TIMESAVING IN SURGICAL OFFICE VISITS WITH TELEMEDICINE, THE LASTING LEGACY OF COVID-19

Laura I Peck, DO, MSW; Abdelkader Hawasli, MD; Ascension St John Hospital



Background

With the rapid development of new telecommunication technologies since the beginning of the 21st century, the use of telemedicine in healthcare emerged and has been growing at a relatively steady pace until the onset of the Covid-19 pandemic1,2,3. The threat of the virus and subsequent need for physical distance forced the healthcare industry to quickly expand its use of virtual patient appointments to nearly all fields of medicine, including surgical specialties4,5.

However, as the spread of the virus has slowed, the use of video technology to conduct virtual appointments has declined but it is still being used at a higher rate than before the pandemic era. This is due, especially in surgical practice, to the preference of patients to establish a face-to-face relationship with their surgeon, especially on the first consultation visit, rather than meeting the surgeon on the day of the surgery6. As such virtual visits are becoming a part of the permanent landscape of medicine, highlighting the importance of studying their impact on both medical and surgical practices7,8.

This study examines the impact of virtual appointments on time spent in the office within a surgical practice.

Materials & Methods

A retrospective cohort study was conducted using tracked time data from all virtual and in-office new patient, established patient, and post-op appointments for a single surgeon within a combined bariatric and general surgery practice over the course of a 2-month period. Office visits were conducted 2x/week, using 4 exam rooms and one medical assistant (MA) to triage the patients. The study included 201 patients. 104 were in-office visits and 97 were virtual visits. A breakdown of the number of appointments by appointment type is summarized in table 1. Appointments with incomplete or missing time data were excluded. The total length of time for each appointment was reviewed. The study used a commercially available telemedicine Application with capability of video saving of the interview.

Table 1: Number of appointments by type

Appointment Type	In-office	Virtual
New	34 (33%)	5 (5%)
Established	41 (39%)	46 (47%)
Post-op	29 (28%)	46 (47%)
Total	104	97

A new patient visit starts with the check-in at the front desk, completion of a medical/surgical history, and a review of systems. The MA enters the patient data into the electronic medical record (EMR) and brings the patient to the triage room for measurements and vitals. Once complete, the patient is escorted to the exam room, a paper chart is given to the surgeon to see the patient, and vitals and measurements are entered into the EMR while the patient waits to see the surgeon. This process is the same for established and post-op patients, aside from providing a history and review of systems at the start of the encounter. The study start time for the in-office visits began when the patient signed into the office and ended when the patient exited the exam room following the appointment. Time for in-office appointment is summarized in Table 2.

Table 2: Time for in-office appointments

Appointment Type	Appointment Number	Minutes from Check in to triage	Minutes from Triage to Room	Minutes from Room to check out	Total appointment time
New	34	19	6	35	60
Established	41	13	5	29	47
Post-op	29	12	4	23	39
Total	104	15	5	29	49

When there was free time in the office during the week, virtual patients were called by the MA ahead of the appointment to obtain a history and review of systems, which was entered it into the EMR. During the call, patients were asked to download the telemedicine application to their smart phone and were sent an informational brochure on how to use the app. Start time for virtual appointments began when the virtual call was connected on the day of the visit and ended when it was disconnected. A summary of time for virtual appointments is summarized in Table 3.

Table 3: Time for virtual appointments

Appointment Type	Appointment Number	Minutes for appointment
New	5	12
Established	46	6
Post-op	46	5
Total	97	5

Descriptive statistics and student t-test were used to make a comparison between the in-office and virtual appointment lengths, based on visit type. Average length of time spent by medical assistant staff per patient during in-office visits was also reviewed and included.

Results

Average length of a new patient visit conducted in the office was significantly longer than for virtual appointments (60+/-20 vs. 12+/-5 min, $p < 0.001$). Likewise, the average length of an established patient visit conducted in the office was significantly longer than for a virtual visit (47+/-27 min vs. 6+/-3 min, $p < 0.001$), and the average length of an in-office post-op patient visit was significantly longer when compared with a virtual post-op patient visit (49+/-21 min vs. 5+/-2 min, $p<0.001$). Referring to table 1, the most minutes elapsed when patients checked in and were filling out their information and/or waiting for triage, followed by the minutes elapsed while the patient waiting in the exam room to see the surgeon.

All virtual visits were scheduled toward the end of the day, from 3 to 5 pm, and the MA was not required to stay or participate in these visits. This allowed the MA and other office staff to finish their work on time and leave by 5 pm, avoiding overtime and extra overhead cost. Historically, prior to implementation of virtual appointments, this practice would regularly extend office hours to 6 or 7 pm in order to complete all patient visits. However, time spent entering the pre-virtual visit data into the EMR for was not recorded, as it occurred when the MA had free time during the week. If this data were available, it could be compared to the in-office appointments, which required medical assistants to spend an average of 4.9+/-2.6 minutes per patient collecting vitals and entering preliminary history into the EMR prior to the physician entering the exam room.

Looking specifically at appointment type for in-office visits, there was almost an equal split between the number of new, established, and post-op appointments. For virtual visits, there was a shift toward established and post-op visits (Table 3). However, whether the appointment was in-office or virtual was determined by patient preference, which means that new patients typically preferred in-office appointments, while uncomplicated post-op patients (without sutures/drains to remove) typically preferred virtual appointments. Additionally, many of our established patients enjoyed the option of a virtual visit to receive diagnostic/test results, rather than returning to the office.

Discussion & Conclusions

The results of this study demonstrate that a surgical practice that utilizes virtual appointments can save a significant amount of time in the office for the surgeon, the patient, and the office staff, when compared with a practice that solely utilizes in-office appointments. Virtual visits don't require the patient to travel. They don't require a patient to wait to be called back from the waiting room or wait to be seen by the surgeon. Although some amount of patient waiting time is common and often unavoidable in a medical office setting, it almost certainly impacts the patient's impression of the entire patient-doctor experience. Furthermore, virtual visits don't require the surgeon to wait for an exam room to open up or to be cleaned, or wait for the next patient to be brought back. Nor do they require the office staff to turn the rooms or stay late until the last patient is checked out.

It is possible that the length of shorter virtual appointments might result in more follow-up phone calls, as the patient might not have time to think of all the questions at the time of the call or might forget what was said. However, the application that was used in our study allows the patient to save the appointment and replay it later, which may mitigate some follow-up phone calls for virtual appointments. On the other hand, the only option for an in-office patient who forgets what was said during the visit is to call, return to the office, or request a copy of the physician note from the chart.

One obvious drawback of virtual appointments is the inability of the physician to perform a physical exam, which requires the use of sense of touch and sometimes even sense of smell to be complete. Moreover, missing unrelated/incidental findings on physical exam, which can sometimes be lifesaving, is another important potential consequence of conducting virtual visits. However, patient perception and preference remains the most important variable in determining whether the use of virtual visits is appropriate/beneficial. This study confirms the findings of a survey conducted by Sorensen et al.7, proving that new patients prefer to have a face-to-face appointment with the surgeon on the first visit.

Additionally, we found that virtual appointment technology is particularly useful for follow-up appointments to share test results with established patients, as well as for uncomplicated post-op patients who don't have sutures/drains/etc. to remove. However, new patient appointments and appointments for patients with unfavorable test results are typically better conducted in person. Putting a hand on a patient shoulder or providing a patient with a Kleenex, for example, are an essential part of the art of medicine and the act of humanism, which is impossible to replicate via telecommunication.

While the use of telemedicine technology to conduct virtual appointments within a surgical practice saves a significant amount of time for the patient, the physician, and the office staff when compared with in-office visits, more research is needed to look deeper into patient satisfaction, as well as explore the potential clinical consequences of a surgeon foregoing a hands-on physical assessment.

References

1. Bajwa M. Emerging 21(st) Century Medical Technologies. *Pak J Med Sci*. 2014;30(3):649-655. doi:10.12669/pjms.303.5211
2. Huang EY, Knight S, Guetter CR, et al. Telemedicine and telementoring in the surgical specialties: A narrative review. Am J Surg. 2019;218(4):760-766. doi:10.1016/j.amjsurg.2019.07.018
3. Asiri A, AlBishi S, AlMadani W, ElMetwally A, Househ M. The Use of Telemedicine in Surgical Care: a Systematic Review. *Acta Inform Med*. 2018;26(3):201-206. doi:10.5455/aim.2018.26.201-206
4. Zhu C, Williamson J, Lin A, et al. Implications for Telemedicine for Surgery Patients After COVID-19: Survey of Patient and Provider Experiences. *Am Surg*. 2020;86(8):907-915. doi:10.1177/0003134820945196
5. Sorensen MJ, Bessen S, Danford J, Fleischer C, Wong SL. Telemedicine for Surgical Consultations - Pandemic Response or Here to Stay?: A Report of Public Perceptions. *Ann Surg*. 2020;272(3):e174-e180. doi:10.1097/SLA.0000000000004125
6. Sorensen MJ, Besen S, Danford J, Fleischer C, Wong SL. Telemedicine for Surgical Consultations- Pandemic Response or Here to Stay? A Report pf Public Perceptions. Ann of Surg. 272(3)Sep2020;e174:e180.
7. Robbins T, Hudson S, Ray P, et al. COVID-19: A new digital dawn?. *Digit Health*. 2020;6:2055207620920083. Published 2020 Apr 11. doi:10.1177/2055207620920083
8. Hollander JE, Carr BG. Virtually Perfect? Telemedicine for Covid-19. *N Engl J Med*. 2020;382(18):1679-1681. doi:10.1056/NEJMp2003539

This presentation poster was designed by FPPT. fppt.com