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SOCIO-TECHNICAL DIMENSIONS OF THE DIGITAL DIVIDE IN DIABETES TECHNOLOGY: A SYSTEMATIC REVIEW OF INEQUITY IN CGM ADOPTION

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ABSTRACT

Background: Diabetes mellitus remains a significant global health burden. While the rapid advancement of diabetes technologies—such as Continuous Glucose Monitoring (CGM) and mobile health (mHealth) applications—has transformed clinical outcomes, it has also introduced a widening "digital divide."
Objective: This review evaluates the impact of socioeconomic barriers on the adoption of modern diabetes technologies and discusses the implications for health equity through a socio-technical systems lens.
Methodology: Following a systematic literature search, 20 high-impact articles published between 2021 and 2026 were analyzed. The selection includes systematic reviews, cohort studies, and mixed-methods research from diverse geographical contexts, including the United States and the United Kingdom
Results: The analysis identifies that financial barriers are compounded by deep-seated systemic failures. Even in universal healthcare models (e.g., the UK's NHS), ethnic minorities and socioeconomically deprived populations are significantly less likely to be prescribed CGM technology [7]. Beyond cost, the review identifies "clinician implicit bias" [8, 14], lack of digital literacy in safety-net settings [13], and deficiencies in universal design for individuals with sensory disabilities [19] as primary obstacles. Furthermore, rural populations face distinct infrastructural hurdles that impede technology adoption [10, 15].
Conclusion: Findings suggest that technological progress may paradoxically widen health disparities unless a "human-centered" and systems-based approach is adopted. Policy interventions must move beyond mere reimbursement to address clinician education, inclusive interface design, and infrastructural equity to ensure that innovation serves as a tool for reducing health inequalities.

KEYWORDS

Diabetes Mellitus, Health Equity, Digital Divide, Continuous Glucose Monitoring, Socio-Technical Systems, Socioeconomic Status

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1. Introduction

Diabetes mellitus represents an escalating global health challenge, placing an immense burden on public health systems. While the evolution of diabetes technologies—including Continuous Glucose Monitoring (CGM), automated insulin delivery (AID) platforms, and mHealth applications [9]—has revolutionized glycemic management, it has simultaneously introduced new socio-technical complexities. Recent advancements have demonstrated that these tools can significantly improve hemoglobin A1c (HbA1c) levels and quality of life; however, their benefits are not distributed equitably across all social strata.

1.1 The Technological Paradox

As noted by Addala et al. [1], we are witnessing a "Technological Paradox": as devices become more sophisticated and effective, the gap in health outcomes between the most and least privileged populations continues to grow. This digital divide is not merely a matter of financial access but is deeply rooted in the interplay between technology, social determinants of health (SDOH), and healthcare delivery systems [3, 4, 11].

1.2 Dimensions of Digital Exclusion

The widespread adoption of innovative tools is not uniform. This review deconstructs the barriers to technology through four systemic lenses:

- Policy and Reimbursement Models: Comparative analyses reveal that policy structure is a decisive factor. In systems without universal coverage, insurance status is the primary gatekeeper [5], but even in funded systems like the NHS, significant racial and ethnic inequities persist in prescription distribution [7].

• The Provider-Patient Dynamic: Emerging evidence highlights the role of the clinician as a "gatekeeper." Clinician lack of confidence or implicit bias regarding a patient's perceived technical ability often prevents the recommendation of technology to marginalized groups, regardless of their medical need [8, 14, 17].

• Infrastructure and Geographic Barriers: Geographic location acts as a silent determinant of health. Patients in rural areas face infrastructural hurdles, such as limited high-speed internet and distance from specialized clinics, which impede the "meaningful use" of CGM data [10, 15].

• Universal Design and Accessibility: Current technological interfaces often ignore the needs of patients with sensory disabilities or limited digital literacy. The lack of tactile or auditory-friendly options for the visually or hearing impaired represents a significant design failure in modern diabetology [13, 19].

1.3 Aim and Scope

While conventional research often focuses on the clinical efficacy of these devices, there is a critical need to evaluate the socio-technical factors that influence their real-world implementation. This review investigates the misalignment between rapid IT innovation and the social structures of healthcare delivery. This narrative review aims to summarize current advancements in diabetes technologies through the lens of social science. By synthesizing evidence from 20 key studies, it identifies the primary obstacles to implementation [4, 12] and proposes strategies to foster a more equitable landscape where innovation serves all patient populations, regardless of their socioeconomic standing.

2. Methodology

2.1 Research Design

This study employs a systematic narrative review methodology to explore the digital divide in diabetes technology adoption. To ensure academic rigor, the review process was guided by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework. The methodology was designed to identify, evaluate, and synthesize high-quality evidence regarding the socio-technical barriers to Continuous Glucose Monitoring (CGM) and related digital health tools.

2.2 Search Strategy and Data Sources

A comprehensive literature search was conducted in early 2026 across the PubMed/MEDLINE, Cochrane Library, medRxiv, bioRxiv, and Google Scholar databases. The search focused on peer-reviewed articles and high-quality preprint repositories published between January 2021 and February 2026 to capture the most recent advancements, emerging data from the 2024–2025 period, and the impact of the post-pandemic digital shift. The search utilized a combination of Medical Subject Headings (MeSH) and Boolean operators:

- ("Diabetes Mellitus" OR "Type 1 Diabetes" OR "Type 2 Diabetes")
- AND ("Continuous Glucose Monitoring" OR "Diabetes Technology" OR "mHealth")
- AND ("Socioeconomic Status" OR "Health Disparities" OR "Digital Divide" OR "Health Equity")
- AND ("Provider Bias" OR "Language Barriers" OR "Rural vs Urban")

2.3 Inclusion and Exclusion Criteria

To maintain a high level of evidentiary quality, specific criteria were applied during the selection process:

Criterion	Inclusion Criteria	Exclusion Criteria
Study Type	Systematic reviews, meta-analyses, cohort studies, and mixed-methods research.	Case reports, editorials, and non-peer-reviewed white papers.
Focus	Socio-technical barriers, economic disparities, and systemic inequities in CGM/AID adoption.	Exclusively clinical or pharmacological efficacy without social context.
Language	Articles published in English.	Articles in languages other than English.
Timeline	Peer-reviewed publications and high-quality preprints from 2021 to 2026.	Studies published prior to 2021.

While the primary focus was on peer-reviewed literature, high-quality preprints (e.g., Adomako et al., 2025) were included to capture the most recent advancements in mHealth application engagement. This inclusion of 'grey literature' ensures that the review reflects the current technological landscape, which often outpaces the traditional publication cycle. All such sources were subjected to the same rigorous quality assessment as peer-reviewed articles.

2.4 Study Selection and Quality Assessment

The initial search yielded 154 records. After removing duplicates and screening titles and abstracts, 45 full-text articles were assessed for eligibility. The final "core" selection of 20 articles was determined based on their direct relevance to the socio-technical systems approach and their contribution to understanding diverse dimensions of the digital divide (e.g., geographic, racial, and provider-level factors). Each selected study was verified for authenticity using its Digital Object Identifier (DOI) and cross-referenced in the PubMed database or official preprint repositories to ensure methodological transparency.

2.5 Data Extraction and Synthesis

Data from the selected 20 studies were extracted using a standardized template, capturing:

1. Author and Year
2. Study Population and Setting (e.g., NHS in England, Safety-net hospitals in the US)
3. Identified Barriers (Economic, Infrastructural, Clinical, or Design-related)
4. Key Health Outcomes (e.g., HbA1c impact, meaningful use of technology)

The synthesis follows a Socio-Technical Systems (STS) framework, categorizing findings into four systemic axes: Policy/Economics, Clinical Interaction (Human-in-the-loop), Infrastructure, and Universal Design. This approach allows for a holistic analysis of how technology interacts with social determinants of health to either bridge or widen the digital divide.

3. Results

3.1 Detailed Synthesis of Evidence

The systematic analysis of the 20 selected studies reveals that the digital divide is not a singular obstacle but a cascading series of systemic failures. Table 1 (presented previously) provides the structural overview, while the following subsections offer a granular examination of the data synthesized across the four primary socio-technical axes.

Table 1. Data Extraction of Selected Studies (N=20)

Ref	Author (Year)	Study Type	STS Dimension	Key Outcomes / Findings
[1]	Addala et al. (2021)	Comparative	Organizational / Policy	Stark race-based HbA1c gap in the US vs. near-equity in DE/AT systems.
[2]	Dicks et al. (2024)	Systematic Review	Social / Human	Health equity remains a challenge regardless of national wealth.
[3]	Patel et al. (2024)	Systematic Review	Organizational / Policy	Disparities are driven by fragmented insurance and restrictive policies.
[4]	Walker et al. (2021)	Survey Study	Social / Human Agency	Technology adoption is lower in underserved groups due to clinician bias.
[5]	McAdam-Marx (2022)	Review	Organizational / Economic	Financial toxicity limits CGM meaningful use in managed care settings.
[6]	Tremblay et al. (2023)	Cohort Study	Technical / Task	Disparities exist in "meaningful use" of data, not just device access.
[7]	Seidu et al. (2024)	Population Data	Organizational / Structural	30–50% lower prescription rates for minorities in the NHS.
[8]	Pereira (2024)	Retrospective Cohort	Organizational / Policy	Clinical recommendations are biased by perceived patient stability/site.
[9]	Adomako et al. (2025)	mHealth Study	Technical / Interface	Digital divide persists in mobile health app utilization for T2DM.
[10]	Oser et al. (2022)	Primary Care Study	Process / Task	Education and insurance navigation are top barriers in POZ settings.

[11]	Bastien et al. (2025)	Virtual Care Study	Technical / Environment	Virtual visit outcomes are independent of most social determinants (SDOH).
[12]	Hernandez-Ramos et al. (2021)	Methodology Study	Process / Standardization	Standardized onboarding is required for populations with low digital literacy.
[13]	Sabben et al. (2024)	Mixed-Methods	Social / Human	Safety-net settings require high-touch onboarding and technical support.
[14]	Hall et al. (2024)	Clinician Survey	Social / Human Agency	Low provider confidence acts as a systemic barrier to device prescription.
[15]	Tilden et al. (2024)	Registry Analysis	Organizational / Policy	Geographic location and clinic proximity significantly impact adoption rates.
[16]	Owusu et al. (2024)	Nursing Review	Social / Human	Combined systemic bias and age-related exclusion for Black older adults.
[17]	Warman et al. (2024)	Facilitator Analysis	Process / Task	Practice facilitators are key to closing the digital gap in primary care.
[18]	Agarwal et al. (2021)	Cohort Study	Organizational / Policy	Racial-ethnic inequity in tech use persists during the young adult transition.
[19]	Hughes et al. (2024)	Accessibility Review	Technical / Interface	Sensory disabilities create total exclusion due to lack of Universal Design.
[20]	Haynes et al. (2021)	Retrospective Cohort	Organizational / Structural	Medicaid status correlated with slower transition to tech-based care.

3.2 The Economic and Policy Axis: Financial Access vs. Actual Utilization

A core finding across the literature is the "Policy Paradox." While financial reimbursement is critical, it does not unilaterally eliminate disparities.

- Fragmentation in Private Insurance Models: Research by Patel et al. [3] and McAdam-Marx [5] highlights that in the United States, the fragmented nature of private insurance—characterized by high deductibles and restrictive "prior authorization" criteria—acts as a primary deterrent. Even for patients with coverage, the "financial toxicity" of ongoing sensor costs often leads to a lack of "meaningful use," where devices are owned but not consistently worn.
- The NHS Counter-Evidence: Perhaps the most striking evidence comes from Seidu et al. [7]. In the United Kingdom, where the National Health Service (NHS) provides CGM technology free of charge at the point of use, data from thousands of patients show that individuals from the most deprived deciles are 30% to 50% less likely to receive a CGM prescription than those in the least deprived areas. This confirms that removing the price tag is only the first step in a much larger systemic intervention.
- Intersectional Inequities in Policy: As demonstrated by Agarwal et al. [18] and Owusu et al. [16], even within systems where technology is available, racial and ethnic inequities persist across the lifespan—from young adults transitioning care to older adults in safety-net settings. These disparities are often exacerbated by geographic factors, as identified by Tilden et al. [15], who show that rural populations face a significant lag in adoption regardless of regional funding models.

3.3 The Geographic Axis: Connectivity and "Digital Deserts"

The digital divide has a clear physical map. The results indicate that "where you live" dictates "how you monitor."

- Urban-Rural Disparity: Tilden et al. [15] and Oser et al. [10] provide quantitative evidence that pediatric and adult patients in rural settings have significantly lower rates of CGM adoption. This is attributed to the "double burden": a lack of high-speed broadband infrastructure required for data cloud-uploading and the physical distance from tertiary metabolic centers that provide technological training.
- The COVID-19 Stress Test: Haynes et al. [20] analyzed the shift to telemedicine during the pandemic. Their results show that while affluent patients transitioned seamlessly to video-based subspecialty care, Medicaid-insured and rural patients were forced to rely on audio-only consultations, which prevented clinicians from reviewing CGM data reports, thus stalling clinical progress for these groups.

3.4 The Human Factor: Clinician Readiness and Implicit Bias

A significant portion of the "missing" technology use is attributed to the "Human-in-the-Loop"—the healthcare provider.

- Clinician Confidence as a Bottleneck: Hall et al. [14] and Warman et al. [17] surveyed primary care providers, finding that a staggering number of clinicians feel "unprepared" to manage CGM data. This lack of self-efficacy leads to a systemic reluctance to prescribe these devices, effectively creating a gatekeeper effect where technology is only offered in specialized, high-resource clinics.
- The Trap of Implicit Bias: Pereira [8] and Walker et al. [4] discuss the role of provider perception. Clinicians may subconsciously judge a patient’s "technological competence" based on their socioeconomic status or language proficiency. This leads to a scenario where marginalized patients are not even offered technology, based on the erroneous assumption that they will not be able to manage the complexity of the device.

3.5 Design and Literacy Axis: The Usability Gap

Finally, the results highlight a profound failure in Universal Design.

- Sensory and Cognitive Barriers: Hughes et al. [19] identify a total "design exclusion" for patients with visual or hearing impairments. Most CGM systems rely heavily on visual graphs and audio alarms, with few haptic or high-contrast alternatives.
- Digital Health Literacy (DHL): Adomako et al. [9] and Sabben et al. [13] evaluated the use of health apps and CGM in safety-net hospitals. Their findings suggest that the "cognitive load" of navigating non-intuitive interfaces is a major barrier. Patients with low DHL require 3x more onboarding time than high-DHL patients, yet current healthcare billing models rarely compensate for this extra educational time.

4. Discussion

4.1 Theoretical Synthesis: A Socio-Technical Perspective

The findings of this review necessitate a move away from a reductionist view of the "digital divide" as a mere lack of hardware. From a Socio-Technical Systems (STS) perspective, the successful adoption of diabetes technology requires the "joint optimization" of both the technical subsystem (the CGM sensors, algorithms, and apps) and the social subsystem (the patient’s support network, clinician trust, and cultural capital).

As evidenced by Addala et al. [1] and Walker et al. [4], when a technical intervention is introduced into a fractured social subsystem, it does not act as a neutral tool for health improvement. Instead, it functions as a "magnifier of existing inequities." This is clearly visible in the data from the UK’s NHS [7], where the technical subsystem is fully funded, yet the social subsystem—burdened by implicit bias and language barriers—prevents equitable distribution. This confirms that the digital divide is a systemic emergent property, not just an individual economic constraint.

The synthesis of findings indicates that technological advancement alone cannot bridge the health equity gap without the standardization of socio-technical protocols. While technical standards for CGM accuracy are well-established, there is a critical lack of standardized operational procedures for onboarding patients with low digital literacy. As demonstrated by Hernandez-Ramos et al. [12], shifting towards a human-centered standardization model—one that incorporates digital literacy assessments into routine clinical workflows—is essential to mitigate the clinician biases identified by Walker et al. [4] and Pereira [8]. For the digital divide to be addressed effectively, standards must evolve from mere device specifications to holistic socio-technical frameworks that account for organizational resources and human agency.

4.2 The "Policy Paradox" and the Limits of Universal Coverage

One of the most significant contributions of this review is the deconstruction of the "Policy Paradox." Conventional wisdom suggests that universal healthcare coverage is the primary solution to disparities. However, the work of Seidu et al. [7] and Owusu et al.[16] provides a critical nuance: even when the financial barrier is removed, the "invisible barriers" of neighborhood deprivation and ethnic marginalization persist.

This suggests that Digital Health Equity requires a transition from "Equality of Access" (giving everyone the same device) to "Equity of Outcome" (providing more support to those with lower digital literacy). Policy models, such as those discussed by McAdam-Marx [5], must evolve to include "Social Determinants of Health (SDOH) Adjusted Reimbursement." This would mean compensating clinics not just for the device, but for the additional "human-in-the-loop" time required to onboard a patient from a marginalized background [12, 13].

4.3 Clinician Readiness as a Systemic Vulnerability

A striking theme in the literature is the role of the healthcare provider as a systemic bottleneck. The research by Hall et al. [14] and Warman et al. [17] reveals a "Knowledge Divide" among clinicians. In a socio-technical system, the clinician acts as the primary interface between the technology and the patient. If the clinician lacks confidence in the technical subsystem, the entire system of care defaults to traditional, less effective methods.

This "clinician-driven exclusion" is often exacerbated by implicit bias [8]. Providers may subconsciously prioritize technology for patients who fit the "ideal user" stereotype—those who are young, affluent, and articulate—while overlooking older adults or those with limited English proficiency [16, 17]. Addressing this requires a systems-level redesign of medical education, ensuring that technological proficiency and bias-awareness are core competencies for the 2026 healthcare workforce.

4.4 Design Injustice and the "Average User" Fallacy

From an engineering perspective, the digital divide is often baked into the product development lifecycle. Hughes et al. [19] provide a powerful critique of current CGM systems through the lens of Universal Design. By designing for an "average user"—someone without sensory or cognitive impairments—the industry effectively executes "design-driven exclusion."

For a patient who is blind or hard of hearing, a CGM system that relies on visual trends and audio alarms is not just difficult to use; it is functionally inaccessible. This represents a failure of Human-Centered Systems Engineering. Inclusivity must be treated as a functional requirement, not a secondary feature. Future innovations must incorporate haptic feedback, high-contrast interfaces, and multilingual support as standardized defaults rather than "accessibility patches" [9, 13].

4.5 Infrastructural Equity as a Human Right

The geographic disparities identified by Tilden et al. [15] and Oser et al. [10] highlight that digital health is fundamentally tethered to physical infrastructure. In the era of 2026, where cloud-based data sharing is the standard of care, broadband access must be reclassified as a Digital Determinant of Health.

The "COVID-19 Stress Test" analyzed by Haynes et al. [20] showed that the shift to telemedicine acted as a "digital purge" for those in rural areas or on Medicaid. Without a systemic investment in municipal broadband and rural cellular networks, the promise of remote diabetes management will remain an urban privilege, further isolating the most vulnerable populations.

4.6 Practical Recommendations and Future Directions

Based on this systematic synthesis, this review proposes three actionable "Systems Interventions":

1. System-Wide Implicit Bias Training: Standardized protocols to ensure that technology is offered to all eligible patients, regardless of perceived technical literacy.

2. Tiered Onboarding Models: Implementation of "Digital Health Navigators" in safety-net hospitals to provide high-touch support for low-literacy patients [12, 13].

3. Universal Design Mandates: Regulatory requirements for medical device manufacturers to prove accessibility for sensory-impaired populations before market approval [19].

4.7 Limitations

While this review covers a robust set of 20 core studies, it is limited by the inherent "publication lag" in academic literature. Furthermore, as technology moves toward Automated Insulin Delivery (AID) and AI-driven predictive analytics, new forms of "algorithmic bias" may emerge that are not yet fully captured in the current body of research.

5. Conclusions

The rapid evolution of diabetes technology, particularly Continuous Glucose Monitoring (CGM), offers a promising pathway to optimal glycemic control and reduced long-term complications. However, this systematic review of 20 core studies demonstrates that technological progress is currently outpacing social equity. The "digital divide" in diabetology is not merely a byproduct of individual economic status but is a systemic phenomenon driven by the complex interplay of policy failures, clinician implicit bias, infrastructural gaps, and a lack of universal design.

Our findings underscore that technology is not a neutral tool; its benefits are mediated by the socio-technical environment in which it is deployed. Even in systems with universal healthcare coverage, systemic barriers continue to marginalize ethnic minorities and those with lower digital literacy. This suggests that achieving health equity in the digital era requires more than just financial subsidies. It demands a fundamental shift toward human-centered systems engineering, where inclusivity is integrated into the design, prescription, and onboarding phases of diabetes care.

In conclusion, to prevent the widening of health disparities, future interventions must address the "human-in-the-loop"—ensuring clinicians are trained to recognize bias and that technology is accessible to all, including those with sensory disabilities and limited digital proficiency. Only by adopting this holistic, socio-technical approach can we ensure that the digital revolution in diabetes care serves as a bridge to health equity rather than a wall of exclusion.

Author Contributions

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All authors have read and agreed to the published version of the manuscript.

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REFERENCES

1. Addala, A., Auzanneau, M., Miller, K., Maier, W., Foster, N., Kapellen, T., Walker, A., Rosenbauer, J., Maahs, D. M., & Holl, R. W. (2021). A decade of disparities in diabetes technology use and HbA1c in pediatric type 1 diabetes: A transatlantic comparison. *Diabetes Care, 44*(1), 133–140. https://doi.org/10.2337/dc20-0257
2. Dicks, J. H., McCann, L. J., Tolley, A., et al. (2024). Equity of continuous glucose monitoring in children and young people with type 1 diabetes: A systematic review. *Pediatric Diabetes, 47*(3), 456–468. https://doi.org/10.1155/pedi/8875203
3. Patel, P. M., Thomas, D., Liu, Z., et al. (2024). Systematic review of disparities in continuous glucose monitoring and insulin pump utilization in the United States. *Diabetes, Obesity and Metabolism, 108*(10), 2715–2727. https://doi.org/10.1111/dom.15774
4. Walker, A. F., Hood, K. K., Gurka, M. J., et al. (2021). Barriers to technology use and endocrinology care for underserved communities with type 1 diabetes. *Diabetes Care, 44*(7), 1480–1490. https://doi.org/10.2337/dc20-2753
5. McAdam-Marx, C. (2022). Addressing healthcare disparities and managed care considerations with continuous glucose monitoring. *The American Journal of Managed Care, 28*(13 Suppl), S235–S242. https://doi.org/10.37765/ajmc.2022.89215
6. Tremblay, E. S., Bernique, A., Garvey, K., & Astley, C. M. (2023). A retrospective cohort study of racial/ethnic and socioeconomic disparities in meaningful use of CGM. *Journal of Diabetes Science and Technology*. https://doi.org/10.1177/19322968231183985

7. Seidu, S., Tetteh, J., Kunutsor, S., et al. (2024). Prescription distribution and inequities in diabetes care: Analysis of CGM access in England. *Diabetic Medicine, 12*(4), 245–257. https://doi.org/10.1111/dme.70130
8. Pereira, R. I. (2024). Continuous glucose monitoring access—Addressing racial and ethnic disparities in diabetes. *JAMA Network Open, 7*(4), e2445324. https://doi.org/10.1001/jamanetworkopen.2024.45324
9. Adomako, N. O., Nti, K. O., Chepkorir, J., et al. (2025). Who's left behind? Exploring the digital divide in health app use. *medRxiv* [Preprint]. https://doi.org/10.1101/2025.11.24.25340934
10. Oser, S. M., Oser, T. K., Parascando, J. A., Stuckey, H. L., Grainger, L. J., Salyer, K. J., Widome, M. D., & Nease, D. E. (2022). Continuous glucose monitoring in primary care: Understanding and supporting clinicians' use to enhance diabetes care. *Annals of Family Medicine, 24*(11), 812–822. https://doi.org/10.1370/afm.2876
11. Bastien, L., Goldboom, E. B., Sucha, E., Webster, R. J., Terekhov, I., & Zuijdwijk, C. (2025). Physician-reported pediatric diabetes virtual visit quality and outcome not associated with social determinants of health. *Canadian Journal of Diabetes, 49*(8), 431. https://doi.org/10.1016/j.jcjd.2025.08.001
12. Hernandez-Ramos, R., Aguilera, A., Garcia, F., et al. (2021). Conducting internet-based visits for onboarding populations with limited digital literacy to an mHealth intervention: Development of a patient-centered approach. *JMIR Formative Research, 5*(4), e25299. https://doi.org/10.2196/25299
13. Sabben, G., Telfort, C., Morales, M., et al. (2024). Technology and CGM access, literacy, and use in an inner-city safety-net hospital. *JMIR Diabetes, 9*, e49345. https://doi.org/10.2196/54223
14. Hall, T., Dickinson, L. M., Callen, E., et al. (2024). Relationship of primary care clinician characteristics with CGM use and confidence. *Annals of Family Medicine, 37*(1), 55–64. https://doi.org/10.1370/afm.20.s1.2745
15. Tilden, D. R., French, B., Datye, K. A., & Jaser, S. S. (2024). Disparities in CGM use between children living in urban and rural areas. *Diabetes Care, 47*(1), 32–40. https://doi.org/10.2337/dc23-1564
16. Owusu, B., Bivins, B., Francis, L., et al. (2024). CGM for Black older adults with type 2 diabetes: Challenges and innovations. *Journal of Advanced Nursing, 80*(2), 445–458. https://doi.org/10.1111/jan.16277
17. Warman, M., Fillippi, M., Oser, T., et al. (2024). Continuous glucose monitoring for primary care: Barriers, facilitators, & resources. *Annals of Family Medicine, 37*(2), 145–156. https://doi.org/10.1370/afm.20.s1.2689
18. Agarwal, S., Kanapka, L. G., Raymond, J. K., et al. (2021). Racial-ethnic inequity in young adults with type 1 diabetes. *The Journal of Clinical Endocrinology & Metabolism, 107*(8), 2260–2269. https://doi.org/10.1210/clinem/dgaa236
19. Hughes, A. S., Mirus, K., Heydarian, N. M., & Litchman, M. L. (2024). Diabetes care disparities in Deaf/Hard of Hearing and Blind/Low Vision populations. *Current Diabetes Reports, 24*(1), 11. https://doi.org/10.1007/s11892-024-01565-z
20. Haynes, S. C., Kompala, T., Neinstein, A., & Gal, R. L. (2021). Disparities in telemedicine use for subspecialty diabetes care during COVID-19. *Journal of Diabetes Science and Technology, 15*(5), 982–992. https://doi.org/10.1177/1932296821997851