

Personal Experiences With COVID-19 and Diabetes Technology: All for Technology Yet Not Technology for All

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We have learned to be flexible and resilient as we care for youth with diabetes during the COVID-19 pandemic. Technology is the lifeline for all people to connect with others during this period of physical distancing and arguably plays an even more critical role for people with diabetes (PWD).

This is an unsettling and unprecedented time. Our daily routines as healthcare providers and those of the youth and families with whom we work have been upended. We have encountered a number of common concerns across our clinical and research work with PWD and their families, including: fear of contracting COVID-19, financial worries, insurance coverage concerns due to mounting unemployment, difficulties accessing diabetes supplies, and challenges maintaining self-care regimens during this stressful time. Patients may avoid or delay medical care due to very real concerns about COVID-19 exposure, resulting in more severe presentations of diabetic ketoacidosis.¹ On the positive side, many youth and families report increased opportunity and motivation to establish or maintain healthy habits and routines for diabetes self-management.

Technology has been a defining presence during the COVID-19 pandemic. As physical distancing guidelines were established, our diabetes team rapidly shifted all outpatient (and some inpatient) medical, psychology, nutrition, social work, and diabetes education appointments to telehealth using videoconferencing. We have found immense value in virtual face-to-face interactions with PWD and their families. Being transported into a family's home allows us to better understand the environments in which our patients live. We can see where children do their diabetes tasks, meet family members who are otherwise unable to attend diabetes visits, and have a virtual show and share of our patients' pets and prized possessions. Diabetes technologies, including Bluetooth-enabled glucose meters, continuous glucose monitors (CGMs), and insulin pumps, facilitate communication between providers and patients and enhance the efficiency of telehealth visits. Time-in-range and time above- and below-range measurements derived from CGM data serve as primary glycemic targets, particularly at a time when A1c measurements cannot be easily obtained. Continuous glucose monitoring data also have

been essential to adapt management strategies in real-time during a period when sleep-wake schedules, exercise patterns, and eating habits have changed drastically for many. Delivering mental health services via telehealth allows us to join with youth and parents to create daily schedules, reinforce behavioral goals, and teach new coping skills.

The COVID-19 pandemic has highlighted disparities between those who do and do not have access to technology. Social determinants of health powerfully influence health outcomes and these forces are magnified in the current pandemic. Not all families are comfortable using telehealth technology and others lack access to a stable internet connection. Telehealth visits require a private and confidential space, particularly for mental health visits. Patients with glucose meters struggle with efficient ways to share glucose data with their diabetes team, particularly if they did not consistently upload their devices in the past. Young adults with diabetes are particularly vulnerable during the COVID-19 pandemic; they have experienced distinctive disruptions due to closing college campuses, unstable employment, and added challenges navigating the already difficult transition from pediatric to adult diabetes care. We worry that we may not be reaching PWD and families who could benefit most from continued routine diabetes care.

In the future, we predict that technology will remain essential for optimal diabetes care. We anticipate that the continued use of telehealth will result in reduced frequency of in-person visits intended to primarily review glycemia and insulin doses. Patient preferences need to be taken into account and some in-person care will always remain essential, but telehealth offers an efficient, convenient, and

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patient-centered experience for some routine diabetes care.² Incorporation of other technologies, such as personal activity monitors or smart home devices to monitor weight, blood pressure, or other key indicators, also may enhance virtual diabetes care. The COVID-19 pandemic may hasten efforts for broader insurance coverage for telehealth visits and license portability or a national license credential for healthcare providers.³ The COVID-19 pandemic has shone a bright light on disparities related to access to and use of technology to facilitate diabetes care. We must reduce barriers to diabetes technology use among youth with type 1 and type 2 diabetes. Increasing use of telehealth for diabetes device education and improved insurance coverage for diabetes technologies and services will be important first steps in addressing these disparities. However, in the near-term with a depressed economy and beleaguered healthcare system, reducing disparities will require continued advocacy at local and national levels to champion change.

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