Primary Care Guideline on the frequency of glucose self-monitoring in patients with type 2 diabetes mellitus not controlled by insulin

Type 2 diabetes mellitus treated with:

- Alpha glucosidase inhibitors: Acarbose
- Biguanides: Metformin
- DPP-4 Inhibitors (Glitins): Linagliptin, Sitagliptin, Saxagliptin, Vildagliptin
- GLP-1 Analogues (Incretin mimetics): Exenatide, Liraglutide, Lixisenatide
- Thiazolidinediones (Glitazones): Pioglitazone
- SGLT2 Inhibitors: Dapagliflozin

If any of these treatments are given in combination with a sulphonylurea or a meglitinide then follow the guidance given for patients treated with a sulphonylurea or meglitinide.

Diet and exercise alone

Drug Class
- Meglitinides (Prandial glucose regulators/Glinides): Nateglinide, Repaglinide
- Sulfonylureas: Gilbenclamide, Gliclazide, Glimepiride, Glipizide, Tolbutamide

These medicines can cause hypoglycaemia

Glucose monitoring may therefore be required in patients:
- who are not stabilised on treatment
- who are drivers (see DVLA guidance below)
- in other certain circumstances (see below)

Regular glucose monitoring not necessary

- A supply of glucose test strips may be required (as an acute prescription) in certain circumstances (see below)

Glucose monitoring may be required in patients:
- with acute illness
- up to 7 days post-surgery
- co-prescribed steroids (test at midday, before evening meal and two hours after evening meal)
- undergoing significant changes in pharmacotherapy or fasting, for example, during Ramadan
- at increased risk of hypoglycaemia/hypoglycaemia unawareness
- with unstable or poor glycaemic control (HbA1c >8.0% [64mmol/mol])
- with postprandial hyperglycaemia (due to the potential link with macrovascular disease)
- who are pregnant or planning pregnancy

Driver and Vehicle Licensing Agency (DVLA) guidance for diabetic patients managed by sulphonylurea or glinide tablets

<table>
<thead>
<tr>
<th>Driver Group</th>
<th>DVLA Advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 (cars, motorcycles)</td>
<td>It may be appropriate to monitor glucose regularly and at times relevant to driving*.</td>
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<tr>
<td>Group 2 (buses, lorries)</td>
<td>There is a requirement that the patient regularly monitors glucose at least twice daily and at times relevant to driving.</td>
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Note: The DVLA do not define how frequently glucose should be tested when advising ‘regularly’ and ‘at times relevant to driving’ for diabetic patients managed by sulphonylurea or glinide tablets, and it is therefore not possible to clarify the DVLA guidance further.
*Advice on managing hypoglycaemia or developing hypoglycaemia at times relevant to driving*

- In each case if a patient’s glucose is 5.0mmol/L or less, advise to eat a snack.
- If glucose reading is less than 4.0mmol/L or patient feels hypoglycaemic then they should not drive.
- Patient should not start driving again until 45 minutes after finger prick glucose has returned to normal (at least 5.0mmol/L).
- If patient uses real time (RT-CGM) or flash glucose monitoring (FGM) system to check glucose levels and the reading is 4.0mmol/L or below, the patient must stop driving and confirm finger prick glucose test reading.
- Finger prick glucose level must be at least 5.0mmol/L before returning to driving.

<table>
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<th>Appropriate glucose monitoring systems</th>
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**Group 1 drivers –using RT-CGM and FGM whilst driving – Drivers must get a confirmatory finger prick glucose level in the following circumstances**

- If glucose level is 4.0mmol/L or below
- If symptoms of hypoglycaemia are present
- If glucose monitoring system gives a reading that is not consistent with symptoms (i.e. experiencing symptoms of hypoglycaemia and system reading does not indicate this)
- If driver is aware that they have become hypoglycaemic or indication of impending hypoglycaemia
- At any other times recommended by the manufacturer of drivers glucose monitoring system
Prescribing Tips

- NICE recommend that HbA1c is checked twice annually in all diabetic patients

- The frequency of glucose monitoring required will vary for individual patients according to a number of factors such as the treatment regime in use, the target level of glycaemic control, the patient’s stability on treatment, the advice given by the DVLA for drivers, and other acute circumstances such as illness or pregnancy; this variety of factors means it is not possible to define a specific quantity of test strips that patients should be issued

- Clinical judgement should be used in assessing individual patient requirements for the frequency of glucose monitoring required and the number of glucose test strips that should be issued; advice should be sought from a diabetes specialist if necessary

- Patients who require glucose test strips as part of their regular treatment for diabetes can be issued with a repeat prescription; for those patients who require to monitor their glucose only in certain acute circumstances, then test strips should preferably be issued as an acute prescription

- Prescribers are encouraged to regularly review how frequently their patient monitors their glucose and subsequently review the appropriate issuing of glucose test strips – patients should only ever be issued suitable quantities to meet their needs, and to prevent stockpiling and waste

- The relevant directions for use should be added to the product dispensing label to enable better compliance

- The expiry date of the test strips should be taken into account

- A record of the patient’s driving status should be made in the patient notes—this can be read / SNOMED coded i.e. heavy goods driver, motor car driver, does not drive a vehicle

- Only one brand of test strips, relevant to the meter the patient is using, should be prescribed

- Group 1 drivers can choose to use either finger prick blood reading or flash and continuous glucose monitoring devices to take glucose readings before they drive, or during breaks in driving

References: