Diabetes Mellitus - HbA1c greater than 58mmol/mol - Paediatric Full Clinical Guideline

UHDB Paediatric diabetes service Derby and Burton sites

Reference no.: CH CLIN D17

Care of children and young people with Type 1 diabetes mellitus with an HbA1cgreater than 58mmol/mol

1. Introduction

This guideline is intended for children and young people with diabetes mellitus under the care of the University Hospitals of Derby and Burton NHS Foundation Trust paediatric diabetes service who have a glycosylated haemoglobin (HbA1c) over 58 mmol/mol

2. Aim and Purpose

NICE guidance recommends that each child and young person with diabetes mellitus should have their HbA1c measured at least 4 times a year, aiming for a target of 48mmol/mol or lower to minimise the risk of long-term complications.

When a child or young person (CYP) is diagnosed with Type1 diabetes, the aim of management is to achieve glycaemic control as soon as possible (target HbA1C of 48 mmol/mol or lower by 3 months from diagnosis). This should be maintained at 53 mmol/mol or lower at 6 months from diagnosis.

This guideline is intended to ensure a consistent approach to care of children and young people with an HbA1c over 58 mmol/mol to reduce the risk of acute complications eg diabetic keto acidosis and long term micro and macro vascular complications.

3. Definitions, Keywords

Children and Young People (CYP)

Glycosylated haemoglobin (abbreviated throughout the document to **HbA1c**) – a measure of the amount of glucose adhering to the protein haemoglobin which can be used to monitor care of diabetes mellitus.

Continuous Glucose Monitoring (CGM)

Continuous Subcutaneous Insulin Infusion Pump (CSII)

The paediatric diabetes multi-disciplinary team (MDT) consists of doctors, nurses, dietitians, clinical psychologists, health care practitioners, youth workers and play therapists with training and experience in the care ofCYP with diabetes mellitus.

4. Main body of Guidelines

The MDT will agree an individualised 'lowest achievable' HbA1c target with each CYP with diabetes mellitus and their family members/carers, taking into account daily activities, individual life goals, complications, comorbidities and the risk of hypoglycaemia. It is important that the CYP and carer understand the benefits of achieving sugar and HbA1c levels in the target range.

While doing this, team members are sensitive to the possible impact of setting targets that may be difficult for an individual to achieve and maintain

Clinic consultation

HbA1c will be measured at each clinic appointment. If the target of 48 mmol/mol is not achieved, this is an opportunity to evaluate data from glucose monitoring (eg CGM) and discuss their individual circumstances and challenges which are preventing them from meeting their goal. Consider whether they are eligible for additional technology. An action plan will be agreed to work towards achieving this target. This will be clearly documented in the clinic letter. (**See appendix 3 - HbA1c intervention pathways following clinic consultation.)**

Data review meetings (see appendix 2)

1. **Newly diagnosed HbA1c data review: quarterly MDT meeting**

   The MDT will ensure all newly diagnosed patients will follow the 'Getting it right from the start' pathway from diagnosis, aiming to develop an 'expert patient' with access to appropriate technology. (Appendix 1).

   Prior to the data meeting, the site clinical lead reviews the data of all CYP diagnosed with in the past year. CYP are identified for discussion who have.

   a. Not achieved target of HbA1c of 48 mmol/mol by 3 months

   b. Have achieved target but have subsequently deteriorated above 53 mmol/mol

   Taking into account CYP individual circumstances, the MDT will agree an intervention programme for the CYP to help them improve their HbA1c.

2. **Established patient High HbA1c data review: quarterly MDT meeting**

   Prior to the meeting, the site clinical lead reviews the data of all CYP diagnosed more than 1 year. CYP are identified for discussion who have an HbA1c above 58 mmol/mol.

   Taking into account CYP individual circumstances, the MDT will agree an intervention programme for the selected CYP to help them improve their HbA1c.

   The selected CYP will have their progress reviewed at the following High HbA1c meeting.

Intervention programme to improve HbA1c

Any intervention programme must be individualized and have the engagement of the CYP and their carer. The most appropriate member of the MDT to lead on this programme must be identified.

Factors to consider when agreeing intervention:

1. Do they have access to the most appropriate technology?- if not offer
2. Do they need further education eg carbohydrate counting refresher, optimising use CGM, Pump refresher- face to face reviews may be preferable to remote
3. Would they benefit from involvement of other team members eg psychology, youth

worker, play therapist?

4. Do they have poor attendance at clinic and education sessions? Identify the barriers. Offer home visits / school visits /video consultations for reviews if this improves engagement

5. Are there social concerns eg repeated non attendance, low school attendance, concerns from school, failure to improve despite intervention. Options to consider: professional meeting eg involving health and education, Early help assessment, social care referral (Child in need, medical neglect) .The hospital safeguarding team are available for advice as to whether threshold is met

See Appendix 3- HbA1c intervention pathways for further examples according to HbA1c

5. References (including any links to NICE Guidance etc.)

Diabetes (type 1 and type 2) in children and young people: diagnosis and management: NICE guideline NG18, updated November 2022.

6. Documentation Controls

Reference Number CH CLIN D17	**Version: V2**		**Status** Final	
Version / Amendment History	Version	Date	Author	Reason
	V2	May 2023	Dr Julie Smith	Renewal of expired guideline
Intended Recipients: Doctors and neonatal nurse practitioners in neonatology and paediatrics.				
Training and Dissemination: Additional training not required, update only				
Development of Guideline: Dr Julie Smith **Job Title: Consultant Paediatrician**				
In Consultation with: UHDB Paediatric diabetes multidisciplinary team				
Linked Documents: NICE NG18 Diabetes (type 1 and 2) in children and young people: diagnosis and management				
Keywords: Diabetes, HbA1C				
Business Unit Sign Off	**Group:** Paediatric Guidelines Group **Date: May 2023**			
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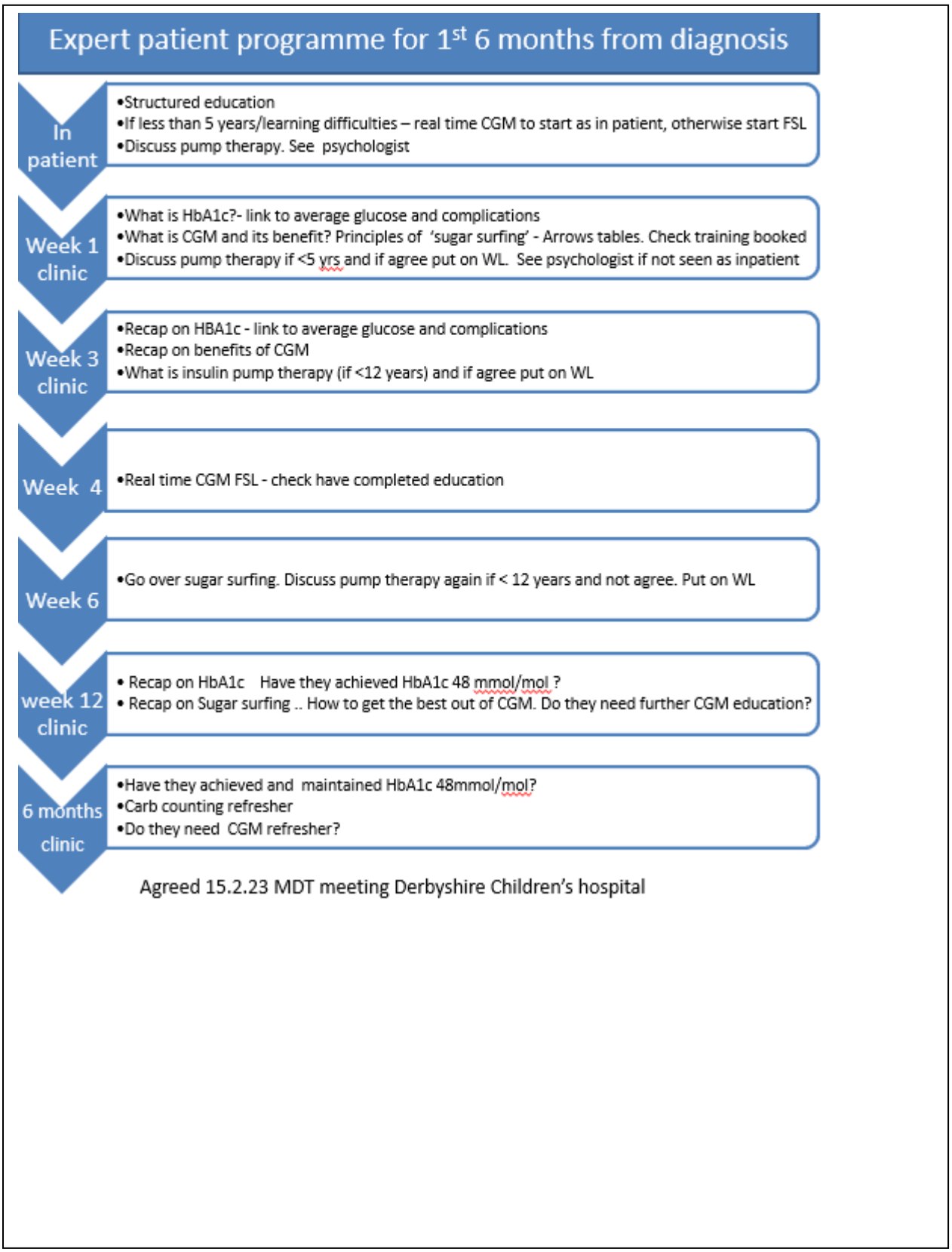
Contact for Review	Dr Julie Smith			

Appendix 1


Expert patient programme for 1st 6 months from diagnosis
In patient
•Structured education
•If less than 5 years/learning difficulties – real time CGM to start as in patient, otherwise start FSL
•Discuss pump therapy. See psychologist
Week 1 clinic
•What is HbA1c?- link to average glucose and complications
•What is CGM and its benefit? Principles of 'sugar surfing' - Arrows tables. Check training booked
•Discuss pump therapy if <5 yrs and if agree put on WL. See psychologist if not seen as inpatient
Week 3 clinic
•Recap on HBA1c - link to average glucose and complications
•Recap on benefits of CGM
•What is insulin pump therapy (if <12 years) and if agree put on WL
Week 4
•Real time CGM FSL - check have completed education
Week 6
•Go over sugar surfing. Discuss pump therapy again if < 12 years and not agree. Put on WL
week 12 clinic
• Recap on HbA1c Have they achieved HbA1c 48 mmol/mol ?
• Recap on Sugar surfing .. How to get the best out of CGM. Do they need further CGM education?
6 months clinic
•Have they achieved and maintained HbA1c 48mmol/mol?
•Carb counting refresher
•Do they need CGM refresher?
Agreed 15.2.23 MDT meeting Derbyshire Children's hospital

Appendix 2

High HbA1c pathway for children and young people with diabetes mellitus

Data for all newly diagnosed patients (up to first year after diagnosis) and those with HbA1c > 58 mmol/mol to be reviewed by MDT quarterly

If a patient is 6 months after diagnosis, a level >53 mmol/mol is considered high

If there is consistent improvement over time since diagnosis, then review again at 9 months post diagnosis. If HbA1c still >53 mmol/mol

If initial improvement but then deterioration over time since diagnosis, actions should be:

Immediate:

- 'Back to basics' education
- Carbohydrate counting refresher
- Psychology referral
- Increased downloading of blood glucose for review e.g. 1 – 2 weekly. Consider Face to face
- More frequent nurse led and MDT clinic
- Additional home or school visits
- Look at contactability / WNB and cancellation status - is safeguarding referral indicated?

Considered:

- Change in treatment
- Admission for stabilization
- CGMS / FGMS
- Saturday club / youth team engagement for peer support
- Safeguarding concerns – refer to Social Care
- Referral to CAMHS

At any other time, high HbA1c is considered to be >58mmol/mol

Consider

- 'Back to basics' education
- Carbohydrate counting refresher
- Increased downloading of blood glucose for review e.g. 1 – 2 weekly
- More frequent nurse led and / or MDT clinic
- Additional home or school visits
- Look at contactability / WNB and cancellation status – is safeguarding referral indicated?
- Psychology referral
- Change in treatment eg pump or upgrade to closed loop
- Offer of 'expert pump' programme if on CSII
- CGMS / FGMS
- Admission for stabilization
- Saturday club / youth team engagement for peer support
- Safeguarding concerns – refer to Social Care
- Referral to CAMHS

Appendix 3: HbA1c intervention pathways following clinic consultation.

Assume all on CGM. If not - offer

HbA1c mmol/mol Avg Glucose	Time in Range	To look for	Action from clinic
<53 <7 mmol/l	70% **Maintain**	Hypoglycaemic time in range to be <5%	• Expert patient • Family to monitor TIR and average glucose and adjust accordingly **Avoid Hypoglycaemia**
53-58 9 mmol/l	60-70% **Improve**	-Need More insulin -Need to 'sugar surf more' Eg-Monitor blood glucose 2-3 hrs after evening meal and give correction (pump or MDI)	• Consider pump if eligible • Possible Diasend review at 6 weeks or offer suggestions in clinic for family to make changes in between clinics • Encourage sugar surfing- - corrections - monitor TIR and average blood glucose • Can the family access the technology at home? **Technology Review** **TIR** **More Insulin**
59-69 11mmol/l	40-60% **Action**	-Need More insulin -Need to 'sugar surf more' Eg- Monitor blood glucose 2-3 hrs after evening meal and give correction (pump or MDI) -Snacking between meals -Inaccurate carb counting -Missing insulin at school? -Suboptimal management of exercise	• Consider pump if eligible • Diasend/F2F review as 'one off' but encourage independence • Face to face Education refresher Eg-sugar surfing, Carb counting & exercise • Have they done an exercise diary before? • Can the family access the technology at home? • Explore school issues – more education for staff? • Involve youth worker **Education – Dietetic & School** **Psychosocial support** **More Insulin**

HbA1c **Avg Glucose**	**Time in Range**	**To look for**	**Action from clinic**
69-79 **13mmol/l**	20-40% **Intensify**	- <u>May</u> Need more insulin? -Missing insulin with main meals as well as snacks -Bolus after meal -Missing basal Insulin occasionally -Need to 'sugar surf more' -Revisit Knowledge Motivation Adequate adult support Psychosocial issues Consider eating disorder	• Diasend review in 2 weeks • F2F review in 4-6 weeks possibly along with Dietitians, psychologist or youth worker. • Needs programme of intervention, support and re-education • Can the family access the technology at home? • Consider Psychosocial support: Eg -Psychology Youth worker Safeguarding: Engagement with other agencies? Other issues • Consider pump if eligible (closed loop) **Explore Psychosocial issues** **Discuss in MDT**
80+ **>13mmol/**l	<20	<u>-May</u> need increase in insulin doses but maybe hard to assess -Missing insulin with main meals as well as snacks -Bolus after meal -Missing basal frequently -Need to 'sugar surf more' -Revisit Knowledge Motivation Adequate adult support Psychosocial issues Consider eating disorder	• Diasend review in 2 weeks • F2F in 2 weeks (Alternating with Diasend review) In between visits. • Needs programme of intervention, support and re-education • Can the family access the technology at home? • Consider psychosocial support Eg-Psychology Youth worker Safeguarding: Engagement with other agencies Review School support **Admission for stabilisation**