

Continuous glucose monitoring in type 2 diabetes: Overcoming barriers to optimize outcomes

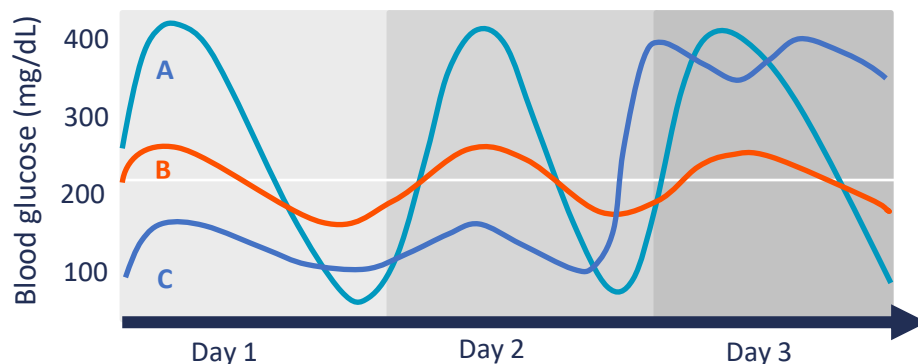
Practice aid for CGM in T2D

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CGM provides a comprehensive assessment of an individual's glucose profile¹

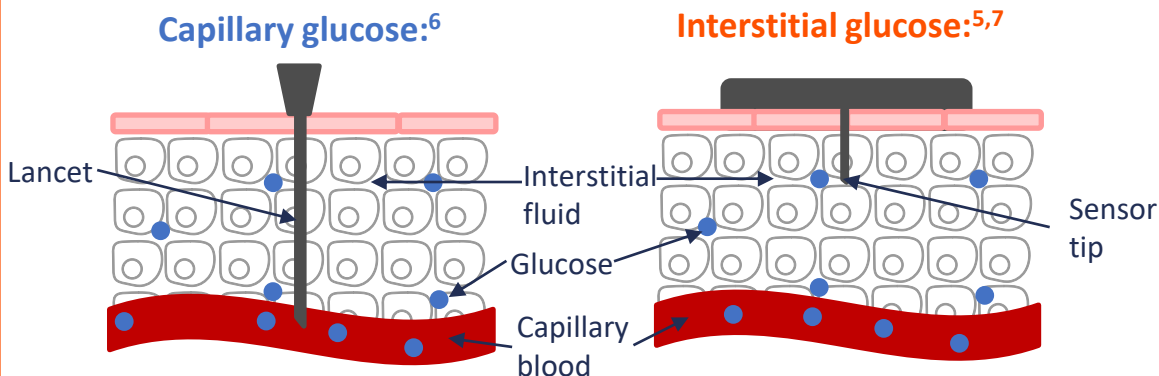
It is difficult for clinicians to treat based on HbA1c alone^{1,2}

Glycaemic variation in three hypothetical patients with the same mean HbA1c^{4*}



- HbA1c is not a significant predictor of hypoglycaemia³

CGM measures glucose in the ISF, unlike SMBG⁵



- Capillary blood absorbed from the skin by test strip
- Small filament remains in the ISF to obtain glucose sample

Images for illustrative purposes only and not drawn to scale

CGM improves glucose control

CGM results in:

- Better overall glucose control⁸
 - A reduction in HbA1c⁹⁻¹¹
 - Fewer hyper- and hypoglycaemic episodes⁸
- Higher treatment satisfaction⁹
- Improvements in diabetes distress⁸

Multiple features should be considered when selecting a CGM sensor for T2D¹²

- Personal or professional CGM devices
- Patient age that the sensor is indicated for
- Real-time or intermittently scanned
- Type of CGM and equipment
- Requirement for daily calibration
- Wear time
- Placement
- Alarm and alert functionality
- Compatibility with phone operating systems
- Requirements for data sharing

CGM implementation guidance

ADA 2024 guidelines on CGM in T2D

- CGM is recommended in **all adults with diabetes taking insulin** and **adolescents on intensive therapy** (MDI or CSII) who are capable of using the devices safely (either by themselves or with a caregiver)¹³
- TIR can be used for assessment of glycaemic status; TAR and TBR are useful parameters for evaluation of the treatment plan¹⁴

Who IS suitable for use of CGM?¹³

- Patients over the age of indication
- Pregnant women (device dependent)

Who may NOT be suitable for use of CGM?

- Patients receiving certain medications e.g. hydroxyurea, on dialysis or critically ill^{13,15–18}
- Patients who are unable or unwilling to:
 - Use their BGM to test if their symptoms don't match their sensor readings^{17,19}
 - Keep in touch with their HCP about diabetes management^{17,19}
- Patients who have insufficient vision or hearing to allow recognition of alarms¹⁹
- Patients with other implantable devices¹⁸

Barriers to CGM uptake in T2D

"Wearing [CGM] is not enough, [we] need to have enough time and education to help patients best"²⁰

"Many patients cannot afford to use [CGM] who would otherwise benefit"²⁰

"Developing a standardized process agreed upon by the entire practices [is necessary to implement CGM]"²⁰

Barriers include:^{20,21}

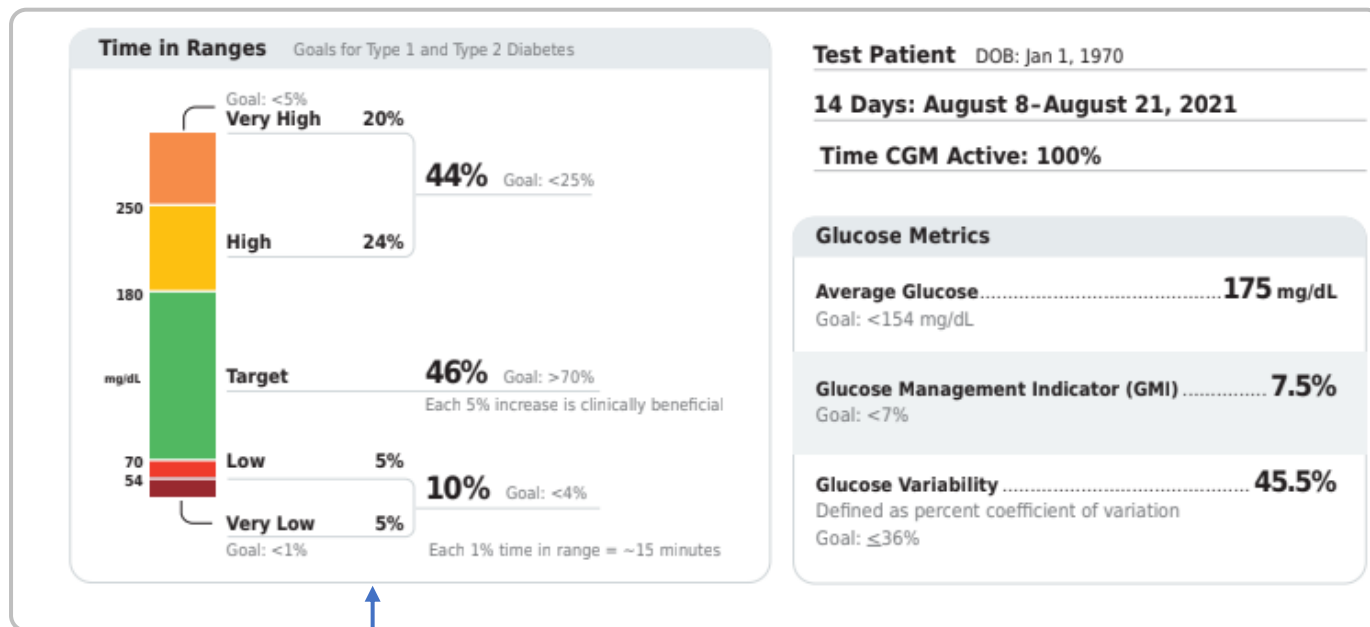
- **Awareness**
- **Time available in consultations**
- **Technology difficulties**
- **Cost**
- **Implementation challenges**



"The biggest barriers are not necessarily patient barriers, but having providers aware of the availability of the resource"²¹

"Sometimes too much data can make interpretation challenging"²⁰

AGP reports provide a range of data for interpretation: Key metrics



Glucose management indicator²²

Approx. HbA1c level based on average glucose level from CGM readings for ≥14 days compared to a large no. of people with diabetes with the same average CGM readings

Time in ranges²²

- Target percentages for the time spent in each glycaemic range, which can be adjusted to address needs of specific diabetes populations e.g. pregnancy or high-risk patients
- Primary goal is to increase time in target range whilst reducing time below range
- Provide more actionable information than HbA1c alone

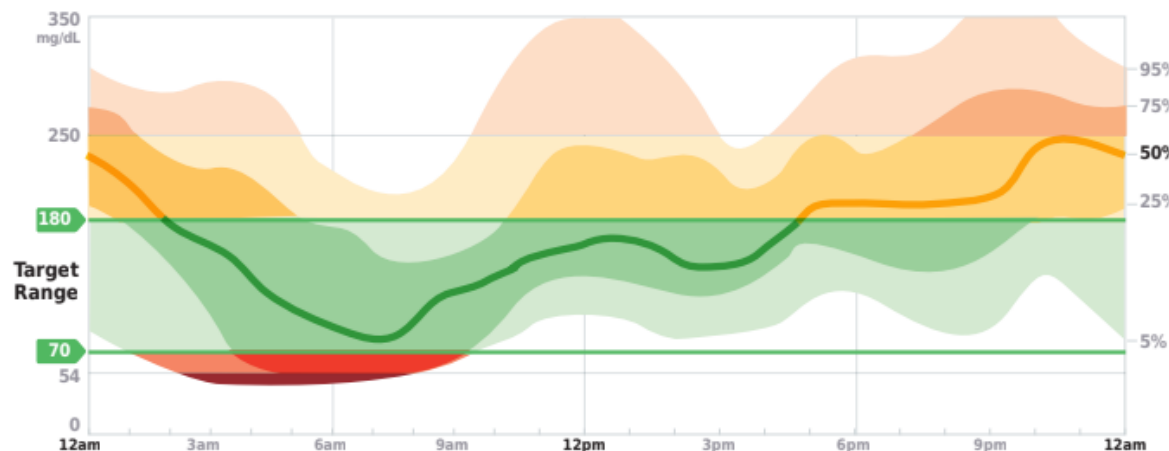
Addressing glucose variation²²

Glucose variability or GMI can be used to discuss possible discrepancies noted in glucose exposure derived from CGM data vs lab-measured HbA1c

AGP reports provide a range of data for interpretation: Glucose profile

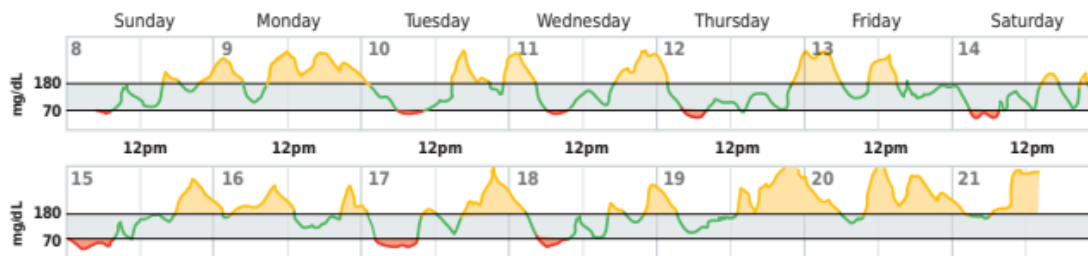
Ambulatory Glucose Profile (AGP)

AGP is a summary of glucose values from the report period, with median (50%) and other percentiles shown as if they occurred in a single day.



Daily Glucose Profiles

Each daily profile represents a midnight-to-midnight period.



Glucose profiles²²

- Allows for direct observations of glycaemic excursions and daily profiles which can be used to inform immediate therapy decisions and/or lifestyle modifications
- Enable identification of patterns of hypo- and hyperglycaemia

AGP report²²

- Designed to be used as a shared decision-making tool for clinicians and people with diabetes
- Individuals should be counselled to look at patterns throughout the day to see when hypoglycaemia occurs and to make adjustments to reduce these events

What patients should know when using CGM

Is SMBG still required with CGM?

Situations where SMBG **must be used** include:

- **If symptoms do not match CGM readings**^{16–18,23,24}
- If there is a suspicion the CGM reading is inaccurate^{16,23,24}
- For sensor calibration (if required)^{18,19}
- During sensor warm-up time^{16,17}
- Before making treatment decisions (sensor dependent)¹⁹
- For therapy decisions when taking certain medications^{16–18}

Where do I look if I'm having issues using my CGM sensor?

Sensor manufacturers provide technical support; information on this can be found in sensor user manuals^{16–19,23,24}

*"The diabetes community is really active so there are some great patient-centred organizations that have wonderful materials"*²¹ – Diabetologist

Strategies to support patients using CGM

When should I refer my patients for diabetes education?

American Diabetes Association guidelines state that **patients with more education regarding device use have better outcomes** and therefore, the need for additional education should be periodically assessed, particularly if outcomes are not being met.¹³

*"I try to drive home the idea of being curious rather than having the patient judge themselves...we really want this to be a tool that reduces the burden of diabetes rather than adds to it"*²¹
– Diabetologist

*"At our first visit I do like to set aside a little extra time just to explain the data and what we're looking at, because for so many of these patients they've been told that [Hb]A1c is the best marker of their diabetes, and I want to get this idea of time-in-range and understanding where glucose should be to keep them safe and healthy...that discussion gets tailored to the individual"*²¹
– Diabetologist

Abbreviations and references

Abbreviations

ADA, American Diabetes Association; AGP, ambulatory glucose profile; BGM, blood glucose meter; CGM, continuous glucose monitoring; CSII, continuous subcutaneous insulin infusion; GMI, glucose management indicator; HbA1c, glycated haemoglobin; HCP, healthcare professional; ISF, interstitial fluid; lab, laboratory; MDI, multiple daily injection; SMBG, self-measured blood glucose; T2D, type 2 diabetes; TAR, time above range; TBR, time below range; TIR, time-in-range.

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