


Telemedicine for Children With Medical Complexity During the COVID-19 Pandemic: Implications for Practice

Clinical Pediatrics
1–3
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DOI: 10.1177/00099228221116707
journals.sagepub.com/home/cpj


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Introduction

In the face of the coronavirus disease 2019 (COVID-19) pandemic, clinicians have increased their utilization of telemedicine services due to the urgent need for social distancing, staff shortages, lack of personal protective equipment, and reducing overall in-person contact. Its use has shown particular promise in children with medical complexity (CMC), who face a number of barriers to their health care. While telemedicine has been used in CMC previously, it has mostly been implemented on a small scale in individual complex care programs.^{1,2} Although innovations in technology have allowed for expansion of telemedicine, rapid growth of this service has been limited as regulations, laws, and payment structures have lagged behind.³ Changes to reimbursement policies for telemedicine during the pandemic by the Centers for Medicare and Medicaid Services, including payment parity with in-person visits, reimbursement for out-of-state visits, and use of alternative video-based platforms to conduct telemedicine visits, allowed for rapid expansion of telemedicine.⁴ As we will demonstrate, the expansion of telemedicine during the COVID-19 pandemic offered a unique opportunity to advance the care of CMC, to narrow potential disparities in care delivery, and also introduces the importance of monitoring for potential new disparities with the digital divide created from technological advancements.⁵

CMC and Barriers to Health Care

CMC is characterized by having chronic and severe health conditions, substantial family-identified service needs, functional limitations, high resource utilization, and the need for or use of medical technology.⁶ Many CMCs have chronic conditions that affect multiple organ systems requiring numerous clinicians to coordinate treatment plans and facilitate active communication and shared decision-making among families and care teams. While CMC represent <1% of all US children, they account for approximately 30% of all pediatric health care costs.⁷

Barriers to health care exist for CMC including access to and availability of clinicians, especially for patients insured by Medicaid. Multiple in-person visits on the same day may not be billable or reimbursed in certain payment models, making coordination challenging and inefficient. Pediatricians and subspecialists needed for CMC are limited in number and practice at children's hospitals that do not have equitable geographic distributions impacting those living in rural and medically underserved areas. This inequity is compounded by the need for frequent routine and urgent medical visits. In addition, transportation to and from appointments can be costly, difficult, and disruptive, particularly for those who live farther from tertiary medical centers. When patients are seen in person, waiting and examination rooms are often not optimized to account for medical equipment and supplies may not always be available on site to meet patient needs (ie, ability to administer feeds, suction, oxygen tanks). Telemedicine offers a solution to many of the issues faced given that medical visits can be conducted at home while their care can remain uninterrupted.

Local Experience

Prior to the pandemic, our institution, like many others, had a small telemedicine footprint and expanded services rapidly in March 2020 nearly simultaneous to the launch of a new electronic health record with telemedicine capacity.

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Specific measures were taken to ensure and prioritize CMC in this expansion recognizing the advantages of telemedicine and the need to limit exposure of this vulnerable group to the SARS-CoV-2 virus. We learned several key lessons for consideration as telemedicine expanded which can serve as a road map for others serving CMC.

At NewYork-Presbyterian/Columbia University Irving Medical Center, we provide outpatient primary care and care coordination to CMC through 2 main settings: (1) 4 general academic practices with nearly 19 000 patients, 5% of whom are CMC; and (2) Our Columbia Children's Complex Care program, a closed enrollment program that provides intensive care coordination across healthcare settings to 57 patients. Recognizing early on as the pandemic struck and the in-person care footprint was significantly decreased, leaders in both settings of care prioritized portal enrollment. Proactive enrollment of their respective populations to a newly launched portal that supports telemedicine visits began in early Spring 2020. We collectively enrolled nearly 900 CMCs in the portal and supported families' access to telemedicine visits by setting up e-mail accounts to ensure portal connection, facilitating the downloading of the portal application, as well as ensuring connectivity to WiFi. Support was provided by team members including medical students, community health workers (CHWs), care managers, and medical assistants.

Specific Lessons Learned and Future Directions

Value of telemedicine in CMC. While telemedicine was initially leveraged to replace traditional in-person visits, we quickly learned the value of virtual visits to address many of the unique needs of CMC. CMC follow with multiple subspecialists and require high-intensity care coordination. This is typically performed without face-to-face communication via phone calls, limiting opportunities to evaluate a child's clinical status and assess the true home environment. Locally, we have used telemedicine to enhance care coordination through team and family meetings. We have found that these meetings are easier to schedule as we can typically accommodate all participants' schedules as travel is not required. In addition, for patients who have multiple complex chronic conditions, we have been able to use telemedicine to provide joint specialty visits to ensure that medical care is being provided in a holistic way. In some cases, we have scheduled multiple telemedicine visits on the same day with different clinicians as they can be reimbursed in comparison with same day in-person visits by multiple clinicians, which are not reimbursed consistently.

The use of telemedicine for more acute needs has also been valuable and distinct from care coordination needs.

An example is the use of telemedicine to triage acute issues and findings. We have been able to schedule ad hoc telemedicine visits when families call with an acute issue such as a change in appearance of a gastrostomy site that requires assessment of the patient's status to determine disposition. We have used telemedicine to reinforce education within the patient's home setting and ensure a thorough medication reconciliation, especially at points of transitions in care. This has been particularly effective for CMC who have been recently hospitalized where multiple changes to their medication have been made or new technology have been implemented.

Our use of telemedicine in CMC has proven to be beneficial in providing convenient, accessible care while reducing potential infectious exposures. In programs that use telemedicine as part of their practice, patient and family satisfaction has been demonstrated to be high.^{8,9} As society shifts to treating COVID-19 as an endemic rather than a pandemic virus, a hybrid model of both telemedicine and in-person visits is likely going to be the standard of care. Careful consideration must be taken for this patient population to determine which visits need to be in person and which can be done virtually. We cannot promote a mode of care that may lead to poor outcomes (ie, incorrect diagnosis or the overuse of antibiotics due to the lack of in-person evaluation). In addition, we must systematically review the implementation of telemedicine in this population to better understand the financial implications of this care delivery model. Finally, we must develop telemedicine-specific quality metrics for CMC to ensure patient care is safe and not simply convenient.

Identification of CMC. The success of outreach to CMC in the 4 pediatric practices was largely due to the use of our existing registry of CMC, facilitated by an adapted child with special health care needs designation in our electronic health record.¹⁰ As telemedicine continues to expand, identification of CMC at a health-system level will be of utmost importance to ensure access to this modality of health care for this high-risk population. Developing registries for CMC is a challenging undertaking, especially in practices with limited resources and support for population health outreach. Despite this challenge, it is important for health care systems to advocate for standard processes to identify CMC to ensure access to telemedicine services for this population. Identification of these patients at a health-system level can be through application of existing diagnosis classification systems that can be applied to health administrative data.^{11,12} In addition, efforts should be focused on other health care settings that care for large number of CMC including complex care programs, transplant services, and oncology services to proactively ensure that their high-risk patients have access to telemedicine.

Importance of expanded team members and standardization of telemedicine screening. Key to our success was the engagement of expanded team members to help patients and families access telemedicine care. During the pandemic, these responsibilities were shared between doctors, nurses, medical assistants, nutritionists, CHWs, medical students, and care managers. All who came in contact with CMC prioritized enrollment in the portal and education to support telemedicine visits. As we move forward, it is important that institutions establish defined roles in their workforce to support outreach to CMC engaging in care for the first time. We can enhance enrollment in telemedicine by incorporating it into points of registration similar to demographic and insurance information to ensure it occurs consistently and systematically. In addition, we recognize that use of this technology can exacerbate health inequities for CMC and their families, particularly for those without adequate technology, Internet access, or digital literacy. As we look to the future, standardized formal digital literacy and digital access screening must be developed as part of routine screening for patients, as well as referring families to local resources to access needed technology.

Conclusions

In our experience, telemedicine has provided a successful solution to many of the barriers that CMC patients face in accessing health care and has provided new opportunities for improved care. As the temporary measures taken to increase telemedicine use are now being revisited, now is the time to advocate for health care policy changes and dedicated funding to ensure continued access to this vital form of care for this vulnerable group of patients.

Author Contributions

Both authors contributed to conception and design; drafted the manuscript; gave final approval; agree to be accountable for all aspects of work ensuring integrity and accuracy.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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