteristic</i>	<i>All participants (N=29) n (%)</i>	<i>Geriatricians (N=22) n (%)</i>	<i>Other Geriatric Provider (N=7) n (%)</i>
Sex			
Male	10 (34.5)	8 (36.4)	2 (28.6)
Female	17 (58.6)	12 (54.5)	5 (71.4)
Prefer not to answer	2 (6.9)	2 (9.1)	0 (0)
Age			
20–30 yrs	2 (6.9)	1 (4.5)	1 (14.3)
31–40 yrs	12 (41.4)	10 (45.5)	2 (28.6)
41–50 yrs	6 (20.7)	5 (22.7)	1 (14.3)
51–60 yrs	4 (13.8)	3 (13.6)	1 (14.3)
61–70 yrs	5 (17.2)	3 (13.6)	2 (28.6)
Ontario Health Region			
West	12 (41.4)	10 (45.5)	2 (28.6)
Central	3 (10.3)	2 (9.1)	1 (14.3)
Toronto	5 (17.2)	4 (18.2)	1 (14.3)
North	2 (6.9)	2 (9.1)	0 (0)
East	6 (20.7)	3 (13.6)	3 (42.9)
Prefer not to answer	1 (3.4)	1 (4.5)	0 (0)
Type of Practice			
Community	17 (58.6)	10 (45.5)	7 (100)
Academic	12 (41.4)	12 (54.5)	0 (0)
Years in Practice			
0–10 yrs	14 (48.3)	11 (50)	3 (42.9)
11–20 yrs	6 (20.7)	5 (22.7)	1 (14.3)
21–30 yrs	3 (10.3)	2 (9.1)	1 (14.3)
>30 yrs	6 (20.7)	4 (18.2)	2 (28.6)

LTC = long-term care.

Perspectives identified during the pandemic became more positive and open-minded.

“More open minded towards keeping some [eConsults] in my practice post-COVID”. (Geriatrician #17)

Most identified the pandemic changed their perspective on using telephone (71.4%) and video visits (68%), but only 37.5% for eConsults despite free-text responses reporting increased openness towards eConsults. Compared to pre-pandemic use, telephone (35.7 vs. 82.1%, $p < .001$) and video visits (28 vs. 84%, $p < .01$) were predicted to significantly increase post-pandemic, but not eConsults (56.3 vs. 68.8%, $p = 1.0$) (Figure 2B). This aligns with self-reported changes in perspectives.

Remuneration of Telemedicine

Participants expressed continued video and telephone use depended on financial remuneration.⁽¹²⁾ Many previously

limited using telemedicine due to inadequate payment, despite recognizing its advantages.

“Great to get paid for a service [telephone visits] I already provided for free”, and they would continue using video “if it remains an OHIP-billable service.” (COE physician #3)

“[Continued use of video visits] depends on reimbursement.” (Geriatrician #17)

DISCUSSION

During the pandemic, geriatric providers widely implemented telemedicine, allowing for continued care and an alternate communication option for patients with sensory impairments. Although reported limitations include incomplete exams, perspectives on telemedicine improved. Ongoing use was anticipated, but depends on adequate remuneration. Our work builds upon telemedicine research in geriatrics during the pandemic^(2,3,6,13-16) and informs key stakeholders in developing models of care and allocating funds to telemedicine.

Similar to previous studies,⁽³⁾ our participants felt unequipped or hesitant to use telemedicine due to perceived limitations of the physical examinations or inadequate remuneration.^(3,15,17-20) Due to the variability in a patient’s ability to use telemedicine^(3,21) and its limitations in assessment, geriatric providers must individualize its use.

Respondents predict sustained use of telephone and video visits, suggesting perceived benefits extend beyond the pandemic. Our results support the known advantages of telemedicine including improved access to care, costs, and patient satisfaction.^(19,22-24) However, continued use depends on adequate remuneration. After our survey closed, the Ontario Medical Association ratified a new Physician Service Agreement with the Ontario Ministry of Health.⁽²⁵⁾ This agreement aims to ensure telemedicine is used only when clinically appropriate and necessary. However, it introduces additional restrictions for telephone visits, which are now

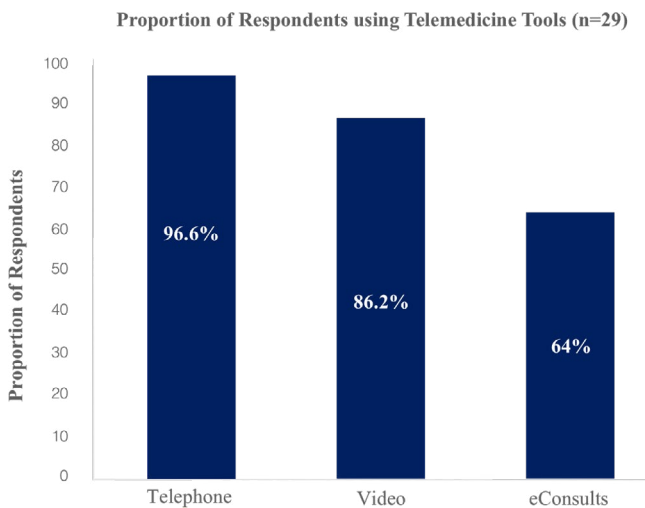


FIGURE 2A. Almost all survey respondents had experience providing care by telephone, followed by video and eConsults

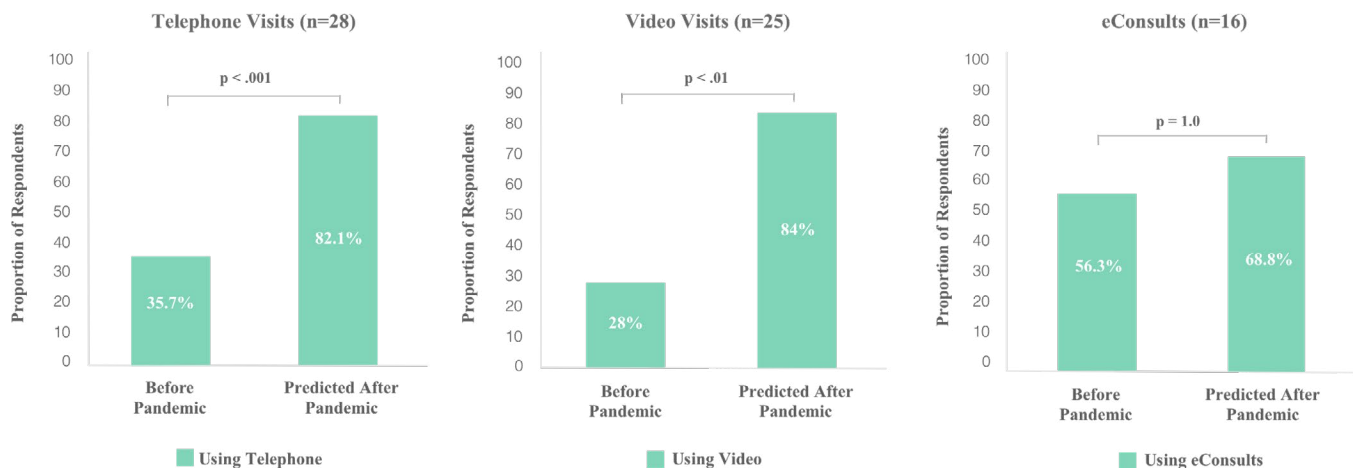


FIGURE 2B. Compared to the reported pre-pandemic use of telemedicine, survey respondents predict significant increased use of telephone and video visits after the pandemic, but not eConsults

remunerated at 85% of an in-person visit fee, and therefore limits virtual care to rural communities lacking reliable internet for videoconferencing. Telephone is preferable over video for older patients who find videoconferencing inaccessible or lack caregiver assistance.^(2,3) Inadequate reimbursement previously discouraged telemedicine use, despite identified benefits,⁽¹⁹⁾ a sentiment our participants shared. Our results demonstrate a perceived role and increased acceptance for telephone and video visits by geriatric providers, which funding authorities should consider. The issue of reimbursement was absent for eConsults, likely due to the lack of recent fee code changes.

We acknowledge limitations to our study. Our sample size was small with a majority of participants being geriatricians; therefore, the generalizability to COE and LTC physicians is limited. Results are also subject to participation bias from individuals with strong opinions about telemedicine.

Telemedicine use in geriatrics increased during the pandemic allowing for continuity of care and is likely to continue with sustainable funding. With the changing landscape of the pandemic and funding in Ontario, further research is required to determine the ongoing use and sustainability of telemedicine in geriatrics, and to identify strategies to improve upon the accuracy of virtual assessments.

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Not applicable.

CONFLICT OF INTEREST DISCLOSURES

We have read and understood the *Canadian Geriatrics Journal*'s policy on conflicts of interest disclosure and declare the following interests: VC received the "Dr. Christopher Patterson Resident Research Grant in Senior's Care Award"; however, funds were used only for the sole purpose of this research project. JH participated as a volunteer member of the Ontario eConsult Centre for Excellence Clinical Advisory Group between 2019 and 2020 and is the Co-Executive Director of GeriMedRisk. All other authors have no financial or personal conflicts of interest to declare.

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APPENDIX A.
 Checklist for Reporting Results of Internet E-surveys (CHERRIES)

Item Category	Checklist Item	Explanation
Design	Describe survey design	The survey was targeted towards geriatric providers, including Geriatricians (Internal Medicine), Care of the Elderly (Family Medicine) and physicians caring for ≥10 patients in long-term care/nursing home and who are currently using telemedicine in their clinical practice. The sample population is a convenience sample. The survey collected both quantitative and qualitative data regarding participants use of telemedicine (telephone visits, video visits in eConsults).
IRB approval and informed consent process	IRB Approval	The study was approved through the Hamilton Integrated Research Ethics Board (HIREB#11154) prior to initiation.
	Informed consent	A letter outlining the purpose of the study, approximate length of time required to complete survey, information about data storage and who the investigators are were included as the first page of the online survey.
	Data protection	All data were password protected against unauthorized access. Only researchers listed in the ethics protocol had access to the raw and analyzed data.
Development and pre-testing	Development and testing	The survey was developed by the principal investigators involved in the study (VC and JH), and then tested by an expert panel of geriatric physician specialists for its usability and technical functionality prior to its administration.
Recruitment process and description of the sample having access to the questionnaire	Open survey vs. closed survey	We used an ‘open survey’ format as no password was required to access survey questions or for its completion.
	Contact mode	Initial contact with potential participants was made through email correspondence.
	Advertising the survey	The survey was advertised to potential participants through email listservs pertaining to Geriatrics. This includes emailing members of the McMaster Geriatrics and Care of the Elderly faculty, University of Toronto Geriatrics faculty, Waterloo Wellington Older Adult Strategy Group, Waterloo-Wellington Geriatrics Group, Provincial Geriatric Leadership Office, Provincial Geriatric Leadership Office, Canadian Geriatrics Society, and the GeriMedRisk mailing list.

CHUEN: GERIATRIC TELEMEDICINE USE DURING PANDEMIC

APPENDIX A. Continued

<i>Item Category</i>	<i>Checklist Item</i>	<i>Explanation</i>
Survey administration	Web/Email	The survey was administered through SurveyMonkey® (www.surveymonkey.com). Survey responses were captured automatically by SurveyMonkey®. Individual survey responses were downloaded for our analysis.
	Context	Our study recruitment was done only through email listservs. These mailing lists include physicians specializing in providing care for older adults, as detailed above.
	Mandatory/Voluntary	Survey completion was done on a voluntary basis.
	Incentives	We offered all participants who completed the survey a \$20 gift card for their time.
	Time/Date	The survey was open from December 22, 2020, to April 30, 2021 for completion by participants.
	Randomization of items or questionnaires	We randomized the order in which some of the questions present to prevent poor response rates for certain areas of the survey, due to survey fatigue. This pertained to the questions regarding perspectives on each of the following: (1) telephone visits, (2) video visits, and (3) eConsults.
	Adaptive questioning	Adaptive questioning was employed in the survey. Study participants were only asked about their perspectives on telemedicine tools that they reported having experience using.
	Number of items	The number of questions per page depended on the page of the survey. The number of questions ranged from a minimum of 1 question to a maximum of 7 questions.
	Number of screens (pages)	The number of pages in the survey depended on the individual responses due to the integration of adaptive questioning, and some pages or questions were omitted if they were not applicable to the participant. The survey ranged in length from a minimum of 4 pages to a maximum of 15 pages.
	Completeness check	SurveyMonkey® allows the administrator to pre-select questions that require a response and are therefore mandatory. Prior to proceeding to the next page, a completeness check was implemented to ensure all mandatory fields were completed by the participant.
Review step	Study participants were allowed to review their responses by clicking a 'Back' button and change any responses prior to submitting their survey. Participants were not provided a summary of their responses prior to ending the survey, however. Once the survey is submitted, they were not permitted to return to make changes to their responses.	
Response rates	Unique site visitor	Participants received a personalized link to their survey through SurveyMonkey®, which tracks the number of click-throughs to the first page. We did not collect IP addresses.
	View rate	Not applicable, as we did not post the survey publicly online.
	Participation rate	Our participation rate, as defined by the number of participants who visited the first page of the survey, divided by the number who agreed to be approached for the study, was 80% (36/45).
	Completion rate	Our completion rate was 87.9% (29/33), which was defined by the number of participants who completed the entire survey, divided by the number who provided consent to participate by clicking through the first survey page (consent form).
Preventing multiple entries from the same individual	Cookies used	Cookies were not used as participants were recruited through email, and the unique survey link allowed prevention of duplicate entries from the same individual. There may have been cookies from SurveyMonkey® to help with the usability of the website and survey administration.
	IP check	We did not collect any IP addresses. Participants were not allowed to complete the survey more than once, as each recruit received a survey link unique to themselves.
	Log file analysis	Not applicable
Analysis	Registration	Not applicable
	Handling of incomplete questionnaires	We included all survey responses, both complete and incomplete, in our analysis.
	Questionnaires submitted with an atypical timestamp	We did not measure the time needed to complete the questionnaire, and therefore, all survey responses that were completed were included in our analysis.
	Statistical correction	Not applicable