Northamptonshire Healthcare
NHS Foundation Trust

MMG010 GUIDELINES FOR THE MANAGEMENT OF DIABETES DURING THE END OF LIFE

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Why we need this Guideline

People with diabetes are advised to keep good control of their blood glucose to reduce the risk of complications in the future. If they are nearing the end of life, the targets for glycaemic control to prevent longer term complications are no longer relevant but it is important to maintain the blood glucose within a range that will avoid hypoglycaemia and symptomatic hyperglycaemia.

What the Guideline is trying to do

This guidance has been developed to aid healthcare professionals working in the specialist field of palliative care to ensure adults aged 18 or over with diabetes who are nearing the end of life have good glycaemic control in the inpatient setting.

Which stakeholders have been involved in the creation of this Guideline

Medicines Management Committee

Northamptonshire Diabetes Multidisciplinary Team Specialist Nurse

Any required definitions/explanations

NHFT - Northamptonshire Healthcare NHS Foundation Trust

'End of life' – For the purpose of this guidance 'End of Life' care refers to the care of people who are thought to be in the last few weeks of life. If there is any doubt the Palliative Prognostic Index may be helpful.

CBG – Capillary blood glucose.

NMDT - Northamptonshire Diabetes Multidisciplinary Team

Key duties

The Medicines Management Committee

Will approve and review these guidelines.

Medical Director

Responsible for dissemination of this guideline to their clinical directors and tutors

Ward Managers

Will ensure that all staff are aware of the guideline, have received appropriate training in identification of patients with diabetes at the end of life and are able to deliver appropriate care.

Doctors

Will identify patients nearing the end of life and prescribe according to the guideline, consulting the Northamptonshire Diabetes Multidisciplinary Team for specialist advice.

Northamptonshire Diabetes Multidisciplinary Team Specialist Nurses

Will provide advice about individual patient management when requested. Hours available Monday to Friday 9am – 5pm

Contact numbers as follows:

Daventry 01327 708113 **Kettering 01536 492121**

Nursing Staff

Will ensure that patients at the end of life receive appropriate care of their diabetes in line with this guideline.

Guideline detail

Referral to the Northamptonshire Diabetes Multidisciplinary Team (NDMT) should occur at the earliest opportunity.

Principles of Management

People approaching the end of life should receive care that offers comfort, dignity and freedom from distressing symptoms as far as this is possible.

People with diabetes should be offered the opportunity to self-manage their diabetes unless or until they do not feel able to.

People with diabetes, and their relatives, should be consulted about how they wish their diabetes to be managed during the terminal illness and their wishes would be respected.

Diabetes and its treatment, can lead to symptomatic hyperglycaemia and hypoglycaemia. This can be distressing and should be avoided. The target blood glucose should be 6 – 15mmol/L wherever possible.

Investigations and treatment should be kept to the minimum required to relieve symptoms. A balance may need to be struck between frequency of blood glucose monitoring – ideally not more than once a day for people in the last weeks of life – and the need to avoid hyperglycaemia and hypoglycaemia.

In general the fasting blood glucose is a good indicator of the level of blood glucose control but it may be necessary to test later in the day if the fasting blood glucose is consistently high.

Factors influencing glycaemic control

Leading to hyperglycaemia

- Illness related stress (underlying disease or infection)
- Steroid therapy

Leading to hypoglycaemia

- Anorexia
- Vomiting
- Weight loss and/or cachexia
- Renal impairment
- Hepatic impairment, including liver metastases

Management of Type 1 Diabetes

Insulin is essential to sustain life and withdrawal will lead to death.

Duty of care dictates that insulin should be continued in some form unless the patient requests its withdrawal.

If a patient who has capacity requests that insulin be withdrawn, this should be respected. A request from relatives should not, but their views should be discussed.

If the patient expresses a preference to remain on the previous regimen this should be discussed.

Review the insulin regimen with the patient/carer and simplify if appropriate. It is important to ensure 24 hour cover of background insulin which could be with any of the following:

- Lantus® – once daily
- Levemir® – once or twice daily
- Human isophane – twice daily (Insulatard®, Humulin I®, Insuman basal®)

Avoid short-acting insulins, including fixed mixtures e.g. Novomix 30®, Humalog Mix 25® (unless advised by NDMT)

If the patient is not eating, the total daily dose of all insulin (i.e. total of both long and short-acting) should be reduced by 30 - 50%. If the patient's oral intake is reduced and/or variable then an individualised insulin plan should be generated.

The short acting insulin should be discontinued.

Monitor the blood glucose twice daily (early morning and early evening) for two days

If the blood glucose is stable after 2 days reduce monitoring to once daily.

Target blood glucose range should be 6 – 15mmol/L

Check blood glucose once a day at teatime:
• If below 8 mmols/l reduce insulin by 10-20%
• If above 20 mmols/l increase insulin by 10-20% to reduce risk of symptoms or ketosis

Consult the diabetes team for specialist advice.

Management of Type 2 Diabetes

Stop oral treatment

Stop insulin if the blood glucose can be maintained within target range
(6 – 15mmol/L) without insulin. Patients previously taking more than 48 units of insulin per day are unlikely to manage without insulin but there may be scope to reduce the dose.

If symptomatic hyperglycaemia develops when treatment is withdrawn, use a once-daily isophane (Insulatard®, Humulin I®, Insuman® basal) starting with 50% of the previous total daily dose as a starting point. If this does not work, seek advice from NMDT. If the patient was not previously on insulin, commence with 6 units of an isophane insulin and titrate as appropriate.

Consider use of a 'stat' dose of short acting insulin e.g. Novorapid® 4 units for a blood glucose above 20mmol/L. This can be repeated 4 hourly if necessary but if this is required on a regular basis, change to regular intermediate or long acting insulin.

Monitor the blood glucose twice daily initially (early morning and early evening – before food if patient is eating).

Stop monitoring if the blood glucose is consistently within the target range.

Check the blood glucose if the patient has symptoms which could be due to a high or low blood glucose.

Consult the NMDT for advice.

Steroid therapy

Steroids may be used for symptom relief for various indications. A single dose of steroid, given in the morning, will lead to a rise in blood glucose mid-morning, persisting to late evening but falling overnight. This can usually be managed with once daily mixed insulin (Humulin M3®, Insuman Comb25®) given in the morning. Test CBG morning and evening for 2 days after commencing steroids and consult the NDMT if the blood glucose is consistently outside the 6 – 15mmol/L range.

If steroids are to be given twice daily, for example if splitting higher doses of dexamethasone, it may be necessary to alter glucose testing times to manage the impact on blood glucose.

If the dose of steroids is reduced, the insulin dose should be reviewed.

If the patient is on twice daily steroids and this regime is not controlling blood glucose seek advice from NDMT.

For more detailed guidance see End of Life Diabetes Care, Clinical Care Recommendations 3rd Edition March 2018

Training requirements associated with this Guideline

Mandatory Training

There is no mandatory training associated with this Guideline.

Specific Training not covered by Mandatory Training

Ad hoc training sessions based on an individual's training needs as defined within their annual appraisal or job description.

How this Guideline will be monitored for compliance and effectiveness

There is no monitoring associated with this guideline.

Equality considerations

Refer to MMP001 Control of Medicines Policy

Reference Guide

Diabetes UK (March 2018). End of Life Diabetes Care. Clinical Care Recommendations 3rd Edition.

Morita T, Tsunoda J, Inoue S, Chihara S. The palliative prognostic index: a scoring system for survival prediction of terminally ill cancer patients. Supportive Care in Cancer 1999; 7: 128-33.

NHS Diabetes. The Hospital Management of Hypoglycaemia in Adults with Diabetes Mellitus. 3rd Edition. Revised April 2018(http://www.diabetes.org.uk/About_us/What-we-say/Improving-diabetes-healthcare/The-hospital-management-of-Hypoglycaemia-in-adults-with-Diabetes-Mellitus/ accessed 22nd June 2018)

Northampton General Hospital NHS Trust (2011) *Management of hypoglycaemia in adult patients* NGH –GU-567. Northampton. NGHT

Document control details

Author:	Dr David Riley – Consultant in Palliative Care Medicine, Dr Sarah de Vos – SpR in Palliative Care Medicine (based on guidance written for NGH)
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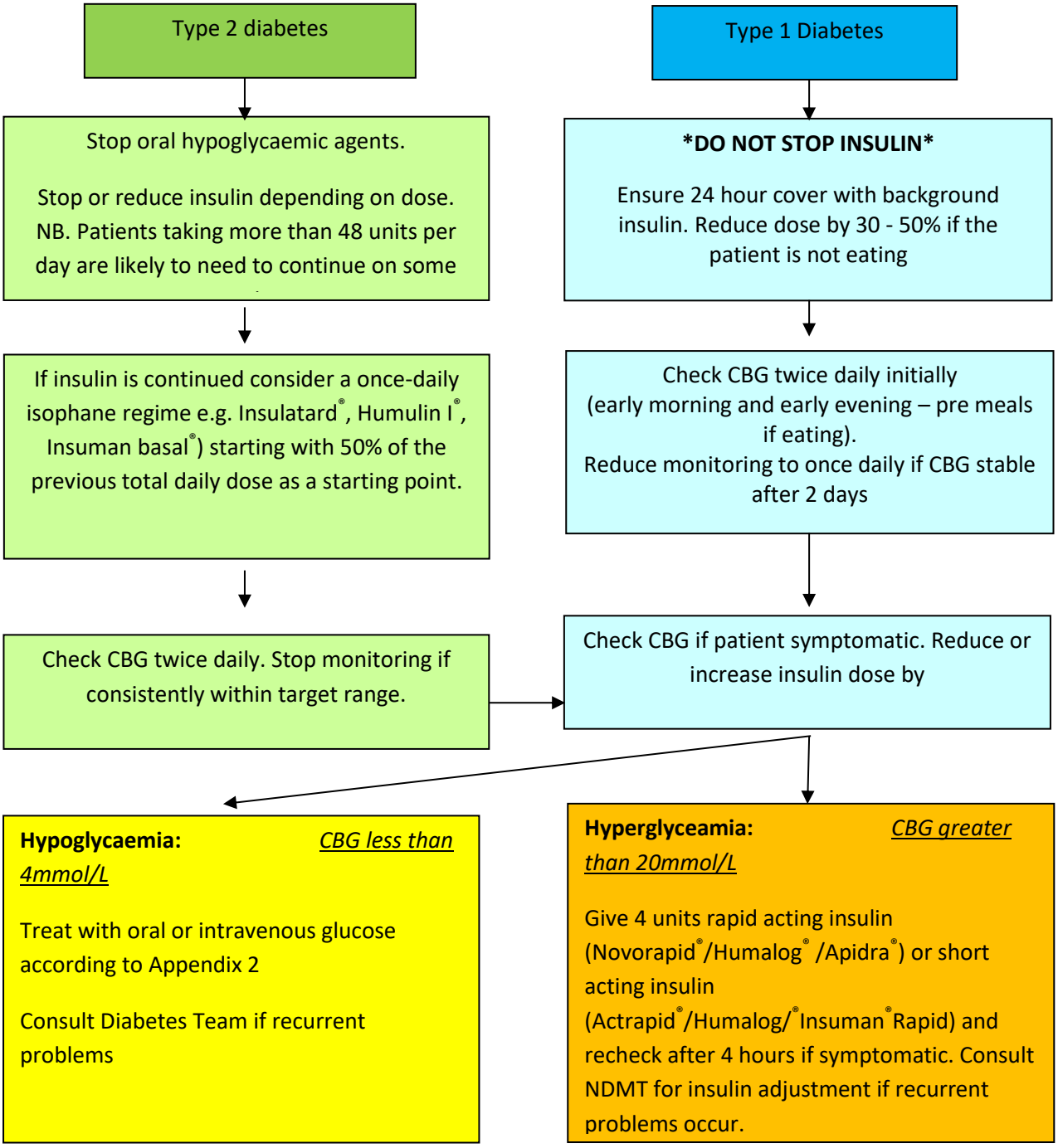
Version No.	Date Ratified/ Amended	Date of Implementation	Next Review Date	Reason for Change (eg. full rewrite, amendment to reflect new legislation, updated flowchart, minor amendments, etc.)
1	19.07.16	19.07.16	19.07.18	Review
2	10.09.18	10.09.18	30.09.20	Review

Appendix 1 - Diabetes Management at the end of life

Discuss diabetes management with the patient and family and respect the wishes of the patient. Simplify the regimen as much as possible.

Consult the NHFT Diabetes Team to agree treatment and monitoring regime. Aim for a capillary blood glucose (CBG) in 6 – 15mmol/L range to avoid symptoms of hyper or hypoglycaemia but keep monitoring to a minimum.



Diabetes Team Contact numbers as follows:

Daventry: ***01327 708113*** Kettering: ***01536 492121***

Appendix 2 - Hypoglycaemia guideline algorithm

Management of Hypoglycaemia		
Patients who present with a blood glucose of less than 4mmol/L, should be assisted to follow one of the care pathways below		
Adults who are conscious and can swallow	Adults who are confused/disorientated and agitated but can swallow	Adults who are unconscious, severely agitated or having seizures
One of the following to be given: 200mls Fruit Juice 5-6 Dextro Tablets 4 Jelly Babies 3-4 heaped teaspoons of sugar dissolved in water	Follow the advice as per the conscious patient. If unable to swallow, consider the use of Glucagon 1mg IM	**Check:** Airway Breathing Circulation Use Recovery position: Administer Glucagon 1mg IM Seek medical advice
Repeat blood glucose after 10 minutes. If blood glucose remains below 4.0mmols, follow the above advice again to a maximum of 3 times	Repeat blood glucose after 10 minutes. If blood glucose remains below 4.0mmols, follow the above advice again to a maximum of 3 times	If blood glucose rises above 4.0mmols and the patient recovers, provide long acting carbohydrates, e.g one of the below : 4 biscuits, 2 slice of bread/toast, 500 mls glass of milk Normal meal if due. As the liver needs to restock its glucose supplies, a higher blood glucose level of 8.0mmols would be advisable post glucagon for 48 hours
If blood glucose remains below 4.0mmols, contact doctor and consider use of Glucagon 1mg IM	If blood glucose remains below 4.0mmols, contact doctor and consider use of glucagon IM if not already administered	
Once blood glucose is above 4.0mmols and patient is recovered, provide long acting carbohydrates e.g **one** of the below: 2 biscuits 200-300ml glass of milk 1 slice bread/toast Normal meal if due	Once blood glucose is above 4.0mmols and patient is recovered, provide long acting carbohydrates e.g **one** of the below: 2 biscuits 200-300ml glass of milk 1 slice bread/toast Normal meal if due	**If patient continues to present with hypoglycaemic episodes, make contact with the Northamptonshire Diabetes Multi-Disciplinary Team on 01536 492121 or 01327 708113 for advice if required. If out of hours contact palliative care on call.**
Double above suggested amounts if Glucagon administered	Double above suggested amounts if Glucagon administered	

For further information see NHS Diabetes. The Hospital Management of Hypoglycaemia in Adults with Diabetes Mellitus. 3rd Edition. Revised April 2018

N.B. If IV glucose is considered, follow guidance from NHS Diabetes on the Management of Hypoglycaemia in Adults with Diabetes Mellitis. 3rd Edition (Revised February 2018)