

## Blood glucose and ketone meters, testing strips, lancets and pen needles formulary

In 2023, NHSE published a set of commissioning recommendations based on a detailed evaluation process to identify preferred blood glucose and ketone meters, testing strips and lancets. This assessment was repeated in 2025 to allow evaluation of new products and review of current recommendations. The update was published in [October 2025](#).

In the table below are the preferred options for the relevant patient cohorts for Nottingham & Nottinghamshire.

| NHSE Category  | Patient cohort   | Meter  | Blood glucose test strips       | Ketone test strips             | Lancets   |
|--|--|--|---------------------------------|--------------------------------|---|
| 1a & 1b  | <b>Type 1 diabetes or Ketosis-prone Type 2 diabetes +/- additional functionality</b><br><br>Any of these meters would be appropriate as a “back-up” meter for patients on CGM who need to test for glucose and ketones | GlucoFix Tech GK <sup>^</sup>  | GlucoFix Tech Sensor            | GlucoFix Tech β-Ketone Sensor  | Glucoject PLUS Droplet*<br>Microdot Plus <sup>#</sup>       |
|  |  | 4SURE Smart Duo <sup>^</sup>   | 4SURE                           | 4SURE β-Ketone test strips     | 4SURE Droplet*<br>Microdot Plus <sup>#</sup>                |
|  |  | GlucoRx HCT  | GlucoRx HCT Glucose Test Strips | GlucoRx HCT Ketone Test Strips | GlucoRx Droplet*<br>Microdot Plus <sup>#</sup>              |
| <sup>^</sup> Meters with additional functionality Please see Appendix 1 for details e.g. Paediatrics, Dexterity, Visual impairment |  |  |                                 |                                |   |
| 2  | <b>Type 2 diabetes</b><br><br>Any of these meters would be appropriate as a “back-up” meter for patients on CGM who <b>do not</b> need to test for ketones   | GlucoRx Q  | GlucoRx Q                       |                                | GlucoRx Droplet*<br>Microdot Plus <sup>#</sup>              |
|  |  | Contour Plus Blue  | Contour Plus                    |                                | Microlet Droplet*<br>Microdot Plus <sup>#</sup>             |
|  |  | Accu-Chek Instant  | Instant                         |                                | FastClix ONLY   |
| 3  | <b>Type 2 diabetes with additional functionality</b><br><br>Please see Appendix 1 for further details.   | WaveSense Jazz   | WaveSense Jazz / Duo            |                                | AgaMatrix Ultra-Thin Droplet*<br>Microdot Plus <sup>#</sup> |
|  |  | 4SURE Smart / Duo  | 4SURE                           | 4SURE β-Ketone test strips     | 4SURE Droplet*<br>Microdot Plus <sup>#</sup>                |
|  |  | GlucoRx Nexus Voice  | GlucoRx Nexus                   |                                | GlucoRx Droplet*<br>Microdot Plus <sup>#</sup>              |
| 4  | <b>Type 1 &amp; 2 diabetes</b><br>Lancets suitable for most people, including those requiring meters with additional functionality   | *Droplet lancets are Type A lancets and considered universal.<br>#Microdot Plus lancets are Type A lancets. They are considered universal.<br>Prescribers also have the option to provide patients with a Microdot® lancing device. These are available to order free of charge from Cambridge Sensors Customer Helpline 0800 088 3920 |                                 |                                |   |

### Self-Monitoring Blood Glucose (SMBG) Criteria

- Please refer to [Nottinghamshire APC – Frequency of Blood Glucose Self-Monitoring: Adults](#).
- T2DM patients outside the SMBG criteria and patients wanting strips outside the formulary with no clinical benefit can buy test strips without a prescription. Practices may advise patients to do this if there is no **clinical** reason for the patient to monitor their blood glucose and they choose to do this themselves.

### Blood Glucose Meter Choice

- If none of the preferred options are suitable, then any meter from the [NHSE Commissioning Recommendations](#) is suitable for use, within the specific cohort.

### Supply of meters

- Any patient newly diagnosed with diabetes should be assessed by a healthcare professional and supplied a suitable meter if self-monitoring of blood glucose is required. Training on the correct use, storage and interpretation of readings should be provided.
- All suppliers will provide, free of charge, the recommended meters, lancing devices, and ongoing free control solutions to all healthcare settings across England in primary & secondary care and to patients.

### Existing patients with diabetes

- Where patients are already using meters that are not one of the preferred options, they should be offered an alternative meter at the earliest opportunity following a discussion with their healthcare professional.
- It is strongly recommended that patients are only switched to a new meter during a face-to-face consultation. We recommend you inform the patient prior to changing the meter to give them an opportunity to raise any concerns. Current strips should be used up first to avoid waste. Consider stopping SMBG management in patients who are on diet-controlled treatment or not meeting the criteria for initiating SMBG.

### Continuous Glucose Monitoring (CGM)

- Patients using CGM will require a back-up monitor suitable for their requirements (i.e. +/- ability to test for ketones) to use in scenarios where confirmation of results is required.
- The meters within the formulary are all suitable for this cohort of patients.
- **Freestyle Optium and Lite test strips offer no additional functionality, are considerably more expensive than formulary strips and are not included in this formulary.**
- Patients who have been initiated on Freestyle Libre **should not be prescribed Freestyle Optium or Freestyle Lite strips UNLESS** they are using the Freestyle Reader rather than their smart phone **AND** want to avoid the need for a second meter.

**Advice to patients**

- Keep all test strips in their original containers.
- Do not use test strips after the expiry date/ be aware of the in-use expiry date of test strips.
- Keep test strips in a cool dry place away from humidity and direct sunlight.
- Control solution tests should be performed when:
  - ✓ First receiving or purchasing the meter.
  - ✓ Checking the meter and test strips (which should be done at least once a week).
  - ✓ Using a new vial of test strips.
  - ✓ You suspect the meter or test strips are not working properly.
  - ✓ Your blood glucose test results are not consistent with your expectation, or you think the results are not accurate.
  - ✓ Practicing the testing process.
  - ✓ The meter has been dropped or damaged.
- You can order control solutions directly from the blood glucose meter manufacturer.
- Once opened the quality control (QC) solution only lasts for 90 days (or until expiry date if less than 90 days from opening).

**Factors affecting accuracy**

- Capillary blood glucose monitoring should not be used for:
  - patients who are severely hypotensive
  - patients in shock
  - patients who are severely dehydrated

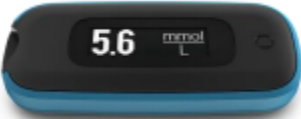


Laboratory blood glucose is necessary in these situations.

- Some test strips may not be suitable for patients with low (<20%) or high haematocrit levels (>60%) – each meter has its own haematocrit range (see manufacturers data) as may give inaccurate results.
- Glucose oxidase can be affected by oxygen and can lead to inaccurate results for patients undergoing oxygen therapy – check manufacturers data.
- All healthcare professionals should be aware that different meters have variability in device accuracy and durability. If a patient reports a problem with their meter, it is appropriate to issue a new or replacement device. Where possible, use this as an opportunity for your team to provide a more cost-effective meter.
- Quality control (QC) solution must be obtained from the meter manufacturer – cannot prescribe on FP10.
- The accuracy of blood glucose meters should be checked regularly and on the following occasions:
  - every time a new pot of 50 test strips is opened
  - when a meter has been dropped
  - if the test strips are damp or wet
  - when you suspect the meter is producing unexpected results.
- Strong electromagnetic radiation may interfere with the proper operation of blood glucose testing meters.

## Appendix 1 – Summary with images

|                                       | Type 1 Diabetes and Ketosis-prone Type 2 Diabetes                                     |   |  | Type 2 Diabetes  |   |   |
|---------------------------------------|---|---|--|--|---|---|
|                                       |   |   |  |  |   |   |
| <b>Meter</b>                          | <b>GLUCOFIX TECH GK</b>   | <b>4SURE SMART DUO</b>  | <b>GLUCORX HCT &amp; KETONE</b>  | <b>GLUCORX Q</b>   | <b>CONTOUR PLUS BLUE</b>  | <b>ACCU-CHEK INSTANT</b>  |
| <b>Glucose test strips</b>            | <b>GlucoFix Tech Sensor Strips</b>  | <b>4SURE Test strips</b>  | <b>Glucorx HCT</b>   | <b>Glucorx Q</b>   | <b>Contour Plus</b>   | <b>Instant</b>  |
| <b>Cost /50 strips</b>                | £5.95   | £7.99   | £8.95  | £5.45  | £5.95   | £5.95   |
| <b>In-use strip expiry</b>            | 12 months   | 24 months   | 6 months   | 6 months   | 24 months   | 21 months   |
| <b>Ketone test strips</b>             | <b>Glucofix Tech Ketone Sensors</b>   | <b>4SURE β-Ketone Test Strips</b>   | <b>Glucorx HCT Ketone Test Strips</b>  |  |   |   |
| <b>Cost / 10 strips</b>               | £9.95   | £9.92   | £9.95  |  |   |   |
| <b>Lancets</b>                        | Glucoject lancets PLUS 33g  | 4SURE lancets 33g, 30g  | Glucorx lancets 30g  | Glucorx lancets 30g  | Microlet lancets 28g  | FastClix lancets 30g ONLY   |
|                                       | Droplet lancets 28g, 30g, or 33g, Microdot Plus 30g or 33g lancets                    |   |  |  |   |   |
| <b>UK Distributor</b>                 | Menarini Diagnostics  | Nipro   | Glucorx Ltd  | Glucorx Ltd  | Ascensia  | Roche Diabetes Care   |
| <b>Representative contact details</b> | Cameron Brown<br><a href="mailto:cbrown@menarinidiag.com">cbrown@menarinidiag.com</a> | Sanjay Parmar<br><a href="mailto:Sanjay.parmar@nipro-group.com">Sanjay.parmar@nipro-group.com</a> | Dhillon Chandarana<br><a href="mailto:dhillon@glucorx.co.uk">dhillon@glucorx.co.uk</a> | Dhillon Chandarana<br><a href="mailto:dhillon@glucorx.co.uk">dhillon@glucorx.co.uk</a> | Jeremy Wood<br><a href="mailto:jeremy.wood@ascensia.com">jeremy.wood@ascensia.com</a> | Alison Baptie<br><a href="mailto:alison.baptie@roche.com">alison.baptie@roche.com</a> |

## Appendix 1 – continued from page 4

| Type 2 diabetes requiring meters with additional functionality |   |  |  |
|--|---|--|--|
|  |  |   |   |
| <b>Meter</b>   | <b>WAVESENSE JAZZ WIRELESS</b>  | <b>4SURE SMART DUO</b>   | <b>GLUCORX NEXUS VOICE</b>   |
| <b>Cohort</b>  | <b>Gestational Diabetes – NUH</b><br>Used with GDM-Health™ app                    | <b>Gestational Diabetes – SFHT</b><br>Used with Glooko™ app  | <b>Visual impairment</b><br>Gives audio feedback of test result  |
| <b>Glucose test strips</b>                                     | <b>WaveSense Jazz / Duo</b> (2x25 strips)   | <b>4SURE Test strips</b>   | <b>GlucorX Nexus</b>   |
| <b>Cost / 50 strips</b>  | £8.74   | £7.99  | £8.95  |
| <b>In-use strip expiry</b>                                     | 3-6 months  | 24 months  | 6 months   |
| <b>Ketone test strips</b>                                      |   | <b>4SURE β-Ketone Test Strips</b>  |  |
| <b>Cost / 10 strips</b>  |   | £9.92  |  |
| <b>Lancets</b>   | AgaMatrix Ultra-Thin lancets 28g, 33g   | 4SURE lancets 33g, 30g   | GlucorX lancets 30g  |
|  | Droplet lancets 28g, 30g, or 33g, Microdot Plus 30g or 33g lancets                |  |  |
| <b>UK Distributor</b>  | AgaMatrix Europe Ltd  | Nipro  | GlucorX Ltd  |
| <b>Representative contact details / Technical support</b>      | ✉customercare@agamatrix.co.uk<br>☎0800 093 1812                                   | Sanjay Parmar <a href="mailto:Sanjay.parmar@nipro-group.com">Sanjay.parmar@nipro-group.com</a><br>🌐 <a href="https://www.nipro-diagnostics.co.uk/patients">https://www.nipro-diagnostics.co.uk/patients</a><br>✉diagnostics-uk@nipro-group.com<br>☎0800 085 8808 | Dhillon Chandarana <a href="mailto:dhillon@glucorx.co.uk">dhillon@glucorx.co.uk</a><br>✉info@glucorx.co.uk<br>☎0800 007 5892 |

## Appendix 2 – Lancets and Pen Needles

Do not prescribe safety needles or safety lancets for patients. See [Nottingham & Nottinghamshire ICB Position Statement](#) for details and exceptions.

**Where possible it is recommended to prescribe cost-effective lancets priced less than £2.35 per 100.** All lancets costing less than £2.35 per 100 listed in the [Drug Tariff](#) can be offered to patients.

Lancing or finger pricking devices cannot be prescribed on the NHS using FP10 prescriptions. A lancing device is usually provided with the blood glucose meter. However, the lancing device does not need to be the same brand as the blood glucose meter. Alternative lancing devices which use more cost-effective lancets can be obtained from the relevant manufacturer free of charge. Most single use lancets can fit several devices, so a new lancing device is not always required when switching to a more cost-effective lancet choice.

| Lancet  | Pack Size | Cost / 100 |   |
|---|-----------|------------|---|
| Droplet 0.2mm/33g, 0.31mm/30g, 0.36mm/28g                                       | 100       | £2.19      | <ul style="list-style-type: none"> <li>The higher the gauge of the lancet, the smaller the diameter of the needle.</li> <li>Lancets of 0.28mm to 0.38mm costing less than £2.35 per 100 are suitable for most patients. If patient complains of pain a higher gauge, 33g should be recommended.</li> <li>Ensure the prescribed quantities are in line with the frequency of testing.</li> <li>Patient with dexterity problems, needle phobia or visual impairment may benefit from multi-device lancets like FastClix.</li> </ul> |
| Microdot Plus Lancets 0.20mm/33g or 0.30mm/30g                                  | 100       | £2.19      |   |
| GlucoRx Lancets 0.31mm/30g  | 200       | £2.25      |   |
| AgaMatrix Ultra-Thin Lancets 0.35mm/28g and 0.20mm/33g                          | 200       | £2.72      |   |
| Glucoject Lancets PLUS 0.20mm/33g   | 200       | £2.75      |   |
| 4SURE Lancets 0.32/30g and 0.195/33g  | 100       | £2.90      |   |
| Microlet Lancets 0.5mm/28g  | 100       | £2.99      |   |
| FastClix 0.3mm/30g (NB: Only compatible with Accu-Chek FastClix lancing device) | 204       | £2.95      |   |

**Where possible it is recommended to prescribe cost-effective pen needles priced less than £3 per 100.** All pen needles costing less than £3 per 100 listed in the [Drug Tariff](#) can be offered to patients.

Pen needles come in two types: screw fittings (majority of brands including those listed below) and “click or twist” (patient specific: audible reasons).

| Pen Needle   | Pack Size | Cost / 100 |  |
|--|-----------|------------|--|
| Insupen Original (3-bevel) 4mm/32g 4mm/33g 5mm/31g 6mm/31g 6mm/32g | 100       | £2.49      | <ul style="list-style-type: none"> <li>Pen needles generally fit most insulin and GLP-1 pen brands.</li> <li>The higher the gauge, the smaller the diameter of the needle.</li> <li><a href="#">FIT UK Recommendation</a>: 4, 5 and 6mm pen needles are suitable for all adults living with diabetes regardless of BMI.</li> </ul> |
| GlucoRx CarePoint (3-bevel) 4mm/31g 5mm/31g 6mm/31g                | 100       | £2.75      |  |
| GlucoRx CarePoint Ultra (3-bevel) 4mm/32g                          | 100       | £2.75      |  |
| Greenfine (3-bevel) 4mm/32g 5mm/31g 6mm/31g                        | 100       | £2.75      |  |
| TRUEplus 5-Bevel Pen needles 4mm/32g 5mm/31g 6mm/31g               | 100       | £2.75      |  |

## Appendix 3 Criteria for including Self-Monitoring Blood Glucose Meters on Joint Formulary

| Criteria  | Rationale  |
|---|--|
| <b>Compliance with section 6.3 of ISO 15197: 2015</b> | The 2015 standards are the most up to date internationally published standards. They include improved reliability for hypo- and hyperglycaemic ranges compared to the previous 2013 standards.   |
| <b>Memory capacity of 200+ tests</b>                  | Would allow 5 tests to be carried out per day for 4 weeks.<br><a href="#">Driver and Vehicle Licensing Agency</a> (DVLA) stipulates that group 2 drivers i.e. lorries or buses on insulin must provide <b>4 weeks of continuous blood glucose records</b> at their annual examination by an independent consultant diabetologist.<br>If a patient is testing at mealtimes and/or insulin dose and before they drive, then they could reasonably need to test five times per day. |
| <b>Memory can NOT be easily deleted</b>               | DVLA stipulates that group 2 drivers i.e. lorries or buses on insulin must provide 4 weeks of continuous blood glucose records at their annual examination by an independent consultant diabetologist.   |
| <b>Results can be downloaded</b>                      | Most meters have the facility to download blood glucose readings to the patient's own PC and many companies provide software to enable patient information to be presented in a variety of ways. This can facilitate sharing between the patient and healthcare practitioner.  |
| <b>Calibration NOT required</b>                       | Frequent need to re-calibrate equipment is a clear disadvantage which can compromise ease of use.  |
| <b>Results: mmol/l</b>                                | It is standard practice in the UK for all blood glucose meters to report results in terms of mmol/l however across Europe some countries report as mmol/dl. It is therefore important for patient safety that the UK standard is the only option.  |

Accessibility checked. Contains tables which may not be accessible to screen readers.