

# Guideline on the Choice of Glucometers and Ketometers for ADULTS with

# TYPE 1 DIABETES (April 2021)

This guideline aims to assist healthcare professionals (HCPs) in secondary and primary care (if applicable) with the selection of glucometers\* and ketometers\* for ADULTS with TYPE 1 DIABETES. It should be used in conjunction with HSCB Self Blood Glucose Monitoring (SBGM) Guideline, September 2017, which can be accessed at the following link:

https://niformulary.hscni.net/formulary/6-0-endocrine/6-1-drugs-used-in-diabetes/6-1-6-diagnostic-and-monitoring-agents-for-diabetes-mellitus/

Most adults with type 1 diabetes will be assessed for and supplied with a meter from secondary care.

(\*referred to as meters throughout this guideline, as appropriate)

# **Background**

Self-monitoring of blood glucose is an essential part of the management of type 1 diabetes. Previously in N.Ireland the majority of patients were prescribed glucose test strips which were >£10 for a pack size 50. The prescribing of cost effective glucose test strips has increased in the recent years, following implementation of HSCB Guideline on the choice of blood glucose strips for adults with type 2 Diabetes first issued in September 2017. Health and Social Care Trusts in Northern Ireland stock meters that are on the Regional Blood Glucose Meter List (approved by the NI Regional Pathology Network, Point of Care Testing Speciality Forum, March 2021).

Currently, primary care may stock meters not listed on the Trusts' Regional Blood Glucose Meter List (providing the meters are ISO15197:2015 compliant). However, to ensure continuity, as some patients' care is delivered in both primary and secondary care, the Trusts' Regional Blood Glucose Meter List was used as a starting point for this HSC guideline.

To further increase the proportion of cost effective test strips prescribed (<£10 for pack of 50 blood glucose test strips and <£10 for pack of 10 blood ketone test strips), the need to further extend the meter guideline to adults with type 1 diabetes was established.

ALL meters listed in the HSC guideline meet the following requirements:

- ISO 15197:2015 approved and will be provided free of charge from GP surgeries and diabetes clinics
- Free support material supplied and free control solution provided
- Unable to delete meter readings
- Measurement range between 1.1 to 33.3mmol/l or more and measures only in mmol/l
- No calibration or coding is required to set up (NB: some of the dual blood glucose and blood ketone meters will require some simple coding)
- A starter meter pack is available that includes blood glucose strips and lancets.

# **Choice of Meter**

When considering which type of meter may meet the requirements of adults with type 1 Diabetes, the following categories should be considered:

**Category 1:** Required to undertake routine blood glucose monitoring but <u>NOT</u> blood ketone testing.

**Category 2**: Required to undertake both blood glucose <u>AND</u> blood ketone monitoring.

**Category 3**: Have undertaken type 1 diabetes structured education and can accurately carbohydrate count and use an insulin calculator to work out required insulin dose, based on carbohydrate/insulin ratio.

Category 4: Use an insulin pump.

The meters listed in this guideline will suit the vast majority of adults with type 1 diabetes. However, when choosing a suitable meter the individual person's preference and needs should be adequately considered.

#### Category 1

# Required to undertake routine blood glucose monitoring but <u>NOT</u> blood ketone testing

- Supply a glucometer listed in Appendix A.
- Consider the voice glucometer option for visually impaired.

#### Category 2

#### Required to undertake both blood glucose AND blood ketone monitoring

- Supply a meter listed in Appendix B.
- HCPs should ensure there is a clear understanding of:
  - When to test for blood ketones
  - How to interpret results

#### Category 3

Have undertaken type 1 diabetes structured education and can accurately carbohydrate count and use an insulin calculator to work out required insulin dose, based on carbohydrate/insulin ratio.

There are 2 options available:

- (1) **Apps** (can be used in conjunction with cost effective meters)
- (2) 'Smart Glucometer' (if use of apps/with cost effective meters not suitable) Supply with a 'Smart' glucometer from Appendix C. (PLEASE NOTE THIS METER WILL BE PHASED OUT FROM JUNE 2021)

#### NOTE:

• A ketometer (Appendix B) will also be supplied, when the HCP considers blood ketone testing is indicated.

#### Category 4

#### Using an insulin pump

Meters used along with insulin pumps are supplied directly from the relevant company along with the pump system. These meters are not specifically listed in this guideline but should ONLY be supplied to those using insulin pumps, as generally they do not use cost effective test strips.

## NOTE:

• A ketometer (Appendix B) will also be supplied when HCP considers blood ketone testing is indicated.

# Use of FreeStyle Libre<sup>®</sup>

Many adults with type 1 diabetes will be using the Freestyle Libre<sup>®</sup> flash monitoring device to monitor their glucose levels. These adults will still on occasions be required to test their blood glucose levels by finger pricking. See link below to Freestyle Libre<sup>®</sup> pathway, for details on prescribing and guidance on suitable meters to use alongside the Freestyle Libre<sup>®</sup> system.

http://www.hscboard.hscni.net/download/PUBLICATIONS/pharmacy\_and\_medicines \_\_management/correspondence/Pathway-for-the-Managed-Access-of-FreeStyle-Libre.docx

The FreeStyle Libre<sup>®</sup> reader device has a bolus calculator functionality to enable calculation of insulin doses, based on carbohydrate/insulin ratio. <u>This function</u> <u>requires to be activated by a healthcare professional</u>. Adults who use the FreeStyle Libre<sup>®</sup> system and require to use an insulin calculator, should where possible be supplied with a meter from appendices A or B and use it in conjunction with a suitable App, to enable calculation of insulin doses. This option is favourable, as it enables use of cost effective test strips.

## Storage and ordering of meters

- HCPs must no longer accept free or issue glucometer/ketometer samples from pharmaceutical companies, which are not on listed in this HSC guideline (Appendices A to C).
- Meters not listed in this guideline should either be returned to the relevant manufacturer or safely disposed of.

**Note:** Insulin pumps will require a compatible meter, most often supplied directly from the pharmaceutical company. These meters are not specifically listed in this guideline but should ONLY be supplied to those using insulin pumps.

# Supply of meters

- It should be clearly documented in individual clinical records & for those attending secondary care in the NIECR diabetes pathway, why the particular category has been chosen.
- If an adult with type 1 diabetes requires a meter which is not listed in the HSC guideline, the reason should be documented in their clinical records/NIECR diabetes pathway.
- > Initially 2 meters (one **spare** will be issued).

# **Information for patients**

- All patients should be provided with a patient information leaflet (Appendix D) when they receive a new meter and education provided at the outset. They should be encouraged to take ownership for the management maintenance and should register their meter with the relevant pharmaceutical company.
- If patients have any problems or require a new meter/battery/control solution, they should be advised to contact the relevant pharmaceutical company directly.

Patients should be advised NOT to change their meter without first consulting their diabetes healthcare professional. The prescribing of strips and lancets for patients with type 1 diabetes who purchase or obtain a meter which is NOT on the HSC guideline and/or was not specifically recommended by their diabetes healthcare professional, is not supported by HSC, and may require the patient to pay for these themselves. The exception is meters which are used with insulin pumps.

#### Switching meters

- Where possible, at routine clinic appointments, HCPs should review the glucose/ketone monitoring needs of adults with type 1 diabetes and if applicable, switch them to a cost effective meter choice from this guideline.
- GP practices are not expected to switch meters for adults with Type 1 diabetes. If Primary care staff have a query in relation to why an adult with type 1 diabetes is using a particular meter they should discuss this with the relevant diabetes healthcare specialist.
- > All changes must be recorded in clinical notes.

## Information for GPs and Community Pharmacists

- In most cases adults with type 1 diabetes will be started on a meter in secondary care. Very occasionally an adult with type 1 diabetes may require a meter to be supplied from primary care. GP Practices should therefore choose an appropriate quantity and variety of meters to stock from the HSC guideline, for distribution to adults with type 1 diabetes.
- GPs should prescribe the specific brand of blood glucose test strips, blood ketone test strips and lancets as specified by secondary care communication.
  If requests for non-cost effective blood glucose and ketone strips are not accompanied by secondary care communication, these should be queried by the GP practice.

- Lancing devices are not listed on the N. Ireland Drug tariff and so therefore cannot be prescribed. They are included in meter starter packs, so all patients will be supplied with a lancing device when they are given a new meter.
- > Replacement lancing devices can be requested from the manufacturer.
- Community pharmacists should retain the list of HSC recommended meters for staff information. Community Pharmacists should be aware that GPs may not issue prescriptions for glucose strips, ketone strips and lancets (to adults with type 1 diabetes or type 2 diabetes), for meters which are not on the HSC list (the exception is meters which are used with insulin pumps). Community pharmacists should advise adults with type 1 diabetes **not to change** their meter, without first consulting their diabetes healthcare team.

If an adult with type 1 diabetes presents to a pharmacy at the weekend, or during out of hours (when a patient's diabetes healthcare professional is not available) and urgently requires a new meter, the community pharmacist should, where possible supply a meter option from appendix A (providing it meets their clinical testing requirements).

# Revision of the guideline

Meters which are added to the Trusts' Regional Blood Glucose Meter List following publication of this guideline may also be distributed to adults with type 1 diabetes (as outlined above), providing the glucose test strips are cost effective (<£10 for 50) and/or blood ketone strips are cost effective (<£10 for 10). This also includes any meters on the regional list, whose corresponding glucose test strips and/or ketone strips reduce in price, following publication of this guideline. This guideline will be updated in April 2024.

Meter	Name of test strips and	Price of test strips (50 pack)	Contact for ordering meters	Link to manufacturer website for meter specifications
4Sure Smart Meter (Nipro Diagnostics)	4SURE	£8.99	Sales Support Tel: 0800 0858808 Email:sales.support@nipro-group.com Irene Jacobs (Territory Sales Manager) Tel: 07799 891638 Email: <u>irene.jacobs@nipro-group.com</u>	https://www.nipro-diagnostics.co.uk/professionals https://www.nipro-diagnostics.co.uk/patients
Accucheck Instant (Roche)	Instant	£7.50	Ann Sloan Diabetes Care Specialist (ann.sloan@roche.com) T: 07513480840	https://www.rochediabetes.com/en- gb/resources/product-information
Accucheck Mobile (Roche) Accucheck	Mobile test cassette Performa	£9.99 £7.50	Office Team: 0800 0407221 Office Email: Burgesshill.dcaccountmanagers@roche.com	https://www.accu-chek.co.uk/meters
Performa Nano (Roche)	Fenoma	27.50		
Contour Plus Blue (Ascensia)	Contour Plus strips	£8.50	Emma Boyd Tel: 07469402761 Email: <u>emma.boyd@ascensia.com</u>	https://www.diabetes.ascensia.co.uk/products/portfolio- overview/

Meter	Name of test strips	Price of test strips (50 pack)	Contact for ordering meters	Link to manufacturer website for meter specifications
Contour (Ascensia)	Contour Strips	£9.99	Emma Boyd Tel: 07469402761 Email:	https://www.diabetes.ascensia.co.uk/products/portfolio- overview/
Contour Plus (Ascensia)	Contour Plus Strips	£8.50	emma.boyd@ascensia.com	
Glucomen Areo (Medicon Ireland)	Glucomen Areo	£8.25	Jim McGrory Tel:07771863108 02830835500 Email: jimmcg@mediconire.com OR info@mediconire.com	https://www.mediconire.com/how-to-use-video
GlucoRx Nexus (GlucoRx)	GlucoRx Nexus	£8.95	Sean O'Reilly Tel: 07392198501 Email: sean@glucorx.co.uk	https://www.glucorx.co.uk/our-products/nexus-meter/ https://www.glucorx.co.uk/our-products/glucorx-nexus- mini-ultra-meter/
GlucoRx Nexus Mini Ultra (GlucoRx)	GlucoRx Nexus	£8.95	Or <u>orders@glucorx.co.uk</u>	Home   Blood Glucose Monitor   GlucoRx https://www.glucorx.co.uk/our-products/nexus-voice- meter/
GlucoRx Nexus Pearl	GlucoRx Nexus	£8.95		https://www.glucorx.co.uk/manuals-and-videos/ https://www.glucorx.co.uk/our-products/glucorx-q-
GlucoRx Nexus Voice (GlucoRx)	GlucoRx Nexus	£8.95		blood-glucose-monitoring-system/ Q Instructions   GlucoRx
GlucoRx Q (GlucoRx)	GlucoRx Q	£5.45		

Meter	Name of test strips	Price of test strips (50 pack)	Contact for ordering meters	Link to manufacturer website for meter specifications
Mylife Aveo (Ypsomed Ltd)	Mylife Aveo	£6.95	Halen Campbell Tel: +44 7572702536 <u>halen.campbell@ypsomed.com</u> Or 0344 856 7820	https://www.mylife-diabetescare.com/en- GB/products/blood-glucose-monitoring-systems/mylife- aveo.html https://www.mylife-diabetescare.com/en-
Mylife Unio Cara (Ypsomed Ltd)	Mylife Unio	£9.50	info@ypsomed.co.uk	GB/products/blood-glucose-monitoring-systems/mylife- unio-cara.html https://www.mylife-diabetescare.com/en-
Mylife Unio Neva (Ypsomed Ltd)	Mylife Unio	£9.50		<u>GB/products/blood-glucose-monitoring-systems/mylife-</u> unio-neva.html
One Touch Select Plus (Lifescan)	One Touch Select Plus	£9.99	Deborah Stewart Tel: 07920 084318 Email: <u>Dstewa33@lifescan.com</u> Customer Care:0800 121 200	www.myonetouch.co.uk
TEE2+ (Spirit Healthcare)	TEE2 Strips	£7.75	Lucy Beazley Tel: 07984 525259 Email: Lucy.Beazley@spirit- healthcare.co.uk Customer Services team: 0800 881 5423 Email: <u>cs@spirit-</u> healthcare.co.uk	https://www.spirit-health.co.uk/spirit-healthcare- old/products-for-diabetics/blood-glucose-meters

Meter	Name of test strips a	Price of test strips	Contact for ordering meters	Link to manufacturer website for meter specifications
TRUE Metrix AIR	True Metrix	£6.95	Jon Lowther	https://professionals.trividiahealth.co.uk/home/blood-
(Trividia Health)			Regional Sales Manager –	glucose-monitoring/true-metrix-air/
TRUE Metrix GO	True Metrix	£6.95	EMEA	
(Trividia Health)			Tel: 07767677667	
			Email:	https://professionals.trividiahealth.co.uk/home/blood-
			jlowther@trividiahealth.co.uk	glucose-monitoring/true-metrix-go/
Vivacheck Ino (JR Biomedical Ltd)	Vivacheck Ino	£8.99	Direct from company. Freephone 0800 612 7531 or from	http://www.vivachekdiabetes.co.uk/
			Catherine Rees (Based in North	
			Wales)	
			Tel: 01745 535169/535207	
			Email:	
			catherine.rees@jrbiomedical.com	
Wavesense JAZZ™	WaveSense	£8.74	Yes, order direct from	https://agamatrix.co.uk/products/
(Agamatrix)	JAZZ		Julian Mulligan	
Wavesense JAZZ™	]		Diabetes Care Manager	
Wireless (AgaMatrix)			Tel: 07798 942290	
,			Email imulligan@agamatrix.com	
			Customer Care: 0800 093 1812	

Appendix B: Cost effective choice meters which test for both blood glucose and blood ketones (Prices correct as per April 2021 Drug Tariff)

Meter	Name of test strips and	Price of test strips (50 pack Glucose; 10 pack ketones)	Contact for ordering meters	Link to manufacturer website for meter specifications
4Sure Smart Duo meter (Nipro Diagnostics)	4SURE test strips 4SURE B- Ketone test strips	£8.99 Glucose £9.92 Ketone	Sales Support Tel: 0800 0858808 Email:sales.support@nipro-group.com Irene Jacobs (Territory Sales Manager) Tel: 07799891638 Email: <u>irene.jacobs@nipro-group.com</u>	https://www.nipro- diagnostics.co.uk/professionals https://www.nipro- diagnostics.co.uk/patients
Caresens Dual (Spirit Healthcare)	CareSens PRO Glucose strips KetoSens Blood β- Ketone Test Strips	£9.95 Glucose £9.95 Ketone	Lucy Beazley Tel:079845259 Email: <u>Lucy.Beazley@spirit-</u> <u>healthcare.co.uk</u> Or through Customer Services team on 0800 881 5423 Email: <u>cs@spirit-healthcare.co.uk</u>	https://www.spirit-health.co.uk/spirit- healthcare-old/products-for- diabetics/blood-glucose-meters
Glucomen Areo 2K (Medicon Ireland)	Glucomen Areo sensors Glucomen Areo B- Ketone Sensors	£8.25 Glucose £9.95 Ketone	Jim McGrory Tel: 07771863108 or 028 30835500 Email: jimmcg@mediconire.com OR info@mediconire.com	https://www.mediconire.com/how-to- use-video

Meter	Name of test strips and	Price of test strips 50 pack Glucose 10 pack ketones	Contact for ordering meters	Link to manufacturer website for meter specifications
GlucoRx HCT meter (GlucoRx)	GlucoRx HCT Glucose GlucoRx	£8.95 Glucose £9.95 Ketone	Sean O'Reilly Tel : 07392198501 Email: <u>sean@glucorx.co.uk</u>	https://www.glucorx.co.uk/hct-instructions/ https://www.glucorx.co.uk/hct-instructions/
GlucoRx HCT Connect (GlucoRx)	HCT Ketone		Or <u>orders@glucorx.co.uk</u>	https://www.glucorx.co.uk/our-products/glucorx- hct-connect/ https://www.glucorx.co.uk/connect-i-glucose-meter/

#### Appendix C: Smart Glucometer. NOTE: This NOT a cost effective choice and so should only be supplied to patients in accordance with the guidance above (Prices correct as per April 2021 NI Drug Tariff) (DUE TO BE PHASED OUT JUNE 2021 subject to stock availability)

Meter	Name of test strips and	Price of test strips 50 pack	Contact for ordering meters	Link to manufacturer website for meter specifications
Accu-chek Expert (Roche) (SMART GLUCOMETER)	Aviva test strips Please note: Aviva test strips will continue to be available and there are currently no plans to discontinue these. The new Accu-Chek Instant system or the Accu- Chek Mobile system can be used alongside the mySugr app with its insulin calculator feature which is licensed for users over 18 years.	£16.21	DUE TO BE PHASED OUT JUNE 2021 subject to stock availability Ann Sloan Diabetes Care Specialist (ann.sloan@roche.com) T: 07513480840 Office Team: 0800 0407221 Office Email: Burgesshill.dcaccountmanagers@roche.com	https://www.rochediabetes.com/en- gb/resources/product-information

## <u>Appendix D</u>

{Insert relevant Trust logo Department and address} Patient Information Leaflet (New Blood Glucose Meter)

### Dear Patient,

Your diabetes team has recently supplied you with two blood glucose meters (glucometers). Your diabetes healthcare professional will have explained how and when to use your glucometer to test your blood sugars.

The Health and Social Care Board has provided diabetes healthcare professionals and GPs with a list of glucometers which are suitable to use for patients with type 1 diabetes. These glucometers have all been reviewed: they will provide you with accurate blood glucose results and are cost-effective.

We would encourage you to:

- As soon as possible, please register your new glucometer with the relevant pharmaceutical company. Their phone number is in the instruction booklet provided with your new glucometer. By registering your glucometer, the company will provide a replacement, if required. Some pharmaceutical companies also provide free replacement batteries.
- Only use one glucometer at a time. The second glucometer is a spare, only to be used if your original glucometer breaks.
- If your glucometer breaks, use your replacement glucometer and remember to contact the relevant company as soon as possible to get a new replacement glucometer.
- To follow the recommended quality control test for their specific glucometer.
- As your GP has been advised to ONLY prescribe test strips and lancets from the recommended list of glucometers, please **DO NOT** purchase or accept a free upgraded glucometer without first checking with your diabetes healthcare professional.
- Using glucometers that are not on the list may require you to buy your own tests strips and lancets

If you have any questions about the information in this letter or your glucometer, please contact {*insert name and contact details of relevant diabetes healthcare professional*}