

# EVALUATION

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## A guide to blood glucose meters on the UK market



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## Points to remember

### Storage

Ensure that test strips have not expired and are stored correctly. When removing test strips from vials, re-cap the vial immediately afterwards.

### Programming

You may need to enter a programme number into your meter's memory, either manually or using an electronic code chip or strip. Incorrect calibration can produce results that are erroneously by up to 4 mmol/L.

### Results

Ensure that you know whether the results displayed by your meter are whole blood or plasma-equivalent values.

### Interferences





Know your system's limitations and do not use it outside the manufacturer's recommendations. Do not use arterial, venous or neonatal blood unless this is specifically permitted by the manufacturer.







### Haematocrit


Haematocrit values outside the manufacturers' ranges can affect glucose results. At high haematocrit, glucose values obtained are lower than expected; at low haematocrit they are higher.

### AST

Alternative site testing is not always appropriate; you may miss hypoglycaemia.

Company:	Abbott Diabetes Care (formerly known as MediSense)			
Glucose meter:	Precision PCx	Optium	Optium Xceed	TheraSense FreeStyle
				
Test strips:	Precision PCx Plus test strips	MediSense Optium Plus test strips	MediSense Optium Plus Blood Glucose test strips	FreeStyle test strips
Sample type:	Capillary venous, arterial or neonatal	Capillary venous, arterial or neonatal	Capillary	Capillary
Result type:	Plasma calibrated	Plasma calibrated	Plasma calibrated	Plasma calibrated
Calibration:	Use barcode reader to scan barcode printed on foil wrapping of test strip	Manually insert calibrator electrode	Manually insert calibrator electrode	Manually enter code number
Sample volume:	2.5 µL	2.5 µL	1.5 µL	0.3 µL
Measurement time:	20 secs	20 secs	10 secs	Approx. 15 secs
Measurement range:	1.1 - 27.8 mmol/L	1.1 - 27.8 mmol/L	1.1 - 27.8 mmol/L	1.1 - 27.8 mmol/L
Haematocrit range:	20 - 70% < 16.7 20 - 60% > 16.7	20 - 70% < 11.0 20 - 60% > 11.0	30 - 60%	0 - 60%
Interferences & limitations:	Hyperosmolar hyperglycaemia	Hyperosmolar hyperglycaemia	Hyperosmolar hyperglycaemia	Hyperosmolar hyperglycaemia Maltose, poly- or oligosaccharides in certain human immunoglobulins, galactose, icodextrin
Alternative site testing:	No	No	Yes	Yes
Other information:	Healthcare professional use only	Whole blood ketone test strips also available		FreeStyle Mini available 7 secs measurement time
MHRA evaluation report:	MHRA 04115	MDA 02070	Pending 2005	MDA 02049

Bayer Diagnostics			DiagnoSys Medical	HemoCue	LifeScan
<b>Ascensia Esprit 2</b>	<b>Ascensia Breeze</b>	<b>Ascensia Contour</b>	<b>TrueTrack</b>	<b>Glucose 201+ analyser</b>	<b>OneTouch Ultra</b>
					
Ascensia GlucoDisc test sensor discs (10 strips/disc)	Ascensia AutoDisc test sensor discs (10 strips/disc)	Ascensia Microfill test strips	TrueTrack Smart System Blood Glucose test strips	HemoCue Glucose 201 microcuvettes	OneTouch Ultra test strips
Capillary	Capillary	Capillary venous, arterial or neonatal	Capillary	Capillary venous, arterial or neonatal	Capillary
Whole blood calibrated	Whole blood calibrated	Whole blood calibrated	Plasma calibrated	Whole blood calibrated	Plasma calibrated
Manually enter calibration code	Automatic reading of autocalibration label printed on each AutoDisc	Automatic reading of calibration information printed on each test strip	Manually insert code chip	None required	Manually enter calibration code
2 - 3 µL	2.5 - 3.5 µL	0.6 µL	1 µL	5 µL	1 µL
30 secs	30 secs	15 secs	10 secs	40 - 240 secs depending on glucose level	5 secs
0.6 - 33.3 mmol/L	0.6 - 33.3 mmol/L	0.6 - 33.3 mmol/L	1.1 - 33.3 mmol/L	0 - 22.2 mmol/L	1.1 - 33.3 mmol/L
30 - 60%	20 - 55% < 16.7 25 - 55% > 16.7	20 - 60% < 11.1 20 - 55% > 11.1 20 - 70% for 0.6 - 6.7 in neonates	30 - 55%	No limitations related to haematocrit	30 - 55%
Hyperosmolar hyperglycaemia	Hyperosmolar hyperglycaemia	Hyperosmolar hyperglycaemia Maltose, poly- or oligosaccharides in certain human immunoglobulins, galactose, icodextrin	Hyperosmolar hyperglycaemia	Hyperosmolar hyperglycaemia	Hyperosmolar hyperglycaemia & oxygen therapy
No	Yes	Yes	Yes	No	Yes
		Home and professional use		Microcuvettes require storage at 2 - 8 °C. Professional use	OneTouch UltraSmart incorporates an electronic logbook
MDA 02169	MHRA 03091	MHRA 04017	MHRA 04100	MDD/91/45 (Evaluation report produced for earlier version of meter)	MDA 01126

Menarini Diagnostics	Roche Diagnostics			
GlucoMen PC	Accu-Chek Active	Accu-Chek Advantage II	Accu-Chek Aviva	Accu-Chek Compact Plus
				
GlucoMen sensors	Accu-Chek Active Glucose test strips	Accu-Chek Advantage II test strips	Accu-Chek Aviva test strips	Accu-Chek Compact Plus test strips (17 strips/drum)
Capillary	Capillary venous, arterial or neonatal	Capillary venous, arterial or neonatal	Capillary	Capillary
Plasma calibrated	Whole blood calibrated	Whole blood calibrated	Whole blood calibrated	Whole blood calibrated
Manually enter code number	Manually insert code chip	Manually insert code chip	Manually insert code chip	Automatic reading of barcode printed on drum
4 µL	2 µL	4 µL	0.6 µL	1.5 µL
30 secs	5 secs	26 secs	5 secs	5 secs
1.1 - 33.3 mmol/L	0.6 - 33.3 mmol/L	0.6 - 33.3 mmol/L	0.6 - 33.3 mmol/L	0.6 - 33.3 mmol/L
25 - 50%	30 - 55% with in-meter dosing 20 - 70% with out-of-meter dosing	20 - 65% < 11.1 25 - 55% > 11.1	20 - 70%	20 - 65%
Hyperosmolar hyperglycaemia	Hyperosmolar hyperglycaemia Maltose, poly- or oligosaccharides in certain human immunoglobulins, galactose, icodextrin			
No	No	No	Yes	Yes
	Out-of-meter sample application required for neonatal use	Home and professional use		
MDA 02006	MDA 01132	MDA 01133	To be published in Summer 2005	To be published in Summer 2005

EVALUATION

**The Device Evaluation Service (DES) is a major provider of medical device evaluations. In 2004, DES evaluated over 400 products offering guidance on best choice and best practice to the NHS and Social Service organisations. DES helps deliver government priorities by producing impartial comparative information for purchasers and users.**

### **Technical enquiries**

Wolfson Applied Science Project  
2nd Floor  
Wolfson Research Laboratories  
Queen Elizabeth Medical Centre  
Edgbaston  
Birmingham B15 2TH  
T: 0121 627 2573  
F: 0121 627 2573  
[www.wasp-uk.org](http://www.wasp-uk.org)

### **General enquiries**

To sign up for e-mail alerts or order reports contact:  
T: 020 7972 8181  
F: 020 7972 8105  
E: [des@mhra.gsi.gov.uk](mailto:des@mhra.gsi.gov.uk)

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- Blood glucose monitoring: know your systems

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