

## Guideline for Self-monitoring of Blood Glucose in Adults

### Optimal Control of Diabetes

Good glycaemic control has been shown to reduce the occurrence of major complications in patients with Type 1 and Type 2 Diabetes. The risk of long term complications correlates most closely with HbA1c as an indicator of overall glycaemic control. Self-monitoring of blood glucose may contribute towards achieving good overall glycaemic control in some patients, supported by structured patient education. Self-monitoring is necessary for patients treated with insulin or other medication with a high risk of hypoglycaemia, and for women planning pregnancy or who are pregnant. A National Institute for Health Research (NIHR) Health Technology Assessment (HTA) study published in 2009 concluded that there was no convincing evidence to support routine self-monitoring in people with Type 2 diabetes. The likely benefit of self-monitoring in an individual patient must be considered against potential harm from the additional burden of testing where the benefit is not clear.

### **Gold Standard for Blood Glucose Testing: HbA1c remains the test of choice.**

#### NICE guidance (CG66)

Self-monitoring is the only direct method by which the patient with diabetes can be aware of their level of control of blood glucose but is best used when responsive action can be taken either in adjusting dosage i.e. with insulin, or identifying a hypoglycaemic episode resulting from oral medication. Self-monitoring is best used when the patient is educated and found competent in performing the tests correctly, and is aware of what action to take if results are abnormal. It is also considered controversial to use self-monitoring for feedback on the impact of lifestyle measures, except for people using insulin, but NICE suggests using as an integral part of the education of a newly diagnosed patient with Type 2 Diabetes.

Self-monitoring of blood glucose is necessary with insulin, or treatments with high risk of hypoglycaemia

### Patient Centred Care

Care of the patient with diabetes is multifactorial and treatment regimens can become quite complicated. It is important to optimise treatment to patient's capacity, prioritising actions that reduce risk of mortality and minimise the burden of disease. Self-monitoring of blood glucose should be discussed with the patient, targets agreed, and a written management plan including actions that the patient can take in response to adverse results must support any prescribing of testing strips, to assure responsible use of NHS resources. It is important to remember that the burden of self-monitoring is linked with increased risk of depression in the patient with diabetes.

The agreed formulary meter is:

**CARESENS N (using CareSens N Biosensor strips)** made by SPIRIT Healthcare.

The aim is for the agreed formulary meter to be used in the majority of patients, starting with new patients being initiated on self-monitoring. However some patients using intensive insulin therapy under secondary care guidance may be advised to use an alternative meter. Where the treating consultant or specialist nurse has specified this in writing, the alternative test strips should be prescribed. For patients already stabilised on a particular testing method, a change to the agreed formulary meter should be offered, discussed and agreed with the patient.

*Please see overleaf for monitoring regimens*

**Patients choosing to purchase a meter and self test where there is no clinical indication for self monitoring, or who are not advised to test by their management plan, will NOT have their testing strips supplied on the NHS by FP10. They may purchase their own testing strips.**

References: [www.nice.org.uk](http://www.nice.org.uk) ; [www.hta.ac.uk](http://www.hta.ac.uk) ;

O'Kane MJ, Bunting B, Copeland M, Coates VE. ESMON study group Efficacy of self monitoring of blood glucose in patients with newly diagnosed type 2 diabetes (ESMON study): randomised controlled trial. *BMJ*. 2008;336:1174–1177. Acknowledgements: Liverpool & Sefton Diabetic Services, Rugby PCT, NHS Mid Essex Locality, Coventry & Warwickshire NHS Trust, Coventry PCT

### Examples of typical self monitoring regimes

Regimen A	Not usually required
Regimen B	2 tests (fasting and non-fasting) in one day, twice a week
On insulin REGIMEN	To be agreed between clinician and patient

Agree individualised HbA1c target as per NICE guidance and agree specific ranges for self – monitoring with the patient, including frequency, documenting in their management plan

#### Type 2 Diabetes treated with low risk oral hypoglycaemics only:

e.g. Metformin, Pioglitazone, Acarbose, and Gliptin (excluding co-prescribing of Gliptin with Pioglitazone). Patient is not at risk of hypoglycaemia therefore self-testing has no long term benefit.

#### Type 2 Diabetes, diet controlled:

The diet controlled patient is not at risk of hypoglycaemia; self-testing has no benefit

Newly diagnosed patients may use for education purposes only. In this case issue one pack on acute prescription, supported with education and training (NICE CG66)

Regimen: A

#### Type 2 Diabetes treated with high risk oral hypoglycaemics:

Regimen: B

e.g. Sulphonylurea, Nateglinide, Repaglinide, Exenatide, Liraglutide and Gliptin if co-prescribed with Pioglitazone. (See below for patients needing to drive)

#### Type 2 Diabetes, Insulin-treated:

Self-monitoring is advised due to significant risk of hypoglycaemia and should be used to adjust insulin dose before meals where appropriate. Discuss with patient, agree on frequency considered to be most appropriate for the patient, document and give written management plan.

**Type 1 Diabetes and Pre - & Gestational Diabetes:** Whether on insulin or not it is important to monitor blood glucose to avoid hypo and hyperglycaemia. The management plan and supply of strips should be tailored to individual needs.

#### Patients with diabetes needing to drive who are at high risk of hypoglycaemia:

Need to check blood-glucose concentration before driving and every 2 hours if on long journeys. Discuss with patient. For further information see DVLA guidelines at [www.dft.gov.uk](http://www.dft.gov.uk)

#### Education & Lifestyle Interventions

- Give advice on diet, exercise and smoking at each review
- Agree annually the need and purpose of blood glucose self monitoring
- Reinforce education on use and interpretation of results if self testing
- Support training of self testing with written Management Plan
- Encourage all patients who are self monitoring to use the **minimum number** of tests required to improve control

Document fully the frequency of self monitoring and record specific action to take in event of several abnormal results. Remember to specify which meter and testing strips.

#### Advice on Usual Quantities for Prescribers

Regimen A = not required on repeat

Regimen B = 1 pack every 3 months

Requirements may vary according to certain circumstances e.g. illness,

N.B This guideline is intended to cover the majority of situations. Patients who fall outside these criteria need individual assessment, and decisions should be fully documented in their management plan.

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