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	**Type 1 diabetes or Ketosis-prone Type 2 diabetes +/- additional functionality** 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^	GlucoFix Tech Sensor	GlucoFix Tech ß-Ketone Sensor	Glucoject PLUS Droplet* Microdot Plus#
		4SURE Smart Duo^	4SURE	4SURE ß-Ketone test strips	4SURE Droplet* Microdot Plus#
		GlucoRx HCT	GlucoRx HCT Glucose Test Strips	GlucoRx HCT Ketone Test Strips	GlucoRx Droplet * Microdot Plus#
	^Meters with additional functionality Please see Appendix 1 for details e.g. Paediatrics, Dexterity, Visual impairment				
2	**Type 2 diabetes** Any of these meters would be appropriate as a "back-up" meter for patients on CGM who **do not** need to test for ketones	GlucoRx Q	GlucoRx Q		GlucoRx Droplet* Microdot Plus#
		Contour Plus Blue **1st line for patients under the care of community nursing e.g. District Nurses**	Contour Plus		Microlet Droplet* Microdot Plus#
		Accu-Chek Instant	Instant		FastClix ONLY
3	**Type 2 diabetes with additional functionality** Please see Appendix 1 for further details.	WaveSense Jazz **Gestational diabetes NUH**	WaveSense Jazz / Duo		AgaMatrix Ultra-Thin Droplet* Microdot Plus#
		4SURE Smart / Duo **Gestational diabetes SFH**	4SURE	4SURE ß-Ketone test strips	4SURE Droplet* Microdot Plus#
		GlucoRx Nexus Voice **Visual impairment**	GlucoRx Nexus		GlucoRx Droplet* Microdot Plus#
4	**Type 1 & 2 diabetes** Lancets suitable for most people, including those requiring meters with additional functionality	*Droplet lancets are Type A lancets and considered universal. #Microdot Plus lancets are Type A lancets. They are considered universal. 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		
					Please use for patients under the care of the community nursing teams e.g. district nurses	
Meter	**GLUCOFIX TECH GK**	**4SURE SMART DUO**	**GLUCORX HCT & KETONE**	**GLUCORX Q**	**CONTOUR PLUS BLUE**	**ACCU-CHEK INSTANT**
Glucose test strips	**GlucoFix Tech Sensor Strips**	**4SURE Test strips**	**GlucoRx HCT**	**GlucoRx Q**	**Contour Plus**	**Instant**
Cost /50 strips	£5.95	£7.99	£8.95	£5.45	£5.95	£5.95
In-use strip expiry	12 months	24 months	6 months	6 months	24 months	21 months
Ketone test strips	**Glucofix Tech Ketone Sensors**	**4SURE ß-Ketone Test Strips**	**GlucoRx HCT Ketone Test Strips**			
Cost / 10 strips	£9.95	£9.92	£9.95			
Lancets	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					
UK Distributor	Menarini Diagnostics	Nipro	GlucoRx Ltd	GlucoRx Ltd	Ascensia	Roche Diabetes Care
Representative contact details	Cameron Brown cbrown@menarinidiag.com	Sanjay Parmar Sanjay.parmar@nipro-group.com	Dhillon Chandarana dhillon@glucorx.co.uk	Dhillon Chandarana dhillon@glucorx.co.uk	Jeremy Wood jeremy.wood@ascensia.com	Alison Baptie alison.baptie@roche.com

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	Type 2 diabetes requiring meters **with additional functionality**		
Meter	**WAVESENSE JAZZ WIRELESS**	**4SURE SMART DUO**	**GLUCORX NEXUS VOICE**
Cohort	**Gestational Diabetes – NUH** Used with GDm-Health™ app	**Gestational Diabetes – SFHT** Used with Glooko™ app	**Visual impairment** Gives audio feedback of test result
Glucose test strips	**WaveSense Jazz / Duo** (2x25 strips)	**4SURE Test strips**	**GlucoRx Nexus**
Cost /50 strips	£8.74	£7.99	£8.95
In-use strip expiry	3-6 months	24 months	6 months
Ketone test strips		**4SURE ß-Ketone Test Strips**	
Cost / 10 strips		£9.92	
Lancets	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		
UK Distributor	AgaMatrix Europe Ltd	Nipro	GlucoRx Ltd
Representative contact details / Technical support	✉customercare@agamatrix.co.uk ☎0800 093 1812	Sanjay Parmar Sanjay.parmar@nipro-group.com 💻https://www.nipro-diagnostics.co.uk/patients ✉diagnostics-uk@nipro-group.com ☎0800 085 8808	Dhillon Chandarana dhillon@glucorx.co.uk ✉info@glucorx.co.uk ☎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
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

- The higher the gauge of the lancet, the smaller the diameter of the needle.
- 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.
- Ensure the prescribed quantities are in line with the frequency of testing.
- Patient with dexterity problems, needle phobia or visual impairment may benefit from multi-device lancets like FastClix.

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
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

- Pen needles generally fit most insulin and GLP-1 pen brands.
- The higher the gauge, the smaller the diameter of the needle.
- FIT UK Recommendation: 4, 5 and 6mm pen needles are suitable for all adults living with diabetes regardless of BMI.

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

Criteria	Rationale
Compliance with section 6.3 of ISO 15197: 2015	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.
Memory capacity of 200+ tests	Would allow 5 tests to be carried out per day for 4 weeks. Driver and Vehicle Licensing Agency (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. 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.
Memory can NOT be easily deleted	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.
Results can be downloaded	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.
Calibration NOT required	Frequent need to re-calibrate equipment is a clear disadvantage which can compromise ease of use.
Results: mmol/l	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.