



Self-Monitoring of Blood Glucose (Adults) Guidelines

1. Self-monitoring of blood glucose is advised for all adults with type 1 diabetes.
2. Self Monitoring of Blood Glucose (SMBG) should be considered for adults with type 2 diabetes who:
 - a. use insulin; or
 - b. use other medication with the potential to cause hypoglycaemia whilst driving or using machinery; or
 - c. experience hypoglycaemic episodes; or
 - d. are pregnant, or are planning to become pregnant.
3. Only where there is an agreed purpose or goal to testing should SMBG be used routinely by adults with type 2 diabetes who are not treated with insulin, sulphonylureas or glinides.

SMBG should incorporate appropriate education on how results can be used to reinforce lifestyle change, adjust therapy or alert healthcare professionals to problems or trends. Healthcare professionals should identify and support those who find SMBG useful, whilst discouraging those who gain no clinical benefit from continuing to monitor.

Those people who are motivated by SMBG activity and use the information to maximise the effect of lifestyle and medication, should be encouraged to continue.

4. Target setting, frequency of testing, timing and duration of monitoring should be agreed with the individual. Healthcare professionals should document this discussion within the patient's clinical record.
5. The DVLA has published comprehensive guidance on the SMBG testing requirements for all patients with diabetes who drive private cars/motorcycles and/or commercial vehicles. Patients treated with insulin are required to test their blood glucose no more than 2 hours before the first journey of the day and every 2 hours whilst driving. Patients taking sulphonylureas or glinides who drive a bus or lorry are required to monitor their blood glucose at least twice daily and at times relevant to driving i.e. no more than 2 hours before the start of the first journey and every 2 hours while driving. Full guidance is available at [assessing-fitness-to-drive-a-guide-for-medical-professionals.pdf \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/61422/assessing-fitness-to-drive-a-guide-for-medical-professionals.pdf)
6. At their diabetes annual review, each patient's SMBG should be assessed by a healthcare professional. This review should incorporate:
 - The patient's self-monitoring skills
 - The quality and frequency of testing
 - The patient's understanding of their glucose results and the action to take
 - The impact on the patient's quality of life
 - The continued benefit of testing
 - The equipment used

SMBG for Adults with Type 1 Diabetes

Multiple Daily Injections

At least 4x daily

(to include pre-meal
and bedtime tests)

Insulin Pump

At least 6x daily

(as per agreed
management plan)

For adults with type 1 diabetes, additional testing up to 10x day may be required:

- To support achieving of agreed HbA1c targets
- Where the frequency of hypoglycaemia is increasing
- During periods of illness
- Before, during and after sport
- To comply with DVLA requirements
- When planning pregnancy, during pregnancy and when breast feeding
- Where there is a need to know blood glucose levels more than 4 times a day

SMBG for Adults with Diabetes during Pregnancy

**Lifestyle, Oral Therapy or
Single Daily Insulin**

At least 4x daily

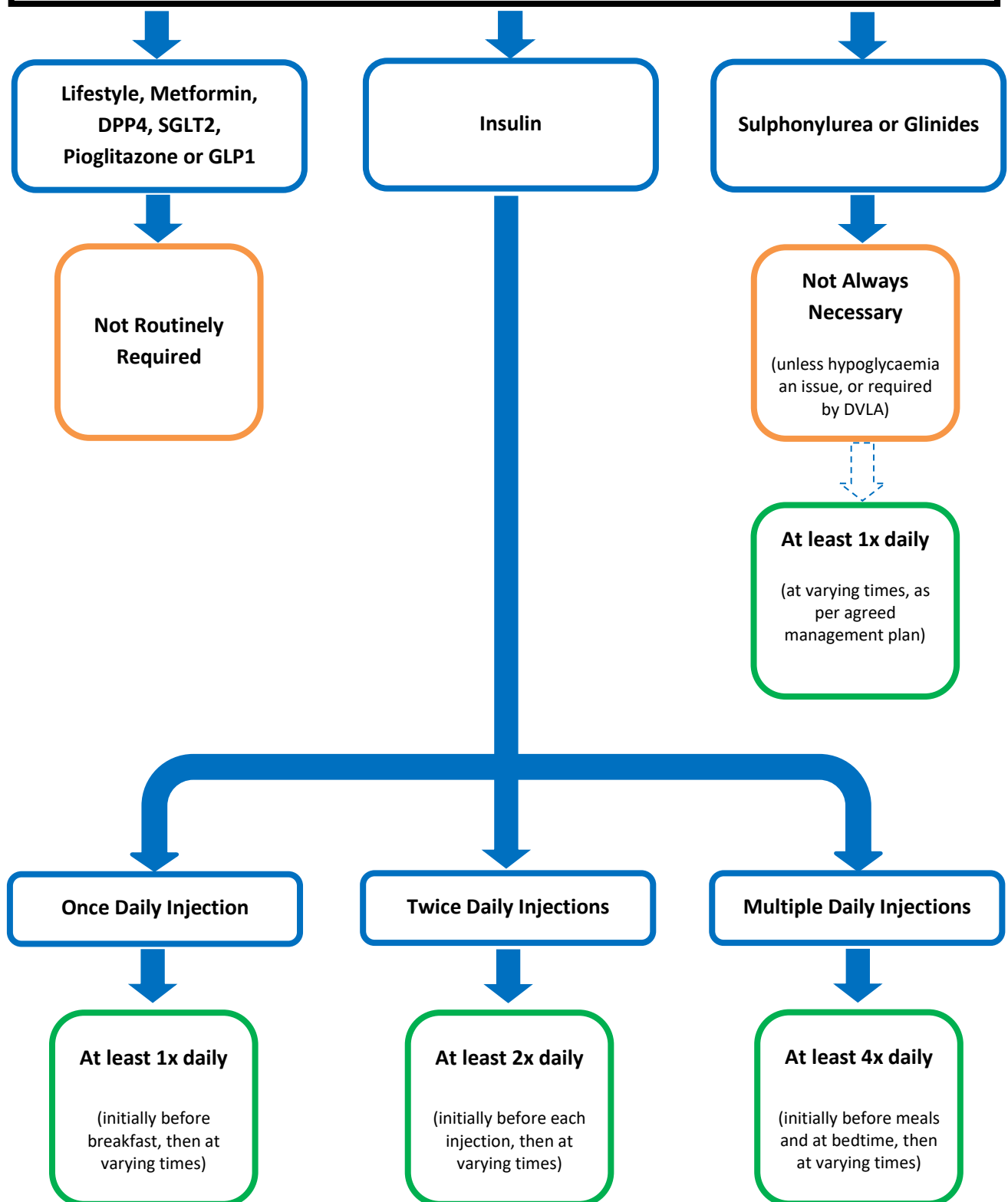
(to include fasting and
1hr post meal testing)

Multiple Daily Injections

At least 6x daily

(to include fasting,
pre-meal, 1hr post
meal & bedtime tests)

SMBG for Adults with Type 2 Diabetes



For all adults with type 2 diabetes, additional testing may be required:

- To support achievement of agreed HbA1c targets
- Where hypoglycaemia is problematic or awareness is impaired
- When starting oral or IV corticosteroids
- During periods of illness
- Following changes in treatment
- To comply with DVLA requirements

Ketone Testing for Adults with Diabetes

Diabetic ketoacidosis (DKA) is a life-threatening condition predominantly associated with type 1 diabetes, in which a severe lack of insulin prevents the metabolism of glucose as an energy source. This can lead to the metabolism of body fat and the harmful build-up of ketones. Patients with suspected DKA should be admitted to hospital.

Ketone testing should be made available for:

- Pregnant patients with type 1 diabetes
- Adults with type 1 diabetes:
 - Who use an insulin pump
 - Who have a previous history of ketoacidosis requiring hospital admission
 - Who frequently experience blood glucose >20mmol/l
 - Utilising agreed "sick day rules" to facilitate self-management of hyperglycaemia episodes.
- Adults with type 2 diabetes that require insulin and are prone to ketosis

Ketone testing strips should not be prescribed on the NHS for testing associated with ketogenic diets intended for weight loss.




Blood ketone levels should be monitored in patients with diabetes that:

- May be dehydrated e.g. vomiting, diarrhoea, thirst or frequent passing of urine
- Are experiencing abdominal pain or nausea
- Have blood glucose levels >11 mmol/l and are feeling unwell
- Are lethargic, confused or otherwise unwell




Blood Ketone Reading	Suggested Action
Less than 0.6 mmol/l	Normal range. Recheck in 1-2 hours if blood glucose remains high.
0.6 to less than 1.5 mmol/l	Risk of developing DKA. Follow "sick-day" rules. Recheck in 1-2 hours.
1.5 to less than 3.0 mmol/l	High risk of DKA. Contact diabetes specialist nurse, diabetes hospital team, GP or NHS 111 Wales for advice.
More than 3.0 mmol/l	Very high risk of DKA. Dial 999 for immediate medical assistance.

NHS Wales Preferred SMBG Meters and Test Strips

Patients with Type 2 Diabetes

METER	Accu-Chek Instant	Contour Plus	Wavesense JAZZ
IMAGE			
TESTING STRIPS	Instant	Contour Plus	Wavesense JAZZ
LANCETS	Fastclix Lancets	Microlet Lancets	Agamatrix UltraThin


Patients with Type 1 Diabetes, or Type 2 Diabetes with Additional Requirements

METER	4Sure Smart Duo	CareSens Dual	HCT Meter
IMAGE			
TESTING STRIPS	4Sure Glucose 4Sure Ketone	CareSens Pro Glucose KetoSens Ketone	GlucorX HCT Glucose GlucorX HCT Ketone
LANCETS	4Sure Lancets	CareSens Lancets	GlucorX Lancets

Patients with Visual Impairment, Dexterity Issues, Carb Counting or for Sports / Active Lifestyle

METER	Accu-Chek Mobile
IMAGE	
TESTING STRIPS	Mobile Cassette
LANCETS	Fastclix Lancets

Patients with Gestational Diabetes

METER	Accu-Chek Instant
IMAGE	
TESTING STRIPS	Instant
LANCETS	Fastclix Lancets

Prescribing Advice

Patient Type	Prescribing Recommendations
Patients using insulin	Strips should be available as repeat medication . May require between 30-200 strips per month depending on insulin regimen and level of control required.
Patients using sulphonylureas or glinides	Where routine testing is considered necessary, strips should be available as acute medication only. A supply of 50 strips every 3 months may be sufficient for conventional monitoring. Additional strips may be required for periods of intensive monitoring or to meet DVLA requirements.
Patients using metformin, DPP4, SGLT2, GLP1, pioglitazone.	Routine conventional monitoring is not usually required. Where considered necessary, strips should be available as acute medication only. A supply of 50 strips every 3 months may be sufficient for conventional monitoring. Additional strips may be required for periods of intensive monitoring.
Patients using lifestyle measures alone	

References

- NICE, Type 1 Diabetes in Adults (NG17), Updated Dec 2020, [Type 1 diabetes in adults: diagnosis and management | Guidance | NICE](#)
- NICE, Type 2 Diabetes in Adults (NG28), Updated Dec 2020, [Type 2 diabetes in adults: management | Guidance | NICE](#)
- NICE, Diabetes in Pregnancy (NG3), Updated Dec 2020, [Diabetes in pregnancy: management from preconception to the postnatal period | Guidance | NICE](#)
- DVLA, Assessing Fitness to Drive – A Guide for Medical Professionals, Feb 2020, [assessing-fitness-to-drive-a-guide-for-medical-professionals.pdf \(publishing.service.gov.uk\)](#)
- All Wales Patient Self Testing Blood Glucose Meters Guidance v3, Jun 2021
- PrescQIPP, Testing Strips in Diabetes, Nov 2018