Diabetes, Metabolic Syndrome and Obesity

Dovepress
open access to scientific and medical research

Open Access Full Text Article

COMMENTARY

Techniques for Implementing Continuous Glucose Monitoring in Primary Care: Key CGM Updates and Highlights from the ADA 2024 Conference [Podcast]

Eugene E Wright Jr

South Piedmont Area Health Education Center, Charlotte, NC, USA

Correspondence: Eugene E Wright Jr, South Piedmont Area Health Education Center, Charlotte, NC, USA, Email eewright51@gmail.com

Abstract: This podcast discusses innovations, advancements, and discoveries in continuous glucose monitoring that were presented at the American Diabetes Association 84th Scientific Sessions held in Orlando, Florida, June 2024. Specifically, the author will discuss sessions focused on (1) Equity and access to new technologies; (2) The role of the interdisciplinary team in technology onboarding in primary care; (3) New technologies for glucose monitoring and sensing; (4) New technologies for continuous glucose monitoring (CGM); and (5) CGM implementation in primary care.

Keywords: continuous glucose monitoring, CGM, hemoglobin A1c, hypoglycemia, hyperglycemia, primary care, real-world evidence, type 2 diabetes

This Podcast was sponsored by Springer Healthcare.

Dr Eugene E Wright: My name is Dr Eugene Wright, and I hold an appointment as consulting associate in the Department of Medicine of Duke University Medical Center and currently serve as the medical director for performance improvement at the South Piedmont Area Health Education Center or AHEC here in Charlotte, North Carolina.

I'd like to welcome you to this independent medical education program on CGM device updates, in which we'll share with you a couple of exciting innovations, advancements and discoveries in continuous glucose monitoring that were presented at the ADA or American Diabetes Association 84th Scientific sessions held in Orlando, Florida between June 21st and June 24th, 2024.

While there were many intriguing sessions at ADA this year, I'll focus on just a few key sessions in particular which I feel will impact your practice the most.

In the opening address, titled "The Dissociations Between Technology Advances and Health Outcomes for Diabetes in the US – What Should We Do Differently?", FDA Commissioner, Dr Robert Califf argued that "Technology advances aren't fulfilling their promise for improving diabetes or overall health outcomes in the U.S."

Dr Califf pointed out CGM technology as not always reaching those who might benefit the most. "Technology has brought incredible advances in diabetes, notably continuous glucose monitoring and pumps that make life more manageable for patients." However, Dr Califf pointed out to a truism Ed Yong wrote in The Atlantic, "Technological solutions tend to rise to society's penthouses, while epidemics seep into its cracks."

01:55. New Technology—Equity and Access

In a Day 1 panel discussion regarding new technology equity and access included thought leaders from across several disciplines discussing the implications for technology equity and access.

Received: 15 August 2024
Accepted: 15 August 2024
Published: 16 September 2024

Dr Ramzi Ajjan of the University of Leeds in the UK, noted that Black individuals with diabetes have greater hospitalizations for hypoglycemia, perhaps due to over treatment of elevated measured A1c values compared with average glucose related to their red blood cell biology.[1]

In their study, they used CGM and bi-monthly A1c collected in a 26-week study of adults with type 1 or type 2 diabetes across different racial groups. They noted a significantly different A1c, and average glucose derived A1c discordance, particularly in Black individuals with A1c levels being measured higher than average glucose derived A1c. This suggests that CGM metrics may be better than A1c for assessing glycemia in Black patients.

In another presentation from this session by Dr Medha Munshi Director of the Joslin Geriatric Diabetes Program, discussed the implications for CGM use in long-term care facilities.[2] In her study, of 65 residents with a mean age of 65 years and 50% female, 14% of the cohort was on a sulfonylurea (SU) medication and 68% were on insulin.

The CGM data showed that 26% of the cohort with >1% of the time spent in hypoglycemia or below 70 mg/dL. A larger burden of hyperglycemia was seen in 54% of the cohort spending >10% of the time above 250 mg/dL, 37% of the cohort spending >25% time above 250 mg/dL and 14% of the cohort were spending >90% above 250 mg/dL.

Fingerstick reading frequency was 2 times or fewer per day in 74% of the cohort, 3 times/day in 13% of the cohort and 4 or more times a day in only 13%. On average this cohort had 13 comorbidities with 85% having functional disabilities. The A1c's in this cohort were: 45% had A1c <7%, 27% had A1cs between 7% and 8%, 12% had A1cs between 8.1% and 9%, and 16% had A1cs >9%.

Her conclusions from the study was that patients with diabetes living in long-term care facilities have a high burden of both hypo- and hyperglycemia despite what might otherwise be considered fair control of their A1c. More consistent use of CGM would help identify glycemic excursions to improve therapeutic decision-making.

05:30. The Role of the Interdisciplinary Team in Technology Onboarding in Primary Care

On day 2, Dr Eden Miller of Bend, Oregon in her presentation showed data and evidence that CGM helps not only patients on insulin therapy but also patients on non-insulin therapy. This was presented previously as a poster.[3] More recently the incremental A1c benefit of adding CGM to patients on a GLP-1 receptor agonist (RA) was demonstrated in a real world observational study of a large US claims database. That study showed adding CGM to GLP-1 RA provided additional A1c reduction. After FreeStyle Libre (FSL) acquisition, average A1c decreased from 9.8% ± 1.5% to 8.3 ± 1.6%, in patients on GLP-1 RA with the last prescription being within 90 days prior to FSL prescription. In another study starting CGM within 30 days with a GLP-1 RA compared with those who are just on a GLP-1 RA alone without CGM the cohort had a greater A1c reduction at the first A1c that was 60 to 300 days post CGM acquisition (a drop of about 2.43% vs 1.73% with GLP-1RA alone). These studies provide evidence for the benefit of adding CGM in patients with GLP-1 RA therapy.

07:09. New Technology- Glucose Monitoring and Sensing

Throughout the meeting several posters and presentations demonstrated the value of CGM for primary care practitioners. One Poster by Dr Satish Garg used Optum's de-identified Market Clarity database of >79 million people to evaluate CGM use in approximately 74,000 people with type 2 diabetes who were treated with non-insulin therapy (NIT; n=25,788), basal insulin therapy (BIT; n=25,292), and prandial insulin therapy (PIT; n=23,184).[4] The primary outcomes were changes in all-cause hospitalizations (ACH), acute diabetes-related hospitalizations (ADH), and acute diabetes-related emergency room visits (ADER) during the 6- and 12-month period post the index period corresponding to the acquisition of the CGM.

The results were striking in all categories. The non-insulin therapy, the basal insulin therapy, and the prandial insulin therapy showed significant improvements in all-cause hospitalization, all-cause diabetes-related hospitalizations, and all-cause diabetes-related emergency room visits. Furthermore, these reductions were sustained during a 6- to 12-month period for all groups again and all were statistically significant ($p<0.0001$).

The conclusions were that the use of CGM in real-world across different therapeutic regimes in people with type 2 diabetes was associated with significant reductions in all-cause hospitalizations, acute diabetes-related hospitalizations and ER visits.

08:53. New Technology- Continuous Glucose Monitoring

Ms Valerie Ruela of USC presented six-month outcomes from the Hankey Project, which provides free CGM and remote monitoring for 1 year to people with diabetes from under-resourced backgrounds in Los Angeles.[5] Participants were provided an Abbott FSL 2 CGM and followed via LibreView – additionally, data from blinded CGMs were obtained at baseline, 6 months, and 1 year. The Ambulatory Glucose Profile (AGP) and clinical data were sent to the principal investigators as clinically indicated, either weekly, monthly, or quarterly, which allowed the healthcare professionals (HCPs) to make CGM-based recommendations based on the LA County algorithms for diabetes management. The project staff reviewed LibreView daily and participants were contacted with diabetes education if their glucose values were <70 mg/dL or ≥250 mg/dL more than 5% of the time. There were 195 participants who have completed the first 6 months.

Non-insulin users saw a 3.6 hour/day improvement in their time in range, from 53% at baseline to 68% at six months ($p<0.001$). Insulin users also saw improvements, from 47% at baseline to 59% at 6 months, resulting in a +2.9 hours/day increase in the time in range ($p<0.001$). Non-insulin users saw a 2.2% reduction in A1c, from 9.7% to 7.5% at 6 months ($p<0.001$), and insulin users saw a 1.3% reduction in A1c, from 9.3% to 8% at 6 months ($p<0.001$). Ms Ruela explained that these improvements were sustained at 12 months. But importantly all their 12-month data is in but they will continue to follow that through February of 2025. What she did note, importantly, that diabetes distress significantly decreased in both groups.

Due to CGM remote monitoring, there was significant uptake of GLP-1 RAs in the cohort. In non-insulin users (n=72), GLP-1 RA use increased from 14% at baseline to 39% at 6 months. The insulin cohort (n=123) saw an even greater increase, from 24% at baseline to 69% at 6 months. Ms Ruela noted while there was significant increase in incretin uptake, only two participants in the non-insulin group began insulin post baseline.

Dr Anne Peters, who was the PI, noted that CGM uptake has been "incredible" in this population. While remote monitoring requires a significant time commitment, the researchers hope that remote monitoring systems will improve in the future to expand this work.

Dr Thomas Grace presented his data showing that a collaboration between a primary care practice and the local public health department to improve CGM access, could favorably impact diabetes outcomes.[6]

In his study, CGM systems (provided by Dexcom G6 and G7) were provided to eligible participants with type 2 diabetes who were ≥18 years of age, CGM-naïve, and did not have health insurance coverage for CGM. Outcomes included changes in A1c and CGM metrics from baseline to 1 year.

His results showed that of the 177 participants (n=177) the mean age of 59 (± SD) 41.2% female, and that mean BMI was about 35.5 ± 8.5, with a mean duration of diabetes of 9 years. After 1 year, A1c decreased from 9.4% ± 1.6 to 7.1% ± 1.3 a 2.3% drop (± 1.9, $p<0.001$) in the A1c. The proportion of participants meeting the A1c target of <7.0% increased from only 1 patient (0.6%) at baseline to 91 patients (51.4%) at 1 year. Those patients meeting the HEDIS target of A1c <8.0% increased from 19.2% at baseline to 85.9% at 1 year. CGM outcomes (n=109) after near-continuous use included total increase in TIR of 9.9% ± 29.4 ($p<0.001$) and a large increase in TITR (70–140mg/dL) ($p<0.001$).

His conclusion was that self-guided use of CGM by primary care patients with type 2 diabetes for 1 year was associated with clinically meaningful improvements in A1c and TIR.

What I found striking about this study is that the patients received limited education on diabetes or CGM.

14:34. CGM Implementation in Primary Care Practices

On Monday in oral presentations on New Technology-Continuous Glucose Monitoring, Dr Sean Oser of the University of Colorado described his PREPARE 4 CGM study that described the strategies for implementation of CGM in primary care practices.[7] He spoke about the different resources and tools to assist with implementation to include the AAFP CGM implementation models through the AAFP TIPS program and the Virtual CGM Implementation Services (VirCIS) platforms. He noted that Diabetes Care and Education Specialists (DCESs) have the potential to become the diabetes technology

champions for the busy PCP and should be integrated into the multidisciplinary team in primary care. His toolkits and platforms are suited for primary care practitioners that are eager to implement technology but uncertain how to go about getting started.

I think the key take away points are that continuous glucose monitoring is an incredibly powerful tool in clinical practice to help our patients better understand and manage their diabetes. It can help guide nutrition choices, enable timely and effective medication management on the part of the HCP and the patient, and help prevent the harms associated with hypoglycemia.

Implementing CGM in primary care practices is feasible and improved glycemic outcomes as well as reduced diabetes distress, however, is best done with a team-based approach.

There are a number of available resources to help clinicians and practices get started using CGM in their practice. I hope you will check out Springer Healthcare IME's CME-accredited interactive infographics and Tweetorials where I, along with Dr Rosalina McCoy and Dr Jennifer Green, dive deeper into the most important considerations for CGM use in primary care.

Thanks for listening to this podcast update! Stay tuned for the next podcast where we will continue talking about recent updates in the CGM field.

Acknowledgments

This podcast is supported by an independent educational grant from Abbott.

Disclosure

The author of this podcast manuscript meets criteria for authorship as recommended by the International Committee of Medical Journal Editors.

EEW Jr has participated in speaker bureaus for Abbott Diabetes Care, Bayer, Boehringer Ingelheim, Eli Lilly, and Sanofi. He has served as a consultant/advisory board member for: Abbott Diabetes Care, Bayer, Boehringer Ingelhiem, Eli Lilly, Embecta, Sanofi, and Medtronic. He also reports honorarium and writing support from Springer Health; advisor for Ascensia; content reviewer for UpToDate; and Clinical Diabetes Associate Editor for American Diabetes Association Publications.

References

1. Ajjan R, Dunn T, Yongjin X, Choudhary P. 142-OR: A1C and average glucose discordance—personalized A1C improves the discrepancy, particularly in black individuals. *Diabetes*. 2024;73(Supplement_1):142–OR. doi:10.2337/db24-142-OR
2. Slyne C, Roberts K, Conery CD, et al. 145-OR: assessing the current state of diabetes care in long-term facilities using continuous glucose monitoring. *Diabetes*. 2024;73(Supplement_1):145–OR. doi:10.2337/db24-145-OR
3. Miller E. Is primary care the best place for continuous glucose monitoring (CGM) initiation? Poster presented at: ADA; June 21–24; 2024; Orlando, Fl.
4. Garg SK. Impact of continuous glucose monitoring use on hospitalizations in people with type 2 diabetes—real-world analysis. Poster presented at: ADA; June 21–24; 2024; Orlando, Fl.
5. Ruelas VF, Peters AL. 358-OR: remote CGM monitoring in people with type 2 diabetes (T2D) in an under-resourced setting. *Diabetes*. 2024;73(Supplement_1):358–OR. doi:10.2337/db24-358-OR
6. Grace T, Layne JE, Hicks C, Green CR, Walker TC. 982-P: the Dexcom community glucose monitoring project for people with type 2 diabetes—one-year outcomes. *Diabetes*. 2024;73(Supplement_1):982. doi:10.2337/db24-982-P
7. Oser S, Wiggins KT, Hall T, et al. 359-OR: CGM in primary care—practice characteristics and choice of CGM implementation strategy in PREPARE 4 CGM. *Diabetes*. 2024;73(Supplement_1):359–OR. doi:10.2337/db24-359-OR