

Elevating the role of basal insulin therapy in T2D management: From CGM use to fixed-ratio combinations and once-weekly regimens

Practice aid for the management of type 2 diabetes using basal insulin

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Treatment intensification with basal insulin in T2D



Recommended in patients living with T2D who do not meet glycaemic targets with non-insulin glucose-lowering agents^{1,2}



Clinical inertia is *the failure to initiate or intensify therapy according to the guidelines*³

Delayed initiation leads to:



Chronic hyperglycaemia⁴



Microvascular complications e.g. retinopathy and neuropathy⁵⁻⁷



Macrovascular complications e.g. CHD and stroke⁵⁻⁷



Reduced patient QoL and psychological wellbeing^{5,7}



Increased risk of early mortality⁷

Barriers to daily insulin intensification:



Physician related:

- Complex dosing schedules¹
- Injection-site reactions⁸
- Fear of hypoglycaemia^{1,8,9}



Patient related:

- Difficult administration⁹
- Injection burden¹
- Social stigma⁹
- Anticipation of pain⁸
- Fear of weight gain^{1,9}
- Fear of hypoglycaemia^{1,9}



System related:

- Lack of time or resources for education¹

Strategies to overcome clinical inertia:



- Implement **simpler titration regimens** e.g. fixed-ratio combinations^{1,10}
- Improve **patient and PCP education** to enhance communication enabling fears to be explored and resolved⁹
- Use **videos to educate** patients to save time in consultations and allay patient fears e.g. on injection or titration technique^{8,9}
- Suggest **peer advisor and patient support groups** to enable patients to access continuous support⁸

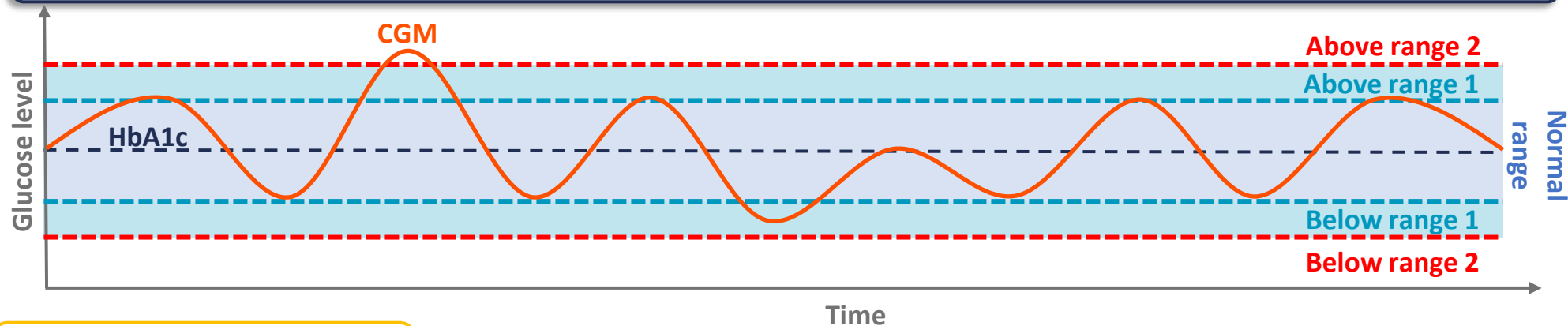
Using CGM and time-in-range to optimize patient outcomes in T2D



- **CGM** uses a subcutaneous sensor to measure interstitial glucose concentrations every few minutes¹¹
- HbA1c testing at HCP follow-ups does not evaluate short-term glycaemic variability or daily fluctuations in blood glucose^{5,12}
- **CGM** reveals high and low glucose levels that are not apparent with HbA1c alone¹¹



International guidelines state *CGM may be considered to improve glycaemic control in T2D in patients on insulin therapy and not achieving their glucose targets*^{2,13–15}



Below range 1
 • Aim for **<4%** of time
<3.9 mmol/L (70.0 mg/dL)^{2,16}

Below range 2
 • Aim for **<1%** of time
<3.0 mmol/L (54.0 mg/dL)^{2,16}

Guideline recommendations for glucose levels over 24 hours

TIR – normal range

**3.9–10.0 mmol/L
 (70.0–180.0 mg/dL)²**

Above range 2

Above range 1

- A TIR >70% is equivalent to a HbA1c <7%²
- Each 10% increase in TIR equates to a ~0.5% reduction in HbA1c¹⁷



TIR could be a predictor of micro- and macrovascular complications and is associated with better patient outcomes¹⁷

Preparing for once-weekly basal insulins



Once-weekly basal insulins may be more suitable for patients with relatively low variation in basal insulin requirements and predictable lifestyles¹⁸

Example of dosing and titration of once-weekly basal insulins^{19,20}

Based on clinical trial protocols

	Initial dose	Dose 2	Dose 3+
Insulin naive	70 U	70 U + titration	Ongoing titration
Prior basal insulin	10.5x daily basal dose	7x daily basal dose	Ongoing titration

Titration may depend on:

- FPG^{19–22}
- No. of hypoglycaemic episodes^{21,22}
- Time since previous dose change²²

Managing hypoglycaemia



In clinical trials, **hypoglycaemia responded to standard corrective procedures**, with severe hypoglycaemia successfully managed with oral carbohydrate alone*^{18,22}



Management of an acute episode should be similar to those experienced with daily basal insulins: **administer calculated amounts of carbohydrates, monitor response and repeat as necessary**²³

Management of special populations



- Further research is needed into how to adjust once-weekly insulin to manage **exercise, sick days and surgery**^{18,19}
- **Patients requiring dosing assistance** may benefit from once-weekly insulins, with the reduced injection burden and increased treatment flexibility - a dose can be missed without loss of efficacy^{†23}
- Once-weekly insulins may prove safer than daily basal insulin (particularly if less aggressive glucose targets are used) in **those requiring a caregiver** to administer insulin, e.g. the elderly and those in care facilities²³

*Severe hypoglycaemia defined as hypoglycaemia associated with severe cognitive impairment requiring external assistance for recovery;^{21,22,24–27} †Doses of once-weekly insulins can be missed once a steady state has been achieved. Missed icodex doses should be taken as soon as possible, however, if 3 days or fewer remain before the next dose, that week's dose should be skipped.²³

Abbreviations and references

Abbreviations

CGM, continuous glucose monitoring; CHD, coronary heart disease; FPG, fasting plasma glucose; HbA1c, glycated haemoglobin; HCP, healthcare professional; no., number; PCP, primary care physician; QoL, quality of life; TIR, time-in-range; T2D, type 2 diabetes; U, units.

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