

## A Guide to Monitoring Blood Glucose for Patients with diabetes in Care Homes

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### 1. Summary

- In most cases residents with type 2 diabetes do not require regular blood glucose testing by finger prick.
- Ensure finger prick testing is only undertaken where there is a documented clinical need.
- Ensure appropriate monitoring is agreed with the residents GP or specialist diabetic nurse depending on their treatment.
- Ensure diabetic residents have a care plan covering when to monitor, normal range and actions to be taken if values are outside of that range.
- Ensure that all carers are aware of action to be taken in the event of high or low readings.

## 2. Background

Diabetes Mellitus is a condition in which the amount of glucose in the blood is too high. This happens because the body is unable to make use of carbohydrates and sugars in the diet either because the pancreas does not produce enough insulin or the body is unable to make use of it. Glucose then builds up in the blood which has long term effects on the body's organs.

There are two types of diabetes:

- Type 1 in which the body does not produce insulin. **This type of diabetes is always treated with insulin.**
- Type 2 in which the body either does not produce sufficient insulin or the body does not respond to the insulin which is there. Type 2 diabetes may be treated by diet alone, tablets, non-insulin injections, insulin or a combination of these approaches.

Blood glucose monitoring should be part of the resident's care plan where appropriate.

## 3. Purpose

The purpose of this guideline is to describe the circumstances in which blood glucose monitoring is appropriate for residents in care homes and to give guidance on interpreting the results.

## 4. Responsibilities

Registered care home managers are responsible for ensuring that staff undertaking blood glucose monitoring for residents are trained in the correct procedure when testing blood glucose. Incorrect procedures may lead to misleading or incorrect results which may compromise the health and safety of the resident. Training programmes are available within Shropshire, please contact the Diabetes Specialist Nursing Service for more information [01743 277693](tel:01743 277693)

## 5. Blood Glucose Monitoring

The results of monitoring glucose may be used to manage diabetes and form part of the resident's care plan. Blood glucose monitoring should be carried out:

For those on insulin treatment

- For those on oral treatments which have the potential to cause hypoglycaemia (low blood glucose e.g. Sulphonylureas or Meglitinides)
- When changing treatments if there is the potential to cause hypoglycaemia or to assess the impact of changes to treatments
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- To monitor changes during illness or when steroids are prescribed (e.g. for a chest infection)
- During fasting for religious or other reasons (e.g. during Ramadan)
- To check and reduce the risk of low blood glucose during activities such as driving if using a diabetic treatment with the potential to cause this.

## 6. Resident Groups that require blood glucose monitoring.

Not all residents with diabetes need to have their blood glucose monitored on a regular basis.

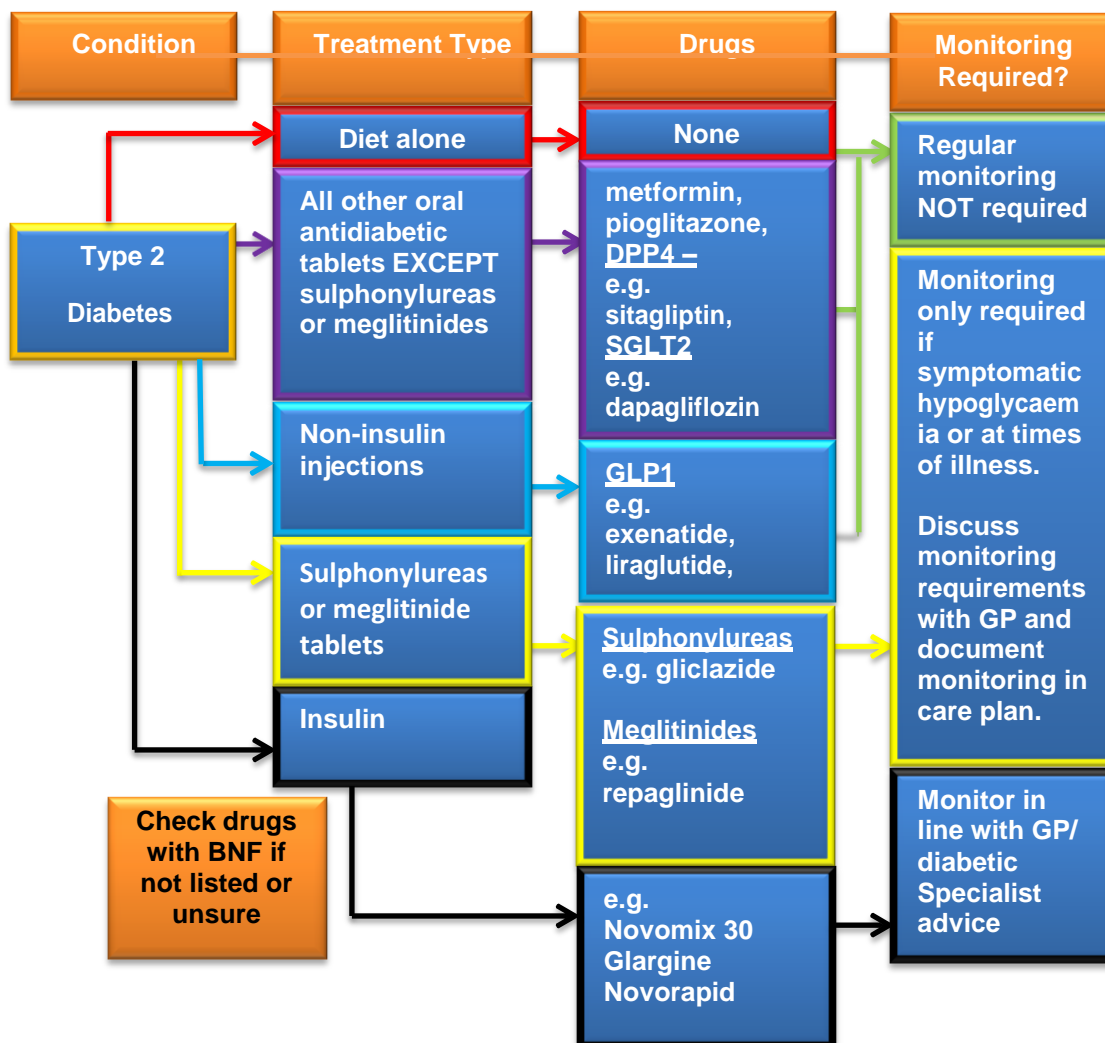
- **Type 1 diabetes**

Blood glucose monitoring is always required. The frequency of monitoring should be discussed and agreed with the resident's GP and/or specialist diabetes services. This should be documented in the residents diabetic care plan.

- **Type 2 diabetes**

For the majority of people with type 2 diabetes, finger-prick testing (monitoring) is not required. But when it is needed, the amount of testing depends on the type of treatment that the resident is taking for their diabetes. Below is a summary of the types of treatment and whether testing blood glucose is needed. Please note there may be exceptions to this guide and more frequent monitoring may be necessary in residents where blood glucose levels are unstable.

### Diabetic Medication and Finger Prick Blood Monitoring



## 7. Blood Glucose Results

The normal range for blood glucose is considered to be:

Type 1 diabetes (NICE 2004): Before meals 4-7 mmol/L	2 hours after meals <9mmol/L
Type 2 diabetes (NICE 2008): Before meals 4-7 mmol/L	2 hours after meals <8.5mmol/L

However, these targets should be individual to each person and the target levels for each resident should be agreed between the resident and their GP or specialist diabetes team. These should be documented in their care plan together with agreed actions should the resident's results be outside of that range.

Staff who test and check the blood glucose levels of residents should have had sufficient training to be able to understand, interpret and act upon the results. See section 3 above for further information.

## 8. Hypoglycaemia

Hypoglycaemia is the medical term for low blood glucose, and is defined as a blood glucose level of less than 4 mmol/L. Hypoglycaemia may occur when residents with diabetes are treated with some drugs such as sulphonylureas, prandial regulators (repaglinide or nateglinide) or insulin.

### Signs and symptoms of Hypoglycaemia

#### Early signs include:

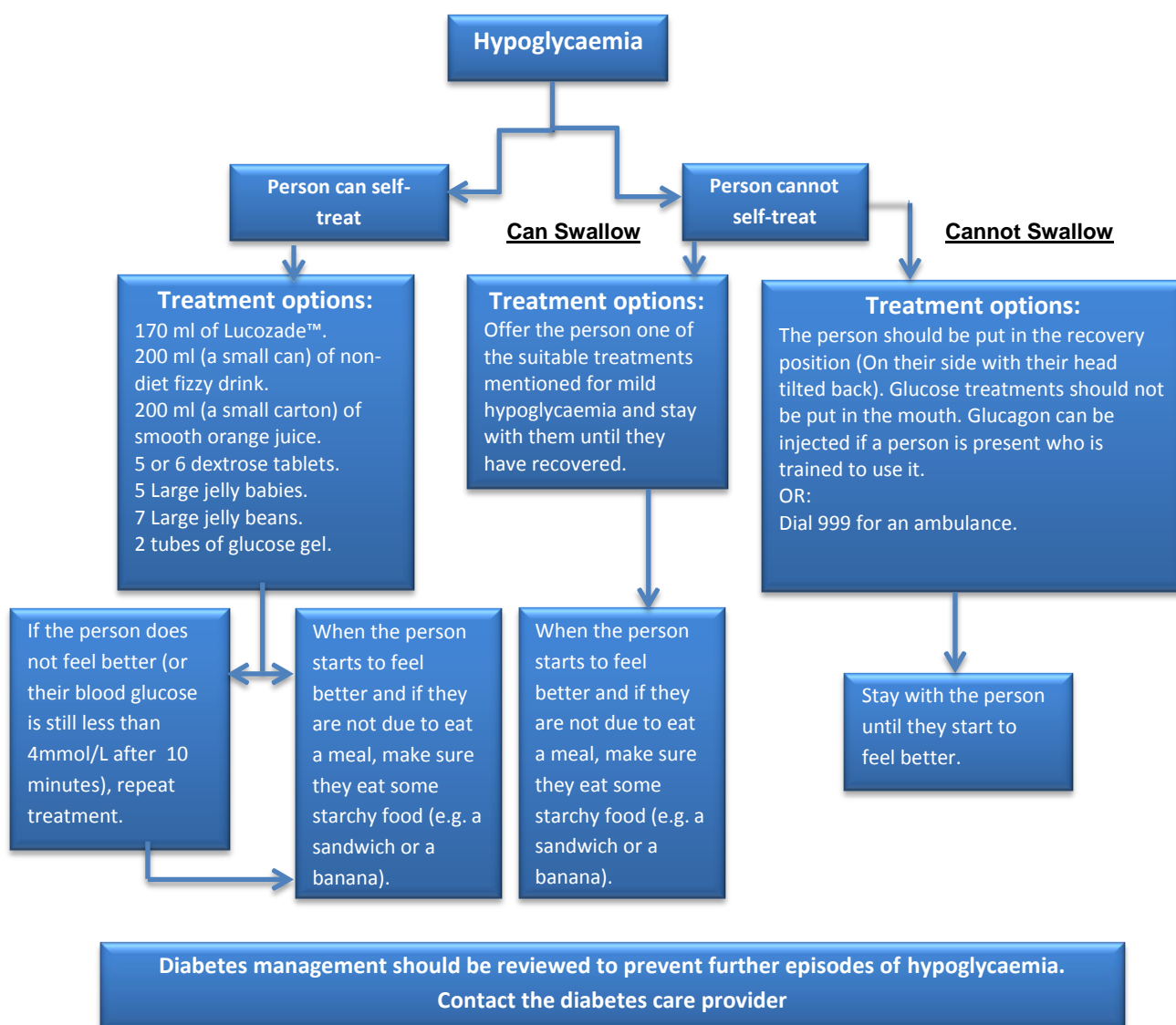
Sweating  
Palpitations  
Shaking  
Hunger

#### Late signs of Hypoglycaemia include:

Confusion  
Drowsiness  
Odd behaviour  
Speech difficulty  
Lack of co-ordination  
Coma

Some residents in care homes may be more prone to hypoglycaemia due to variable dietary intake, dementia, poor hypoglycaemia awareness, and mental health conditions.

## 9. Treatment of hypoglycaemia



### Treating Hypoglycaemia in special situations

- Enterally (tube) fed residents who are also able to take liquids or solids orally should be treated with the recommended liquid hypoglycaemia treatments (such as 170 mL of Lucozade™) that can be given via the feeding tube, with a break in the feed if necessary.
- In patients receiving bolus feeding, if a bolus has recently been given, the hypoglycaemia treatment may be less effective due to slower absorption of glucose. Intramuscular glucagon may be necessary.
- To prevent recurrence of hypoglycaemia, an additional feed may be needed.
- Diabetes treatment must be reviewed to prevent further episodes of Hypoglycaemia.

## 10. Illness

Although people with diabetes do not necessarily become ill more often than anybody else, if their diabetes is inadequately controlled they may be more prone to certain infections. They may also respond differently to illness according to the type of diabetes they have and the illness they are experiencing. However, when a resident with diabetes is unwell, it is likely that their blood glucose levels will rise (hyperglycaemia).

<b>The signs and symptoms of Hyperglycaemia (which may occur even if the resident is not eating) include:</b> <ul style="list-style-type: none"><li>• Increased Thirst</li><li>• Dry mouth</li><li>• Passing more urine than usual</li><li>• Tiredness or lethargy</li><li>• High glucose levels in the urine or blood</li></ul>	<b>Examples of illnesses that may cause Hyperglycaemia include:</b> <ul style="list-style-type: none"><li>• The common cold</li><li>• Influenza</li><li>• Stomach upset</li><li>• Urinary infection</li><li>• Chest infection</li><li>• Abscesses</li><li>• Injury, such as a broken bone</li></ul>
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Residents with type 2 diabetes who do not manage their diabetes with insulin should generally continue to take their medication as usual. If a resident uses insulin and his or her blood glucose levels are higher than usual, the insulin dose may need to be increased. If their blood glucose levels are lower than usual, their insulin dose may need to be reduced. Medical advice should always be taken by contacting the GP or the diabetes specialist nursing service.

## 11. Annual assessment

Residents with diabetes should have an annual medical review

The review should include:

- Medication review
- A detailed clinical examination including weight, BMI and blood pressure
- A nutritional and smoking status review
- Foot check
- Eye check
- Blood tests to assess diabetic control (HbA1c), cholesterol, serum creatinine, urinary albumin and kidney function

### About HbA1c

The HbA1c measures the amount of glucose that is being carried by the red blood cells in the body. It provides an indication of blood glucose control for the previous two to three months. At least once a year residents with diabetes should have their HbA1c levels checked.

The target level for HbA1c is individualised.

## 12. References

6. NICE. Type 2 Diabetes. The management of Type 2 Diabetes CG87. London. 2009 (modified Dec 2014)
7. Self-Monitoring of Blood Glucose. Guidelines for People with Type 2 Diabetes. Health and Social Care in Northern Ireland. August 2011
8. Self-Monitoring of Blood Glucose in Patients with Type 2 Diabetes who are not treated with insulin. The Cochrane Library. 2012
9. NHS Diabetes fact sheet 32. Dec 2010
1. Capillary Blood Glucose Monitoring Guideline Shropshire Community Health Trust
2. Trend UK. Recognition, treatment and preventions of hypoglycaemia in the community. NHS Diabetes. December 2011
3. Trend UK. Managing Diabetes during intercurrent illness in the community. NHS Diabetes. February 2013
4. Diabetes. NHS Choices <http://www.nhs.uk/Conditions/Diabetes/Pages/Diabetes.aspx>
5. Guidelines and Audit Implementation network. Guidelines and Clinical Standards of Care for People with Diabetes in Care Homes. Belfast, Northern Ireland. February 2010