Blood Glucose Meter Guideline

Blood glucose monitoring in patients with type 2 diabetes

NICE (NG28) recommends not to routinely offer self-monitoring of blood glucose levels for adults with type 2 diabetes unless:

- The person is on insulin
- There is evidence of hypoglycaemic episodes
- The person is on oral medication that may increase their risk of hypoglycaemia while driving or operating machinery
- The person is pregnant or planning pregnancy
- Short term, consider:
  - Whilst on steroid medication – oral or intravenous steroids
  - To confirm suspected hypoglycaemia
  - Beware that type 2 patients who have intercurrent illness are at risk of worsening hyperglycaemia

If adults with type 2 diabetes are self-monitoring their blood glucose levels, carry out a structured assessment at least annually. The assessment should include:

- The person’s self-monitoring skills
- The quality and frequency of testing
- Checking that the person knows how to interpret the blood glucose results and what action to take
- The impact on the person’s quality of life
- The continued benefit to the person
- The equipment used

Oral medications taken in type 2 diabetes that can increase the risk of hypoglycaemia include:

- Sulfonylureas e.g., gliclazide, glimepiride, glipizide, tolbutamide, glibenclamide
- Meglitinides e.g. nateglinide, repaglinide
Blood glucose monitoring in patients with type 1 diabetes:

Patients should test their blood glucose at least 4 times per day, including before each meal and before bed. Monitoring between 4 and 10 times a day may be required:

- If there is a legal requirement to do so e.g. in line with the DVLA.
- Before, during and after exercise
- During periods of illness
- If the patient is having regular hypos
- If the target HbA1c is not being met

Testing may be required more regularly (>10 times/day):

- If required for driving e.g. long distances
- If taking part in high-risk activities
- The person has an impaired awareness of hypoglycaemia

Blood glucose testing for other types of diabetes

How often people with other types of diabetes should test their blood glucose will vary depending on what medication is taken and personal circumstances:

- People on multiple insulin injections per day or on an insulin pump should test as often as people with type 1 diabetes.
- People on medication that can cause hypos should, at least, be able to test their blood glucose whenever they notice any possible signs of hypoglycaemia.
- Blood glucose testing is useful for testing how different meals and activities affect blood glucose levels. This tends to be of particular use for people with type 2 diabetes.
Key points

- Consider the need for regular self-monitoring in all type 2 diabetes patients currently prescribed BGTS.
- Complete a structured assessment on an annual basis.
- Use SMBG appropriately to help the patient manage their diabetes effectively.
- Consider using the download options of some of the glucometers to save time for the diabetes practice nurses and also to have a proper record of the glucose readings.
Self-Monitoring of Blood Glucose (SMBG): Selecting an appropriate test strip for people with type 1 and type 2 diabetes

- **Diet and Lifestyle controlled diabetes**
  - SMBG is not routinely recommended
  - *highly motivated patients may be assessed separately and offered SMBG at the discretion of the Prescriber*

- **Oral Therapy & non insulin injectable therapy**
  - SMBG recommended when there is a significant risk of hypoglycaemia or for short periods during illness or medication changes

- **Insulin Therapy or in combination with oral Therapy or non insulin injectable therapy**
  - SMBG recommended for all patients

Offer patient a choice of Formulary approved Blood Glucose Test Strips and compatible meters (unless the patient falls into the exclusion criteria)
Preferred Blood Glucose Testing Meters and Strips

ISO 15197 - All strips in the table below comply with the current ISO standards

These recommendations support the use of lower-acquisition cost meters and test strips for “first line” use unless there are important individual patient considerations to warrant a more specific meter and test strip system.

The choice of meters in this document all comply with several requirements which include:

- Compliance with the new ISO standards (01.05.2016).
- All approved meters have a wide haematocrit range 30-60% (or more)
- The user is unable to delete readings from memory
- Expiry date of BGTS – minimum 6 months from opening
- Acquisition costs of BGTS (per pack of 50) and availability of BGTS and meters
- Allows electronic download to personal computers and clinical systems (e.g. DIASEND)
- Compatibility with DVLA requirements
- Suitable for patients with gestational diabetes
- Test results that are unaffected by drugs that contain or metabolise to maltose: important in the following situations: peritoneal dialysis fluids, immunoglobulins, paediatric patients.

Exclusion criteria – these patients may need meters different to those listed below.

- Patients that are managed by the secondary care diabetes team
- Patients who are currently pregnant or planning pregnancy
- Patients with renal impairment (CKD4)
- Children
- Patients with ketosis prone to type 2 diabetes
- Patient registered as visually impaired
- Patients who use a meter to adjust a bolus insulin dose
- Patients with irregular HBA1C patterns
<table>
<thead>
<tr>
<th>Test Strip</th>
<th>Accu-Chek® Mobile</th>
<th>Accu-Chek® Performa Nano</th>
<th>Contour® Next/Contour® Plus</th>
<th>Element™</th>
<th>mylife Pura® X</th>
<th>Omnitest® 5</th>
<th>GlucoMen® Areo/Areo 2K</th>
<th>True Metrix® Air</th>
<th>GlucoRx® Nexus Voice/Nexus Mini</th>
<th>WaveSense JAZZ™/JAZZ™ Wireless</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Strip</td>
<td>Mobile Cassette</td>
<td>Performa Nano</td>
<td>Contour</td>
<td>Element test strips</td>
<td>MyLife Pura</td>
<td>Omnitest® 5 test strips</td>
<td>GlucoMen Areo test strips and GlucoMen® Areo Ketone strips (for 2k meter)</td>
<td>True Metrix®</td>
<td>GlucoRx® Nexus Voice/Nexus Mini</td>
<td>WaveSense JAZZ™/JAZZ™ Wireless</td>
</tr>
</tbody>
</table>

**Contact Details**
- Roche Diabetes Care 0800 0407221
- Ascensia 0345 600 6030
- Neon Diagnostics 0800 131 3378
- Ypsomed 0344 856 7820
- B Braun 07528 968 208
- A. Menarini Diagnostics 0118 944 4100
- Trividia Health UK 0800 689 503035
- GlucoRx 0800 007 5892
- AgaMatrix 0800 093 1812

**Memory Readings**
- 800
- 500
- 500
- 500
- 730
- 1000
- 450/1000
- 1865

**Smart phone compatible**
- Y
- N
- N
- N
- N
- Y
- Y
- Y
- Y
- Y

**Website**
- www.accu-chek.co.uk
- www.diabetes.ascensia.co.uk
- www.neodiagnostics.co.uk
- www.mylife-diabetescare.co.uk
- www.bbun.co.uk
- www.glucomaen.co.uk
- www.trividiahealth.co.uk
- www.glucorx.co.uk
- www.agamatrix.co.uk

*First line for use in gestational diabetes
Meters for specific groups of patients

Specialist meters for T1DM patients who are adjusting insulin doses and have attended DAFNE courses

These require individual patient set up/instruction by the Diabetes Clinic Team **On the advice of Diabetes Specialist Only**

<table>
<thead>
<tr>
<th>Meter</th>
<th>Accu-Chek® Aviva Expert</th>
<th>Contour Next Link</th>
<th>KEYA® Smart</th>
<th>Freestyle Optimum Neo</th>
<th>4SURE Smart</th>
<th>Freestyle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Strip</td>
<td>Aviva</td>
<td>Contour Next</td>
<td>2-in-1 KEYA® Smart test strips</td>
<td>Freestyle Optimum</td>
<td>Sure and Simple</td>
<td>Freestyle Lite</td>
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<tr>
<td>Manufacturer</td>
<td>Roche Diabetes Care</td>
<td>Ascensia</td>
<td>Inside Biometrics International Ltd.</td>
<td>Abbott</td>
<td>NIPRO</td>
<td>Abbott</td>
</tr>
<tr>
<td>Customer Care contact details</td>
<td>0800 0407221</td>
<td>0345 600 6030</td>
<td>0845 8740573</td>
<td>General enquiries: 0800 170 1177</td>
<td>0800 08 588 08 <a href="mailto:diagnostics-uk@nipro-group.com">diagnostics-uk@nipro-group.com</a></td>
<td>0800 170 1177</td>
</tr>
</tbody>
</table>
Other Important features to consider when selecting a meter:

1. Screen Visibility
2. Talking meters
3. Meter Handling
4. Alarms
5. Meters which allow easy visualisation of data on a PC
6. On meter data management
7. Bolus Advisor
8. Convenience related monitoring
9. Simple preference (Style related)
10. For the insulin pump users
### Flash Glucose Monitoring

<table>
<thead>
<tr>
<th>Sensors</th>
<th>Freestyle Libre sensors</th>
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<tbody>
<tr>
<td>Available on GP prescription</td>
<td>These are available on prescription, following initiation and initial monitoring by specialist. Provided the criteria listed in the prescribing guideline are met: <a href="https://www.northernlincolnshireapc.nhs.uk/wp-content/uploads/2019/08/Prescribing-Arrangements-for-Flash-Glucose-Monitoring-Final-2.pdf">https://www.northernlincolnshireapc.nhs.uk/wp-content/uploads/2019/08/Prescribing-Arrangements-for-Flash-Glucose-Monitoring-Final-2.pdf</a></td>
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| Customer contact details | 0800 612 3000  
ADChelplink@abbott.com |