Shropshire, Telford and Wrekin Clinical Commissioning Group

Adult Guidance for the supply of blood glucose and ketone meters, test strips and lancets in Primary care

May 2020 (Review June 2022)

Developed in partnership with the specialist teams at

The Shrewsbury and Telford Hospital NHS Trust

Shrewsbury and Telford Hospital Trust

Shropshire Community Health NHS Trust

Shropshire Community Trust

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Introduction

The blood glucose and blood ketone monitoring advice has been updated following input from adult and paediatric services, dietitian, and midwifery and community specialist diabetes services. The guidance is an update to the previous 2016 guidance and provides choices for meters based largely on the following factors as per “Blood Glucose Monitoring Guideline Consensus Document (version 2) 2017” [1]:

Functionality	Glucose and ketone testing, gestational diabetes features, carbohydrate counting, insulin ratio input
Accuracy	Compliance with ISO standards EN ISO 15197:2015
User factors	Screen size, text size, ease of use, suitability for people with disabilities, support for people with specific work requirements, continuity of available devices
Cost	Lancets, strip error rates, shelf life and cost (as specified by NHS England)
Use of technology	Compatible apps, wireless technology and general support for health care professionals and patients
DVLA guidance	Memory capacity

The update to the Shropshire, Telford and Wrekin CCG guideline was widely known, as the document and date of update is freely available on the Shropshire, Telford and Wrekin CCG website [2]. Manufacturers were able to submit meters to medicines management without delay by sending directly. Meters submitted were reviewed and included on formulary following discussion and agreement with stakeholders outlined above. Choices were kept to a limited but varied range to facilitate prescriber familiarity and ensure sufficient user choice. Many of the meters on previous guidance remained favourable; this in turn maintains brand recognition across Shropshire, Telford and Wrekin and ease of prescribing.

Updates within this guidance:

- Changes to first line meters for both Type 1 and Type 2 diabetes
- Removal of Aviva Expert devices as these are being discontinued
- Lancet recommendations for all except drum lancet devices
- Additional meters for user groups with specific requirements
- Use of Apps to support blood glucose meter functionality
- Addition of Flash glucose devices and recommendations for prescribing
- Strip recommendations for people using insulin pumps and compatible meters
- Ketone meter recommendations, monitoring and guidance for interpretation
- Update to strip prescribing quantities for different user groups

Key Practice Points

Generally

- Testing should form part of a wider program of management where the results are used to inform diet, lifestyle or treatment changes and conform with DVLA requirements where appropriate [3, 4].
- Ensure patients fit NICE criteria for self-monitoring of blood glucose in type 2 diabetes [5]:
  - Using insulin
  - Evidence of hypoglycaemic episodes
  - Take oral medication that may increase their risk of hypoglycaemia when driving or operating machinery
  - Pregnant or is planning to become pregnant
- Patients who self-monitor must be given adequate training in self-monitoring techniques as this is one of the leading causes for erroneous results.
- Patients and health care professionals should be clear about what they hope to achieve by testing, including interpretation and any action to take with out of range readings.
- For patients that self-test, an assessment of self-monitoring of blood glucose should be undertaken with each annual review. Need, frequency and any excess use should be addressed.

Supply of meters

- Meters can be obtained free of charge from manufacturers by all GP surgeries or specialist diabetes clinics, to issue *free* to patients. There is no need for any person with diabetes to purchase a meter.
- Patients should be dissuaded from buying their own meter without consulting their diabetes specialist first.
- Prescribing of test strips and lancets for off-formulary meters purchased by a patient will not be supported.
- Clinics and practices are advised not to accept stock of non-formulary meters from manufacturers for distribution within the local health economy.

Existing patients on non-formulary blood glucose meters

- If a patient has had their existing meter for more than 18 months, it may be warranted to consider a review and switch to a formulary approved meter, with patient consent.
- If there are clinical concerns or supply issues with a patient's current meter, it is recommended that the patient is reviewed and offered a formulary-approved meter – specialist input may be required to facilitate this.
- Any patient using a non-formulary meter should be considered for a formulary meter where clinically appropriate and with patients consent. Particularly where strip cost is above £10 per 50 strip pack [6].
- Avoid "bulk switching" of glucose meters without patient involvement/consent.
- Patients switching meters should be switched to a meter with the same functionality as the old meter with regards to blood glucose and ketone testing (if appropriate).
- The formulary meters are expected to be suitable for the majority of patients but it is recognised that some patients may have individual needs and may require an alternative choice. This requires discussion with the diabetes specialist nursing team.
- Please note: If a patient is using an insulin pump, Continuous glucose monitoring, flash glucose technology (e.g. Libre sensor pads), insulin correction doses or is carbohydrate counting, their meter should not be switched without referral or discussion with the diabetes specialist service.

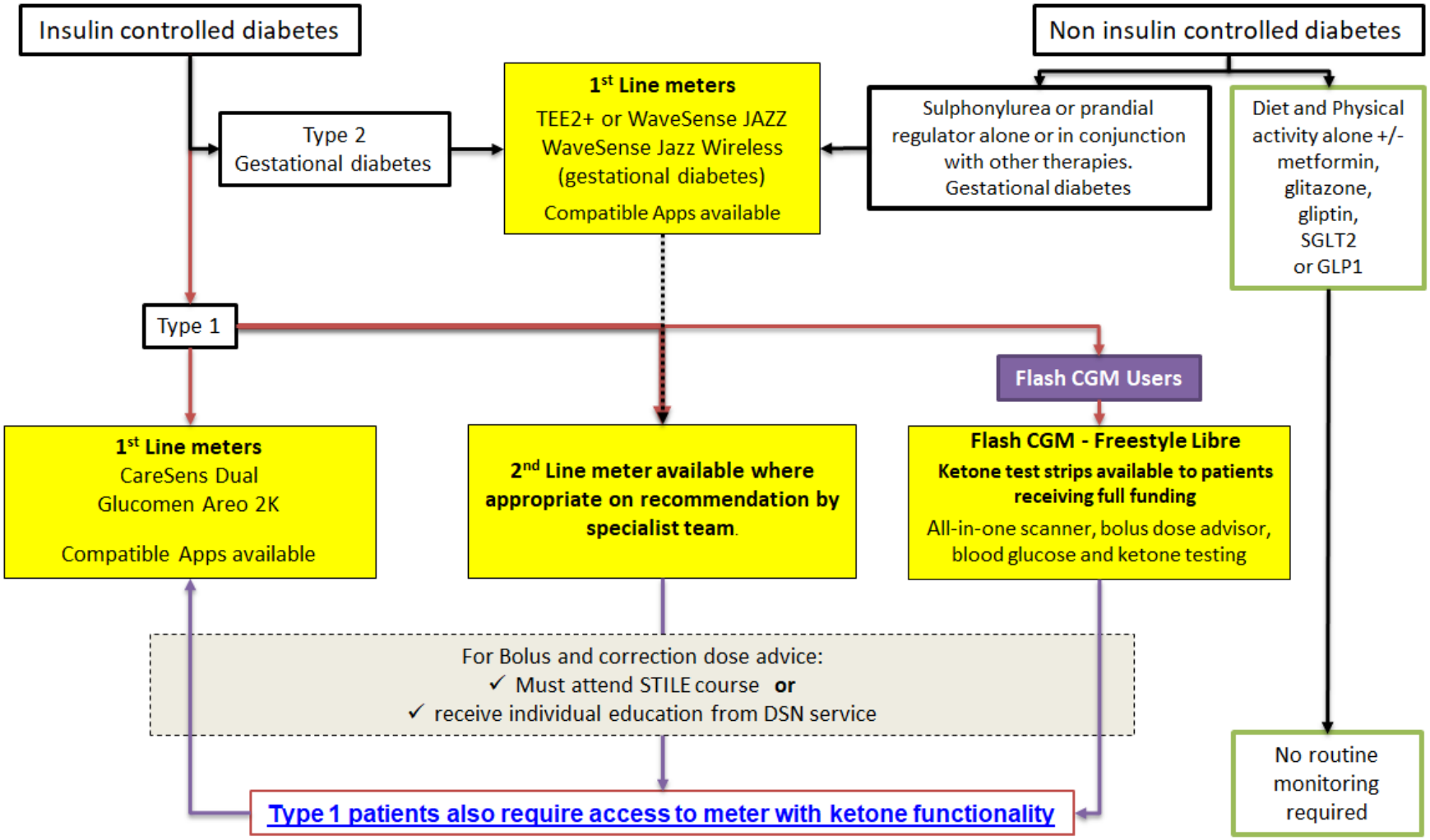
Issuing new blood glucose meters

- All new patients starting to self-monitor their blood glucose should be issued a formulary meter. A formulary meter should also be used whenever offering a replacement meter.

Supply of lancets

- There are a range of universal-fit different sized lancets available on prescription at a cost of <£3 per 100 lancets, that fit most of the standard lancing devices. [6]
- The preferred universal fit lancet is AgaMatrix ultrathin lancet 0.35mm/28guage. However if the brand of lancets supplied with the meter is cost-effective it may continue to be prescribed.
- The higher the gauge (G) of lancet, the smaller the diameter of the lancet needle.
- Lancets are for single use only, patients should be provided with adequate sharps-disposal bins.
- Multi-device lancets and their lancing device e.g. FastClix drum should be restricted to those with a specific need e.g. those with dexterity problems, needle phobia, or visual impairments. Sharps bins do not need to be issued to patients using FastClix devices and not using injectable treatments.

Summary of Meter Suitability and Options



Meters are available for patients with specific considerations: dysliterate, dysnumerate, dexterity problems, work related requirements. These patients should be discussed with the specialist diabetes nursing service to ensure that the approach is safe and appropriate.

Summary of meters on formulary:

Patient specific consideration

Categories	Meter	Ketone	Test strip/ketone strip	Compatible Lancets
FIRST LINE METERS INITIATED BY PRIMARY CARE TEAMS AND SPECIALIST DIABETES TEAMS				
Type 2 diabetes	TEE2+	No	TEE2	AgaMatrix Ultra-Thin 0.35mm/28G
	Wavesense Jazz OR Jazz Wireless	No	Wavesense Jazz	
Gestational diabetes with compatible app	Wavesense Jazz Wireless	No	Wavesense Jazz	
Type 1 diabetes. Dual functionality meter.	CareSens Dual	Yes	CareSens Pro / KetoSens	
	GlucoMen Areo 2K	Yes	GlucoMen Areo Sensor/ Ketone Sensors	
SECOND LINE METERS REQUESTED OR INITIATED BY SPECIALIST DIABETES TEAMS				
a) Funded Flash Continuous Glucose monitoring b) Where use of a 1st line meter plus app presents difficulty. Sensor pads will not be funded in this situation.	FreeStyle Libre	**Yes**	FreeStyle Optium / (**β beta ketone for flash funded pts only**)	AgaMatrix Ultra-Thin 0.35mm/28G
Dysnumerate, dysliterate Visually impaired	Nexus voice	No	Nexus	
Dexterity problems with lancet device and insertion, schools use.	Accu-chek Performa Nano	No	Performa	FastClix Drum
Practical consideration for work related requirement or dexterity problem with strip insertion, schools use	Accu-chek Mobile	No	Mobile Cassette	
PUMP METERS – INITIATED BY SPECIALIST ONLY. PATIENTS WILL REQUIRE ACCESS TO A FIRST LINE KETONE METER SEE ABOVE				
Insight	Accu-check Insight Handset	No	Aviva	FastClix Drum
Cellnovo	Cellnovo Handset			
Combo	Accuchek Combo handset			
Omnipod	Omnipod PDM	No	FreeStyle Lite	AgaMatrix Ultra-Thin 0.35mm/28G
Medtronic 640 G	Ascensia Contour Next 2.4 USB	No	Contour Next test strips	
Medtronic Paradigm Veo	Ascensia Contour Next USB link			

Please note - all concerns about meter/strip malfunctions should be reported to the MHRA, NRLS and via Datix to ensure that any emerging patterns can be identified.

Commencing or stopping second line meters should always be discussed with the Specialist Diabetes Nursing service to ensure that the approach is safe and appropriate.

Summary of FIRST LINE Meters features and specification

First Choice Meters	Blood Glucose Meters			Dual functionality Blood Glucose and Ketone Meters	
Name of meter	Tee2+	Wavesense Jazz	Wavesense JAZZ Wireless	CareSens Dual	GlucoMen Areo 2K
Image					
Glucose test strips (expiry once open)	Tee2 blood glucose strips 50 (24 months)	6 months. (2x25) JAZZ Duo available	JAZZ Duo available 2x25 (6 months)	CareSens Pro 50 (12months)	GlucoMen Areo Sensor (50)12 months
Lancets supplied with meter	CareSens x10	AgaMatrix Ultra-Thin	AgaMatrix Ultra-Thin	CareSens lancets x10	Glucoject Lancets Plus x10
Will other lancet brands fit the lancing device?	Yes	Yes	Yes	Yes	Yes
Ketone testing	No	No	No	KetoSens, 10 (12 months)	GlucoMen Areo Ketone sensor (10) 12 months
Memory capacity	1000 (locked)	1865 (locked)	300 on meter (locked) Unlimited on App	1000 (locked)	730 glucose & 100 ketone (locked)
Price/50 strips Drug Tariff May 2020	£7.75	£8.74	£8.74	Glucose strip £9.95 x50 Ketone strip £9.95 x10	Glucose sensor £9.95 x50 Ketone sensor £9.95 x10
How are results downloaded	Via Bluetooth to app android or iOS	Via USB to PC Software	Via Bluetooth to app android or iOS	Via Bluetooth to app for android or iOS smart device	NFC (contactless), Bluetooth, USB to app for android or iOS smart device
App Support for android/iPhone	SmartLog®	AgaMatrix Diabetes Manager (via cable)	AgaMatrix Diabetes Manager Compatible with: GDm-Health	SmartLog®	Glucolog®
	The apps suggested above are those recommended by the manufacturer, specialist diabetes team or NHS apps library. Meters with Bluetooth are compatible with other apps. Some apps may have a cost associated with use. Users of apps should make their own checks regarding the security and safety of their personal data. Where an app is used to provide insulin dose recommendations the specialist diabetes team should be involved to support set up and ensure safety.				
Additional considerations	Black on white screen Replace every 5 years	**For Smartphone users only**	Black on white screen	Backlit white	White on black screen
Contraindications	None	None	None	None	None
Local contact	David Englefield david.englefield@spirit-healthcare.co.uk	Julia Collins 07990 042829 jcollins@AgaMatrix.com	Julia Collins 07990 042829 jcollins@AgaMatrix.com	David Englefield david.englefield@spirit-healthcare.co.uk	Alex Fraser afraser@menarinidiag.com
helpline to order	0800 881 5423	0800 093 1812	0800 093 1812	0800 881 5423	0800243667
Website	www.spirit-healthcare.co.uk	www.AgaMatrix.co.uk	www.AgaMatrix.co.uk	www.spirit-healthcare.co.uk	http://www.GlucoMen.co.uk/

Guidance regarding frequency of testing and quantities to supply on repeat prescription

Treatment Group		Monitoring Regimen		Prescribing advice per month or as specified
Type 1 diabetes(see NICE NG17 and NG18)	All people with Type 1 diabetes (see NICE NG17 and NG18)	Adults at least 4 times a day Children and young people at least 5 times a day • Testing should include pre-prandial and before bed • Testing is an integral part of treating Type 1 diabetes to prevent hypoglycaemia and control hyperglycaemia • Patients should be educated in testing and adjust treatment accordingly • More frequent during initiation, adjustment, exercise and during times of illness, and instability • Follow legal requirements for driving DVLA		3-4 boxes (150-200 strips)
	Intensive management requiring frequent testing or loss of hypoglycaemia awareness	More than 10 tests daily • A management plan should be developed and agreed with the individual • Follow legal requirements for driving DVLA • Some patients, particularly those of school age, may require increased quantities of testing strips		6 boxes (300 strips) More may be required. For larger quantities nursing team will confirm
	CSII ('insulin pump') without CGM NICE TA151	At least 4-6 times per day • More frequent during initiation, adjustment, steroid use and during times of illness • Follow legal requirements for driving DVLA		3-4 boxes (150-200 strips)
	CGM systems Flash Libre CCG guidance Other real time CGM systems e.g. Dexcom or paired with CSII	Develop and agree a management plan with the individual • Blood glucose data from the device should be read no less than 8 times per day • People should use the sensor >70% of the time • Access to finger prick devices remains essential however use of test strips should reduce in the region of 30-50% • Follow legal requirements for driving DVLA		2-4 boxes (100-200 strips)
Planning a pregnancy, pregnancy, and gestational diabetes (see NICE NG3)		Test at least 4 times a day • Measurements should include fasting, and 1hr post prandial • For those needing insulin testing pre-bed and other times of day may be required as advised by diabetes maternity services • Follow legal requirements for driving DVLA		3-4 boxes (200-250 strips)
Type 2 diabetes (see NICE NG28)	Insulin therapy +/- hypoglycaemic agents	Injecting 1 to 2 times a day	Test 1-4 times a day. • Reduced to once daily or less if glycaemic control is considered to be stable in agreement with the patient.	1-2 boxes every 1-2 months (50-100 strips)
		Injecting more than twice daily	Test at least 4 times a day.	3-4 boxes (150-200 strips)
		• More frequent during initiation, adjustment, steroid use and during times of illness • Assess patients understanding and use of results to adjust diet, lifestyle and treatment. Provide extra training/education if required • Follow legal requirements for driving DVLA		
	Sulphonylurea or prandial regulator alone or in conjunction with other therapies	Patients should not need to routinely test • Evidence suggests that risk of hypoglycaemia is greatest in the first 3 months of treatment. • Consider testing to support titration of therapy or to help guide decisions around symptomatic hypoglycaemia, suspected asymptomatic hypoglycaemia, risk of hypoglycaemia due to renal impairment, high alcohol intake, those who fast. • Follow legal requirements for driving DVLA		1 box (50 strips) every 3 months on repeat or as per agreed management plan
	Diet and Physical activity alone +/- metformin, glitazone, DPP4 inhibitor, GLP-1 analogue, SGLT-2 inhibitor	Blood glucose testing not routinely recommended • Glycaemic control is best monitored through HbA1c testing • Motivated patients may wish to monitor effects of changes in diet and physical activity • Consider testing if patient starts oral steroids or during periods of acute illness		No repeat prescription Issue as required with agreement and education of patient for time-limited period
Steroid use – Test 4 times daily before or after meals, and at bedtime. As dose reduces or ceases, continue testing until blood glucose normalises (4 to 7 mmol/L). Check HbA1c no earlier than 3 months following cessation of steroids				
CSII continuous subcutaneous insulin infusion therapy, CGM – capillary glucose monitoring, Dipeptidyl peptidase 4 inhibitor, Glucagon- like peptide-1 analogue, sodium-glucose co-transporter – 2 inhibitor Trend UK. Blood glucose monitoring guidelines consensus document.V2.1 January 2017 available from http://trend-uk.org/wp-content/uploads/2017/05/170131-TREND_BG_ONLINE.pdf				

Ketones: self-monitoring guidance for ADULT patients

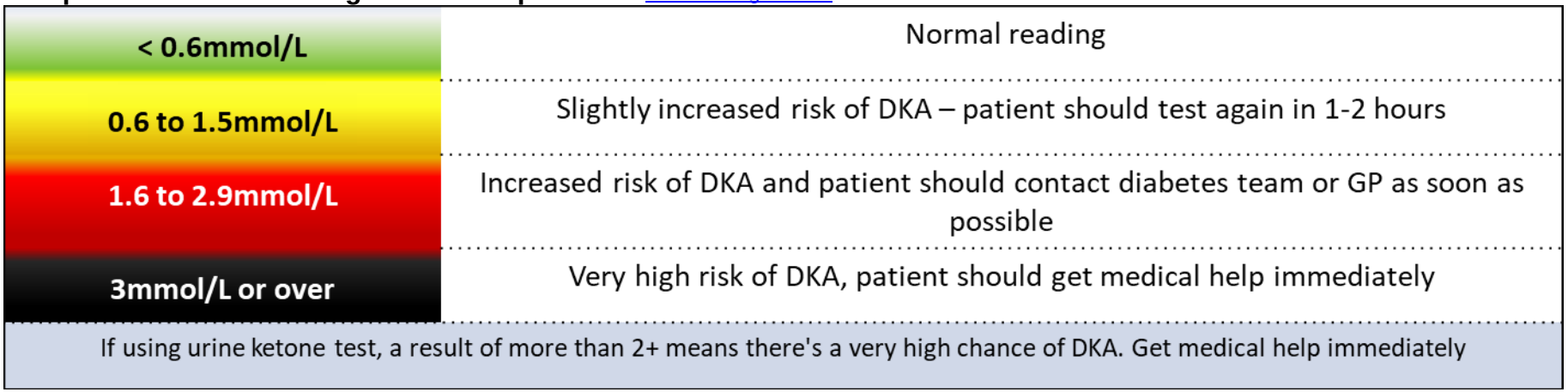
This is general advice and does not replace specialist advice

Type 1 diabetes	Type 2 diabetes
▪ Ketone monitoring should be taught as part of 'sick-day rules' to facilitate self-management of an episode of hyperglycaemia to prevent diabetic ketoacidosis (DKA) from developing ▪ Advise patients with type 1 diabetes to check their ketones if they are feeling unwell or present with symptoms of hyperglycaemia (see CKS NICE guidance) ▪ It is important to remind patients not to use strips after their 'use-by' date	▪ Ketone monitoring not required routinely ▪ People at high risk of recurrent diabetic ketoacidosis (DKA) as identified by the diabetes specialist service may warrant home ketone monitoring ▪ During periods of illness or hyperglycaemia following specialist recommendations only ▪ Do not issue ketone strips solely for use by patients prescribed an SGLT-2 inhibitor. If a patient using a SGLT-2 inhibitor presents unwell, check blood ketone levels using practice meter even if blood glucose levels are in the normal range

Meters with dual functionality (test blood glucose and blood ketones):

Meter	Ketone strip	Quantity	Additional information
CareSens Dual	KetoSens	1 box of 10	Reduced shelf life once box open
GlucoMen Areo 2K	GlucoMen Areo ketone Sensors	1 box of 10	Reduced shelf life once box open
FreeStyle Libre	FreeStyle β ketone	1 box of 10	Flash CGM funded patients only

Ketone interpretation ADULTS – guidance for practices CKS NICE guidance



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Guidance update Accepted	Area Prescribing Committee	June 2020
Guidance updated with new CCG organisation logo		Feb 2022
Next Review date	Following consultation with partnership organisations	June 2022