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 ADOLESCENT  
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Commentary

## Using Telemedicine to Reach Adolescents During the COVID-19 Pandemic

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The onset of the coronavirus disease 2019 (COVID-19) pandemic has changed health care provision out of necessity. Although the long-term impacts on adolescent health remain unknown, the changes to how we provide care will likely continue long after the pandemic has resolved. The use of technology to practice medicine has become a critical mainstay of adolescent health to carry out recommended physical distancing, decrease the risk of exposure to the virus by patients and providers, and continue to provide life-saving care, around the world.

The terms that describe the use of technology when providing health care at a distance vary globally and are often used interchangeably, although institutions committed to this practice have offered definitions. The American Telemedicine Association defines the term telehealth as “technology-enabled health and care management and delivery systems that extend capacity and access” [1]. Telemedicine is defined as “the remote delivery of health care services and clinical information using telecommunications technology. This includes a wide array of clinical services using internet, wireless, satellite, and telephone media.” Digital health “includes categories such as mobile health (mHealth), health information technology (IT), wearable devices, telehealth and telemedicine, and personalized medicine” [2]. The World Health Organization has had standing recommendations on the use of eHealth, defined as “the use of information and communication technologies (ICT) for health,” to improve care globally since it adopted resolution WHA58.28 following the world assembly in 2005 [3]. Internationally, providers committed to the care of adolescents and young adults have used telemedicine for more than a decade.

**Conflicts of interest:** The authors have no conflicts of interest to disclose.

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For the purposes of this commentary, we will use the term telemedicine when discussing health care delivered by providers located in a different physical location from the patient.

In the early 2000s, telemedicine-based technology's high cost, inability to connect with patients in their homes, and limited peripherals (attachments used for virtual physical examination, such as Bluetooth-enabled stethoscope) were only a few of the barriers to widespread implementation. Limited reimbursement, licensing requirements, and scheduling challenges related to the electronic health record were also present. In a 2016 survey of pediatricians, providers who were in suburban locations and private practice or who perceived less reimbursement and higher cost of equipment upkeep were less likely to be interested in the use of telemedicine [4]. The COVID-19 pandemic has pushed the health care industry, states, and the federal government to revise regulations that previously limited access to telemedicine utilization, including reimbursement for services. In addition, consumer-based products offering video conference technology, rapid communication, and nearly universal internet access (via home and public high-speed internet and/or Wi-Fi) have positioned medicine well for the rapid uptake and increase in telemedicine services.

In the pre-COVID era, telemedicine showed great promise as a tool for improving access to care. Benefits include decreasing wait times for specialty consultation, reducing geographic- and travel-related barriers for both patients and providers, and improving access to mental health services [5,6]. The Telemedicine University Network (RUTE) in Brazil, launched in 2006, is an example of how telemedicine has been used to sustain and improve the health of adolescents during past infectious disease outbreaks (such as zika, chikungunya, H1N1, and measles). In addition to direct clinical care, RUTE has used technology to provide medical education and consultation, establish research networks, and create alerts and policy change notifications to improve pediatric health [7]. The generation of patients we serve,

sometimes referred to as “digital natives,” are people who have grown up using virtual technology (e.g., social media) to build social connections [8], and there is strong support for the ability of adolescents and young adults to build rapport and therapeutic relationships with health care providers using technology [6,9]. As recently as February 2020, before the current pandemic was declared, there was evidence supporting teen interest in and acceptance of receiving care virtually. The work by Sequeira 2020 suggests that many gender-diverse youth were open to using telehealth to receive gender-affirming care and were particularly interested in doing so for ongoing care (such as for laboratory monitoring and medication refills) [10]. A potential benefit of virtual visits includes the ability to receive confidential services without alerting caregivers because of travel needs or to avoid stigma.

Confidentiality will continue to be a cornerstone of adolescent visits. When using telemedicine, ensuring the virtual environment is a setting of privacy, and safety must remain the top priorities of the health care team. Ensuring private space with direct to consumer telemedicine does offer unique challenges. In the office setting, caregivers are asked to leave the examination room, so the provider and adolescent can speak freely. This may not be feasible when providing care to a patient at home, so youth may need to be asked to move to a more private location (if available), use a headset, or use the chat feature of the video conference tool to obtain confidential information [11–13]. Screening for mental health may require providers to send questionnaires via email or electronic health record ahead of scheduled encounters [11]. This previsit screening necessitates the need for safety protocols to address acute concerns (such as suicidality or disclosed abuse) outside of the telemedicine encounter. Despite challenges, providers are seeing patients using telemedicine during the pandemic, and there is growing evidence that telemedicine is feasible for providing care to youth for a variety of health concerns, including contraception, gender-affirming care, behavioral health, substance use, eating disorder treatment, and for continuing the clinical education of future leaders in adolescent health [11,14,15].

As the field of adolescent medicine paves a new future in the care of youth, we must hold fast to standards in care. Telemedicine has great promise to allow the field of adolescent medicine to expand and affect the health of youth around the globe. Protocols in place to improve safety and decrease medical errors continue to apply to telemedicine encounters. Although there are many benefits, virtual encounters will not replace the need for in-person medical visits. First, inequities in technology access remain. Ensuring that all youth have access to virtual technology and that all caregivers have appropriate support with interpretation, communication, and digital literacy is necessary. Using equipment for online school that is in the home may be one solution to ensure video-capable devices are available. Community telemedicine kiosks (computer stations or free Wi-Fi set up in primary care offices, pharmacies, or local community centers) are another potential way to ensure access to care. With any communal space or equipment, ensuring adequate cleaning of devices between use, physical distancing, and privacy will be necessary. Second, the scope of which services can be provided via telemedicine are limited by the peripherals and technical support available at the originating site (the site where the patient is located). Providers need to set expectations with patients and families that an in-person examination may be required and should have protocols in place for how to direct patients to the

appropriate care. This is critical in the context of acute issues and requires that the health care professional be able to connect the patient to local resources for testing, acute psychiatric support, emergencies, and/or life-saving procedures. For sensitive complaints, such as genital lesion or pubertal staging, electronic solutions for ensuring images sent to providers are encrypted and within the ethical frameworks of the provider's institution or in-person examination may be needed [11].

As adolescent health is embracing the use of telemedicine during the COVID-19 pandemic, we must continue to work to ensure care is available and consider any patient populations who may not have access because of inequalities in our health care systems. Ideas for future telemedicine uses include increasing school-based telehealth services, partnering with communities to reach youth who are unstably housed or involved in the juvenile justice system, expanding access to specialty care (e.g., gender and eating disorder care) in rural or provider shortage locations, using telemedicine during and/or after climate disasters as well as future infectious disease outbreaks, and expanding access to confidential services (reproductive health, contraception, mental health, addiction, and medicine). We must also consider how to incorporate telemedicine into multidisciplinary team care (especially as providers are working remotely and team members are not in the same physical location). More research is needed on health care delivery to adolescents and young adults using technology-based solutions outside of the clinical setting. Guidelines must be developed on how to involve learners in care and teach the future adolescent health providers how to think safely, yet creatively about solutions for reaching youth. One thing is certain moving forward, now that patients and providers have experienced digital technology for health care, school, and social connection, telemedicine is here to stay.

## Acknowledgments

The authors would like to thank the patients and families who have accessed care using digital technology, Dr. Shaquita Bell and the Odessa Brown Children's Clinic for allowing them to share the use of the community kiosk for telemedicine, and their colleagues who have embraced the use of telemedicine during the coronavirus disease 2019 pandemic.

Authors' contributions: All authors contributed to the conceptualization and writing of this commentary and have reviewed and approved the final manuscript for submission.

## Funding Sources

The authors have no financial disclosures. This work is not funded.

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