



Telehealth: Improving Access to and Quality of Pediatric Health Care

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All children and adolescents deserve access to quality health care regardless of their race/ethnicity, health conditions, financial resources, or geographic location. Despite improvements over the past decades, severe disparities in the availability and access to high-quality health care for children and adolescents continue to exist throughout the United States. Economic and racial factors, geographic maldistribution of primary care pediatricians, and limited availability of pediatric medical subspecialists and pediatric surgical specialists all contribute to inequitable access to pediatric care. Robust, comprehensive telehealth coverage is critical to improving pediatric access and quality of care and services, particularly for under-resourced populations.

INTRODUCTION

The growth and development of telehealth, or the provision of health services remotely, reflects the evolution of health care delivery systems to adapt to new technology and the needs of the population. The exponential growth in the adoption and use of telehealth services during health care disruptions, such as the coronavirus disease 2019 (COVID-19) pandemic, highlights the need to clarify the goals and best practices for using telehealth in child health. This policy statement addresses how telehealth and telehealth policy can increase patient access to primary care and subspecialty pediatric expertise, support care coordinated within the medical home, and enhance communication and collaboration among clinicians and other stakeholders, resulting in cost-efficient, equitable, high-quality care. A forthcoming technical report will provide in-depth discussion of these issues as well as the limitations of telehealth care.

TELEHEALTH IN THE MEDICAL HOME

The pediatric medical home provides a centralized hub for a child's health care to ensure continuity and coordination of care.^{1,2}

abstract

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Telehealth is a critical infrastructure to efficiently implement the medical home model of care and provide high-value, coordinated, and unfragmented health care. Telehealth coordinated within the medical home will promote continuity of care in a cost-efficient manner and can reduce the risk of potential fraud and abuse from expansion of telehealth coverage.

Pediatric subspecialty care delivered remotely is important for evaluation, preoperative and postoperative surgical care, consultation, and management of complex conditions, especially when in-person care is limited by distance, specialist availability, or travel restrictions.^{3,4} Telehealth can involve both the primary care and specialist physicians in care episodes to improve communications and care coordination.⁵⁻⁷ Physician-to-physician consultation via telehealth can serve as both a consultative and an educational interaction, again increasing the access to specialist input for all caregivers.

These services include a continuum of remote and in-person care options, such as audiovisual, audio only (telephone), store and forward, portal interactions, and remote patient monitoring (particularly for children with complex or chronic illness). Telehealth is particularly important for children and youth with special health care needs who experience significant barriers to receiving necessary care.⁸⁻¹¹ Mental and behavioral health services are especially amenable to remote care and can also be provided as an extension of the medical home. Each of these modalities provides necessary care when the physician and patient cannot meet in person, or they can be used as an adjunct to in-person services.

IMPACT OF THE COVID-19 NATIONAL HEALTH EMERGENCY ON TELEHEALTH

When the health care system is disrupted, as during the COVID-19 pandemic, disparities in access to care can become even more problematic. Disruptions can result in neglect of serious medical conditions, as well as forgoing needed preventive care and immunizations. Missed opportunities for care can have serious immediate and long-term consequences for children's health, development, and welfare that are more severe for populations of children affected by inequities based on race and/or ethnicity, disability, geography, socioeconomic status, and payer policies.^{3,12-16} For several years, telehealth has enabled pediatric medical and surgical specialists to offer consultative services to some patients who could not travel to access in-person care, but payment for telehealth services and adoption of these methods have been limited.

In 2020, public health mitigation measures to limit the spread of COVID-19 led to widespread disruptions of services, including pediatric health care. Changes in telehealth policy allowed children with acute and chronic illnesses to connect to their usual and familiar care sources for management of both acute illnesses and chronic diseases and disabilities. In many cases, preventive care was allowed and could be provided via a hybrid model that included a combination of virtual and in-person visits. Telehealth implementation was rapid and widespread. The adoption was made possible by policy changes supporting operations and payment for telehealth care at parity with in-person services, which were promoted by the Centers for Medicare and Medicaid Services, state governments, private payers, and Medicaid (including the Children's Health Insurance

Program). The availability of telehealth care enabled greater access to care for many children and adolescents, but gaps in digital infrastructure continue to persist because of poverty, systemic racism, and other inequities, which were a barrier to equitable technology-enabled care.^{3,8,10,12,13} The public health emergency led to significant reductions in inpatient, outpatient, and emergency department use, and telehealth played a key role in maintaining care for children and families who chose not to seek in-person care during this time.

PAYMENT FOR TELEHEALTH SERVICES

Recent telehealth payment policies, which were often proposed as temporary enhancements, may not persist in the future because payers who have expressed concerns about the potential for fraud, abuse, and overuse seek to return to previous policies requiring an in-person visit for payment of services. If payment for telehealth is denied because of restrictions on the location of the patient (for example, previous rules did not allow the patient to be located at home) or there is a lack of payment parity, use of these services will decrease over time, reducing access to necessary pediatric health services. The delivery of care determines the value of services provided, whether this delivery occurs by telehealth or in person. Telehealth is foundational to creating efficient, innovative, high-value care models in which patients get the right care at the right place at the right time, as well as investing in preventive care to reduce costly emergency department and hospital visits, all of which benefit all stakeholders in the health care system.

Evaluation and management coding guidelines determine the value of these health care services, and these guidelines apply equally to in-

person and remote care.¹⁷ The time, effort, and medical decision-making required for a patient visit, as well as the associated malpractice risk and documentation requirements, are largely unchanged whether care is delivered virtually or in person. Telehealth visits that require conversion to an in-person evaluation because of the nature of the condition or limitations of the remote evaluation are currently paid as a single visit, which prevents duplicate expense for payers. However, use of telehealth in a traditional practice setting does not reduce the need for office overhead expenses and can increase costs associated with technology.

Remote care coordinated by the medical home can improve access to both primary and specialty care for children when an in-person visit is not possible. In the subspecialty care setting, follow-up care and monitoring of chronic conditions can increase the reach of pediatric medical subspecialists and surgical specialists, especially for children who were not able to access care in the past or who have difficulty visiting a care site because of distance or travel issues. Children with special health care needs have additional challenges receiving primary care, subspecialty care, home health, palliative and/or hospice care, education services, transition to adult care, and developmental and habilitative services, many of which can be improved with the integration of telehealth in the medical home.^{18–20} Under-resourced communities can also have improved access to pediatric care, which requires adequate resource support for infrastructure to allow for equitable implementation.

Pediatricians providing remote care will be best able to ensure that these services meet the same standards of care as the services

that they provide in person. Telehealth can help reduce inequities and improve children's overall health and well-being by expanding the reach of the medical home, particularly for children with special health care needs and children who have not had access to high-quality care in the past. Adequate payment for these services is necessary to ensure that they will continue to be available to children.

RECOMMENDATIONS

1. Health equity: Inequity in access to health care services for children is discriminatory and unacceptable because it results in unequal care and worse outcomes for children without access. Telehealth can decrease disparities in access to care by extending pediatric expertise and best practices to children no matter where they are located. Addressing barriers, such as language, digital literacy, disability, and access to and payment for technology infrastructure, is required to avoid furthering disparities.
2. Access to pediatric care: Telehealth can expand the footprint and breadth of pediatric medical and surgical specialties by bringing expertise to remote and under-resourced areas and efficiently directing patients to the most appropriate care settings. Appropriate payment for services that enhance the value of pediatric care through timely implementation of best practices and facilitating appropriate dispositions will further the implementation of these services. Including stakeholders across the continuum of care, including families, public health agencies such as the Maternal and Child Health Bureau, state and Title V agencies, and schools in the design of telehealth systems, will ensure

that the impact of these systems will benefit all parties.

3. Payment reform:
 - a. Payment for telehealth services at parity with the equivalent services provided in person by private insurers, Medicare, and Medicaid and/or Children's Health Insurance Program, including managed care arrangements, will allow the use of the most appropriate place of service for each encounter, as will inclusion of telehealth among the medically necessary services covered under the treatment provisions of Medicaid's Early and Periodic Screening, Diagnostic and Treatment law.
 - b. Incentivizing and encouraging private insurance plans, including fully insured plans, Marketplace plans, and those covered by the Employee Retirement Income Security Act, to pay for telehealth services at parity with the equivalent in-person services will support broad use of telehealth care when appropriate, but state mandates may be required to ensure compliance.
 - c. Technology can, in many situations, remove perceptions of a difference in value between services provided remotely and those provided in person and can provide greater value with the use of remote patient monitoring by preventing unnecessary emergency department and hospital use, especially in children and youth with special health care needs.
 - d. Telehealth policy is a potent tool in reducing inequities in access to health care. Adequate and appropriate payment for remote services based on current and future payment models, including

fee-for-service, capitation, and value-based plans, will affect the potential impact of the use of telehealth services.

- e. Children and youth with special health care needs, including those with mental and/or behavioral conditions and medical complexity, will require additional consideration for developing innovative payment structures that promote care integrated across settings that maximize value. Investment in telehealth and remote monitoring infrastructure, including devices and connectivity, for such populations is critical to providing equity in access to pediatric services. Medicaid payment structures (such as waivers and Health Homes), which are used to pay for services for specific populations, can also cover telehealth services in these populations.
4. Care within the medical home: Support for the use of telehealth within the medical home recognizes that the medical home offers continuity and the prudent use of health care resources, avoiding fragmented and episodic care delivered without such coordination.
5. Standards of quality care: All standards of quality apply equally to any patient encounter, whether remote or in person, including high-quality interpretation in the patient and family's preferred language. Adhering to quality standards also includes understanding of the situations when the necessary evaluation is not possible remotely, and an in-person visit is required, so that technical limitations of remote care do not compromise quality of care. National metrics of quality for telehealth, especially in linking to payment, are essential. Pediatricians are key stakeholders in developing these metrics for children.

6. Reduction of barriers: Geographical, economic, and administrative barriers to telehealth care, such as interstate licensure issues, may prevent physicians from providing care to their patients who may be temporarily located in a state in which the physician is not licensed, which may reduce access to and continuity of care.
7. Infrastructure: Lack of high-speed broadband Internet access and limited access to adequate technology impede the delivery of services via telehealth and further inequity in access to care. Every individual, especially those in under-resourced areas of the country, both urban and rural, deserves availability of and support for a reliable technology and telecommunications infrastructure, such as the Lifeline program,¹⁶ to avoid furthering health care disparities.^{15,21,22}
8. Federal research funding: Creation of an evidence base to address best practices, workforce needs, patient access to care, quality of care, reduction of health care costs, and patient and/or family and clinician satisfaction will enable future research to improve the function of and access to pediatric care via telehealth, including the impact of alternative payment and care delivery models that use telehealth and remote monitoring for children with special needs to integrate care across settings most effectively.

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ABBREVIATION

COVID-19: coronavirus disease
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REFERENCES

1. Medical Home Initiatives for Children With Special Needs Project Advisory Committee. American Academy of Pediatrics. The medical home. *Pediatrics*. 2002;110(1 Pt 1):184–186
2. Connors GP, Kressly SJ, Perrin JM, Richerson JE, Sankrithi UM; COMMITTEE ON PRACTICE AND AMBULATORY MEDICINE; COMMITTEE ON PEDIATRIC EMERGENCY MEDICINE; SECTION ON TELEHEALTH CARE; SECTION ON EMERGENCY MEDICINE; SUBCOMMITTEE ON URGENT CARE; TASK FORCE ON PEDIATRIC PRACTICE CHANGE. Nonemergency acute care: when it's not the medical home. *Pediatrics*. 2017;139(5):e20170629
3. Curfman AL, Marcin JP. Pediatric emergency and critical care telemedicine. In: Rheuban KS, Krupinsky EA, eds. *Understanding Telehealth*. McGraw Hill Education: 2018. Available at: <https://accessmedicine.mhmedical.com/content.aspx?bookid=2217&ionid=187795268>. Accessed July 27, 2021
4. Olson CA, McSwain SD, Curfman AL, Chuo J. The current pediatric telehealth landscape. *Pediatrics*. 2018;141(3):e20172334. [10.1542/peds.2017-2334](https://doi.org/10.1542/peds.2017-2334)
5. Satou GM, Rheuban K, Alverson D, et al; American Heart Association Congenital Cardiac Disease Committee of the Council on Cardiovascular Disease in the Young and Council on Quality Care and Outcomes Research. Telemedicine in pediatric cardiology: a scientific statement from the American Heart Association. *Circulation*. 2017;135(11):e648–e678
6. Shook LM, Farrell CB, Kalinyak KA, et al. Translating sickle cell guidelines into practice for primary care providers with Project ECHO. *Med Educ Online*. 2016;21:33616
7. Wood CL, Clements SA, McFann K, Slover R, Thomas JF, Wadwa RP. Use of telemedicine to improve adherence to American Diabetes Association standards in pediatric type 1 diabetes. *Diabetes Technol Ther*. 2016;18(1):7–14
8. Skinner AC, Slifkin RT. Rural/urban differences in barriers to and burden of care for children with special health care needs. *J Rural Health*. 2007;23(2):150–157
9. Herendeen N, Deshpande P. Telemedicine and the patient-centered medical home. *Pediatr Ann*. 2014;43(2):e28–e32
10. Marcin JP, Shaikh U, Steinhorn RH. Addressing health disparities in rural communities using telehealth. *Pediatr Res*. 2016;79(1-2):169–176
11. North SW, McElligot J, Douglas G, Martin A. Improving access to care through the patient-centered medical home. *Pediatr Ann*. 2014;43(2):e33–e38

12. França UL, McManus ML. Availability of definitive hospital care for children. *JAMA Pediatr*. 2017;171(9):e171096
13. França UL, McManus ML. Trends in regionalization of hospital care for common pediatric conditions. *Pediatrics*. 2018;141(1):e20171940
14. Lame M, Leyden D, Platt SL. Geocode maps spotlight disparities in telehealth utilization during the COVID-19 pandemic in New York City. *Telemed J E Health*. 2021;27(3):251–253
15. Nouri S, Khoong E, Lyles C, Karliner L. Addressing equity in telemedicine for chronic disease management during the Covid-19 pandemic. *NEJM Catalyst*. May 4, 2020. Available at: <https://catalyst.nejm.org/doi/full/10.1056/CAT.20.0123>. Accessed February 28, 2021
16. Patel SY, Mehrotra A, Huskamp HA, Uscher-Pines L, Ganguli I, Barnett ML. Variation in telemedicine use and outpatient care during the COVID-19 pandemic in the United States. *Health Aff (Millwood)*. 2021;40(2):349–358
17. Centers for Medicare and Medicaid Services. Evaluation and management services guide. 2021. Available at: <https://www.cms.gov/outreach-and-education/medicare-learning-network-mln/mlnproducts/downloads/eval-mgmt-serv-guide-icn006764.pdf>. Accessed April 22, 2021
18. Hooshmand M, Yao K. Challenges facing children with special healthcare needs and their families: telemedicine as a bridge to care. *Telemed J E Health*. 2017;23(1):18–24
19. Boudreau AA, Perrin JM, Goodman E, Kurowski D, Cooley WC, Kuhlthau K. Care coordination and unmet specialty care among children with special health care needs. *Pediatrics*. 2014;133(6):1046–1053
20. Mosquera RA, Avritscher EB, Samuels CL, et al. Effect of an enhanced medical home on serious illness and cost of care among high-risk children with chronic illness: a randomized clinical trial. *JAMA*. 2014;312(24):2640–2648
21. Federal Communications Commission. Lifeline program for low-income consumers. Available at: <https://www.fcc.gov/general/lifeline-program-low-income-consumers>. Accessed March 2, 2021
22. Cahan EM, Mittal V, Shah NR, Thadaney-Israni S. Achieving a quintuple aim for telehealth in pediatrics. *Pediatr Clin North Am*. 2020;67(4):683–705

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