

Blood Glucose Monitoring in Type 1 Diabetes



KEY POINTS:

- Blood glucose (BG) monitoring is essential and should be carried out 2-6 times per day if possible.
- Should limited test strips be available, one approach is to rotate from day to day.
- Tests are most important before injections, before bed and during the night.

PATTERNS OF BG LEVELS:

- If pre-meal BG is always high, the preceding dose of intermediate or long-acting insulin may be insufficient.
- If the pre-meal BG is always low, the previous dose of intermediate or long-acting may too high.
- If the pre-meal BG is sometimes high, and at other times low, either insulin, food or exercise are inconsistent and require review.
- If the BG 2 hours after the meal is too high, the meal dose of short - or rapid - acting insulin was too low.

Target Blood Glucose Levels

Before meals	4 - 8 mmol/L (70 - 145 mg/dL)
After meals	5 - 10 mmol/L (90 - 180 mg/dL)
At bed time	6.7 -10 mmol/L (120 - 180 mg/dL)
At 3 am	4.5 - 9 mmol/L (80 - 162mg/dL)

HbA1c:

- HbA1c (glycated haemoglobin) provides information about average BG levels over the last 3 months.
- Ideally HbA1c is measured four times a year.
- The target for HbA1c in a person with type 1 is <7.5% (58 mmol/mol).
- The table below shows the relationship between HbA1c and average blood glucose.

HbA1c (DCCT) (%)	Estimated Average Blood Glucose (mmol/L)	Estimated Average Blood Glucose (mg/d/L)	HbA1c in IFCC Units (mmol/mol)
5	5.4	97	31
6	7.0	126	42
7	8.6	154	53
8	10.2	183	64
9	11.8	212	75
10	13.4	240	86
11	14.9	269	97
12	16.5	298	108