

Self-Monitoring of Blood Glucose in Diabetes Guideline

Who should be offered self-monitoring of blood glucose:

Type 1 Diabetes – all patients will need to self-monitor

Type 2 Diabetes - Do not *routinely* offer self-monitoring of capillary blood glucose levels for adults with type 2 diabetes unless:

- the person is on insulin **or**
- there is evidence of hypoglycaemic episodes **or**
- the person is on oral medication that may increase their risk of hypoglycaemia while driving or operating machinery **or**
- the person is pregnant or is planning to become pregnant (NICE 2015).

Frequency of monitoring in Type 2 Diabetes

Diet and metformin	not routinely offered	
DPP4i (gliptins), GLP-1 injectables, SGLT2 (gliflozins), pioglitazone	not routinely offered	
Sulfonylureas	maintenance – 2-3 x per week; drivers regularly initiation, titration – twice per day (different times)	See DVLA guidance below.
Repaglinide	maintenance – 2-3 x per week; drivers regularly initiation, titration – 4 x per day	
Basal insulin	Maximum twice daily	
Plus non SU antidiabetic	Once or twice a day	
Plus SU	Two or three times a day	
Basal insulin (twice per day)	twice daily	
Mixed insulin	2-3 x per day	
Basal bolus insulin	4 x per day	

Note - all patients should be reviewed on an individual basis taking into account specific patient factors

Special Circumstances that may require more frequent SMBG testing (frequency to be agreed with patient):




- At diagnosis for 5-7 days to understand lifestyle interventions
- Pre-postprandial level to assist in drug choice at treatment intensification
- Co-prescribed steroids
- Intercurrent illness
- Frequent hypos
- Impaired hypo awareness
- Exercise

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Meters for Patients with Type 2 Diabetes

Any meter using test strips at a cost of below £7.50 for 50 that meets minimum criteria is within guidance. The following are approved by specialist teams across BSW as preferred options for new initiations and meters requiring replacement.

*In April 2023, NHSE published national commissioning recommendations for blood glucose and ketone meters, test strips and lancets [Read more here](#). We reviewed these national recommendations in consultation with our specialist diabetes clinicians across BSW and in July 2023 added some comments to this local guidance. The national recommendations will be reviewed annually and will inform future versions of this local guidance which will continue to be produced in consultation with the BSW specialist diabetes teams.

Meter	Company Representative	Cost	Features	*July 2023 update
 Contour Plus Blue	Matt Hayden Mobile: 07341 075135 matthew.hayden@ascensia.com Ascensia Diabetes Support: 0345 600 6030	Contour Plus strips £5.95 (50) Microlet Lancets £2.99 (100) £5.98 (200)	SmartCOLOUR™ target range indicator. Second chance testing can reapply blood to the same strip for up to 30 seconds.	Remain a first choice preferred option for new initiations and for meters requiring replacement . This is in line with NHSE commissioning recommendations and endorsed by local specialist teams.
 True Metrix Air	Steve Llewelyn Mobile: 07810 084661 E-mail: slllewelyn@trividahealth.co.uk Customer Care Freephone: 0800 689 5035	True Metrix strips: £5.95 (50) TruePlus lancets: £2.90 (100)	Connects to Diasend (software package used by specialist teams to review readings remotely).	Remain a first choice preferred option for new initiations and for meters requiring replacement . This is in line with NHSE commissioning recommendations and endorsed by local specialist teams.
 PalmDoc 2	Helen Smithson Mobile: 07377 353732 Email: helen@palmdoc.co.uk Customer support: 0800 994 9995	PalmDoc strips £5.90 (50) PalmDoc lancets £2.85 (100)	Voice function to support visually impaired. Available to order in English, Bengali, Polish, Urdu & Arabic. Large display.	Existing patients only. These are not included in NHSE commissioning recommendations. Existing patients (low numbers across BSW) can continue to receive these until their meter needs replacing.

For those with Dexterity problems consider:

 Accu-Chek Instant	Claire Hatcher Mobile: 07716 083632 Email: Claire.hatcher@roche.com	Instant test strips £7.50 (50) Fastclix lancets £5.90 (204) (sharps box not required to dispose of Fastclix lancets)	Target range indicator, large display, test strip wide dosing area. Bluetooth enabled - connects to mySugr diabetes app. Connects to Diasend	Remain first choice locally for those with dexterity problems . These are not included in NHSE commissioning recommendations but are endorsed by local specialist teams.
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Note: Patients with dexterity problems using Accu-chek Mobile test strips in existing Accu-chek Mobile devices can continue to receive these test strips. The Mobile device is no longer made. When due to be replaced, switch to Accu-chek Instant.

*Prices correct as of Drug Tariff July 2023 [NHS Electronic Drug Tariff](#)

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Alternative meters for specific indications to be initiated by diabetes specialists:

Basal bolus, carbohydrate counting	Specialist choice appropriate to the person's individual requirements and circumstances. Includes options for cost effective meters (i.e., strips costing less than £7.50/50) used with an app. Freestyle Libre handset with Freestyle Optium test strips (£16.30/50 strips) Reserved only for those eligible under the National criteria for Freestyle Libre or in exceptional circumstances, where other carb counting options cannot be used.
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Please note: The updated NICE guidance [NG28](#) and its recommendations for Continuous Glucose Monitoring (CGM) in T2 diabetes will be considered for funding in 23/24. Our historic policy continues whereby people living with T2 diabetes can receive prescribable realtime (rt) or intermittently scanned (is)CGM if they meet the criteria:

- Being treated with insulin and who are living with a learning disability as recorded on their GP Learning Disability register
- On haemodialysis and on insulin treatment who are clinically indicated as requiring intensive monitoring >8 times daily, as demonstrated on a meter download/review over the past 3 months
- Diabetes associated with cystic fibrosis on insulin treatment.
- NEW: Pregnant women with T2D on four times a day insulin regimen for 12 months inclusive of post-delivery period.

Read our policy here [BSW-ICB-CP052 - CGM - Diabetes Wearable Technology for Adults & Children living with Type 1 Diabetes - Bath and North East Somerset, Swindon and Wiltshire ICB](#)

Initiating SMBG – Provide Appropriate Information to Support Person with Diabetes to SMBG.

1. **Agree individualized targets** - take into account age, co-morbidities, and clinical factors
2. **Agree purpose of testing, interpretation, and action**
3. **Provide patient information leaflets on SMBG, hypos, driving:**

<http://www.swindondiabetes.co.uk/guidance/publications-reports-resources/>

<https://www.gov.im/media/1368805/diabetes-why-do-i-sometimes-feel-shaky-dizzy-and-sweaty.pdf>

https://www.gov.im/media/1368804/a5_driving_trend.pdf

Carry out a structured assessment at least annually

Pregnancy T1DM, T2DM and Gestational DM – test 6-7 times a day

- BG targets for pregnant women with diabetes (NICE, 2015) as follow:
 - fasting – below 5.3 mmol/l,
 - 1h after meals – below 7.8 mmol/l, or 2h after meals: below 6.4 mmol/l.
- Swindon meter for new to SMBG patients in pregnancy (GDM, T2DM) is Wavesense Jazz, RUH use Contour Plus and Salisbury use Performa Nano and Accu Chek Mobile
- Pregnant women with T1DM are eligible for CGM. (In the form of procured rtCGM e.g., Dexcom G6/7, Medtronic Guardian provided by secondary care trusts OR prescribed rt or isCGM issued on FP10 after initiation by secondary care).
- Pregnant women with T2 diabetes on four times a day insulin regimen are eligible for CGM, 12 months inclusive of post-delivery period. (In the form of prescribed rt or isCGM issued on FP10 after initiation by secondary care).

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Type 1 Diabetes

Joint decision making should be used to agree the most appropriate meter for each individual.

All meters that meet current ISO standards may be considered for patients with Type 1 diabetes.

Suggestions are:

- **Glucomen Areo 2K** (£8.25/50 strips) and **4Sure Smart Duo** (£8.99/50 strips) as the ability to test both blood glucose and blood ketones is advantageous with Type 1 Diabetes.
- **Accu-Check Aviva Expert** (£16.21/50 strips) no longer manufactured, existing people only. *At review* people not using the carbohydrate counting and insulin adjustment feature of the meter should be provided with a cost effective meter with features to support their requirements. Meters used with carbohydrate counting apps are an alternative.
- **Continuous Glucose Monitoring** may be a suitable option for T1 Diabetes patients as per [NICE NG17](#). For Specialist DSN initiation only at routine review appointments, then GP prescribing until 6 monthly specialist review. See BSW formulary for prescribable CGM devices [here](#)
- For further information regarding differences between intermittent (is) and real time (rt) CGM system available on FP10 see [here](#)

Frequency of SMBG monitoring – As per NICE guidance

Advise routine self-monitoring of blood glucose levels for all adults with Type 1 diabetes, and recommend testing at least 4 times a day, including before each meal and before bed.

Support adults with Type 1 Diabetes to test at least 4 times a day, and up to 10 times a day if any of the following apply.

- The desired target for blood glucose control, measured by HbA1c level (individualised) is not achieved
- The frequency of hypoglycaemia episodes increases.
- There is a legal requirement to do so for example driving.
- During periods of illness.
- Before, during and after sport.
- When planning pregnancy, during pregnancy and whilst breastfeeding.
- Pump therapy.

Enable additional blood glucose testing (more than 10 times a day) for adults with Type 1 diabetes if this is necessary for the person's lifestyle for example long periods of driving, undertaking high risk activity or occupation, travel, impaired awareness of hypoglycaemia.

If severe or frequent episodes of hypoglycaemia requiring third party assistance refer to specialist care for consideration for Continuous glucose monitoring. See BSW CCG CGM policy [here](#)

Links to relevant NICE guidance: [here](#)

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DVLA Guidance

	Group 1 drivers – cars and motorbikes	Group 2 drivers – bus or lorry
Insulin treated	At times relevant to driving (not more than 2 hours before the start of the first journey and every 2 hours while driving) More frequent monitoring may be required with any greater risk of hypoglycaemia	At least twice daily including on days when not driving (and no more than 2 hours before the start of the first journey and every 2 hours while driving) (memory function required to ensure 3 months of readings are available for assessment) More frequent monitoring may be required with any greater risk of hypoglycaemia
Sulfonylurea or meglitinides	Regularly at times relevant to driving and clinical factors	At least twice per day and at times relevant to driving
GLP-1 , DPP4i (gliptins), SGLT2, pioglitazone	No requirement	No requirement
Diet alone	No requirement	No requirement

See - ‘Assessing fitness to drive– a guide for medical professionals for more details’
<https://www.gov.uk/government/publications/assessing-fitness-to-drive-a-guide-for-medical-professionals>

DVLA precautions – if treated with insulin:

- ❖ Drivers must always carry their glucose meter and blood glucose strips with them
- ❖ They must check their blood glucose before driving and every 2 hours while driving
- ❖ If blood glucose is ≤5.0 mmol/L, the driver must take a snack; if it is <4 mmol/l or feel hypoglycaemic the driver should not drive
- ❖ If hypoglycaemia develops while driving, the driver should stop the vehicle as soon as possible.
- ❖ The driver must then switch off the engine, remove the keys from the ignition and move from the driver’s seat
- ❖ The driver must not resume driving until 45 minutes after blood glucose has returned to normal; it takes up to 45 minutes for the brain to recover fully
- ❖ The driver should always keep an emergency supply of fast-acting carbohydrate such as glucose tablets or sweets within easy reach in the vehicle