

### North East London Blood Glucose Test Strips Guideline

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#### **Introduction**

These guidelines are intended to assist healthcare professionals in the selection of appropriate blood glucose (BG) meters and test strips for patients to selfmonitor their blood glucose levels.

The recommendations on the choice of meter in this guideline reflects a multi-disciplinary review of several requirements including:

- Compliance with the new ISO standards <u>EN ISO 15197:2015</u> for glucose testing meters
- Price < £6.00-£10.00 per 50 glucose test strips
- o Memory capacity of more than 450 readings which cannot be deleted so as to comply with DVLA requirements
- o Where possible, 6 months expiry once the container of test strips is opened
- Auto coding device
- Set to read in mmol/L as per MHRA guidance.
- o Clinical and technical features of meters (connectivity, suitability for particular patient groups)
- Included in the NHSE national medicines optimisation opportunity recommendations for Appropriate prescribing and supply of blood glucose and ketone meters, and testing strips

The need for a meter for people diagnosed with diabetes will be assessed by a healthcare professional, and if required, a **suitable formulary meter** will be supplied to the patient. These meters will be provided free of charge from GP surgeries or specialist diabetes clinics.

There should be no need for a patient to purchase a meter and patients should be dissuaded from doing so without consulting their diabetes healthcare professional first.

This guideline does **not** include continuous intermittently scanned <u>continuous glucose monitoring</u> (isCGM, commonly referred to as 'flash'), real-time continuous glucose monitoring (rtCGM) or guidance on <u>continuous glucose monitoring</u> for pregnant women. This guidance has been endorsed by the NEL diabetes clinical network.

Please note that this guideline is for use of healthcare professionals during initiation for new patients and for any existing patients during point of review – where possible prescribe blood glucose testing strips which cost <£6



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### Patient Cohorts and Recommended Meters and Devices

Blood glucose and ketone meters have been separated into three categories. The categories and recommended devices are summarised below<sup>1</sup>.

				Recom	mendations					
Category	Patient cohort	Meter	(NHS	First line (NHSE recommended)				Second line (NEL recommended)		
Cat	conort		Meter	Test Strip	Cost per 50 strips <sup>2</sup>	Meter	Test Strip	Cost per 50 strips <sup>2</sup>		
			GlucoFix Tech GK	GlucoFix Tech Sensors	£5.95					
		Meters and strips which are suitable for the	GlucoRx HCT	GlucoRx HCT Glucose	£8.95					
1a	Type 1 diabetes	majority of people that	Gluco Rx KEYA Smart	KEYA	£15.86	Glucomen areo 2K	Glucomen areo	£7.25		
	or	also require a ketone testing meter.	4SURE Smart Duo	4SURE	£8.99					
	ketosis prone		CareSens Dual	CareSens PRO	£9.95					
1b	Type 2 diabetes Meters and strips which are suitable for the majority of people that	GlucoFix Tech GK	GlucoFix Tech Sensors	£5.95						
		require additional functionality.	4SURE Smart Duo	4SURE	£8.99					
			AgaMatrix Agile	AgaMatrix Agile	£5.99					
			GlucoFix Tech GK	GlucoFix Tech Sensors	£5.95					
			Contour Plus Blue	Contour Plus	£5.95	Teel				
2	Type 2	Meters and strips which are suitable for the	On Call Extra Mobile	On Call Extra	£5.20	Tee2+	Tee2	£7.75		
2	diabetes	majority of people with Type 2 diabetes.	GlucoRx Q	GlucoRx Q	£5.45	Palmdoc 2 (voice)	Palmdoc	£5.90		
			Finetest lite	Finetest Lite	£5.95	(10100)				
			CareSens S Fit BT	CareSens S	£5.45					
			TRUE Metrix Air	True Metrix®	£5.95					



				Re	commendations			
gory	Cohort	Meter	(NHS	First line (NHSE recommended)				ed)
Cate			Meter	Test Strip	Cost per 50 strips <sup>2</sup>	Meter	Test Strip	Cost per 50 strips <sup>2</sup>
			Type 2 diabetes (enhance	d functionality)				
			First Line					
			AgaMatrix Agile	AgaMatrix Agile	£5.99			
			Second Line					
			WaveSense JAZZ	WaveSense JAZZ	£8.74			
		Meters and strips	WaveSense JAZZ Wireless		20.74			
	Type 2 diabetes	which are suitable for	GlucoRx Nexus Blue	GlucoRx Nexus	£8.95			
2	(additional	people with Type 2 diabetes that require	Type 2 diabetes Paediatrics					
3	functionality)	additional	First Line	1				
		functionality.	On Call Extra	On Call Extra	£5.20			
			On Call Extra Voice		20.20			
			Second Line					
			GlucoRx Nexus Blue	GlucoRx Nexus	£8.95			
			Type 2 diabetes (Gestatio	Type 2 diabetes (Gestational diabetes – GDm-Health™)				
			First Line					
			WaveSense JAZZ wireless	WaveSense JAZZ	£8.74			

Prices as per December 2023 Drug Tariff **N.B:** Blood glucose meters can be ordered directly from manufacturers.



### **Blood Glucose Monitoring Inclusion and Exclusion Criteria**

#### When to Offer Blood Glucose Monitoring<sup>3</sup>

- o All patients with Type 1 diabetes
- All patients with Type 2 diabetes and on insulin or where there is evidence of hypoglycaemic episodes
- Non-insulin managed patients with T2DM who:
  - Are prescribed sulfonylureas or 'glinides, and also drive
  - Have been newly initiated or dose titrated with a GLP analogue (e.g. exenatide) for short term only (<3 months)
- ALL patients that are pregnant, or are planning to become pregnant. For more information, see the NICE guideline on diabetes in pregnancy. [NICE's guideline on diabetes in pregnancy]

#### Getting the most from capillary blood glucose monitoring<sup>4</sup>

#### When not to Offer Blood Glucose Monitoring<sup>3</sup>

- Those with Type 2 DM controlled by diet and exercise alone
- Patients with Type 2 diabetes controlled by any of the following oral agents (alone or in combination with one another): metformin, pioglitazone, acarbose, a gliptin or an SGLT2 inhibitor

- Accurate user technique is critical and the person performing the test must have received appropriate training
- Test strips should be stored in the original container, and at the correct temperature according to manufacturer's directions
- The container should be promptly closed after removing a strip to keep the contents stored in the correct condition.
- The BG meter should show results in mmol/L not mg/dL.
- The user should be aware of the degree of error, especially in the low BG result range.
- The user should be trained to relate meter readings to their symptoms and seek their healthcare professional's support as needed
- People having abnormalities with haematocrit, haemoglobinopathies or anaemia may experience inaccurate readings
- Only specific meters are suitable for people on peritoneal dialysis, so the appropriate meter should be initiated by the healthcare professional initiating the meter.
- Every person who is asked to perform glucose or ketone monitoring should be provided with the correct means of safe disposal of their sharps, i.e. lancets.

Please note that this guideline is for use of healthcare professionals during initiation for new patients and for any existing patients during point of review – where possible prescribe blood glucose testing strips which cost <£6



### Advice for Patients with Diabetes recommended to use Self-monitoring of blood glucose (SMBG)

Type of Diabetes	Treatment Group	Suggested Monitoring Guide	Reasonable test strip requirement (NB: 1box = 50 strips)
Type 1 Diabetes Type 1 and Type 2	All children and adults with Type 1 diabetes	<ul> <li>SMBG is integral in the treatment of all people with Type 1 diabetes.</li> <li>All people with Type 1 diabetes should be educated to use SMBG effectively through structured education to ensure they have the skills and knowledge to adjust insulin according to glucose intake and make corrective doses.</li> <li>Self-testing <b>four</b> times a day or more will be required to gain optimal control, avoid hypoglycaemia, and avoid metabolic emergencies such as diabetic ketoacidosis (although less frequent testing may be appropriate in patients with good control and good hypoglycaemia awareness).</li> <li>All pregnant women with Type 1, Type 2 or gestational diabetes controlled with insulin, tablets or diet alone</li> </ul>	<ul> <li>✓ Regular testing required.</li> <li>✓ Should be prescribed as a repeat prescription – quantities depend on patient's monitoring frequency</li> <li>✓ Guide requirement = 3-6 boxes per month</li> <li>✓ Regular testing required.</li> <li>✓ Supply according to agreed</li> </ul>
diabetes in pregnant women & gestational diabetes	All pregnant women with diabetes	<ul> <li>should self-test seven times day in order to achieve tight diabetic control.<sup>5</sup></li> <li>✓ Self-testing should include both fasting and postprandial</li> </ul>	<ul> <li>management plan</li> <li>✓ Guide requirement = 3-5 boxes per month</li> </ul>
Type 2 Diabetes	Insulin therapy with or without hypoglycaemic agents	<ul> <li>On initiation, regular monitoring 2 to 4 times a day is required to achieve optimum glycaemic control.</li> <li>✓ For stable patients where glycaemic control is achieved, self-testing may be reduced to 2 or 3 times a week.</li> <li>✓ Increase self-testing during periods of illness, instability or use of oral steroids, and following changes in insulin dosage</li> <li>✓ Regular self testing is required for patients who adjust their insulin dose according to blood glucose.</li> <li>✓ Assess patients understanding and use of results to adjust diet, lifestyle and treatment. Provide extra training/education if required.</li> </ul>	<ul> <li>✓ Guide requirement = 3 boxes per month</li> <li>✓ Additional test strips will be necessary for those who require monitoring for DVLA vocational licensing requirement – assess on an individual basis</li> <li>✓ Generally: Group 1: 2-3 boxes per month for driving.</li> <li>Group 2: 3 boxes per month</li> </ul>



Type of Diabetes	Treatment Group	Suggested Monitoring Guide	Reasonable test strip requirement (NB: 1 box = 50 strips)
Type 2 Diabetes	Sulfonylurea /repaglinide Alone or in conjunction with other therapies	<ul> <li>✓ Patients on sulfonylureas/repaglinide should not need to routinely selfmonitor blood glucose, but SMBG may be considered if there is:         <ul> <li>✓ identify hypoglycaemia especially in the first 3 months of starting sulfonylurea</li> <li>✓ is asymptomatic hypoglycaemia</li> <li>✓ suspected asymptomatic hypoglycaemia</li> <li>✓ use of oral steroids</li> <li>✓ risk of hypoglycaemia due to renal impairment or high alcohol intake</li> <li>✓ certain occupations (see DVLA guidance)</li> <li>✓ Self-monitoring regime should be agreed as part of a management plan</li> </ul> </li> </ul>	<ul> <li>✓ Guide requirement = 1 box per month for initial 3 months then 1-2 boxes per year</li> <li>✓ Driving: 1-2 boxes per month.</li> <li>✓ Impaired awareness of hypoglycaemia: prescribe 1 box per month.</li> </ul>
Type 2 Diabetes	Diabetic patients controlled with Pioglitazone, gliptins, or SGLT-2 inhibitors GLP-1mimentic (once stabilised)	<ul> <li>Self-testing should not routinely be recommended.</li> <li>✓ Glycaemic control is best monitored through HbA1c testing.</li> <li>✓ On diagnosis and treatment initiation, motivated patients may wish to monitor effects of changes in diet and physical activity.</li> <li>✓ SMBG should only be offered as part of a structured plan with education on how to interpret the results.</li> <li>✓ Regular long term testing is unnecessary</li> <li>✓ With exception to those undergoing significant changes in pharmacotherapy or fasting, for example, during Ramadan</li> </ul>	<ul> <li>✓ Testing not recommended</li> <li>✓ Maximum 4 boxes a year</li> </ul>
Type 2 Diabetes	Diabetic patients controlled with diet and exercise or metformin alone.	<ul> <li>✓ SMBG not routinely recommended.</li> <li>✓ Glycaemic control is best monitored through HbA1c testing</li> </ul>	✓ Testing unnecessary
Type 1 and Type 2 diabetes	Patients currently on Continous Glucose Monitoring (CGM)	<ul> <li>✓ Patients who are using CGM will still need to take blood glucose measurements (although less often) to check the accuracy of their CGM device</li> <li>✓ they will need capillary blood glucose monitoring as a back-up (for example when their blood glucose levels are changing quickly or if the device stops working).</li> <li>✓ Provide them with enough test strips to take capillary blood glucose measurements as needed.</li> </ul>	<ul> <li>Minimum monthly/annual requirements vary for each CGM device</li> <li>Refer to local CGM implementation guidance for further advice</li> </ul>



### Blood Glucose self-monitoring for drivers<sup>6</sup>

#### • Treated with Insulin

#### Group 2 Drivers (lorries/buses)

- At least **twice** daily blood glucose monitoring including on days when not driving
- No more than 2 hours before the start of the first journey and every 2 hours after driving has started
- A maximum of 2 hours should pass between the pre-driving glucose test and the first glucose check performed after driving has started.
- o More frequent self-monitoring may be required with any greater risk of hypoglycaemia
- Use glucose meter with non-deletable memory function sufficient to ensure 3 months of readings available.

#### Group 1 Drivers (cars/motorcycles):

- Glucose testing no more than 2 hours before the start of the first journey and every 2 hours after driving has started (More frequent selfmonitoring may be required with any greater risk of hypoglycaemia)
- o A maximum of 2 hours should pass between the pre-driving glucose test and the first glucose check performed after driving has started

#### • Treated with tablets which carry a risk of hypoglycaemia (Sulfonylureas and Glinides)

#### Group 2 Drivers (lorries/buses):

• Should monitor blood glucose at least twice daily and at times relevant to driving

#### Group 1 Drivers (cars/motorcycles):

- The frequency of testing depends upon the clinical context, it may be appropriate to monitor blood glucose at times relevant to driving to enable the detection of hypoglycaemia
- The greatest risk of hypoglycaemia with sulphonylureas is in the first **three** months of treatment therefore people who are just starting treatment, experiencing hypoglycaemia, or have reduced awareness are likely to need to test more frequently

**HbA1c** is measured alongside with blood glucose monitoring. It is defined as average blood glucose (sugar) levels for the last two to three months. If you have diabetes, an ideal HbA1c level is 48mmol/mol (6.5%) or below with **exception** to patients that is on antidiabetic that may cause hypoglycaemia<sup>7</sup>.

\*Glycosylated haemoglobin (HbA1c) may be unreliable in the following situations:

- ✓ Patients with anaemia;
- Patients with polycythaemia;
- ✓ Patients with haemoglobinopathies;
- ✓ Patients in whom venesection is not possible<sup>8</sup>



### Ketone testing in people with diabetes: Advice for prescribers in primary care

Ketone testing is usually indicated for people with type 1 diabetes mellitus but may also be applicable to:

- A small group of **high-risk** patients with type 2 diabetes (e.g. those with multiple dosing injections (MDI) who are ketosis prone i.e. DKA in the past, or who are known to have low endogenous production)
- Those with pancreatic disease-induced diabetes, i.e. type 3c diabetes

\*Patients required to self-test for ketones will be identified by the diabetes specialist service and provided with the initial supply of ketone testing strips and compatible meter by the specialist service but may be for primary care to continue prescribe such strips. Supply is not expected to exceed more than one pack (10 strips) per year, with the exception of insulin pump patients.

#### What do the results on ketone test strips mean?

Results on blood testing strips are presented as mmol/L. Results on urine testing strips are presented as numbers of + and graduation of colour intensity, but these correlate approximately with mmol/L levels. The individual's management plan (continued monitoring required, insulin dosage adjustment and when to seek medical assistance) should cover actions needed for at least the ranges listed below:

Urine strip reading	Nil	+	++	+++ or ++++
Blood strip reading	Below 0.6	0.6 to 1.5 mmol/L	1.5 to 3 mmol/L	Above 3 mmol/L

Please click here for full management of diabetic ketoacidosis.

#### Safe disposal of sharps

Local councils are responsible for collecting and disposing of clinical waste including sharps e.g. syringes from patients' homes. Please click here for more information.

For free collection of sharps within Barking and Dagenham, City and Hackney, Havering, Redbridge, please contact: 03301 224220

#### **Adverse Incidents**

An adverse incident is an event that caused, or almost caused, an injury to a patient or other person or a wrong or delayed diagnosis and treatment of a patient. If such an incident occurs with a blood glucose meter or testing strips, e.g., a faulty batch of test strips for a blood glucose meter giving wrong readings, this should be reported to the Medicines Healthcare and products Regulatory Agency (MHRA) via the <u>Yellow Card Scheme</u>.



### **Recommended Blood Glucose/Ketone Meters and Testing strips**<sup>1</sup>

Category	Meter		Key features	Test strips	Lancets	Ketone strips
1a, 1b, 2	GlucoFix Tech GK <sup>10</sup>	Manufacturer	A.Menarini Diagnostics	GlucoFix Tech Sensors Test	GlucoRx Lancets	GlucoFix Tech B-Ketone
All patient	GN	Memory	730 blood glucose and 100 ketonemia with markers, dates and times.	Strips	Lanceis	Sensors Test Strips
cohorts requiring enhanced		Connectivity	QuickLink NFC, Bluetooth and dedicated USB cable	_		
functionality	Size and weight: 10.7cm x 5.8cm x	Applications	GlucoLog Lite, GlucoLog Web & RapidCalc Bolus Advice App, Glooko and Diasend	-		
	1.35cm, 61g (Display: 4.8cm x 4cm)	Warnings	Hypo & Hyper alerts, up to six settable audible alarms (3 Glucose Alarms & 3 Ketone Alarms)	Cost: £5.95/50 Cost: £4.50/200 Expiry: 12 months after first opening the test strip vial	<b>Cost</b> : £9.95/10	
		Alerts	Hypo & Hyper Alerts & four markers available			Expiry: 12 months after
		Sample size	Glucose: 0.5µL, Ketone: 0.8 µL		first opening the test strip vial	
		Reaction Time	Glucose: 5 Seconds, Ketone: 8 Seconds for			
	Glu (1:20 ***	Measurement range	1.1 to 33.3mmol/L (20 – 600 mg/dL)			
		Haematocrit range	10 – 70%			
	GLUCOFIX	Technical support	http://www.glucomen.co.uk/glucofix-tech 0800 243667 (Freephone)			
	Additional/enhanced functionality	Other features	No coding needed, Meal markers, Extra-large memory, Strip ejector, Provides 1, 7, 14, 30, 60, 90 day averages. Compliant with device standard EN ISO 15197:2015			
		Recommended cohorts	Carbohydrate Counting, Cognitive Impairment, Dexterity, Group 2 Driver, Learning Difficulties No Fixed Abode, Paediatrics, Unable to read English, Visually Impaired			



Category	Meter		Key features	Test strips	Lancets	Ketone strips
1a	GlucoRx HCT <sup>11</sup>	Manufacturer	GlucoRx	GlucoRx HCT	GlucoRx	GlucoRx HCT
		Memory	Stores 1000 non-deletable readings with Day averages - Fulfils DVLA memory requirements	Glucose	Lancets	Ketone
	<b>Size and weight:</b> 96mm x 61mm x 26mm, 67.2g	Connectivity	Smart phone connectivity to 'GlucoRx Voyager.' USB cable for free Windows software: 'GlucoRx HealthCare Management System' & 'GlucoRx Voyager.' GlucoRx meter and Voyager are integrated with (I) Apple Health app (II) 'Vision'			
	ISIUGO/Rx HCT	Applications	Diasend®/Glooko® and Eclipse Remote Platform (https://www.eclipselive.org)	<b>Cost</b> : £8.95/50	Cost:	<b>Cost</b> : £9.95/10
	55	Warnings	High & Low results, Ketone warning with glucose results ≥15mmol/L, Temperature, Low battery		£4.50/200	
	HET HOS	Alerts	Error messages for used test strip insertion, Problem in Operation, Premature strip removal, Insufficient blood volume, four alarms	<b>Expiry</b> : 6 months after first opening per pot of 25 test		<b>Expiry</b> : 18 months, or until individual foil pack opened.
		Sample size	1.0µl	strips		
		Reaction Time	Glucose: 5 seconds, Ketone: 10 seconds			
		Measurement range	1.1 to 33.3mmol/L (20 – 600 mg/dL)			
		Haematocrit range	30 - 60%			
		Technical support	http://www.glucorx.co.uk/ Tel: 0800 007 5892 Email: info@glucorx.co.uk			
		Other features	Auto QC tagging, Day averages, Discreet testing, Haematocrit Correction Technology, Meal markers, Strip ejector. Compliant with device standard EN ISO 15197:2015			



Category	Meter		Key features	Test strips	Lancets	Ketone strips
1a	KEYA Smart <sup>12</sup>	Manufacturer	GlucoRx	KEYA Test	GlucoRx	KEYA Test
		Memory	1200 Glucose results plus 1200 Ketone results	Strips	Lancets	Strips – Measures
	Size and weight:	Connectivity	USB cable; Bluetooth and smart phone connectivity to FREE KEYA app			glucose and ketones during every test
	58mm x 105mm x 14mm, 95g	Applications	Diasend®/Glooko® and Eclipse Remote Platform https://www.eclipselive.org			<b>,</b>
		Warnings	High and Low results, Ketones detected in blood sample over 0.1 mmol/L, Temperature, Low battery	<b>Cost</b> : £15.86 Pack/50	<b>Cost</b> : £4.50/200	
	00451	Alerts	Error messages for hardware & software errors, used test strip insertion, timeout error, premature strip removal, strip fill errors			
	Perform Text	Sample size	0.5µl			
		Reaction Time	5 seconds			
	KEXA	Technical support	http://www.glucorx.co.uk/ Tel: 0800 007 5892 Email: info@glucorx.co.uk			
		Measurement range	1.1 to 33.3mmol/L (20 – 600 mg/dL)			
		Haematocrit range	Glucose: 30 – 50% Ketone: 0 – 4mmol/L			
		Other features	Day averages, Discreet testing, Meal markers, Multiple language option. Provides 7, 14, 30- and 90-day analyses of glucose and ketones. Compliant with device standard EN ISO 15197:2015			



Category	Meter		Key features	Test strips	Lancets	Ketone strips
1a, 1b	4SURE Smart	Manufacturer	Nipro Diagnostics	4SURE Test	4SURE	B 4SURE beta-
	Duo <sup>13</sup>	Memory	1000 measurement results with date and time	Strips	lancets	ketone Test Strips
All patient cohorts		Connectivity	USB cable and Bluetooth			
requiring		Applications	Diabetes: M, Glooko & Diasend			
enhanced functionality	Size and weight: 89.8mm x 54.9mm x	Warnings	High and low glucose and ketone level	Cost: £8.99 Pack/50	<b>Cost</b> : £2.90/100	<b>Cost</b> : £9.92 Pack/10
	18mm, 46.1g	Alerts	Error messages, high & low glucose and ketone levels, Temperature warning	Expiry: 24		Expiry: 18
		Sample size	Glucose: 0.5μL, β-ketone: 0.8 μL	months -		months
	Smart Duo	Reaction Time	Glucose: 5 seconds, Ketone: 10 seconds	opening of vial has no impact on expiration date		
	5.7	Measurement range	Glucose: 0.5 – 33.3 mmol/L β-Ketone: 0.1 – 8.0 mmol/L			
	10:00**	Haematocrit range	Glucose: 0 – 70% β-Ketone: 10 – 70%			
	M	Technical support	https://www.nipro-diagnostics.co.uk/ Tel: 0800 08 588 08 Email: diagnostics-uk@nipro-group.com			
	Additional/enhanced functionality	Other features	Auto electrode insertion detection, Auto sample loading detection, Auto reaction time count- down, Auto switch-off, Meal markers, Carbohydrate Counting, Strip ejector button, Strip port light. Provides 3, 7, 14, 30, 60, 90-day averages. Compliant with device standard EN ISO 15197:2015			
		Recommended cohorts	Cognitive Impairment, Dexterity, Group 2 Driver, Learning Difficulties, No Fixed Abode, Paediatrics, Unable to read English, Visually Impaired, Gestational diabetes			



Category	Meter		Key features	Test strips	Lancets	Ketone strips
1a	CareSens Dual <sup>14</sup>	Manufacturer	Spirit Health	CareSens PRO	CareSens	KetoSens Test
		Memory	1,000 test results	Test Strips	Lancets	Strips
		Connectivity	Bluetooth and USB/Smartphone	-		
	Size and weight:	Applications	Diasend, Glooko, Smart Log, Hedia	-		
	106mm x 58mm x 17mm, 72.6g	Warnings	Temperature, High and low result, Low battery, Meter fault, Bluetooth connectivity fault, Electronic error fault	<b>Cost</b> : £9.95 Pack/50	<b>Cost</b> : £2.95/100	<b>Cost</b> : £9.95 Pack/10
	CareSens Dual	Alerts	Used Test Strip, blood or control solution applied incorrectly, high viscosity blood sample or insufficient volume, incorrect test strip used, Four alarms (three timed, one post-meal alarm)	<b>Expiry</b> : 12 months after first		<b>Expiry</b> : 12 months after first
	minosit.	Sample size	Glucose: 0.4µl, Ketone: 0.5µl	opening the test strip vial		opening the test strip vial
	0924 12:37-	Reaction Time	Glucose: 5 seconds, Ketone: 8 seconds			
	ISP	Measurement range	Glucose: 1.1 to 33.3mmol/L (20 – 600 mg/dL) Ketone: 0.1 – 8mmol/L			
		Haematocrit range	Glucose: 15 – 65% Ketone: 30 – 60%			
		Technical support	http://www.spirit-health.co.uk/diabetes/blood- glucose-meters Tel: 0800 881 5423 Email: cs@spirit-healthcare.co.uk			
		Other features	A clear, large backlit display, Pre/post meal markers, Self-coding for accurate testing, Strip ejector button, Provides 1, 7, 14, 30, 90-day averages. Compliant with device standard EN ISO 15197:2015			



Category	Meter		Key features	Test strips	Lancets	Ketone strips
1a	Glucomen Areo	Manufacturer	A. Menarini Diagnostics	GlucoMen®	Glucoject	GlucoMen®
2 <sup>nd</sup> line – NEL	2k <sup>15</sup>	Memory	730 glucose and 100 ß-ketone test results with markers, dates and times.	areo Sensor	areo Sensor lancets	areo ß-Ketone Sensor
recommend ed		Connectivity	USB cable, NFC, Bluetooth			
		Applications	GlucoLog			<b>Cost</b> : £9.95/10
	<b>Size and weight:</b> 85.5mm x 56mm x 18.2mm, 46 g	Warnings	High and Low results, ketone test warning, low battery, temperature, early strip removal	<b>Cost</b> : £7.25/50	<b>Cost</b> : £3.77/100	Expiry: Do not
		Alerts	Up to six settable acoustic alarms (3 for glucose, 3 for ß-ketone measurements)	<ul> <li>Expiry: 9 months after first opening the vial.</li> </ul>		use past expiry date on packaging
	N	Sample size	0.5 μL - glucose 0.8 μL – B-Ketone			
	<b>5</b> 2	Reaction Time	5 seconds for glucose, 8 seconds - ketone			
	11-05	Measurement range	Glucose: 1.1 – 33.3 mmol/l (20 – 600 mg/dl) Ketone: 0.1 – 8.0 mmol/L	-		
	CHOOL	Haematocrit range	Glucose: 10-70% Ketone: 20 - 60 %	-		
		Technical support	http://www.glucomen.co.uk Tel: 0800 243667			
		Other features	Meal markers available, automatic turn off. Provides 1, 7, 14, 30, 60, 90-day averages (glucose only). Compliant with device standard EN ISO 15197:2015			



Category	Meter	Key features		Test strips	Lancets
2	Tee2+ <sup>16</sup>	Manufacturer	Spirit Healthcare	Tee 2	careSens
2 <sup>nd</sup> line – NEL		Memory	1000 test results		
recommended		Connectivity	Bluetooth, smart log software and cable		
	Size and weight: 108mm x 56mm x	Applications	Compatible with Smart Log diabetes management APP9 software	<b>Cost</b> : £7.75/50	<b>Cost</b> : £2.95/100
	15mm, 70g	Warnings	Hight & low results, strip expiration, temperature, low battery,	27.75/50	
	*	Alerts	Four testing alarms, blood or control solution applied incorrectly, error message for used or incorrect test strip or Problem in Operation,	<b>Expiry</b> : until the expiration date printed	
		Sample size	0.5 microlitres	-	
		Reaction Time	5 seconds	-	
	mmol/L	Measurement range	1.1 – 33.3 mmol/l (20 – 600 mg/dl)		
	0908 (2:31~ TEE 2*0	Haematocrit range	15 – 65%		
		Technical support	http://www.spirit-health.co.uk/diabetes/blood-glucose-meters Tel: 0800 881 5423 Email: cs@spirit-healthcare.co.uk		
		Other features	Drivers requiring up to 11 tests/day, alternate site testing, provides 1, 7, 14, 30- and 90-days averages. Compliant with device standard EN ISO 15197:2015		



Catanan	Matan		<i>Versteeturee</i>		
Category	Meter		Key features	Test strips	Lancets
2	Palmdoc 2 (voice)	Manufacturer	Palmdoc	Palmdoc	Palmdoc Lancets
2 <sup>nd</sup> line – NEL recommended	1	Memory	900 blood glucose test results with date and time in its memory (DVLA)		Lanceis
recommended		Connectivity	USB Data Port		
	Size and weight:	Applications	Palmdoc 2 software – download from website		
	96.4mm x 54mm x 22.06mm, 79g	Warnings	Temperature, low battery, high & low result, insufficient sample or test strip	<b>Cost</b> : £5.90/50	<b>Cost</b> : £2.85/100
	, 13	Sample size	0.7µL		
	Pipalmdoc	Reaction Time	5 seconds	Expiry: 180	
	8:20** 3:18	Measurement range	1.1 – 33.3 mmol/l (20 – 600 mg/dl)	days after the first opening	
	55	Haematocrit range	20 - 60%	date	
	mail 4	Technical support	https://www.palmdoc.co.uk Tel: 0800 994 9995 Email: hello@palmdoc.co.uk		
		Other features	Speak 5 languages, Auto sample loading detection, Auto reaction time cut-down, Auto insufficient blood detection, Meter talks through each step. Provides 7, 15, 30, 45, and 90–day averages. Compliant with device standard EN ISO 15197:2015		
		Recommended cohorts	Voice for Visually Impaired		



0-1	Matan				
Category	Meter		Key features	Test strips	Lancets
2, 3	Agile <sup>18</sup>	Manufacturer	AgaMatrix	AgaMatrix Agile Test	AgaMatrix Ultra-
		Memory	1,000 blood glucose and control solution test results with date, time	Strips	
		Connectivity	Bluetooth	Olips	
	<b>Size</b> : 6.5 x 3.0 x 1.0 cm	Applications	AgaMatrix diabetes manager app, ALLY diabetes patient management system, Diasend, Glooko, Apple Health, My mHealth, Social Diabetes		
	E C mmot	Warnings	Low/dead battery, Temperature, Faulty strip	<b>Cost</b> : £5.99 Pack/50	<b>Cost</b> : £5.43/200
	5.6 mmol	Alerts	High- and Low-level results		
		Sample size	0.5µL		
		Reaction Time	5 seconds		
		Measurement range	1.1 to 33.3 mmol/L (20 – 600 mg/dl)		
		Haematocrit range	20% - 60%		
		Technical	http://www.agamatrix.co.uk/		
		support	Tel: 0800 093 1812 (Freephone)		
			Email: customercare@agamatrix.co.uk		
		Other features	Auto-synchronisation, Auto-detection of QC, Fasting tag, Simple pairing, Remote management		
		Recommended cohorts	Cognitive Impairment, Carbohydrate counting, Dexterity, Group 2 Driver, Learning Difficulties, No Fixed Abode, Unable to read English, Visually Impaired	1	



Category	Meter	Key features		Test strips	Lancets
			Accessio	•	
2	Contour Plus Blue	Manufacturer	Ascensia	Contour Plus	Microlet Next
	19	Memory	800 test results	<ul> <li>Test Strips</li> </ul>	
		Connectivity	Bluetooth, USB Cable, Smart phone connectivity	- <b>Cost</b> : £5.95	
	Size and weight:	Applications	Contour® Diabetes App, GlucoContro.online, Glooko® (formerly Diasend®), Tidepool and Diabetes My Way		<b>Cost</b> : £2.99/100
	78.5mm x 56mm x 18mm, 53g	Warnings	High and Low warnings if the reading is outside the measurement range.	Pack/50	- £5.98/200
		Alerts	Alarm reminders can be set for 30, 60, 90 and 120 minutes		
	Contour plus BUE+	Sample size	0.6µL	Expiry: 24 months after	
	<ol> <li>ζ, ζ, ζ, ζ</li> </ol>	Reaction Time	5 Seconds	first opening the test strip	
	and the second s	Measurement range	0.6mmol/L to 33.3mmol/L (10 – 600 mg/dL)	pot	
		Haematocrit range	0 – 70%	-	
		Technical support	https://www.diabetes.ascensia.co.uk/support Tel: 0800 170 1060 Email: <u>diabetessupport@ascensia.com</u>		
		Other features	Alternate site testing, Easy to use with tactile rubber buttons, Meal markers (fasting, pre and post meal), Second Chance Sampling, Suitable for use with renal dialysis. Provides 7, 14, 30, 90 day averages. Compliant with device standard EN ISO 15197:2015		



Category	Meter		Key features	Test strips	Lancets	
2	On Call Extra	Manufacturer	Connect 2 Pharma	On Call Extra	On call	
	Mobile <sup>20</sup>	Memory	500 tests with date and time	Test Strips		
		Connectivity	Bluetooth	-		
	Size and weight:	Applications	On Call® Diabetes Management Software and Glooko® (formerly Diasend®)			
	75mm × 40mm × 13mm, 36g	Warnings	Hypo and hyper alerts, Ketone	<b>Cost</b> : £5.20 Pack/50	<b>Cost:</b> £2.75/100	
	(Display: 50mm x 25mm)	Alerts	Five daily test reminders	•		
		Sample size	0.4 µL	Expiry: 12 months		
	2-20 18: 12	Reaction Time	4 seconds	after first		
	2-20 15: 12 <b>98</b> mg/dt	Measurement range	0.6 to 33.3 mmol/L (10 – 600 mg/dL)	opening the sealed test		
		Haematocrit range	25 - 60%	strip pot		
		Technical support	http://www.oncallmeters.co.uk/ Tel: 020 3307 4646 Email: info@oncallmeters.co.uk			
		Other features	Easy to use with a large clear screen, Meal markings, No coding, easy strip insertion, Small and convenient, Soft touch buttons, Re- apply a second drop of blood within 3 seconds Compliant with device standard EN ISO 15197:2015			



Category	Meter		Key features	Test strips	Last Londo
2	GlucoRx Q <sup>11</sup>	Manufacturer	GlucoRx	GlucoRx Q	GlucoRx
		Memory	450 non-deletable memory sets with date and time	<ul> <li>Test Strips</li> </ul>	Lancets
	Size and weight: 93mm x 36mm x 21.3mm, 45.4g	Connectivity	Smart phone connectivity to free 'GlucoRx Voyager.' USB cable for free Windows software: 'GlucoRx HealthCare Management System' & 'GlucoRx Voyager.' GlucoRx meter and Voyager are integrated with (I) Apple Health app (II) 'Vision'	-	
		Applications	Diasend®/Glooko® and Eclipse Remote Platform (https://www.eclipselive.org)	<b>Cost</b> : £5.45	Cost:
		Warnings	High and Low results, Temperature, Low battery	Pack/50	£4.50/200
	画 am 10:00	Alerts	Error messages for Used test strip insertion, Premature strip removal Problem in Operation, Insufficient blood volume, 4 Alarms	<b>Expiry:</b> 6 months after	
		Sample size	0.7µl	first opening	
		Reaction Time	7 seconds	1	
		Measurement range	1.1 to 33.3mmol/L (20 – 600 mg/dL)		
		Haematocrit range	30 % - 55 %		
		Technical support	http://www.glucorx.co.uk/ Tel: 08000075892 Email: info@glucorx.co.uk		
		Other features	Alternative Site Testing, Day averages, Discreet testing, Meal markers. Compliant with device standard EN ISO 15197:2015		



Category	Meter		Key features	Test strips	Lancets
2	Finetest Lite <sup>21</sup>	Manufacturer	Neon Diagnostics	Finetest Lite	Greenlan
		Memory	500 tests - Unlimited memory once connected to the Finetest™ Lite Management App10	- test strips	Lancets
	Size and weight:	Connectivity	USB Cable & Smart phone connectivity	-	
	83mm x 56mm x	Applications	Glooko Mobile App, Diasend Uploader, Finetest Lite Ap		
	17.7mm±, 43±1g	Warnings	Inserting used strips, Low blood volume, Low battery, Temperature, Operation issues	- <b>Cost</b> : £5.95 Pack/50	<b>Cost</b> : £3.00/100 - £6.00/200
Firstens Lie Summer	Alerts	Hypo and Hyper Alerts, Three Meal Markers, Five programmable alarm	Expiry: 6		
	0.3	Sample size	0.5 μL	months after first opening	
	EQ21 ST J	Reaction Time	5 seconds		
	AOV	Measurement range	1.1 to 33.3mmol/L (20 – 600 mg/dL)		
	8	Haematocrit range	20 – 65%		
		Technical support	http://www.neondiagnostics.co.uk/ Tel: 0800 0093378 Email: info@neondiagnostics.co.uk		
		Other features	Unlimited memory, Auto Strip Ejector, Easy to use buttons, No coding needed, Programable average readings, Alternate site testing. Provides 7, 14- and 21-day averages. Compliant with device standard EN ISO 15197:2015		
			Finetest Lite <b>Smart,</b> which has Bluetooth function, is available to order and can be requested from the manufacturer.		



Category	Meter		Key features	Test strips	Lancets
2	CareSens S Fit BT	Manufacturer	Spirit Health	CareSens S	Caresens
	14	Memory	1000	test strips	
		Connectivity	Bluetooth, USB/Smartphone	-	
		Applications	Diasend, Glooko, Smart Log	-	
	Size and weight:			<b>Cost:</b> £5.45	Cost:
	95mm x 49mm x 17.5mm, 51.5g	Warnings	Temperature, High & low results, Low battery, Meter fault, Bluetooth connectivity fault, Electronic error fault	Pack/50	£2.95/100
	CareServs II Phas	Alerts	Used Test Strip, Blood or control solution applied incorrectly, High viscosity blood sample or insufficient volume, Incorrect test strip used.	<b>Expiry:</b> until the expiration date printed	
		Sample size	Minimum 0.5µl	date printed	
	1113	Reaction Time	6 seconds	-	
	,'U_	Measurement range	1.1 to 33.3mmol/L (20 – 600 mg/dL)		
	(0924 1237-	Haematocrit range	15 – 65%	-	
	00	Technical support	http://www.spirit-health.co.uk/diabetes/blood-glucose-meters Tel: 0800 881 5423 Email: cs@spirit-healthcare.co.uk		
		Other features	Strip expiration date indicator, Pre-meal, Post-meal, Fasting, No- mark flagging. Provides 1, 7, 14, 30, 90-day test averages. Compliant with device standard EN ISO 15197:2015		



Category	Meter		Key features	Test strips	Lancets
				•	
2	TRUE Metrix Air <sup>22</sup>	Manufacturer	Trivida	True — Metrix® Test	TRUEplus Lancets
		Memory	1000 results with time and date	Strips	Lancets
		Connectivity	Bluetooth & USB		
	Size and weight: 87mm x 55mm x	Applications	Diasend Mobile, Diasend Uploader, TRUE Manager Air, TRUE Manager	0	Orati
	17mm, 47g (Display: 40mm x	Warnings	High and Low Results	— Cost: £5.95 Pack/50	<b>Cost</b> : £2.90/100
	33mm)	Alerts	Ketone Reminder, Four testing reminder alarm		
		Sample size	0.5µL	<b>Expiry</b> : 4 months after	
		Reaction Time	4 seconds	first opening	
		Measurement range	1.1 to 33.3mmol/L (20 – 600 mg/dL)		
	J. minol/	Haematocrit	20 – 70%		
		range		_	
	METRIX	Technical	https://www.trividiahealth.co.uk/ Tel: 0800 689 5035		
		support	Email: customercare@trividiahealth.co.uk		
		Other features	Automatic Control Solution Marker, Alternate site testing, Event tagging, Soft touch casing, Strip release button. Provides 7-, 14-, 30-, 60- and 90- day averages. Compliant with device standard EN ISO 15197:2015		



Category	Meter		Key features	Test strips	Lancets
3	On Call Extra <sup>20</sup>	Manufacturer	Connect 2 Pharma	On Call Extra	On call
		Memory	500 tests	Test Strips	
		Connectivity	USB download capability		
	Size:	Applications	On Call® Diabetes Management Software		
	81 mm × 48 mm × 16 mm	Warnings	Hyper and Hypo, Ketone, Temperature,	Cost: £5.20 Pack/50	<b>Cost</b> : £2.75/100
		Alerts	Five daily test reminders, ketone alert, insufficient sample		
		Sample size	0.4 µL	Expiry: 12	
	On Call Extra	Reaction Time	4 seconds	months after first	
	ζζ	Measurement range	0.6 – 33.3 mmol/L (10 – 600mg/dL)	opening the sealed test	
	MEM mmol/L	Haematocrit range	25 - 60%	strip pot	
		Technical support	http://www.oncallmeters.co.uk/ Tel: 020 3307 4646 Email: info@oncallmeters.co.uk		
		Other features	Audible fill detection, Easy insert strip port, Re-dosing capability within 3 seconds, Strip ejector, Soft touch buttons, meal markers, auto shutdown. Provides 7, 14, 30, 60, and 90-day averages. Compliant with device standard EN ISO 15197:2015		
		Recommended cohort	Paediatrics		



Category	Meter		Key features	Test strips	Lancets
3	On Call Extra Voice	Manufacturer	Connect 2 Pharma	On Call Extra	On call
	20	Memory	500 tests with date and time	<ul> <li>Test Strips</li> </ul>	
		Connectivity	USB download capability	_	
		Applications	On Call® Diabetes Management Software, Diasend by Glooko		
	Size and weight: 100mm × 61mm ×	Warnings	Hyper, Hypo, Ketone	- <b>Cost</b> : £5.20 Pack/50	<b>Cost:</b> £2.75/100
	24mm, 90g Diaplayy 20mm y	Alerts	Five daily test reminders		
	Display: 39mm x 42mm	Sample size	0.4 μL	Expiry: 12	
		Reaction Time	4 seconds	<ul> <li>months after first</li> </ul>	
	On-Call Extra Voice	Measurement range	0.6 – 33.3 mmol/L (10 – 600mg/dL)	opening the sealed test	
	1.5-51 mm 08-08mm	Haematocrit range	25 - 60%	strip pot	
	105	Technical support	http://www.oncallmeters.co.uk/ Tel: 020 3307 4646 Email: info@oncallmeters.co.uk		
		Other features	Audible instructions in up to 3 languages, High contrast strip, Large display with bold numbers, Re-dosing capability within 3 seconds, strip ejector, soft touch buttons, easy insert strip port, Audio Guidance, Audible fill detection Compliant with device standard EN ISO 15197:2015		
		Recommended cohorts	Paediatrics		



Category	Meter		Key features	Test strips	Lancets
3	WaveSense JAZZ WIRELESS <sup>23</sup> Size and weight: 6.5cm x 3cm x 1cm, 18.4 g	Manufacturer	AgaMatrix	WaveSense JAZZ Test Strips Cost: £8.74 Pack/50 Expiry: 180 days after first opening	AgaMatrix
		Memory	1865 tests		Ultra-Thin Lancets <b>Cost:</b> £5.43/200
		Connectivity	Bluetooth		
		Applications	AgaMatrix diabetes manager app ALLY diabetes patient management system, GDm-Health Diasend, Glooko, Apple Health, My mHealth, Social Diabetes		
		Warnings	Faulty strip, Low/dead battery, Temperature		
		Alerts	High and Low results		
		Sample size	0.5µL		
		Reaction Time	5 seconds		
		Measurement range	1.1 – 33.3 mmol/l (20 – 600 mg/dl)		
		Haematocrit range	20 – 60%		
		Technical support	http://www.agamatrix.co.uk/ Tel. 0800 093 1812 Email: <u>customercare@agamatrix.co.uk</u>		
		Other features	Share your data - Send a pre-formatted email to your Healthcare Professional or a family member, Auto- detection of QC, Auto-synchronisation, Simple pairing Compliant with device standard EN ISO 15197:2015		
		Recommended cohorts	Cognitive Impairment, Carbohydrate counting, Dexterity, Gestational diabetes requiring GDmHealth™ app compatibility, Group 2 Driver, Learning Difficulties, No Fixed Abode, Unable to read English, Visually Impaired		



Category	Meter	Key features		Test strips	Lancets
3	WaveSense JAZZ <sup>23</sup> Size and weight: 4.6cm x 8.3cm x 2.0cm, 48g	Manufacturer	AgaMatrix	WaveSense JAZZ Test Strips Cost: £8.74 Pack/50 Expiry: 180 days after first opening	AgaMatrix Ultra-Thin Lancets <b>Cost:</b> £5.43/200
		Memory	1,865 Test Memory: store 5 tests a day for a year.		
		Connectivity	Cable		
		Applications	ALLY Diabetes Patient Management System Diasend Glooko		
		Warnings	Faulty strip, Low/dead battery, Temperature		
		Alerts	Hyper and Hypo, High and Low results, Ketone		
		Sample size	0.5µL		
	SAZZ	Reaction Time	5 seconds		
		Measurement range	1.1 – 33.3 mmol/l (20 – 600 mg/dl)		
		Haematocrit range	20 - 60%		
		Technical support	http://www.agamatrix.co.uk/ Tel: 0800 093 1812 Email: customercare@agamatrix.co.uk/		
		Other features	Auto-detection of control solution, 7 meal-time tags, Meal averages and SD, Rubber feet and grips, Pre/Post Mealtime Tagging, Positive Feedback Icon, Downloadable Results. Provides 14-, 30- and 90-day averages. Compliant with device standard EN ISO 15197:2015		
		Recommended cohorts	Cognitive Impairment, Carbohydrate counting, Dexterity, Group 2 Driver, Learning Difficulties, No Fixed Abode, Unable to read English, Visually Impaired		



Category	Meter	Key features		Test strips	Lancets
3	Nexus Blue <sup>11</sup> Size and weight: 96mm x 61mm x 26mm, 67.2g	Manufacturer	GlucoRx	GlucoRx Nexus Test Strips	GlucoRx Lancets
		Memory	Stores 1000 non-deletable readings (fulfils DVLA memory requirements) with Day averages		
		Connectivity	Bluetooth		
		Applications	GlucoRx Voyager App, Diasend®/Glooko® and Eclipse Remote Platform (https://www.eclipselive.org)		
		Warnings	High & Low results, Ketone warning with glucose results ≥15mmol/L, Temperature, Low battery	Cost: £8.95 Pack/50	<b>Cost</b> : £4.50/200
	5.5 5.6 10-00-	Alerts	Error for used test strip insertion, Problem in Operation, Premature strip removal, Insufficient blood volume, 4 alarms	Expiry: 3 months after first opening	
		Sample size	0.5µl		
		Reaction Time	5 seconds		
		Measurement range	1.1 – 33.3 mmol/l (20 – 600 mg/dl)		
		Haematocrit range	20 – 60%		
		Technical support	http://www.glucorx.co.uk/ T <u>el: 08000075892</u> Email: info@glucorx.co.uk		
		Other features	Meal markers, Alternative site testing, discreet testing, No coding , Strip ejection. Provides 7, 14, 21, 28, 60 & 90 Day averages Compliant with device standard EN ISO 15197:2015		
		Recommended cohorts	Cognitive Impairment, Carbohydrate counting, Dexterity, Group 2 Driver, Learning Difficulties, No Fixed Abode, Paediatrics, Unable to read English, Visually Impaired		



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