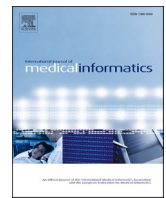




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Quality of virtual care for ambulatory care sensitive conditions: Patient and provider experiences

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ABSTRACT

Background: The COVID-19 pandemic and the need for physical distancing has led to rapid uptake of virtual visits to deliver ambulatory health care. Despite widespread adoption, there has been limited evaluation of the quality of care being delivered through virtual modalities for ambulatory care sensitive conditions (ACSCs).

Objective: To characterize patients' and providers' experiences with the quality and sustainability of virtual care for ACSCs.

Design: This was a multi-method study utilizing quantitative and qualitative data from patient surveys, provider surveys, and provider focus groups at a large academic ambulatory care hospital between May 2020 and June 2021. We included patients and providers utilizing telephone or video visits for the following ACSCs: hypertension, angina, heart failure, atrial fibrillation, diabetes, chronic obstructive pulmonary disease, or asthma.

Main measures: Quantitative and qualitative patient and provider survey responses were mapped to the Six Domains of Healthcare Quality framework. Provider focus groups were coded to identify themes within each quality domain.

Key results: Surveys were completed by 110/352 (31%) consenting patients and 20/61 (33%) providers. 5 provider focus groups were held with 14 participants. Patients found virtual visits to be generally more convenient than in-person visits for ACSCs. The perceived effectiveness of virtual visits was dependent on the clinical and social complexity of individual encounters. Respondents reported difficulty forming effective patient-provider relationships in the virtual environment. Patients and providers felt that virtual care has potential to both alleviate and exacerbate structural barriers to equitable access to care.

Conclusions: In a large academic ambulatory care hospital, patients and providers experienced the quality of virtual visits for the management of ACSCs to be variable depending on the biopsychosocial complexity of the individual encounter. Our findings in each quality domain highlight key considerations for patients, providers and institutions to uphold the quality of virtual care for ACSCs.

1. Introduction

The COVID-19 pandemic and the need for physical distancing has led to rapid adoption of virtual visits to deliver ambulatory health care [1–3]. The widespread use of virtual care is expected to persist well beyond the COVID-19 pandemic [4]. While great strides have been made

in the uptake of virtual care, it is imperative to evaluate the quality of care being delivered through virtual modalities [5,6].

Ambulatory Care Sensitive Conditions (ACSCs) are a consensus list of medical conditions for which high quality ambulatory care can potentially avert emergency department visits, inpatient hospitalizations, and improve patient outcomes [7–9]. As such, high quality care for ACSCs

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can improve continuity of care, reduce health system costs, and is a particularly important priority for many healthcare institutions. High intensity virtual care has been shown to decrease emergency department utilization for ACSCs among older adults in one study done prior to the COVID-19 pandemic [10], but the broader impact of routine virtual visits in their present-day form on the quality of care for ACSCs in a diverse patient population is not known.

Within the growing literature on patients' and providers' experiences with virtual care before and during the COVID-19 pandemic, overall experience with virtual visits is generally acceptable across most studies, largely driven by convenience of virtual visits as well as potential time and cost savings for patients [11–13]. Challenges highlighted in existing studies – including the lack of physical examination and potential inequitable access to virtual care – are variable across disease conditions [14–16], geographies [12], and practice settings (e.g. primary compared to secondary care) [17,18]. Comprehensive assessments of the quality of virtual ambulatory care have been understandably slower to progress than the literature on patient and provider satisfaction [5]. Moreover, most recent evaluations of the quality of virtual visits for broad ranges of ACSCs use system-level healthcare utilization data but lack integration of patients' and providers' perspectives in their analyses [10,19].

As end users of virtual care technologies, patients and healthcare providers have important insights and lived experience with virtual visits for ACSCs. Their perspectives are a critical component of evaluating the quality and sustainability of virtual care [5,20,21]. We conducted a multi-method study at a large academic ambulatory care hospital in Toronto, Canada to characterize patients' and providers' experiences with the quality and sustainability of synchronous telephone and video visits for ACSCs in specialty clinics.

2. Materials and methods

2.1. Study design and setting

This was a multi-method study utilizing quantitative and qualitative data collected through patient surveys, provider surveys, and focus groups with providers. The study took place from May 15, 2020 to June 21, 2021 at a large academic ambulatory care hospital in Toronto, Canada. The study was conducted as part of a hospital-wide strategy to enable widespread adoption of digital health technologies.

The study hospital's health information management systems include EPIC electronic health record (vendor based proprietary system) across all ambulatory clinics, as well as an EHR-integrated online patient portal (myHealthRecord) which allows for patient survey deployment and patient access to clinical information including testing results and upcoming appointments. The study hospital's overall level of digital maturity was approximately HIMSS EMRAM Stage 5 [22].

Patients and providers in this study interacted within the publicly funded healthcare system in Ontario, Canada. Physician remuneration codes for telephone and video visits were introduced in March 2020 and remained in effect throughout the study period.

2.2. Participants

We included any patient who consented to be contacted following a synchronous telephone or video visit with a physician or nurse practitioner in a specialty clinic during the study period for any of the following ACSCs: hypertension, angina, heart failure, atrial fibrillation, diabetes, chronic obstructive pulmonary disease, or asthma. We did not include primary care visits. These seven ACSCs were chosen because they are core conditions included in most consolidated lists of ACSCs in the literature [7,9,23], and they represent high volume conditions seen in the Department of Medicine at the study site.

For provider surveys and focus groups, we included any healthcare provider in the Divisions of Cardiology, Endocrinology, Respiriology and

General Internal Medicine, to align with the seven ACSCs included in this study. Eligible healthcare providers included physicians, nurses, nurse practitioners, allied health professionals (e.g. physiotherapists, social workers), and administrative staff.

2.3. Data collection

Patients consented to be contacted for patient experience surveys through an optional prompt on the hospital's online patient portal, or verbally to their healthcare provider if they were not registered for the portal. We sent a patient experience survey to every eligible, consenting patient after every telephone visit (October 2020 to May 2021) or video visit (May 2020 to May 2021) for an ACSC, through either the online patient portal, by telephone, or by email (in order of preference based on available contact information). If patients completed the survey multiple times, we only included the first response for each ACSC.

Provider surveys were sent to all eligible providers via email in June 2021. The survey was open for a three-week period, and two email reminders were sent to participants. Patient and provider surveys were developed using questions from existing validated tools [24–27], as well as novel questions relevant to the local context. Two patient experience advisors reviewed the patient survey questions and provided feedback that were incorporated.

Participants for provider focus groups were recruited using a purposeful, maximum variation sampling approach. We held one physician focus group with each Division (Cardiology, Endocrinology, Respiriology and General Internal Medicine) and one focus group with administrative staff, between October 2020 and April 2021. All focus groups were administered virtually via the Microsoft Teams videoconferencing platform (Microsoft, Seattle, USA) due to public health regulations. One researcher (DN) facilitated all focus groups while a second researcher took detailed field notes. Focus groups were recorded and anonymous written transcripts were generated using a professional transcription service.

2.4. Data analysis

Patient and provider survey responses were analyzed using general descriptive statistics. Patient survey responses were stratified by visit modality. Missing data were excluded from statistical analysis. Baseline demographic data and questionnaire responses were analyzed by mean and standard deviation for continuous variables, or by frequency distribution for nominal variables. Due to small sample sizes of patient and provider subgroups, inferential statistics were not performed to assess for differences in responses between groups. All quantitative analyses were conducted using Excel version 16.34 (Microsoft, Seattle, USA).

Qualitative data (focus group transcripts and responses to open-ended survey questions) were analyzed using an Interpretive Description approach [28,29] to identify key themes and position them within the existing literature on health care quality. An initial codebook was generated deductively on the basis of the National Academy of Medicine Six Domains of Health Care Quality [30] framework (effectiveness, safety, efficiency, timeliness, patient-centeredness and equity) and the Picker Institute's Eight Principles of Patient-Centered Care [31].

Each focus group transcript and survey responses were independently coded line by line by two researchers (DN, VK). To begin, the two researchers coded the first transcript to the six domains of healthcare quality within the guiding frameworks [30]. They then met to assess intercoder reliability, and to inductively identify themes, sub-themes and relationships within each domain of the guiding frameworks to generate a more robust coding schematic. This coding schematic was then discussed and refined with two senior authors (GM, PA) who had full access to the qualitative data and field notes. Each of the remaining transcripts and survey responses were then independently coded by both researchers (DN, VK) and emergent themes were further refined and consolidated through an iterative process [29,32]. The two researchers

met after coding each transcript to compare coding. All differences were resolved through discussion until fully aligned. After all qualitative data had been coded, four authors (DN, VK, GM, PA) met to establish consensus about the key themes and subthemes in each quality domain, and triangulate these findings with quantitative survey data. Finally, once all qualitative data had been analyzed to identify key themes within each quality domain, member-checking was performed with three focus group participants and they were encouraged to provide critical feedback to enhance the validity of the results. NVivo Release 1.4 (QSR International, Melbourne, AU) was used for qualitative data analysis.

2.5. Ethics

This study was approved by the Research Ethics Board at Women’s College Hospital. All participants provided informed consent to participate in this study.

3. Results

The recruitment process for patient experience surveys is shown in Fig. 1. 110/352 (31%) consenting patients completed the patient experience survey, of which 72 were administered by telephone, 8 by email, and 30 through the online patient portal. 20 of 61 (33%) eligible providers completed the provider survey.

Characteristics of patient and provider survey respondents are shown in Table 1. Patient survey respondents were primarily female (71%), Caucasian (60%), and had strong self-rated English language skills (93%).

Of the 14 focus group participants, 9 (64%) were female, 12 (86%) were physicians and 2 (14%) were administrative staff. Three (21%) participants were from the Division of Cardiology, 5 (36%) were from

Endocrinology, 2 (14%) were from Respirology, 2 (14%) were from General Internal Medicine, and 2 (14%) worked in multiple divisions.

Condensed results of patient and provider surveys are shown in Table 2 and Fig. 2 respectively. Full survey results as well as additional quotations for each quality domain are available in the Supplementary Appendix. Key learnings in each domain of healthcare quality, derived from patient surveys, provider surveys, and provider focus groups are summarized below.

3.1. Safety and effectiveness

Patients and providers had diverse perspectives on the safety and effectiveness of virtual visits for ACSCs, depending on clinical and individual patient characteristics. For encounters involving single issues, where management decisions are based heavily on test results, or simple follow-up appointments, patients and providers perceived virtual visits to be as safe and clinically effective as in-person visits. 90% of patient survey respondents found their virtual visit to be very or somewhat helpful for their ACSC, and 57% felt their overall care experience was equal to or better than an in-person visit. Amongst provider survey respondents, 85% felt that virtual visits enabled them to sufficiently address their patient’s clinical need.

For complex encounters involving multi-morbid patients or the need for a physical exam, some providers felt care is compromised in the virtual environment because they have less information on which to base their clinical decisions. This led to lower diagnostic confidence and trepidation when making major treatment decisions.

“There are some people that you are pretty confident that it [virtual care] is probably fine. But for many of those patients, I feel like there’s a lot of missing things, and then I find myself reluctant to make big decisions like, you know, starting insulin... if I don’t think they’re going to fully understand the risks and benefits and understand what to do, if their sugars

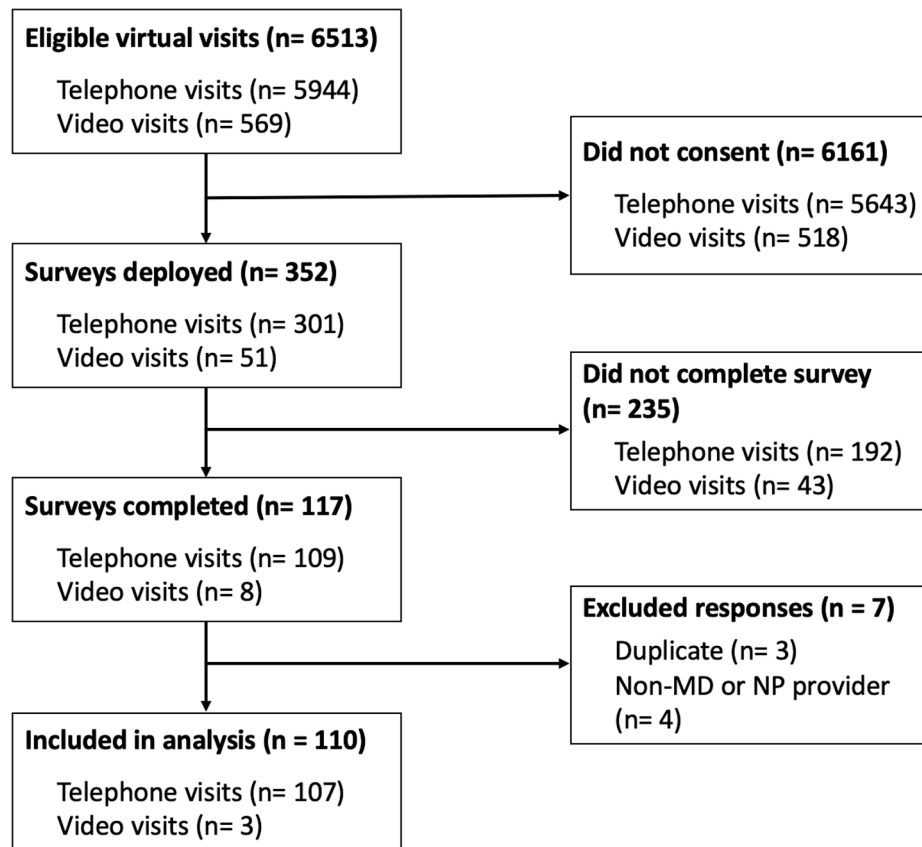


Fig. 1. Patient experience survey recruitment.

Table 1
Characteristics of study participants.

Patient Experience Survey Respondents (N = 110)	
Characteristic	Respondents
Mean age (SD)	60.3 (16.3)
Gender, n (%)	
Female	78 (70.9)
Male	31 (28.2)
N/A	1 (0.9)
Ethnicity, n (%)	
Caucasian	66 (60.0)
Asian	20 (18.2)
Black	8 (7.3)
Other	7 (6.4)
Self rated ability to speak/understand English, n (%)	
Very well or well	102 (92.7)
Not well or not at all	4 (3.6)
Self reported annual family income, n (%)	
\$0 to \$59,999	16 (14.5)
\$60,000 to \$119,999	19 (17.2)
\$120,000 or greater	16 (14.5)
N/A	59 (53.6)
Self reported comorbid illness, n (%)	
Sensory disability	17 (15.5)
Physical disability	23 (20.9)
Chronic medical illness	69 (62.7)
Mental illness	11 (10.0)
Visit Modality, n (%)	
Telephone	107 (97.3)
Video	3 (2.7)
Provider Survey Respondents (N = 20)	
Age, n (%)	
20–39	5 (25.0)
40–59	15 (75.0)
Gender, n (%)	
Female	19 (95.0)
Male	0 (0)
N/A	1 (5.0)
Provider type, n (%)	
Allied Health	8 (40.0)
Physician	7 (35.0)
Nurse practitioner	3 (15.0)
Nurse	2 (10.0)
Clinical division, n (%)	
Cardiology	6 (30.0)
Endocrinology	13 (65.0)
Respirology	0 (0)
General Internal Medicine	1 (5.0)
Years in practice, n (%)	
1–2	3 (15.0)
3–9	4 (20.0)
10+	13 (65.0)
No. of video visits completed, n (%)	
0 to 15	4 (20.0)
16+	16 (80.0)
No. of phone visits completed, n (%)	
0 to 15	0 (0)
16+	19 (95.0)

Percentages may not add to 100% due to missing responses.

go down on their insulin... So that I feel is also an impediment, like, I may not make the best decisions because I'm trying to be safe when they're just on the phone."

- Endocrinologist 001

Providers expressed concerns about patients “falling through the cracks” when administrative workflows including laboratory requisitions, prescription renewals, and scheduling of follow-up appointments were not optimized within the virtual environment.

If virtual visits were not available, 6% of patient survey respondents stated they would have gone to the emergency department for their ACSC, 32% would have visited their family physician or a walk-in clinic, 42% would have booked an in-person visit with their specialist, and 16% would not have sought care.

Table 2
Patient experience survey results.

Survey Response	Respondents, n (%)
To date, how many telephone / video visits have you had with your healthcare team at WCH?	
1	23 (20.9)
2–4	65 (59.1)
5+	22 (20.0)
Would you have preferred to have had your visit over video instead of by telephone? (Telephone visit survey only)	
Yes	20 (18.7)
No	56 (52.3)
Not Sure	31 (29.0)
How much did the telephone or video visit help you with the health issue for which you needed the appointment?	
Very helpful or somewhat helpful	99 (90.0)
Neutral, not helpful, or not at all helpful	8 (7.3)
What would you have done if you were not able to see your doctor through a telephone or video visit?	
Walk in clinic	2 (1.8)
Emergency department	7 (6.4)
See/talk to my family doctor	34 (30.9)
Scheduled an in person visit with this doctor	46 (41.8)
I would not have sought care at that time	18 (16.4)
Did the telephone or video visit save you time?	
Yes	95 (86.4)
No	12 (10.9)
Did the telephone or video visit save you money?	
Yes	86 (78.2)
No	20 (18.2)
Were there any issues that made it hard to participate in the telephone visit?	
Yes	18 (16.4)
No	85 (77.2)
Unsure	3 (2.7)
How would you rate your experience with receiving care through a telephone or video visit compared to an in-person visit?	
Better than an in-person	9 (8.2)
Same as an in-person visit	54 (49.1)
Worse than an in-person visit	29 (26.3)
Not sure	18 (16.4)
How likely are you to recommend the telephone or video visit to a friend on a scale of 1–10?	
1 to 4	5 (4.5)
5 to 7	26 (23.6)
8 to 10	69 (62.7)
Would you like the option to continue having telephone (video) visits with your healthcare providers after COVID-19?	
Yes	59 (53.6)
No	32 (29.1)
Not sure	19 (17.3)

Percentages may not add to 100% due to missing responses.

3.2. Efficiency and timeliness

During the COVID-19 pandemic, patients and providers agreed that virtual care for ACSCs was instrumental to providing timely access to care when in-person visits were not possible. However, if given the option of in-person visits, focus group participants reported mixed experiences as to whether virtual visits improved or hindered the efficiency and timeliness of their clinics. While some providers were able to see higher volumes of patients virtually (due to shorter encounters), others experienced inefficiencies due to workflows that were not optimized for the virtual environment. Among survey respondents, 70% of providers reported that they spent the same amount of time on their last virtual visit that they would have for an in-person visit.

Most (86%) patient survey respondents felt that their virtual visit saved them time compared to an in-person visit. A shared frustration among patients and providers was the challenge of communicating when a virtual clinic is running behind schedule. Patients described the experience of waiting for their physician in a virtual environment to be more frustrating, isolating and confusing compared to in-person. This dynamic was also uncomfortable and stressful for providers.

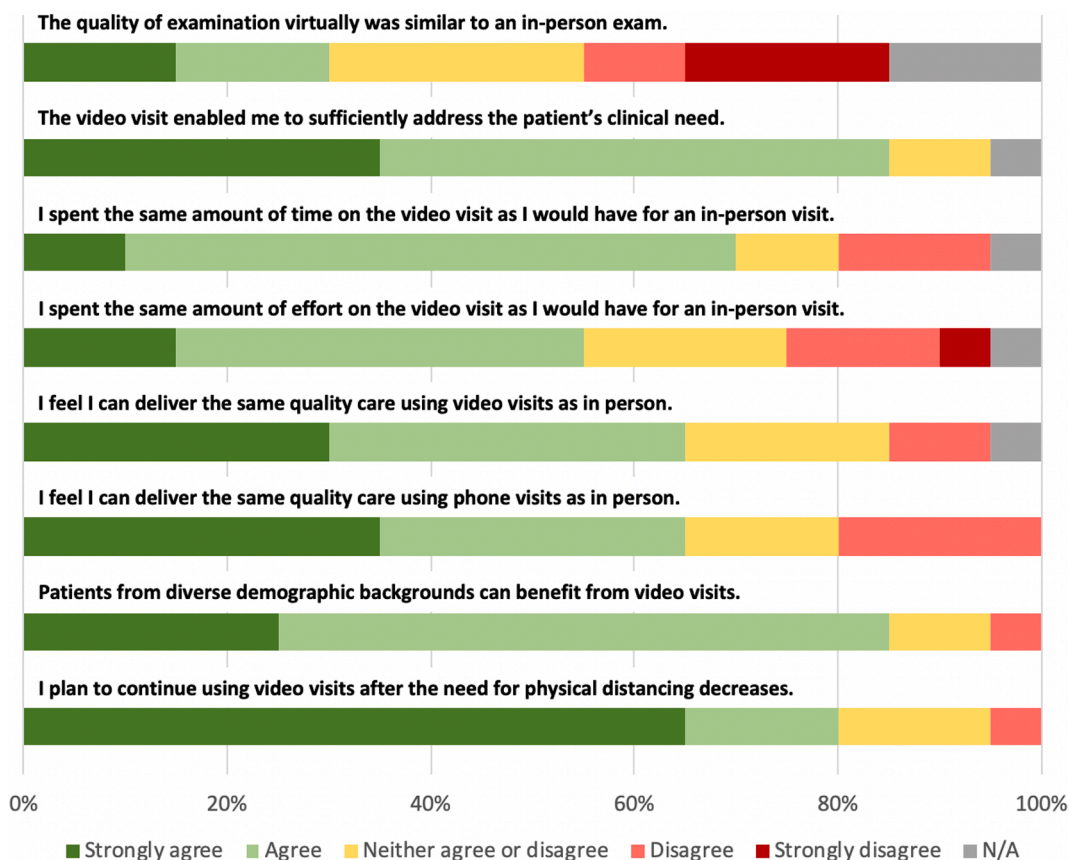


Fig. 2. Provider survey results.

“Doctors have to make effort for the phone visit to be successful. Late calls, too many calls, or missed scheduled call backs can ruin the whole experience. The human element will always drive the experience.”
- Patient survey response

3.3. Equity and patient-centeredness

The predominant sentiment among focus groups participants was that virtual care – depending on how it is implemented – has great potential to alleviate or exacerbate structural barriers to equitable access to care. Among provider survey respondents, 85% felt that patients from diverse backgrounds can benefit from virtual visits. Providers felt that the convenience of virtual care (cost savings and eliminating the need for travel) may improve access to care among underserved groups including patients who are elderly, low income, or from remote locations.

“I’ve always felt like there’s almost apartheid for health care, where you’re in a city, you get one sort of health care and you’re in a more remote area, you get a different sort of health care. And I think that this [virtual care] has helped overcome some of those inequities.”
- Cardiologist 003

A minority (16%) of patient survey respondents reported difficulty accessing care during their virtual appointment, with commonly reported issues including language barriers and technical issues with video visits. Provider focus group participants echoed concerns that virtual care for ACSCs – if implemented without thoughtful policies to enable access – may systematically exclude certain patients from receiving high quality care. High risk groups identified by providers included patients who live in crowded conditions (lacking privacy), have lower English proficiency, sensory impairments, or have limited digital literacy. For

many of these reasons, phone visits were viewed as particularly easy to access compared to video visits.

“So we speed ahead with the technology. We think this is all great but there are a lot of people who either don’t have the access or who don’t have the environment, right? How do you have a confidential conversation with somebody who’s living in a one-bedroom apartment with four people?”
- Endocrinologist 003

Overall, providing the option of virtual visits for ACSCs was viewed by providers as highly patient-centered by allowing respect for individual preferences and improving continuity of care. However, providers expressed difficulty using virtual modalities to provide emotional support or communicate complex information. A challenge to patient-centered care identified by survey and focus group participants was the difficulty establishing an effective patient-provider relationship in the virtual environment.

“It’s hard to bring up certain symptoms and issues on the phone. It would be easier to talk about those issues in person especially for when I am feeling bad or anxious.”
- Patient survey response

3.4. Sustainability

Patients had diverse opinions about whether they wanted virtual visits to continue for their ACSCs after the COVID-19 pandemic: 54% responded yes, 29% responded no, and 17% were not sure. Among provider survey respondents, 80% planned to continue using virtual visits after the need for physical distancing decreases.

Provider focus group participants identified multiple factors requiring attention to allow for long term sustainability of telephone and

video visits for ACSCs (Table 3). Some providers and administrative staff found virtual care to be more fatiguing, impersonal, and monotonous than in-person care, and worried that it may contribute to burnout.

“As we evolve, we know what we need in order to make that better, and it’s a workload issue. I think that’s going to be the difference, whether people want to keep it [virtual care] or not, and whether it becomes more successful or not. If it all rests on a secretary having the time to have a long phone call with a patient, I don’t want that to be the barrier for somebody being able to access video visits.”

- Administrator 001

4. Discussion

Our study found that in a large academic ambulatory care hospital, patients and providers experienced the quality of virtual visits for the management of ACSCs in specialty clinics to be variable depending on the biopsychosocial complexity of the individual encounter. Our findings in each quality domain highlight key considerations for patients, providers and institutions to uphold the quality of ambulatory health care as routine virtual visits mature from a pandemic-induced necessity to a durable, long-term modality of care delivery [4].

Within the growing body of literature on patient and provider experiences with virtual care [11–13], our study is unique in its focus on health care quality for a broad range of ACSCs in the secondary care setting. This study confirms previous findings that most patients and providers view virtual visits to be a useful modality to address simple issues for routine ambulatory care and patients perceive virtual care to be more convenient [11–13,33,34]. Recent reviews of patients’ experiences with virtual care during the COVID-19 pandemic across varied disease conditions in both primary and secondary/tertiary care have consistently demonstrated a high level of overall satisfaction which is largely driven by the perceived convenience of virtual visits [11–13]. Potential barriers to high-quality care during virtual visits identified by providers in our study – including the lack of a physical exam and difficulty establishing an interpersonal connection – are echoed by recently published studies of providers across various practice settings [33–37]. These findings may explain the preference among patients and providers to use virtual visits for follow-up visits rather than for new consultations in some studies [12,33].

Our observation that some providers report negative impacts of virtual visits on their overall efficiency is contrary to prior survey results [33,34], but is echoed by studies involving interviews or focus groups with providers delivering longitudinal ambulatory care [17,38]. This suggests that aggregate survey data alone may not adequately capture the nuanced effects of virtual care on ambulatory care quality, and that impacts of virtual visits on efficiency and timeliness may be highly specific to local context.

Our finding that 6% of patient survey respondents would have visited the emergency department if their virtual visit was not available suggests that similarly to in-person ambulatory care, high quality virtual care for ACSCs may potentially avert emergency department usage and acute care hospitalization [7–9]. Barriers to access highlighted in our study are thus particularly salient for patients with ACSCs as they may contribute to broader health system costs. Two previous studies have demonstrated that high intensity virtual care interventions for ACSCs

Table 3

Provider reported requirements for long-term sustainability of virtual care for ACSCs.

1. Maintenance of physician remuneration codes for virtual care.
2. Greater administrative, clerical and technical support (absorption of these duties by existing staff is viewed as unsustainable).
3. Institutional policies to navigate specific privacy and data security considerations.
4. Building capacity for virtual care through medical education and professional development.

can decrease acute care utilization [10,39], but these interventions required significant home-based resources that are not reflective of most ambulatory care practices. Further studies are needed to measure healthcare utilization and outcomes in patients receiving routine virtual care in its present-day form for the management of ACSCs.

Health equity considerations highlighted by patients and providers in our study mirror the findings of others, including the identification of key priority groups at risk of structural barriers to virtual care access such as patients with lower digital literacy, older age, sensory impairments, of lower English proficiency [40,41]. We found that the impact of virtual visits on health equity is nuanced, and telephone visits in particular may improve access to care among certain underserved groups (e.g. lower income, remote geographies) through cost savings, time savings, and the ability for more frequent follow-up. These learnings underscore the importance of engaging members of underserved communities in planning the future of virtual care policy, to ensure the promise of virtual care is realized for all patient groups [40].

Our study has several limitations. Firstly, the low response rate to patient experience surveys likely introduced response bias, which limits the generalizability of survey findings to the overall population of patients receiving care for ACSCs. The low proportion of patients who consented to receive surveys was largely driven by low completion of the optional consent prompt on the patient portal. An active recruitment process (provider-initiated verbal consent) was utilized for patients not registered on the online portal, to improve representation from underserved groups with lower digital literacy. Despite these efforts, certain groups – including patients with low income, limited English proficiency, or sensory impairments – are under-represented in our patient survey responses. We were also unable to conduct focus groups with patients due to feasibility constraints. Future studies of patient experiences with ambulatory virtual care should include interviews or focus groups with patients and should further tailor recruitment strategies to enroll patients from groups at risk of inequitable virtual care access [40]. Although many of our survey questions were drawn from validated tools [24–27], our questionnaires as a whole did not undergo psychometric validation prior to use. This limits the ability to directly compare our survey results with studies using different tools. We acknowledge that the majority of patients and providers in our study are women. Although this may limit the overall generalizability of our results, it addresses an important gap in the medical literature where perspectives and experiences of women are under-represented [42]. Lastly, the vast majority of patient survey responses were for telephone visits, with only three responses for video visits. This reflects practice patterns at our local institution where uptake of video visits for ACSCs was very low compared to telephone visits in specialty clinics.

Strengths of our study include its multi-method approach which allowed for rich exploration of patients’ and providers’ perspectives and triangulation of findings from multiple data sources. Moreover, our questionnaires were more in-depth than standard patient satisfaction surveys, providing useful data in all domains of health care quality. Our one-year long study enrollment period allowed us to capture data that were relevant beyond the initial phases of the COVID-19 pandemic and can inform virtual care policy in the post-pandemic era.

To our knowledge, this is the first study to evaluate patient and provider experiences with the quality of virtual care for a broad range of ACSCs in specialty clinics. Our findings highlight the need for thoughtful decision-making around the long-term use of virtual visits in ambulatory care settings to ensure that quality is upheld in all domains.

Summary Table

What was already known on the topic:

- Uptake of virtual care modalities to deliver ambulatory care is rapidly increasing and expected to persist long-term
- High quality outpatient care for ambulatory care sensitive conditions (ACSCs) may decrease acute care utilization and reduce health system costs

What this study added to our knowledge:

- A comprehensive evaluation of the quality of care being delivered through telephone and video visits for ACSCs, from the viewpoint of end-users (patients and providers)
- Identification of key strengths as well as areas for improvement for virtual visits for ACSCs in each domain of healthcare quality

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ijmedinf.2022.104812>.

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