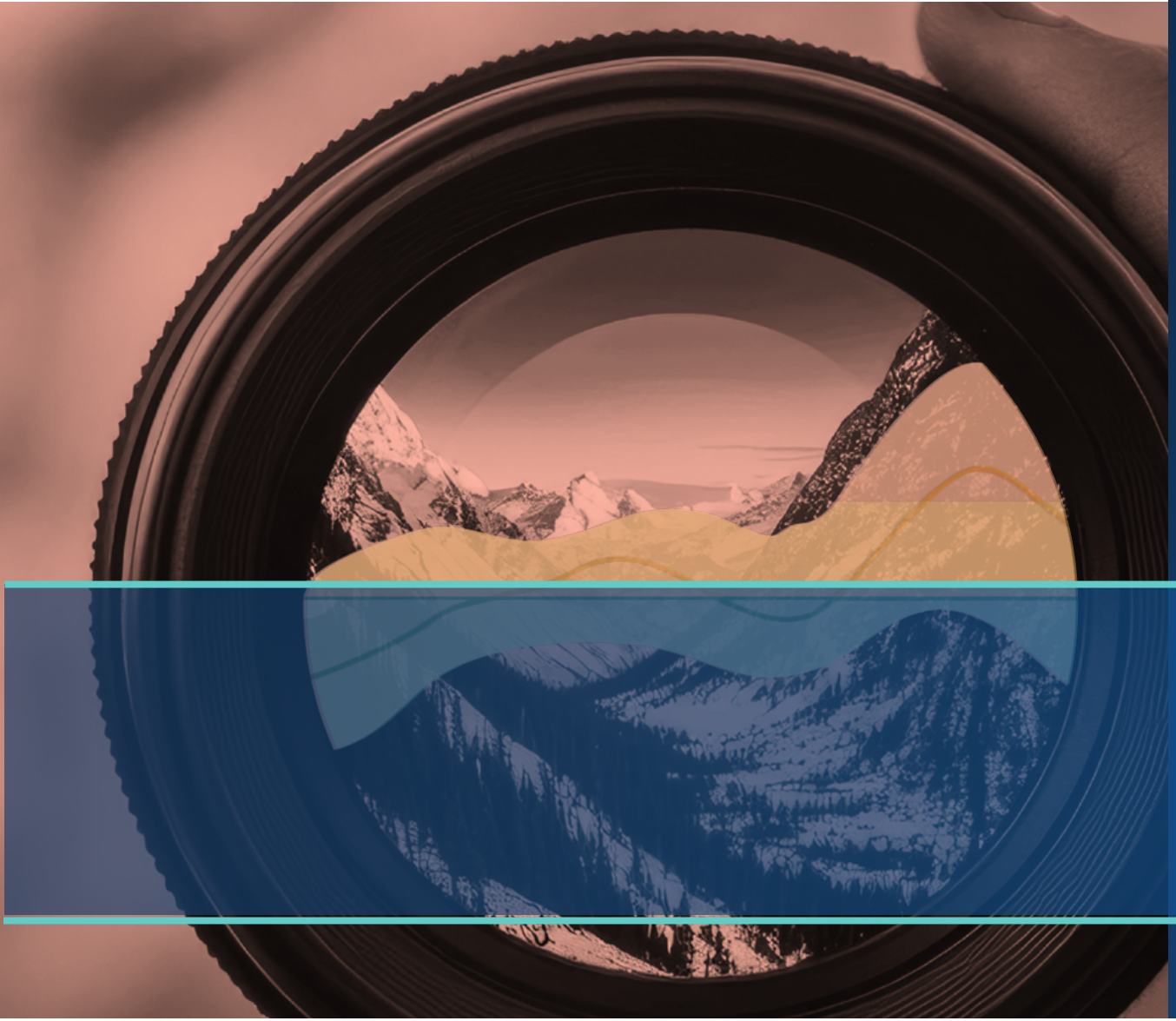

# In the Range: Real Talk on Diabetes Monitoring Best Practices

## Episode 4: CGM in the Real T2D World

Cornerstone Medical Education

AACME® AMERICAN ACADEMY OF CME, INC.

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# CGM in T2D: Where Are the Gaps?

## Access and Coverage

- Underutilized in real world practice, especially outside endocrinology[1,2]
- Cost and insurance barriers persist[3]
- Coverage does not fully align with evidence in non-insulin treated T2D[2,3]

## Equity

- Lower use in Black, Hispanic, uninsured, and non-English preference populations[1,4]

## Implementation

- Primary care barriers, time, workflow, training, infrastructure[3]
- Prescription does not equal successful use[4]

## Education and Interpretation

- Difficulty translating CGM data into action for both patients and clinicians[2,3]

## Persistence and Experience

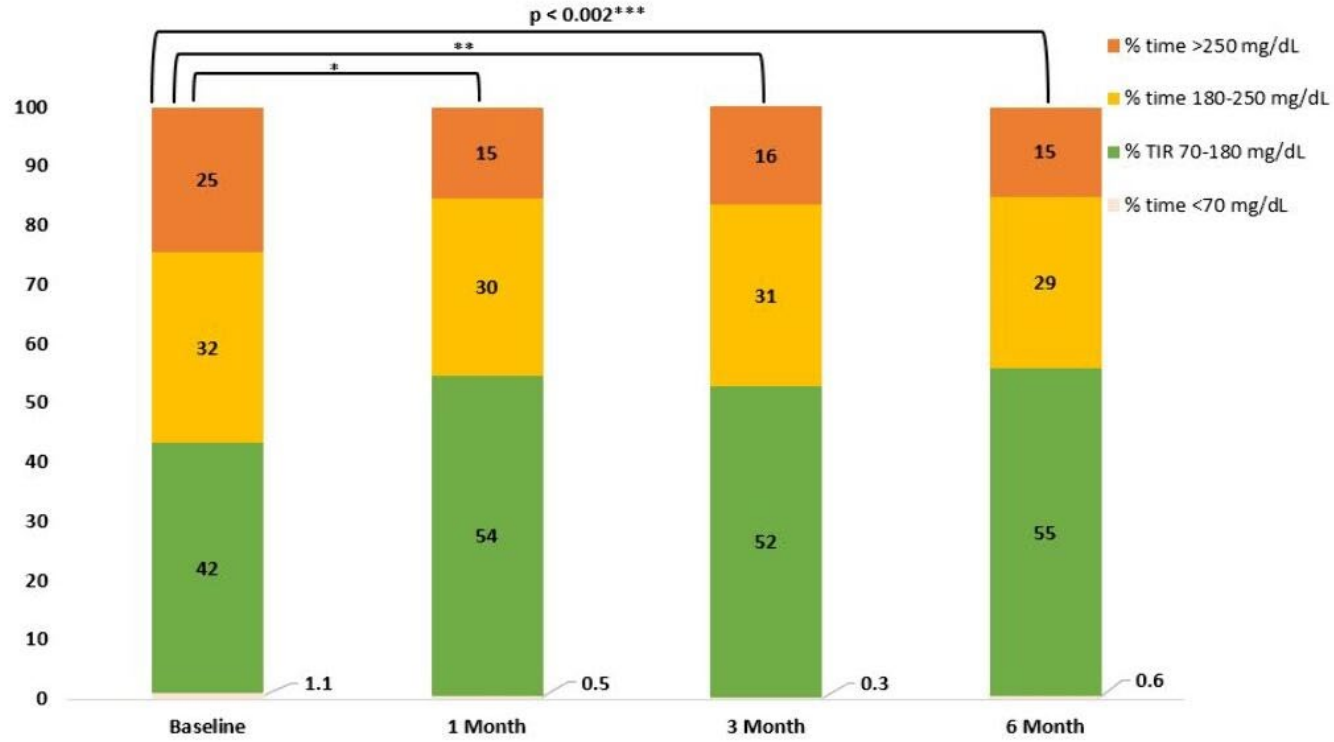
- Outcomes depend on sustained wear, often inconsistent[2]
- Device burden, skin issues, and usability challenges limit continuation[2,3]

Wallia A, et al. *JAMA Netw Open*. 2024; Barchiesi MA, et al. *Int J Qual Health Care*. 2025; Hall T, et al. *J Am Board Fam Med*. 2024; Rodriguez JA, et al. *JAMA Netw Open*. 2025.

# CGM in Older Adults- Benefits Seen in First Month

Older adults with insulin-treated diabetes and CGM naïve (N=59, mean age 71+/-5 years, mean duration 24+/-12 years, 24% with T1D)

Intervention included remote education pertaining to CGM use, tailored to address age-specific barriers encountered by older adults.




ANOVA for repeated measures indicated significant differences for TIR, % time >180 mg/dL, and % time >250 mg/dL between baseline and 1 month (*), baseline and 3 months (**), and baseline and 6 months (***) (p <0.002).

Toschi E, et al. *Diabetes Techno Ther*. 2026.

# CGM Improved Glycemic Control without Any Significant Change to TBR

Multicenter, parallel design, two-phase (32 weeks in total), RCT conducted in 24 UK sites (FREEDM2)

- Sensor-based outcomes assessed at baseline, 16 weeks and 32 weeks.
- At 16 weeks, significant improvements in mean glucose (adjusted difference -1.1mmol/L, p<0.0001), time in range (TIR) 3.9-10.0mmol/L (10.0%, p=0.0001), time above range (TAR) >10.0mmol/L (-9.8%, p=0.0002) and >13.9mmol/L (-9.5%, p<0.0001) and standard deviation (SD) of glucose (-0.4mmol/L, p<0.0001) were observed in the FSL3 group, compared with the SMBG group.
- Time below range (TBR) was low and comparable between groups. (No severe hypoglycemia)

| Parameter | Baseline mean ± SD | | 16 weeks mean ± SD | | Difference in adjusted means (vs control) mean ± SE | P value (vs control) |
|---|---|---|---|---|---|---|
| | FSL3 (N=198) | SMBG Control (N=105) | FSL3 (N=198) | SMBG Control (N=105) | | |
| n, non-missing | 189 | 87 | 189 | 87 | | |
| Mean glucose, mmol/L | 11.6±2.3 | 11.4±2.4 | 10.2±2.0 | 11.2±2.8 | -1.1±0.26 | **<0.0001*** |
| TIR (3.9–10.0mmol/L), % | 39.5±22.0 | 42.5±22.9 | 53.9±21.9 | 45.2±24.6 | 10.0±2.55 | **0.0001*** |
| TAR (>10.0mmol/L), % | 60.0±22.5 | 57.0±23.3 | 45.7±22.1 | 54.2±25.1 | -9.8±2.59 | **0.0002*** |
| TAR (>13.9mmol/L), % | 25.6±19.7 | 24.1±19.7 | 14.9±15.6 | 23.8±22.0 | -9.5±2.03 | **<0.0001*** |
| TBR (<3.9mmol/L), % | 0.5±1.2 | 0.5±1.2 | 0.4±1.2 | 0.6±1.4 | -0.2±0.16 | 0.2657 |
| Episodes <3.9mmol/L, number per day^ | 0.1±0.2 | 0.1±0.2 | 0.1±0.2 | 0.1±0.2 | 0.0±0.03 | 0.2352 |
| TBR (<3.0mmol/L), % | 0.1±0.3 | 0.0±0.1 | 0.0±0.2 | 0.1±0.2 | 0.0±0.03 | 0.5803 |
| SD glucose, mmol/L | 3.3±0.9 | 3.3±0.9 | 2.9±0.8 | 3.3±1.0 | -0.4±0.09 | **<0.0001*** |
| CV glucose, % | 29.0±6.4 | 29.4±5.9 | 28.6±5.7 | 29.8±6.1 | -0.9±0.54 | 0.0907 |

**Table: Change in CGM-based metrics from baseline to 16-weeks.** *: p<0.05, ^: Events ≥15 minutes duration, TIR: time in range, TAR: time above range, TBR: time below range, SD: standard deviation, CV: coefficient of variation.

Leelarathna L, et al. *Diabetes Techno Ther*. 2026.

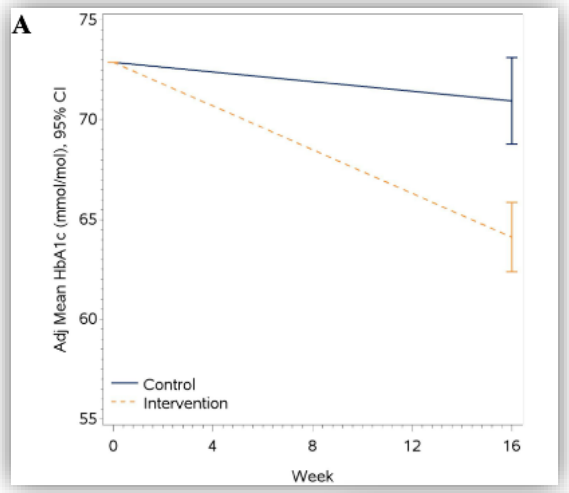
# CGM Use in People with T2D on Basal Insulin + SGLT2 Inhibitor/GLP-1 Agonist

Multicenter, parallel design, two-phase (32 weeks total), RCT conducted in 24 UK sites (FREEDM2)

- Phase 1 focused on self-management, including basal insulin self-titration

Results:

- Mean HbA1c changed from 73mmol/mol at baseline to 64mmol/mol at 16 weeks in the FSL3 group and from 73mmol/mol to 71mmol/mol in the SMBG group (adjusted difference, -7mmol/mol (-0.6%) [95% CI, -9mmol/mol to -4mmol/mol]; p<0.0001).
- There was a greater proportion of participants in the FSL3 group achieving HbA1c targets of 53, 59, and 64mmol/mol as well as achieving HbA1c reductions of ≥5.5mmol/mol, ≥11mmol/mol and ≥10% from baseline.



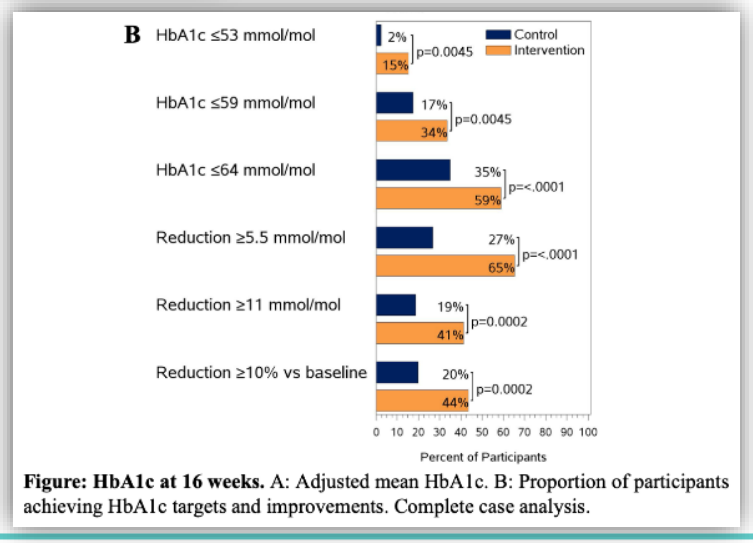




**Figure: HbA1c at 16 weeks.** A: Adjusted mean HbA1c. B: Proportion of participants achieving HbA1c targets and improvements. Complete case analysis.

Wilmot E, et al. *Diabetes Techno Ther*. 2026.

# CGM Use in People with T2D on Basal Insulin

Adults aged 18-75 years from 8 Italian centers (N=88)

| Parameter | Baseline | 3 months | Change from Baseline | P value |
|---|---|---|---|---|
| **Average glucose, mmol/L** | 9.4 ± 2.1 | 8.7 ± 1.6 | -0.7 ± 2.0 | **0.0031*** |
| **TIR (3.9–10.0mmol/L), %** | 62.1 ± 22.8 | 72.6 ± 20.5 | 10.5 ± 20.5 | **<0.0001*** |
| **TAR (>10.0mmol/L), %** | 36.6 ± 23.8 | 27.0 ± 20.5 | -9.7 ± 22.1 | **0.0004*** |
| **TAR (>13.9mmol/L), %** | 9.9 ± 14.8 | 5.0 ± 9.8 | -4.8 ± 13.9 | **0.0040*** |
| **TBR (<3.9mmol/L), %** | 1.3 ± 4.1 | 0.4 ± 1.0 | -0.9 ± 4.2 | 0.3604 |
| **TBR (<3.0mmol/L), %** | 0.04 ± 0.14 | 0.03 ± 0.13 | -0.00 ± 0.2 | 0.4240 |
| **SD glucose, mmol/L** | 2.5 ± 0.8 | 2.2 ± 0.7 | -0.3 ± 0.8 | **0.0008*** |
| **CV glucose, %** | 27.1 ± 6.2 | 25.3 ± 5.8 | -1.8 ± 5.7 | **0.0078*** |
| **IGMSS, mean score** | 3.5 ± 1.0 | 4.6 ± 0.5 | 1.1 ± 1.1 | **<0.0001*** |
| **Total daily insulin dose, units** | | | | |
| **All participants** | 22.8 ± 13.1 | 23.8 ± 13.3 | 1.0 ± 7.5 | 0.2504 |
| **Excluding 8 participants who started bolus insulin** | 22.9 ± 13.6 | 22.6 ± 13.1 | -0.4 ± 5.9 | 0.6003 |

**Table: Changes to CGM-based metrics, IGMSS and insulin dose**. Data expressed as mean ± SD. *:p<0.05, TIR: time in range, TAR: time above range, TBR, time below range, SD standard deviation, CV: coefficient of variation.

Giorgino F, et al. *Diabetes Techno Ther*. 2026.

# CGM Increases Physical Activity in People with T2D

Multicenter, parallel design, two-phase (32 weeks in total), RCT conducted in 24 UK sites (FREEDM2)

- Phase 1: participants used CGM to aid self-management (compared to standard care glucose monitoring)

Results:

- During phase 1 (first 16 weeks), CGM use was associated with a mean ±SE 1.2±0.53 mg (p=0.027) increase in total activity due to a 12.7±6.1 min/day (p=0.039) increase in light-intensity physical activity compared to control.
- There were no other changes to physical activity or sleep at 16 weeks.

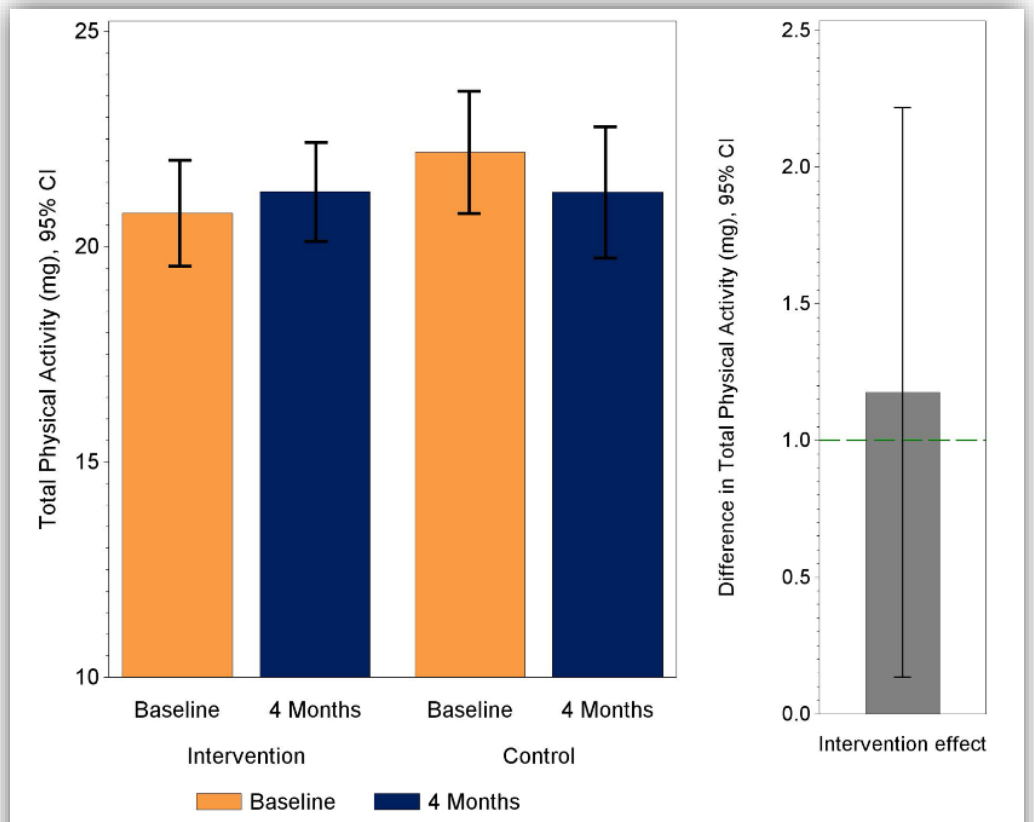



**Figure: Change in physical activity during phase 1.** Green dashed line represents the MCID threshold for the intervention effect, error bars represent 95% CI.

Rowlands A, et al. *Diabetes Techno Ther*. 2026.

# Low-Threshold CGM Intervention can Promote Meaningful and Lasting Behavior Change

Results: Of 942 participants, 657 completed the 2-week follow-up.

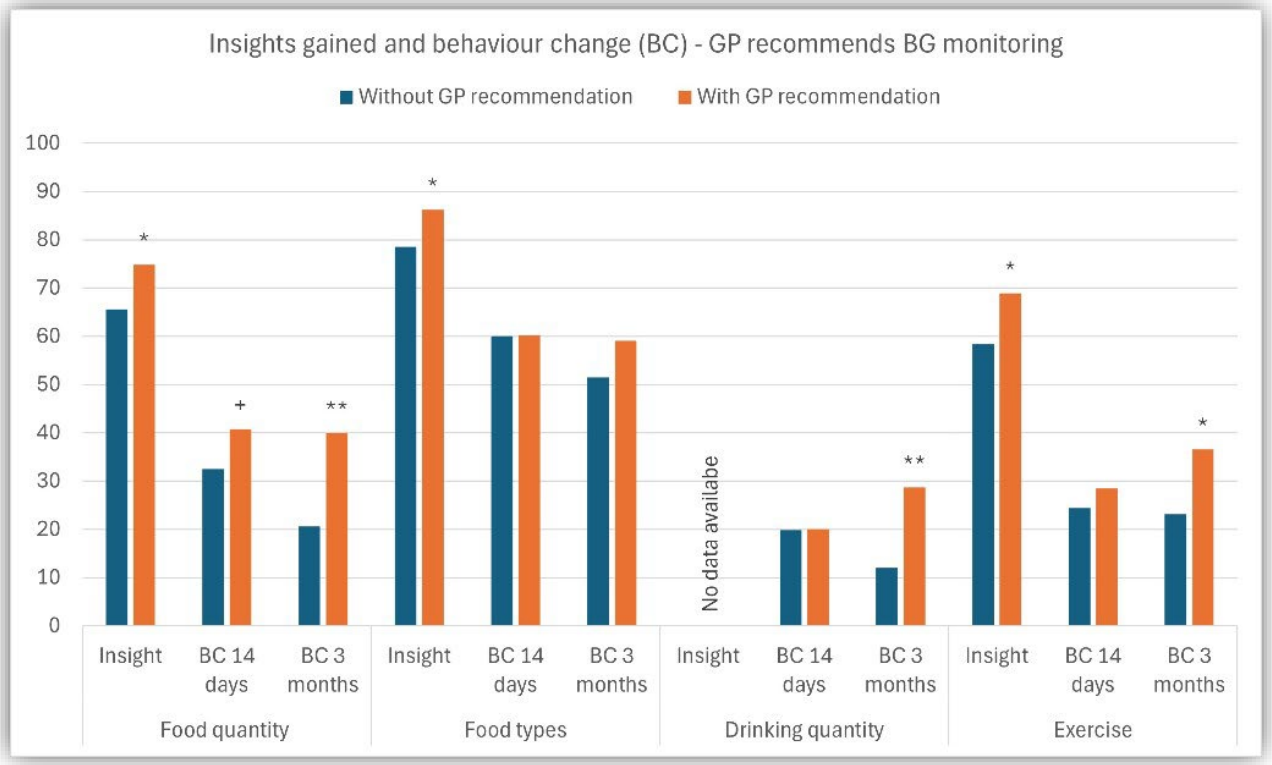
- Sensor adherence was high (81.4% wore for 14 days), and 80% used the app ≥6 times/day.
- On average, participants engaged with 5.5 of 8 app features.
- At 2 weeks, >90% reported gaining at least one new insight, and ~75% made at least one behavior change, such as adjusting their diet, portion sizes, drinking quantity, or physical activity.
- At 3 months, 67% sustained at least one change.
- Greater sensor/app engagement was linked to more insights and sustained change.

Mateu NCI, et al. *Diabetes Techno Ther*. 2026.

# Low-Threshold CGM Intervention can Promote Meaningful and Lasting Behavior Change (cont)

## Results:

- Participants whose GPs recommended glucose monitoring reported significantly more learnings and lifestyle changes, short- and long-term.
- Prior finger-prick monitoring did not predict outcomes.




Mateu NCI, et al. *Diabetes Techno Ther*. 2026.

# CGM Led to Improved Satisfaction, Quality of Life, Dietary Habits, Ability to Adjust Medications, and Hypoglycemia Confidence

Multicenter, parallel design, two-phase (32 weeks in total), RCT conducted in 24 UK sites (FREEDM2)

- Phase 2: CGM was used to enable clinician-driven medical management optimization
- Participants in the FSL3 group showed improvements in GMSS (including all subscales) ($p<0.0001$), UKDDQ ($p=0.0051$) and HCS ($p=0.0007$) scores at 16 weeks compared to the SMBG group
- Changes to the HFS-II and sleep satisfaction questions did not reach statistical significance at 16 weeks
- Qualitative interviews (N=41) across both phases revealed improved self-reported QoL, greater understanding of diabetes, and ability to adjust medications compared to the SMBG group.

| Parameter | Baseline mean±SD | | 16 weeks mean±SD | | Difference in adjusted means (vs control) mean±SE | P value (vs control) |
|---|---|---|---|---|---|---|
| | FSL3 (N=198) | SMBG Control (N=105) | FSL3 (N=198) | SMBG Control (N=105) | | |
| **n, non-missing** | 183 | 94 | 183 | 94 | | |
| **GMSS** | | | | | | |
| **Total scale[a]** | 3.2±0.6 | 3.3±0.7^ | 4.0±0.6 | 3.3±0.7^ | 0.8±0.08 | **<0.0001*** |
| **Openness** | 2.9±0.8 | 3.0±0.9^ | 3.8±0.8 | 3.1±0.8^ | 0.7±0.10 | **<0.0001*** |
| **Emotional burden** | 2.8±0.9 | 2.8±0.9^ | 2.2±0.8 | 2.8±0.8^ | -0.6±0.11 | **<0.0001*** |
| **Behavioural burden** | 2.6±1.1 | 2.5±1.1^ | 1.6±0.7 | 2.5±1.1^ | -1.0±0.10 | **<0.0001*** |
| **Worthwhileness** | 3.3±0.8 | 3.4±0.9^ | 4.2±0.8 | 3.4±0.8^ | 0.8±0.10 | **<0.0001*** |
| **UKDDQ, total score[b]** | 36.6±9.4 | 37.2±10.1 | 34.3±9.1 | 37.0±10.4 | -2.3±0.81 | **0.0051*** |
| **HCS, mean score[c]** | 3.1±0.7 (n=184) | 3.1±0.7 | 3.4±0.6 (n=184) | 3.2±0.7 | 0.2±0.07 | **0.0007*** |
| **HFS-II, worry, total score[d]** | 16.5±16.0 (n=184) | 20.4±17.3 | 13.9±14.2 (n=184) | 17.9±16.3 | -2.0±1.58 | 0.2080 |
| **Sleep satisfaction[e]** | | | | | | |
| **Mean score** | 5.7±2.4 | 5.5±2.2 | 5.9±2.2 | 5.5±2.3 | 0.2±0.22 | 0.2970 |
| **Quantity** | 5.9±2.5 | 5.9±2.5 | 6.1±2.3 | 5.9±2.5 | 0.1±0.24 | 0.7034 |
| **Quality** | 5.5±2.4 | 5.2±2.3 | 5.7±2.4 | 5.1±2.3 | 0.4±0.23 | 0.1175 |

**Table: Patient reported outcome measures.** GMSS: Glucose Monitoring Satisfaction Survey, UKDDQ: UK Diabetes & Diet Questionnaire, HCS: Hypoglycemia Confidence Scale, HFS-II Hypoglycaemia Fear Survey. [a]Higher score indicates greater satisfaction; [b]Lower score indicates healthier behaviours; [c] Higher score indicates greater confidence; [d]Lower score indicates less fear; [e]Scored from 1 (least) to 10 (most) satisfied. ^:n=92, *: p<0.05.

Leelarathna L, et al. *Diabetes Techno Ther*. 2026; Barnard-Kelly K, et al. *Diabetes Techno Ther*. 2026.

# Consistent CGM Use Improved TIR and Empowers Patients

Surveyed US-based Dexcom G7 users with T1D and T2D on CGM use, wear gaps, and perceived impacts. Sensor glucose data were analyzed over 12 months, and a subset of participants completed qualitative interviews, thematically analyzed.

**Table.** CGM metrics by self-reported gap presence and diabetes status (N= 532).

| | Type 2 Diabetes, No Insulin | | Type 2 Diabetes, Insulin | | Type 1 Diabetes | |
|---|---|---|---|---|---|---|
| | Self-reported gaps | No self-reported gaps | Self-reported gaps | No self-reported gaps | Self-reported gaps | No self-reported gaps |
| N | 101 | 24 | 130 | 43 | 174 | 60 |
| Time in Range 70-180 mg/dL, % | 76 ± 21 | 79 ± 18 | 62 ± 20 | 67 ± 18 | **65 ± 16** | **73 ± 15** |
| Mean glucose, mg/dL | 154 ± 31 | 148 ± 26 | 173 ± 33 | 163 ± 27 | **163 ± 28** | **152 ± 25** |

Mean ± SD shown. CGM metrics are aggregates over 12 months of users' CGM wear tenure. **Bold** represents $p < 0.05$ between self-reported gap status within a diabetes status group (Wilcoxon rank test for time in range. T-test for mean glucose).

Crawford M, et al. *Diabetes Techno Ther*. 2026.

# Interprofessional Team Overview in DKA Care

- Nurse coordinators
- Social workers
- Psychologists
- Advanced practice providers (NPs and PAs)
- Pharmacists
- Diabetes care and education specialists
- School nurses
- Dieticians

# CGM in T1D and Impaired Awareness of Hypoglycemia (IAH)

Assessed by Clarke, Gold and Pedersen-Bjergaard methods, IAH = ≥2 positive measures.

Participants reported hypoglycemic episodes over 14 days, including detection method (asymptomatic with alarm, symptomatic with alarm, symptomatic without alarm, coincidence, or unknown), independent of glucose level.

Results (N=205, median age 59 years, 67% men, with 85% using low glucose alarms

- Of these, 72% had normal (NAH), 18% intermediate and 10% impaired awareness.
- Median self-reported hypoglycemic episodes did not differ between the awareness groups.
- The proportion of asymptomatic episodes detected by alarm was higher in IAH (74%) than in NAH (23%, $p<0.0001$) whereas symptomatic episodes without alarm were lower (3% vs. 32%, $p=0.0002$)

Demir C, et al. *Diabetes Techno Ther*. 2026.

# Reflect on What You Have Learned

How will you apply what you have learned to your practice and with your interprofessional and interdisciplinary diabetes care team?