Rapid Transition to Telemedicine During the COVID-19 Pandemic: Medical Genetics Experience

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ABSTRACT

Background: The coronavirus SARS-CoV-2 (COVID-19) pandemic interrupted delivery of outpatient health care to minimize risk of exposure. This pandemic threatened to increase longstanding national concerns about access to both initial and follow-up genetics clinics services. The University of Wisconsin-Madison Waisman Center Medical Genetics Clinic (WCMGC) rapidly transitioned to offering appointments using telemedicine in March 2020 when the public health emergency for COVID-19 pandemic was declared.

Methods: Datasets were reviewed for the periods April – July 2019 (pre-COVID baseline) and April – July 2020 (COVID project data). Patient schedules were accessed to determine the number of appointments kept, no-shows, and late cancellations. A telephone survey was utilized to assess patient satisfaction with telemedicine.

Results: Fewer appointments were missed and providers completed more clinic visits after transitioning to telemedicine. Patients and their families were equally satisfied with care received and were amenable to telemedicine use in the future. Telemedicine allowed WCMGC to continue serving patients during a period of restricted on-site services, suggesting its continuation would improve access to genetic services.

BACKGROUND

The coronavirus SARS-CoV-2 (COVID-19) pandemic is an unprecedented event for all sectors of society, especially health care. COVID-19 required health care systems and clinicians to quickly adapt to a frequently changing landscape to safely provide emergent and routine care. A quick transition from traditional on-site, in-person visits to telemedicine occurred to allow continuity of care for patients while minimizing risk of COVID-19 exposure for patients and providers.

Integration of genetic assessment, diagnostic, and management services across a wide range of health care specialties is increasing. Notwithstanding this growth, a 2015 national survey of genetics professionals indicated increasing wait times and too few genetics health care professionals.[1] A 2020 systematic review of the literature on clinical genetics workforce found long wait times for referrals, from months to over a year.[2] Other factors contributing to decreased access to services include geographical and financial barriers, such as poor insurance coverage, travel costs, and lost work time.[3]

In Wisconsin, access to genetic services has been limited for over 10 years, including at the University of Wisconsin-Madison Waisman Center Medical Genetics Clinic (WCMGC). WCMGC serves pediatric and adult patients from much of northern, central, and southcentral Wisconsin and northern Illinois. WCMGC is 1 of 4 clinics in Wisconsin to provide diagnostic pediatric and adult genetic services. In the last 5 years, referrals to WCMGC have increased while the number of genetics professionals decreased. This trend is not unique to WCMGC and has resulted in the inability of Wisconsin genetics providers to meet the growing demand. Data from WCMGC in December 2018 showed 630 people waited for a clinic visit, including over 400 new patients. Approximately 40 new referrals were received weekly. In fiscal year 2018, 773 visits were completed with a no-show/late cancellation rate of 23%. Eighty-three percent of patients waited more than 21

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days for a visit, and visits were scheduled up to a year in advance.

Telemedicine is recognized as a means to increase access and reduce cost and wait times, while remaining acceptable to patients.[2] Models for telemedicine use exist in cancer genetic counseling and medical genetics clinics.[3-5] A regional model for pediatric medical genetics, with a local pediatrician and genetic counselor triaging patient care and referring to a geneticist by telemedicine, has provided services for chronically underserved regions with low wait times.[4] Genetics providers rank telemedicine highly to meet future needs and help serve patients.[1] However, a 2018 survey of medical genetics practices in the US showed less than 18% of providers used telemedicine (20.8% of genetic counselors, 15.8% of geneticists).[1] Despite arguments in favor of telemedicine, public and private insurance telemedicine reimbursement policies are restrictive, limiting implementation. The COVID-19 pandemic instigated national and state public health emergency declarations, creating insurance policy waivers and acting as a catalyst for change.

In Wisconsin on March 12, 2020, the governor declared a public health emergency. On March 16, WCMGC began a rapid transition to telemedicine, initially by telephone (TM-P) and then by video (TM-V) format. Prior to March 16, 2020, there were no outpatient telemedicine services at WCMGC.

During the rapid transition, data were collected to evaluate the impact of telemedicine on appointments completed. Patient satisfaction surveys also were conducted.

METHODS

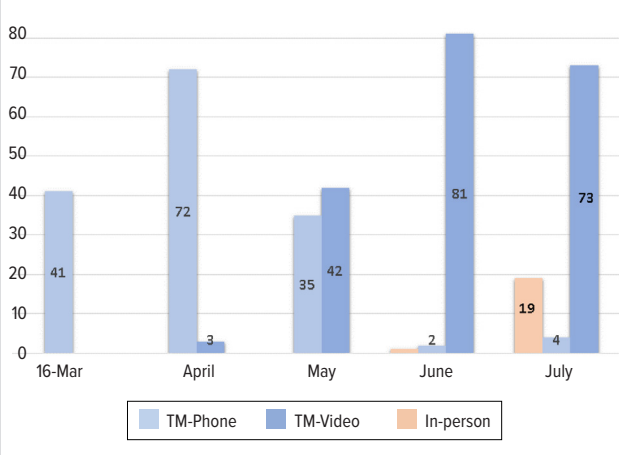
Two data sets were reviewed: pre-COVID baseline (April – July 2019) and COVID project data (April – July 2020). WCMGC patient schedules—archived in the UW Health electronic medical record (EMR)—were accessed weekly to obtain the number of visits scheduled and visits kept. For visits not kept, no-show and late cancellation data were collected. WCMGC defines late cancellation as an appointment cancelled less than 2 weeks before the scheduled appointment. Genetic counselors require 2 weeks for preparation to review the EMR. Late cancellations result in unfilled appointments. No-show rates were calculated as a proportion of total visits scheduled. Likewise, late cancellation rates were calculated as a proportion of total visits scheduled. "Visits completed/kept" values were obtained by subtracting the number of no-show and late cancellation visits from total visits scheduled.

Visit Type

From April 22 through July 31, 2019, all patients were seen in-person. From April 20 through July 31, 2020, the service delivery method was recorded as in-person (provider[s] and patient were at the Waisman Center), TM-P, or TM-V.

Beginning March 16, 2020, patients scheduled for in-person visits were converted to TM-P visits. If an in-person visit was needed, it occurred at the American Family Children's Hospital. UW Health expanded telemedicine capabilities and, on April 22, implemented a secure video application that allowed patients to use smartphones, tablets, or computers with webcams from a personal (nonclinic-based) location. With the transition to TM-V, scheduled patients were converted to a TM-V visit. Limited outpatient on-site visits at WCMGC resumed July 1, 2020. Clinic visits included meeting with a medical genetics physician or nurse practitioner and a genetic counselor.

Figure 1. Visit Type in the Medical Genetics Clinic, March 16-July 31, 2020 (N=373)



Abbreviations: TM-P, telemedicine-phone; TM-V, telemedicine-video.
Each visit was categorized based on method of service delivery: in-person (n=20), TM-P (n=154), or TM-V (n=199). The total number of visits in each category changed monthly as implementation of telehealth technology progressed and county/institution public health guidelines evolved.

Patient Satisfaction

To assess patient satisfaction with telemedicine, a series of survey projects were designed and completed. Survey projects were evaluated by the University of Wisconsin-Madison Quality Improvement/Program Evaluation Self-Certification Tool and did not require institutional review board approval.

A telephone survey was implemented for patients seen in July 2020. The telephone interview instrument, completed by nonclinician staff, was designed for use in several Waisman Center clinics. Interviewers gathered demographic and technology information, as well as opinions on ease of use and satisfaction with telemedicine. Quality of care and potential future use of telemedicine were assessed, in addition to open-ended questions about the telemedicine visit. (See Appendix for survey instrument.)

Interviewers entered responses into a REDCap database in real time. A coding frame was developed based on a thematic analysis of the interview transcripts. Codes were categorized as either positive (7 categories) or negative (3 categories) themes by 2 independent coders (92.7% of agreement). Coders discussed divergences and came to consensus for all cases.

RESULTS

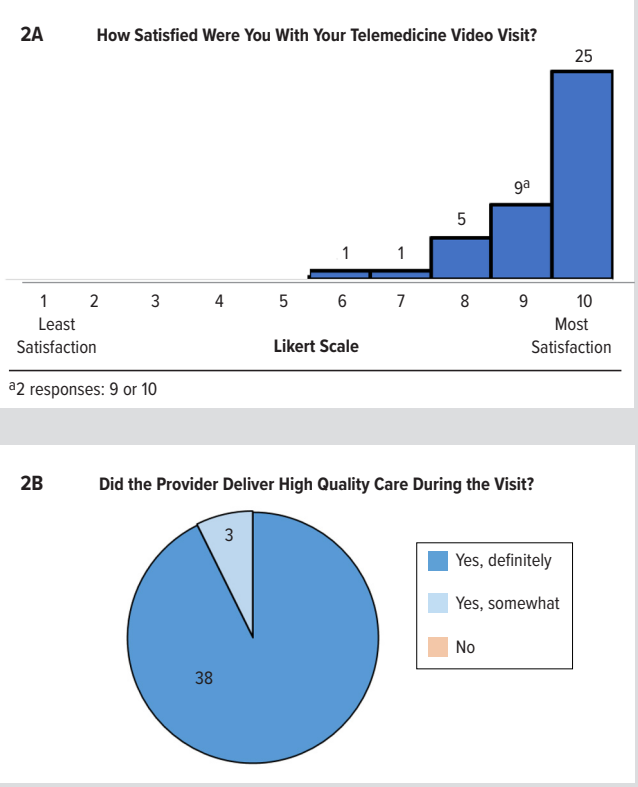
During the last 2 weeks of March 2020, 91.3% (42/46) of sched-

Table. No-show/Late Cancellation Rates

	April - July 2019 (N = 306)		April - July 2020 (N = 352)	
	No.	%	No.	%
Kept	225	73.5	306	86.9[a]
No-show	47	15.4	10	2.8[a]
Late cancellation[b]	33	10.8	36	10.2

[a]$P < 0.05$.
[b]Late cancellation is defined as an appointment that is cancelled < 2 weeks before the scheduled visit.

Figure 2. Patient Satisfaction for Telemedicine in Waisman Center Medical Genetics Clinic (N = 41)



[a]2 responses: 9 or 10

uled visits were converted from in-person to TM-P (Figure 1). In April, 72 of 75 visits were completed using TM-P, and TM-V was piloted for 3 of the 75. TM-V visits increased in May (42/77) and June (81/84). When the anticipated surge in positive COVID-19 cases did not occur, on June 1, 2020, UW Health reopened a limited number of outpatient clinics—including the WCMGC—for limited in-person visits. In July, of 96 visits, 73 were TM-V, 4 were TM-P, and 19 were in-person.

From April 22 through July 31, 2019, of 306 scheduled visits, 225 (73.5%) were kept. Of the 80 visits not kept, 47 (15.4%) were no-shows and 33 (10.8%) were late cancellations. From April 20 through July 31, 2020, of 352 scheduled visits, 306 (87%) were kept. Of the 46 visits not kept, 10 (2.8%) were no-shows and 36 (10.2%) were late cancellations (Table). Increased 2020 scheduled visits is also consequent to reduced provider time off and the addition of a nurse practitioner.

Patient Satisfaction

The telephone survey completed for July appointments had a 66% response rate (41/62). Respondents' information includes 44% new patient visits, 100% had a TM-V visit, and 90% of the patients were under 18 years with their caregiver completing the survey. The mean distance from the Waisman Center was 1.53 hours. The reason for the appointment was not collected as part of the survey. Respondents were satisfied with TM-V (mean 9.4, range 6-10) (Figure 2). All respondents felt high quality health care was provided. When asked if technology had ease of use, all respondents indicated yes, definitely (95%) or yes, somewhat (5%). No respondent indicated that the technology was difficult to use. The most common patient satisfaction themes included the ease of the appointment (46%), time savings due to no travel (44%), and decreased risk of COVID-19 (22%).

DISCUSSION

Telemedicine may help overcome well-established barriers to genetic service access, such as geographic barriers and workforce shortages. However, many health care systems have been hesitant to embrace telemedicine because of reimbursement restrictions and concerns about quality of care. To meet patient needs and improve access to care, a change to the service delivery model was needed.[2] The rapid, successful transition to telemedicine during the COVID-19 pandemic at the WCMGC not only met the immediate needs of patients to receive genetics care but also demonstrated that telemedicine could increase patient volume while maintaining patient satisfaction.

The Centers for Medicare and Medicaid Services (CMS) telehealth waiver expanded coverage for visits, including those at the patient's residence, and use of a platform that connects to mobile devices like cell phones. From our clinic's experience and survey, telemedicine technology has been user-friendly and convenient for both providers and patients/families. While many outpatient clinics decreased patient volume during the COVID-19 pandemic, the WCMGC surpassed the 2019 clinic volumes consequent to decreased no-show rates.

Limited literature exists regarding patient satisfaction with telemedicine in medical genetics. Survey data from a randomized trial for cancer genetic counseling found no difference in patient satisfaction between in-person versus telemedicine counseling.[6] The current study indicates high patient satisfaction with WCMGC telemedicine services.

Although telemedicine proved useful for diagnostic and management visits, the clinic's recent experience showed it is not effective for all indications or situations. A flexible hybrid model allowing for in-person or telemedicine services may be required to

further improve access while maintaining patient satisfaction and quality care. Future work includes quantifying and characterizing visit types amenable for telemedicine postpandemic and identifying criteria for in-person versus telemedicine visits.

Multiple barriers limit access to genetics care: geographic, workforce shortages, inadequate insurance coverage, and misconception about nature of services.[1] Given many Wisconsinites reside a significant distance from care facilities, telemedicine can help serve individuals in rural areas as well as those with financial barriers. Future surveys may examine technology barriers for providers and patients/families. A limitation of the survey is no survey was completed for those needing interpretation services.

Health care systems and service delivery models will likely undergo substantial changes after the pandemic ebbs. There will be a transition back to in-person care. Retaining telemedicine options will likely depend on whether restrictions are eased and reimbursement policies are improved.

This pilot study suggests improved access and patient satisfaction with genetic services provided via telemedicine during the pandemic. Further studies are needed to better understand the type of visit that best meets the patient's needs as well as other defining barriers to using telemedicine as a tool to increase access to medical genetics services. Also, the setting of this data was a unique time during a global pandemic, indicating follow-up study is crucial to understand telemedicine's role in medical genetics services—as well as other pediatric subspecialty services—in the future.

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Appendix: Available at wmjonline.org.

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