


Clouds and Silver Linings: COVID-19 Pandemic Is an Opportune Moment to Democratize Diabetes Care Through Telehealth

Journal of Diabetes Science and Technology
2020, Vol. 14(6) 1107–1110
© 2020 Diabetes Technology Society
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/1932296820963630
journals.sagepub.com/home/dst


David Kerr, MBChB, DM, FRCP, FRCPE¹ 
and Hope Warshaw, MMSc, RD, CDCES, BC-ADM²

Abstract

With the recent pivot to telehealth as a direct result of the COVID-19 pandemic, there is an imperative to ensure that access to affordable devices and technologies with remote monitoring capabilities for people with diabetes becomes equitable. In addition, expanding the use of remote Diabetes Self-Management Education and Support (DSMES) and Medical Nutrition Therapy (MNT) services will require new strategies for achieving long-term, effective, continuous, data-driven care. The current COVID-19 pandemic has especially impacted underserved US communities that were already disproportionately impacted by diabetes. Historically, these same communities have faced barriers in accessing timely and effective diabetes care including access to DSMES and MNT services, and diabetes technologies. Our call to action encourages all involved to urge US Federal representatives to widen access to the array of technologies necessary for successful telehealth-delivered care beyond COVID-19.

Keywords

access, diabetes technology, digital health, underserved

Introduction

One unforeseen consequence of the COVID-19 pandemic has been the dramatic acceleration in the use of a range of technologies (referred to herein generally as telehealth encompassing medical and remote monitoring devices with broadband coverage) to deliver remote diabetes care. For some, telehealth may represent a simple switch from a face-to-face consultation to one that takes place through video-telephone systems. However, with the opportunities for data sharing from wearable and other devices as part of the new digital diabetes ecosystem, there are opportunities to improve efficiencies, to redesign care delivery, and to optimize the use of new telehealth billing codes. The concern is that many people with diabetes, already lacking digital access and digital literacy, will be left even further behind in the remote delivery of diabetes care as telehealth becomes mainstream.

Telehealth Is Having A Good Pandemic

The rapid move from traditional care delivery to the majority of consultations taking place through telehealth has been notable for the speed of implementation and for acceptability by clinicians. Although the use of existing wearable technologies to generate data is not an absolute requirement,

having access to timely and accurate diabetes and other related health data is likely to facilitate better outcomes associated with telehealth.¹ With the current pandemic, there is also a need to maintain optimized glucose management as a protection against poor outcomes associated with COVID-19.² Optimal glucose management is more likely to be achieved using telehealth that includes technologies that provide opportunities for data sharing, such as Bluetooth-enabled blood glucose monitoring systems, digital blood pressure measuring devices, electronic scales, personal continuous glucose monitoring (CGM), and potentially, smart insulin pens. Using these tools with “integrated” and “connected” cloud-based data and analysis platforms will create digital diabetes ecosystems capable of managing individuals as well as large populations of people with diabetes.^{3,4}

There is evidence already that technology-based Diabetes Self-Management Education Support (DSMES) services, including remote monitoring can be effective.^{5,6} Prior to

¹Sansum Diabetes Research Institute, Santa Barbara, CA, USA

²Hope Warshaw Associates, LLC, Asheville NC, USA

Corresponding Author:

David Kerr, MBChB, DM, FRCP, FRCPE, Sansum Diabetes Research Institute, 2219 Bath Street, Santa Barbara, CA 93105, USA.
Email: dkerr@sansum.org

COVID-19, people with diabetes were receiving, at best, episodic (every three to six months) visits with clinicians; this rarely included DSMES or Medical Nutrition Therapy (MNT) services delivered by accredited programs⁷ or credentialed clinicians.⁸ Already telehealth appears to be associated with improved diabetes management and quality of life measures prior to^{5,6,9} and during the pandemic.^{10,11} This was, in part, facilitated by the implementation of a series of flexibilities and waivers by the Centers for Medicare & Medicaid Services (CMS) to allow clinicians to deliver diabetes care, including DSMES and MNT, using various modes of telehealth.^{12,13} Additional changes, though not permanent at this time, have been made to several requirements for individuals to obtain some diabetes technologies, such as a personal CGM.¹² In addition, diabetes technology companies are documenting the successful provision of remote device trainings to people who are transitioning to or need support using their products.¹⁴

However, creating a robust and effective telehealth system that is also equitable remains challenging. This is often because of the impact of external factors and the ripple effect of other intractable societal problems.¹⁵

Who Is Not in Line for Telehealth?

Achieving effective behavior management and psychological well-being is a “foundational” management goal for people with diabetes irrespective of their race or ethnicity.⁹ For telehealth to be successful, it is important that all people have access to the technology required for virtual visits. Currently in the United States, one in four Medicare beneficiaries lack digital access.¹⁶ Also, although evidence exists that people with diabetes can achieve clinical benefits through the consistent utilization of DSMES and MNT,^{8,9} and that these services are covered by Medicare, referral to these services is extremely low.^{7,8} Numerous reasons exist for low utilization, including lack of knowledge of, and referral to these services by primary care providers, lack of appreciation of the services’ potential effectiveness, inconvenient locations or appointment times, or limited access.⁸ Data from the 2018 Mapping Medicare Disparities show overall use of MNT is low with lower access for Blacks in some areas of the United States. In contrast, for DSMES (referred to as Diabetes Self-Management Training [DSMT] by the CMS) utilization, Blacks appear to have greater access than whites.¹⁷

People with type 1 diabetes (T1D) currently using personal CGM and insulin pump therapy are predominantly female, white, with health insurance, and a high level of education.^{18,19} In T1D, there are existing disparities in health outcomes related to the ability to access diabetes technologies and the long-term trajectory of HbA_{1c} levels, which are less favorable for racial minorities.²⁰ Whether this is due to implicit bias when clinicians are considering offering diabetes technologies to certain groups is not known, but there is evidence that clinicians exhibit the same levels of implicit bias as the wider population.²¹ In T1D, therefore, existing

real-world as well as clinical trial data for diabetes-related technologies are limited to specific cohorts, excluding those who are not offered these technologies, do not prefer to use them, or cannot obtain access to them.²²

Similarly, technology-based interventions for type 2 diabetes (T2D) have also had limited reach to racial and ethnic minorities.²³ Though implicit bias in clinician decision-making may be unintended, research suggests that these biases may contribute to various healthcare disparities.²⁴ Overall, it is not completely clear whether biases in access to, prescribing, and utilization of diabetes technologies are a consequence of erroneous assumptions by providers and researchers or due to systemic racism.²⁰

It is also noteworthy that, in the United States, the proportion of clinicians providing diabetes care does not reflect the disproportionate burden of diabetes among minority populations. For example, rates of T2D, achieved HbA_{1c} levels, and the frequency of serious complications, including end-stage renal failure, are more common in Blacks and Hispanic/Latino adults than in non-Hispanic Whites. In 2018, only 5%-8% of primary care and internal medicine physicians identified as Black or Hispanic/Latino.²⁵

Democratizing Diabetes Care With Telehealth

The COVID-19 pandemic has magnified existing health inequities for minority racial and ethnic populations and individuals who have experienced health disparities. Telehealth has the potential to catapult the progress toward democratization of diabetes care with the aim of improving and achieving equitable access to care. To achieve this, there is an immediate imperative to identify and develop technologies suitable for delivering care using telehealth, which are:

- Affordable, in terms of financial cost and time required to onboard
- Less burdensome, regarding minimization of cognitive burden for the user
- Interoperable, with automated data capture and clinical decision support
- Usable, with multiple metrics of success as success can mean different things to different stakeholders
- Equitable, in terms of accessibility and user experience (ie, overcoming health literacy and numeracy challenges)
- Existential, with minimal impact on other problems especially mental health and
- Episodic use, rather than continuous, with the potential for users to opt out

For new technologies to be suitable for telehealth, this will also require user input representing all communities during the design and development phases to make the user interface (UI) and user experience (UX) culturally appropriate,

understandable, sticky, and of value. There is also an opportunity for currently underutilized Diabetes Care and Education Specialists (formerly referred to as diabetes educators) to play a larger role in expanding access to evidence-based remote care and education using telehealth^{8,26,27} At a wider level, increasing the diversity of clinicians, improving healthcare coverage, and reorganizing the clinical workflow to transition to deliver more needs-based care and management with a move away from routine appointments may also add value.

The diabetes community, from clinicians to people with diabetes and their caregivers, can advocate for these democratizing changes at a Federal level. Currently, there are myriad efforts by US Federal legislators, advocacy organizations, and well-placed individuals to make telehealth permanent. The proposed legislation in the US Senate, US House of Representatives, as well as executive orders from the current administration present opportunities to modernize healthcare delivery, particularly Medicare. To make these changes permanent requires all stakeholders in diabetes care to advocate for change, and to stay updated on this topic with diabetes-focused organizations, such as the Association of Diabetes Care and Education Specialists,²⁸ the American Diabetes Association, and other organizations focused specifically on these telehealth changes including the Center for Connected Health Policy (<https://www.cchpca.org/>), American Telehealth Association (<https://www.americantelemed.org/>), and Alliance for Connected Care (<http://connectwithcare.org/>). This may include engaging with elected representatives.²⁹

Conclusion

As we move through the current COVID-19 crisis and emerge on the other side, the diabetes community will have learned valuable lessons about optimally supporting the most vulnerable people with diabetes. These experiences can ultimately improve diabetes care and outcomes for everyone. Going forward, with more frequent and ongoing regular touchpoints conducted using remote technologies, there are opportunities to overcome several of the barriers for accessing care through telehealth. This is an opportunity we cannot afford to miss.

Acknowledgments

The authors appreciate thoughtful input and review by Janice MacLeod, MA, RD, CDCES, Director of Clinical Advocacy, Companion Medical and Kate Thomas, Director of Advocacy, Association of Diabetes Care & Education Specialists.

Declaration of Conflicting Interests

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: HW is a faculty member of the LifeScan Diabetes Institute and a consultant and freelance writer to Companion Medical and Tandem Diabetes Care. DK has participated in paid advisory boards

for NovoNordisk, Sanofi, and Abbott Diabetes Care, and is in receipt of research support from Lilly. DK is also a medical advisor to Glooko for which he is in receipt of share options.

Funding

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

ORCID iD

David Kerr  <https://orcid.org/0000-0003-1335-1857>

References

- Gujral UP, Johnson L, Nielsen J, et al. Preparedness cycle to address transitions in diabetes care during the COVID-19 pandemic and future outbreaks. *BMJ Open Diabetes Res Care*. 2020;8(1):e001520.
- Sardu C, D'Onofrio N, Balestrieri ML, et al. Outcomes in patients with hyperglycemia affected by COVID-19: can we do more on glycemic control? *Diabetes Care*. 2020;43(7):1408-1415.
- Kerr D, Axelrod C, Hoppe C, Klonoff DC. Diabetes and technology in 2030: a utopian or dystopian future?. *Diabet Med*. 2018;35(4):498-503.
- Pearson TL, Bardsley J, Weiner S, Kolb L. Population health: the diabetes educator's evolving role. *Diabetes Educ*. 2019;45(4):333-348.
- Sepah SC, Jiang L, Peters AL. Long-term outcomes of a web-based diabetes prevention program: 2-year results of a single-arm longitudinal study. *J Med Internet Res*. 2015;17(4):e92.
- Greenwood DA, Gee PM, Fatkin KJ, Peeples M. A systematic review of reviews evaluating technology-enabled diabetes self-management education and support. *J Diabetes Sci Technol*. 2017;11(5):1015-1027.
- Beck J, Greenwood DA, Blanton L, et al. National standards for diabetes self-management education and support. *Diabetes Educ*. 2017;43(5):449-464.
- Powers MA, Bardsley JK, Cypress M, et al. Diabetes self-management education and support in adults with type 2 diabetes: a consensus report of the American Diabetes Association, the Association of Diabetes Care & Education Specialists, the Academy of Nutrition and Dietetics, the American Academy of Family Physicians, the American Academy of PAs, the American Association of Nurse Practitioners, and the American Pharmacists Association. *Diabetes Educ*. 2020;46(4):350-369. (Concomitantly published in journals of other of the above organizations.)
- American Diabetes Association. 5. Facilitating behavior change and well-being to improve health outcomes: standards of medical care in diabetes-2020. *Diabetes Care*. 2020;43(suppl 1):S48-S65.
- Ahn DT. The COVID-19 pandemic: a "tech"-tonic shift toward virtual diabetes care. *J Diabetes Sci Technol*. 2020;14(4):708-709.
- Peters AL, Garg SK. The silver lining to COVID-19: avoiding diabetic ketoacidosis admissions with telehealth. *Diabetes Technol Ther*. 2020;22(6):449-453.
- Association of Diabetes Care & Education Specialists. Telehealth & COVID-19: understanding the 1135 waiver from CMS.

- <https://www.diabeteseducator.org/practice/practice-tools/app-resources/covid-19-telehealth>. Accessed August 13, 2020.
13. Academy of Nutrition and Dietetics. Telehealth. <https://www.eatrightpro.org/practice/practice-resources/telehealth>. Accessed August 13, 2020.
 14. Vigersky RA, Velado K, Zhong A, Agrawal P, Cordero TL. The effectiveness of virtual training on the MiniMed™ 670G system in people with type 1 diabetes (T1D) during the COVID-19 pandemic [published online ahead of print August 14, 2020]. *Diabetes Technol Ther*. doi:10.1089/dia.2020.0234.
 15. Kerr D, Glantz N. Diabetes, like COVID-19, is a wicked problem. *Lancet Diabetes Endocrinol*. 2020. [https://doi.org/10.1016/S2213-8587\(20\)30312-0](https://doi.org/10.1016/S2213-8587(20)30312-0).
 16. Roberts ET, Mehrotra A. Assessment of disparities in digital access among Medicare beneficiaries and implications for telemedicine. *JAMA Intern Med*. 2020;180(10):1386-1389. doi:10.1001/jamainternmed.2020.2666.
 17. Centers for Medicare and Medicaid services: mapping Medicare disparities. <https://data.cms.gov/mapping-medicare-disparities>. Accessed August 10, 2020.
 18. Tanenbaum ML, Hanes SJ, Miller KM, Naranjo D, Bensen R, Hood KK. Diabetes device use in adults with type 1 diabetes: barriers to uptake and potential intervention targets. *Diabetes Care*. 2017;40(2):181-187.
 19. Sheikh K, Bartz SK, Lyons SK, DeSalvo DJ. Diabetes device use and glycemic control among youth with type 1 diabetes: a single-center, cross sectional study. *J Diabetes Res*. 2018;2018:5162162.
 20. Benchell-Weissberg J. Benefits of Device and Technology Use in Tech Naïve and Tech-Underutilizing Populations. *Presentation at: 80th Scientific Sessions of the American Diabetes Association*; June 13, 2020. <https://virtual.lww.com/ada2020sessions/pages/home.aspx> Accessed August 11, 2020.
 21. FitzGerald C, Hurst S. Implicit bias in healthcare professionals: a systematic review. *BMC Med Ethics*. 2017;18(1):19.
 22. Huyett L, Dassau E, Pinsker JE, Doyle FJ III, Kerr D. Minority groups and the artificial pancreas: who is (not) in line? *Lancet Diabetes Endocrinol*. 2016;4(11):880-881.
 23. Jang M, Johnson CM, D'Eramo-Melkus G, Vorderstrasse AA. Participation of racial and ethnic minorities in technology-based interventions to self-manage type 2 diabetes: a scoping review. *J Transcult Nurs*. 2018;29(3):292-307.
 24. Chapman EN, Kaatz A, Carnes M. Physicians and implicit bias: how doctors may unwittingly perpetuate health care disparities. *J Gen Int Med*. 2013;28(11):1504-1510.
 25. Xierali IM, Nivet MA. The racial and ethnic composition and distribution of primary care physicians. *J Health Care Poor Underserved*. 2018;29(1):556-570.
 26. Greenwood DA, Howell F, Scher LA, et al. A framework for optimizing technology-enabled diabetes and cardiometabolic health services. The role of the diabetes care and education specialist. *Diabetes Educ*. 2020;46(4):315-322.
 27. Isaacs D, Cox C, Schwab K, et al. Technology integration: the role of the diabetes care and education specialist. *Diabetes Educ*. 2020;46(4):322-334.
 28. Association of Diabetes Care & Education Specialists. CMS removes restrictions around RNs and pharmacists furnishing DSMT via telehealth. <https://www.diabeteseducator.org/news/perspectives/aade-blog-details/adces-perspectives-on-diabetes-care/2020/08/12/cms-removes-restrictions-around-rns-and-pharmacists-furnishing-dsmt-via-telehealth>. Accessed August 13, 2020.
 29. Association of Diabetes Care & Education Specialists. ADCES legislative action center. Available at: <https://www.diabeteseducator.org/advocacy/adces-legislative-action-center#/legislators>. Accessed August 13, 2020.