

Guideline For Blood Glucose Monitoring

Blood Glucose Meters and Test Strip Options

Blood glucose monitoring requires the use of appropriate equipment. The aim of this guidance is to rationalise the number of different blood glucose testing devices across the locality whilst ensuring appropriate use of NHS resources. Advantages of compliance with the guidance include consistency of approach, reduced risk of errors due to unfamiliarity with equipment, a reduction in unnecessary prescribing, and improved cost effectiveness.

- Blood glucose testing should be used as part of a care plan for the management of diabetes following structured patient education which includes the purpose of testing. Testing is not required for all people with diabetes.
- The decision to change meters should be used as an opportunity to review the purpose of testing and the interpretation of results
- If a change in prescribed test strips is required, people should be encouraged to use their current supply of test strips first as long as the strips have not reached their expiry date and the current meter is in working order
- The majority of test strips expire within 90 days of opening. If one container usage is over a longer period than this, review blood glucose monitoring needs is.
- People should be reminded to use control solutions/calibrate machines in line with manufacturer recommendations

The blood glucose testing meters referred to in this document are recommended in Northamptonshire at the time of publication and meet the needs of the majority of patients whilst complying with ISO standards. The list is neither exhaustive nor exclusive and is subject to change due to product updates/changes.

Note – Freestyle Libre is available in Northamptonshire to the patient cohorts recommended within NHS England's RMOC guidance.

Driving

- The main issue in relation to driving and the law is the risk of hypoglycaemia
- It is important that any person using treatment that can cause hypoglycaemia (insulin/sulphonylurea) has the means to test their blood glucose
- The [current DVLA guidance](#) separates insulin-treated diabetes and diabetes managed by tablets associated with hypoglycaemia risk (including sulphonylureas and glinides) and provides different recommendations for each.
- People with insulin-treated diabetes are recommended to test their blood glucose prior to driving, and every 2 hours during long journeys. Following hypoglycaemia treatment the blood glucose must be in the normal range for 45 mins prior to resuming driving. There must be full hypo awareness at every episode. (Refer to DVLA website for further information)
- For people with diabetes managed by tablets carrying hypoglycaemia risk, blood glucose monitoring is not routinely required, but should be used if needed to avoid or detect hypoglycaemia in people at high risk.
- For Group 2 and vocational licences evidence is required of twice daily blood glucose testing and at times related to driving (No more than 30mins before the start of the first journey and at two hourly intervals while driving.) A blood glucose meter with the facility to store a minimum of 3 months of results is required and has to be reviewed annually by an appropriate medical professional. A meter with the facility to download results is recommended. All meters in use must be reviewed.
- The DVLA should be notified if there is more than one episode of severe hypoglycaemia (where assistance from a third party is required) in the previous 12 months.

Type 1 Diabetes Mellitus

Self-monitoring of glycaemic control should only be performed if it has a clear purpose for the patient and healthcare professional. It should not be viewed as a stand-alone intervention, but should be incorporated into structured patient education (NICE-clinical guideline 15). Approaches and targets should be individualised and agreed in consultation with patients, as part of the care planning process.

Test frequency will depend on the patient and their insulin regimen. A frequency of up to eight times daily is possible. More testing is required to meet driving requirements

All results must be recorded with time and date to provide a cumulative record as a basis for day-to-day changes in therapy

People prescribed insulin should be taught how to adjust therapy in line with their blood glucose monitoring.

Increase in BGM may be required during period of:

- Illness
- Lifestyle changes
- Changes
- Pre conception
- Impaired hypo awareness
- Frequent hypos
- Exercise
- Driving
- Terminal care/end of life patients as part of a care plan

Test at night if unrecognised hypos are suspected

HbA1c should be measured every three to six months.

Routinely pre meals and pre bed (MDI)
One or two multi-point profiles a week at different times of day (BD premixed)

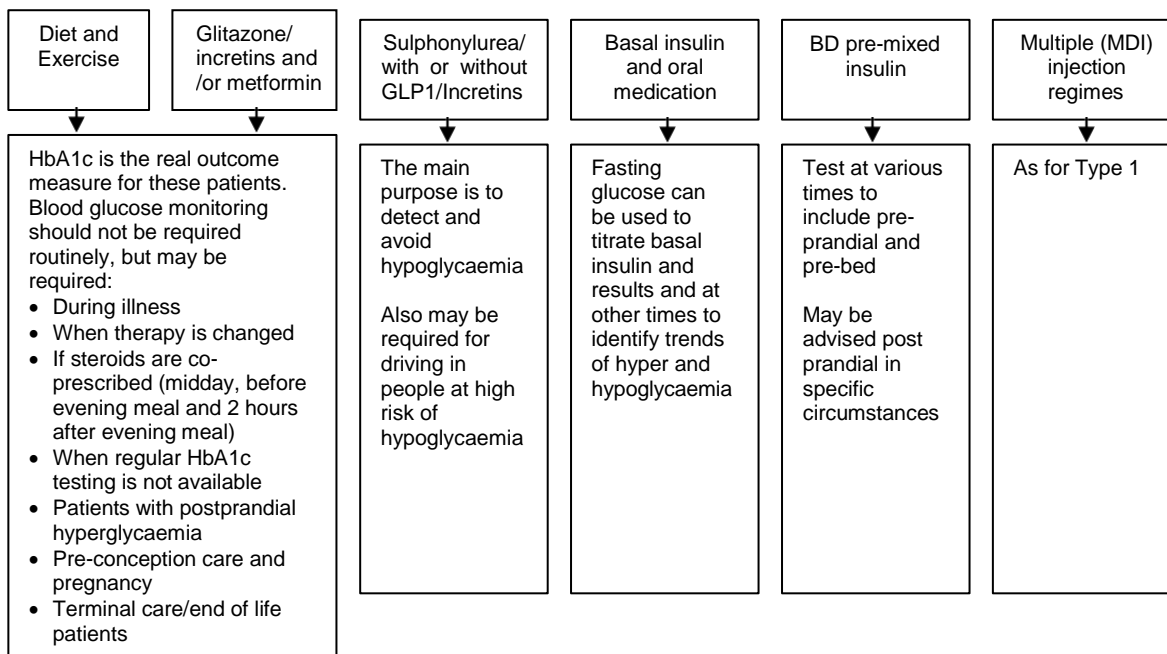
Type 2 Diabetes Mellitus

Routine selfmonitoring of blood glucose is not required if patients are well controlled on non-insulin therapy (including oral treatment, diet and exercise control. Education should clearly identify potential situations where hypo and hyperglycaemia may arise. Examples of these include:

- Any non-minor illness
- Concomitant systemic steroid therapy
- Initiation of a sulphonylurea/Insulin

People with Type 2 diabetes usually have more stable glycaemic control and therefore advice on the frequency of testing will reflect this in line with the treatment they are on. In practice, the level of monitoring will vary according to the treatment regime in use and the target level of glycaemic control set for the patient, and for driving requirements.

NB: Urine glucose monitoring test strips (Diastix) are used as part of structured Type 2 education i.e. DESMOND



Driving (see page 1 for more detail)	Alternative Site Testing (ASL)	Lancers and Lancets
<ul style="list-style-type: none"> • The main issue in relation to driving and the law is the risk of hypoglycaemia • It is important that any person who is using treatment that can cause hypoglycaemia (insulin/sulphonylurea) has the means to test their blood glucose • People with insulin-treated diabetes should be recommended to test their blood glucose prior to driving, and at 2 hourly intervals during long journeys. (Refer to page 1 of this guideline and DVLA website for further information) 	<p>These results must be used with caution in the following circumstances:</p> <ul style="list-style-type: none"> • When making frequent insulin dose adjustment decisions eg following new diagnosis • During illness management • Following exercise • For hypoglycaemia management especially if poor warning symptoms 	<ul style="list-style-type: none"> • Each meter is supplied with a lancet and will require lancets on prescription • Lancets (the finger pricking devices) are not available individually on prescription. • Replacement Lancing devices (Lancers) available from companies (usually free of charge) • Lancets are for single use only • Disposal of lancets (refer to Sharps policy)

Blood Glucose Meters and Test Strip Options

FIRST LINE - meets the needs of majority of patients:

Test Strips	Meter name	Benefits	Lancets	Cost (strip 50)	Manufacturer
Finetest Lite	Finetest Lite	-0.5µl blood volume -Large display -Auto-coding -Alternative site testing -Data download	Greenlan	£5.95	Neon

Alternative recommendations for patients who may be excluded from using a first line meter:

Patient Groups	Test Strips	Cost (strips)	Meter name	Manufacturer
Type 1 diabetes with requirement for blood ketone monitoring (for use in CSII therapy; diagnosis of DKA; CAPD; pregnant women)	Caresens Pro glucose and Ketosens Ketone	£9.95 (50) £9.95 (10)	Caresens Dual	Spirit
	GlucorX HCT and GlucoseRx HCT ketone	£9.95 (50) £9.95 (10)	GlucorX HCT and Ketone	GlucorX
Visual impairment	Caresens N	£12.75 (50) <small>(rebate available)</small>	CaresensN Voice	Spirit
	GlucorX Nexus	£9.95 (50)	GlucorX Nexus Voice	GlucorX
Bus/taxi / HGVdrivers on insulin/ sulphonylureas (to dispose of sharps safely whilst working; use standard meter at home)	Mobile	£9.99 (50)	Accu-Chek Mobile cassette	Roche
	Performa	£9.95 (50)	Accu-Chek Performa Nano	Roche
Requirement for bolus dose advice on meter	Aviva	£16.09 (50)	Accu-Check Aviva Expert	Roche
	FreeStyle Lite	£16.10 (50)	FreeStyle InsuLinx	Abbott
Patients on insulin pumps	Contour Next	£15.04 (50)	Contour Link	Ascensia
	FreeStyle	£15.97 (50)	FreeStyle Accu-Chek Combo /	Abbott
	Aviva	£16.09 (50)	Accu-Chek Insight	Roche

Meter choice should be guided on the advice of specialist team for:

- Renal dialysis patients
- Children, less than 16 years old – seek advice from paediatric specialist prior to switching
- Antenatal and post-natal patients – meter choice guided by hospital to ensure compatibility with service software
- Any patients for whom the GP practice has received instructions from secondary care to keep the patient on a specific meter

Cost effective lancet choices for self-use by patients

- Use the least costly lancets that are suitable for the individual patient - these may not be the one provided with the meter. There are a number of cost effective lancets available on prescription priced at less than £3 per 100 lancets.
- Lancets are designed to fit into proprietary finger-pricking devices however most single use lancets can fit several devices.
- Finger pricking devices are not prescribable as they are not listed as appliances under Part IXA of the Drug Tariff. Finger pricking devices are supplied with the blood glucose monitoring meter.
- Multi-device lancets which contain a preloaded lancet drum (e.g. Fastclix), should be restricted to those with clinical need, e.g. those with dexterity problems or children/adults where disposal of sharps may be impractical or difficult
- Safety lancets are designed so that the sharp retracts after use. These are primarily for the benefit of healthcare workers to avoid needle stick injury, not to be used by patients self-monitoring blood glucose, therefore they should not routinely be prescribed by GPs on prescription (unless a healthcare worker is testing the patient's blood glucose).
- Ensure that quantities on prescription are appropriate and in line with frequency of testing (i.e. should match quantities and frequency of ordering of blood glucose test strips).
- Lancets are for single use only, patients should be provided with suitable containers for the collection of used lancets. Arrangements should be available for the suitable disposal of these containers.
- Lancets for self-use must not be used by healthcare workers to take samples from more than one patient.

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