Paediatric Diabetes Service

Barnsley Hospital

Sam Norris PDNS 2026

Programme Content

- About the Team/ Service
- Diabetes Drivers and Targets
- Criteria for diagnosis/ Proforma for newly diagnosed
- Education at diagnosis
- Advancing Technology/ Pumps
- Impact of Diabetes/ Psychology/ Burnout
- HbA1C
- Lylas Law
- Future of Diabetes

Paediatric Diabetes Team

- Dr Bhimsaria – Lead Diabetes Consultant
- Allison Low- Diabetes Consultant
- Sam Norris- Band 7 PDNS
- Jo Cave- Band 6 PDNS
- Jess Hutchinson- Band 6 PDNS
- Rachel Jones – Band 7 Dietitian
- Kirsty Roberts – Band 6 Dietitian
- Fay Sherrard – Diabetes Co-ordinator

- Service runs Mon- Friday 9am – 5pm
- 24 hour oncall service

Service Details

We have on average 20 newly diagnosed patients each year (10 in DKA 25/26)

Under 16

- 106 patients
- 14 on Multiple Daily Injections
- 86 on HCL insulin pumps
- 5 patients with Type 2 diabetes

Offered an appointment every 3 months in Children's Outpatients Dept

Annual review carried out once a year, including bloods for thyroid and coeliac, eye screening, foot checks and microalbumin and psychology screening

Pump starts on average 1 -2 months after diagnosis

16 – 19 years

- 38 patients
- 9 on Multiple Daily Injections
- 28 on Hybrid Closed Loop Insulin Pump
- 1 patient with Type 2 diabetes

Offered an appointment every 3 months and seen in Adult Diabetes Centre

Annual review carried out once a year, including bloods for thyroid and coeliac, eye screening, foot checks and microalbumin and psychology screening

Can also be referred to CEW for weight management

Diabetes Drivers and Targets

Best Practice Tariff 2012/2013

- Introduced in 2013 to ensure high quality of care delivered to all patients under 19 years old with diabetes
- Fixed payment of £3600 per patient on completion of predetermined criteria. Some of these include:
- Discussion of patient with senior member of the diabetes team within 24 hours of presentation
- Patient and family to receive a structured education programme
- To offer 4 clinic appointments a year/perform HbA1c measurement at each clinic visit/at annual review clinic undergo psychological assessment
- 8 contacts per year (minimum)
- 24 hour provision and support/ oncall service
- Transition to adult services
- All criteria can be seen at: https://www.diabetes.org.uk/Documents/nhs-diabetes/paediatrics/Paediatric%20Diabetes%20Best%20Practice%20Tariff%20Criteria.pdf

NICE Guidelines 2015

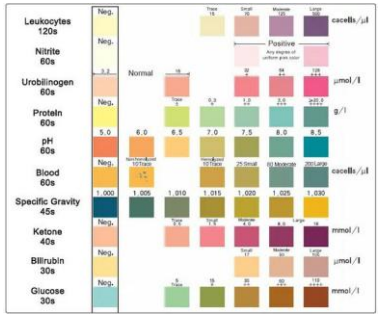
- This guideline covers the diagnosis and management of type 1 and type 2 diabetes in children and young people under 18. The guideline recommends strict targets for blood glucose control to reduce the long term risks associated with diabetes.
- Topics that must be covered;
- - Education
- - Diagnosis therapy
- - Insulin
- - Dietary management/exercise
- - HbA1c targets
- - Hypo/Hyperglycaemia
- - Ketones/Diabetic Ketoacidosis
- - Psychological issues
- All Guidance can be seen at: https://www.nice.org.uk/guidance/ng18/chapter/1-Recommendations#recommendations

WHO criteria for diagnosis

WHO Diagnostic Criteria:

- 1. Symptoms of diabetes plus casual plasma glucose concentration≥11.1mmol/l (casual is defined as any time of the day without regard to time since last meal)
- 2. Fasting plasma glucose ≥7mmol/l (fasting is defined as no caloric intake for 8 hours)
- 3. Two hour post load glucose≥11.1 mmol/l during an OGTT. (The test should be performed as described by WHO, using a glucose load containing 75g anhydrous glucose dissolved in water or 1.75g/kg of body weight to a maximum of 75 g)

What about urine dipstick?



Urine dipstick is inferior to blood glucose test in recognising diabetes as some cases will be missed on urine testing

- It may not be easy to get a urine sample from a child
- Therefore **fingerprick blood glucose is the gold standard test**
- If urine dipstick is performed and shows glycosuria - Treat as T1D and discuss with on call paediatric team

Don't send for outpatient bloods to make the diagnosis

- Fasting glucose/HbA1c rarely required for making the diagnosis
- Most children with T1D and symptoms will have glucose clearly above 11.1 mmol/l
- Outpatient bloods **delay** diagnosis and allow time for DKA to develop

What to do……

Barnsley Hospital Quality in Care

Barnsley Hospital NHS
NHS Foundation Trust

GP Referral Pathway for Children and Young People with suspected Newly Diagnosed Type 1 Diabetes

GP

If a Child/Young Person presents with history of:

- Polyuria
- Polydipsia
- Weight loss
- Lethargy/tiredness
- Blurred vision
- Vomiting
- Family history of diabetes

consider Newly Diagnosed Diabetes.

THINK DIABETES!

Thirst

Weight Loss

Polyuria

- Test bedside random blood glucose/urine glucose

If a new diagnosis of diabetes is suspected-(any glucosuria or random BG >11.1mmol) then this triggers a same day referral to hospital

WELL CHILD:

- Alert
- Not drowsy
- No history of vomiting
- No signs of dehydration

Contact the Paediatric Registrar on call via hospital switchboard on 01226 730 000

UNWELL CHILD:

- Drowsy
- Vomiting
- Signs of dehydration

Arrange transfer to the emergency department at the hospital via ambulance and contact the paediatric registrar/paediatric co-ordinator on call via hospital switchboard on 01226 730 000

All children/Young people with new diagnosis of diabetes are discussed with senior member of CYPD team within 24 hours of presentation to hospital and seen on the next working day

Education at Diagnosis

Nursing

Barnsley Hospital Quality in Care

Barnsley Hospital NHS
NHS Foundation Trust

PID Label here

Itenerary for Inpatient Stay for Newly Diagnosed Children & Young People with Diabetes

The diabetes education that you can expect to receive during your inpatient stay prior to discharge home is as follows:

Paediatric Diabetes Specialist Nurse Education					
	SESSION	RESOURCES	DATE	SIGNED	COMMENTS
1	Intro to the team	Diabetes Journal			
	Contact Info/Service Hours	Diabetes Journal			
	What is diabetes?	Diabetes Journal			
	Insulin & Regimes	Diabetes Journal			
	Setting up blood glucose machine	Blood testing equipment			
	Practical Sessions	Rufus Bear/ROCHE leaflets			
2	Injection Techniques. (Parents to be observed giving fast and long acting insulin during admission)	Diabetes Journal			
	Lipohypertrophy	Diabetes Journal			
	Hypoglycaemia & Hyperglycaemia-Signs and symptoms, how to treat	Diabetes Journal			
	Practical Sessions	Rufus Bear			
	Correction Doses	Diabetes Journal			
3	DKA	Diabetes Journal			
	Sick Day Rules	Diabetes Journal			
	HbA1c	Diabetes Journal			
	Complications	Diabetes Journal			
	Ongoing Support/Clinic attendence	Diabetes Journal			

Children & Young People's Diabetes Team Sept 2019 Review Sept 2022

Dietetic

Barnsley Hospital NHS
NHS Foundation Trust

Newly Diagnosed T1DM – Education Plan

-Day	Morning	Resources needed	Afternoon	Resources needed	Date completed and RD initials
1	• Introduce self and provide contact details • Introduction to Diabetes, (check understanding) • Process of digestion • Action of insulin • Eatwell Guide- overview • What is CHO and how does it affect BG ? • Identify CHO from food models • Highlight voucher code for free Carbs 'n' Cals book • Hypoglycaemia awareness and how to treat it	• Contact details card • 'Food and My Diabetes' booklet • T1DM bag • Laminated Eatwell Guide • Food models • 'Carbohydrate and blood glucose' information • Age appropriate 'hypoglycaemia treatment summary' leaflet	• GI effect of foods • Take diet history • Identify CHO foods in own diet • Suggest basic dietary changes based on reported diet history • Reading food labels • Snacks < 10g CHO	• 'Glycaemic Index' information • 'Healthy Eating and Understanding Food Labels' leaflet • Diet history sheet • 'Snack Ideas <10g CHO' leaflet	
2	• Introduction to CHO counting • CHO counting using labels • CHO counting using weights and measures • Attend lunch meal and assist with CHO counting	• 'Carbohydrate counting' pack • Laminated carbohydrate calculation card	• CHO counting using cooked and uncooked weights • Attend evening meal to observe CHO counting	• 'Carbohydrate counting' pack (already provided)	
3	• CHO counting using own recipes • Attend lunch meal to observe CHO counting	• 'Carbohydrate counting' pack (provided on day 1)	• Questions? • Attend evening meal to observe CHO counting if needed		
As required	• Further practice if needed throughout day– attend ward at meal times for support. • Home visit/clinic visit within 2 weeks from inpatient discharge to support carbohydrate counting.				

BHNFT Paediatric Diabetes Dietitians
Creation date: Sep 2019
Review date: Sep 2021

Equipment for Blood Glucose Testing and Bolus advice

Blood glucose meters

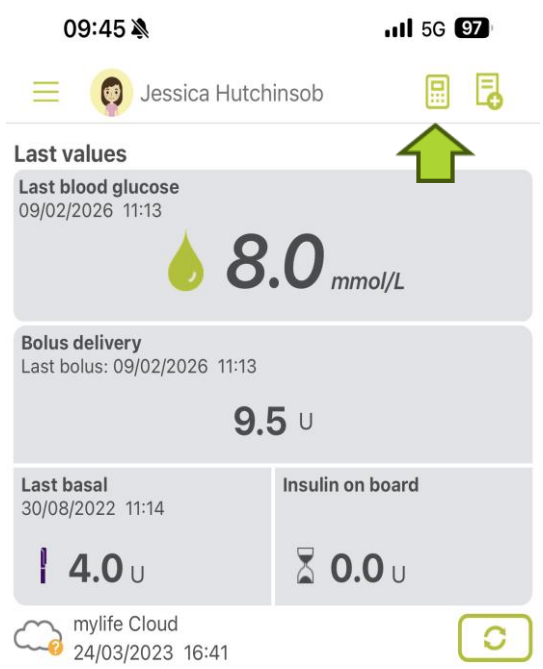
**Please don't change repeat prescription of meters or strips*

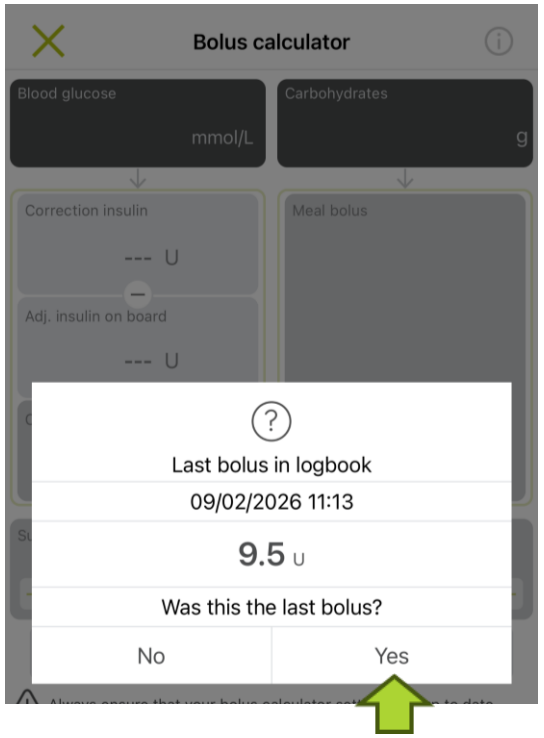
MyLife App

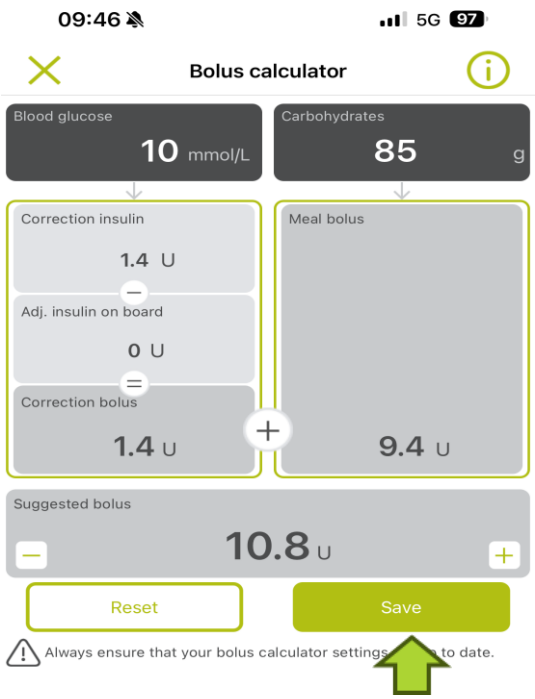
Insulin Pens

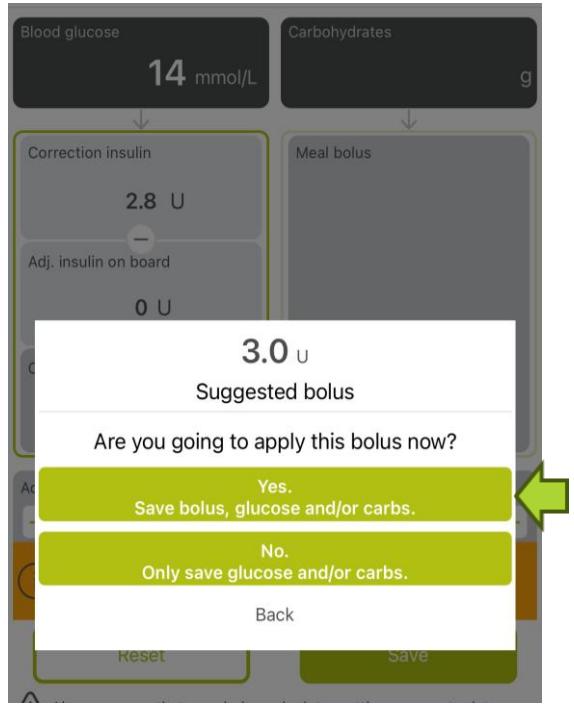
My Life App

- My Life is an app used for patients who are on injections. This app is their bolus advice, whenever they are eating or need a correction dose.









These are the pumps and sensors that we use here in Barnsley Paediatrics

Omnipod 5

Tandem T-Slim

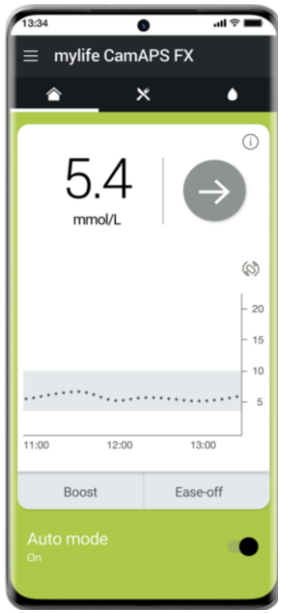
Dexcom G7

Libre 2 Plus

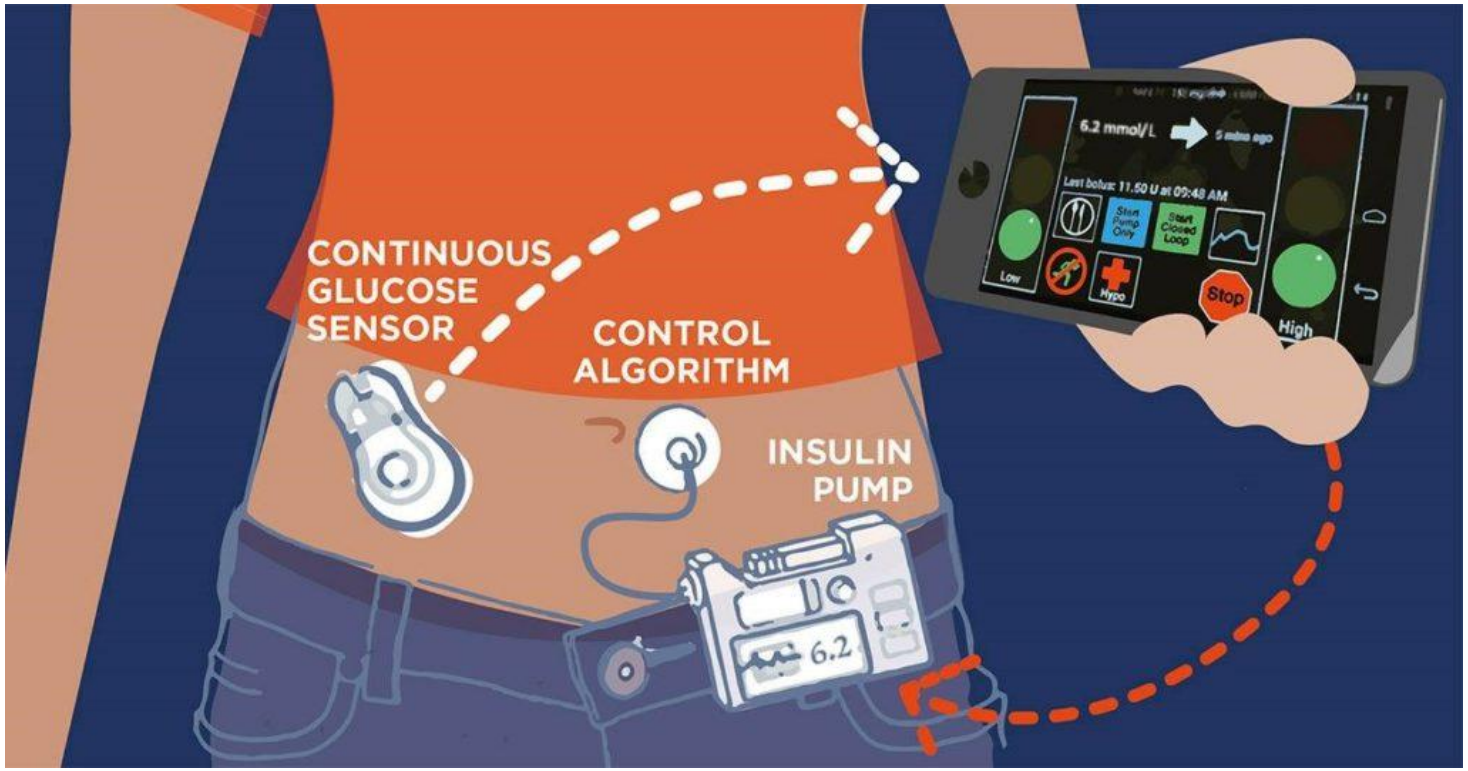
Libre 3 Plus

Medtronic 780G

Ypsopump



Hybrid Closed Loop; How does it work?

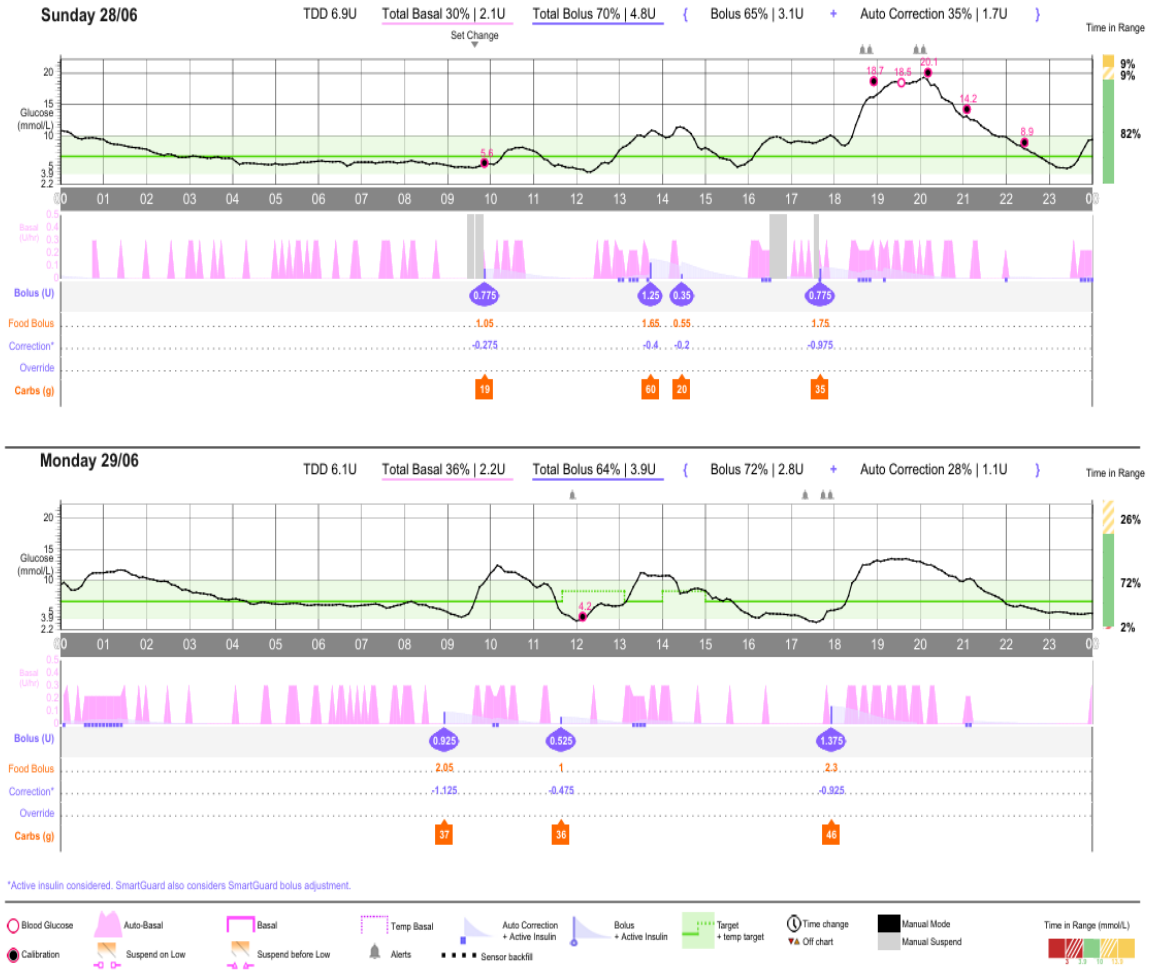


[Hybrid Closed Loop Systems - DigiBete Type 1 WebsiteDigiBete Type 1 Website]

Three components of HCL:

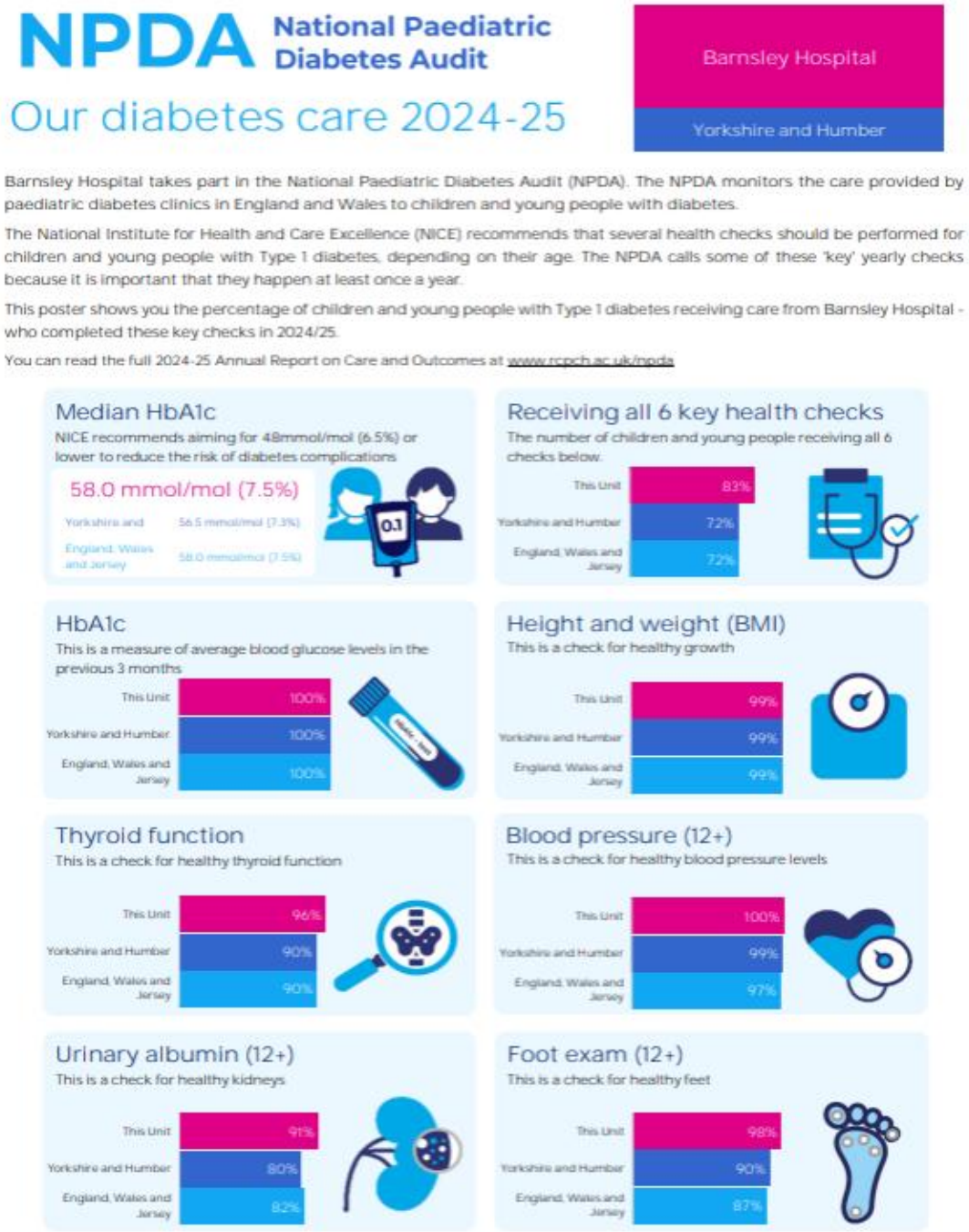
- Pump/Algorithm
- Continuous Glucose Monitor
- Mobile phone
- The Patient/User

Pump Downloads



HbA1c

- Our median HbA1c is currently 54mmol/mol. Aim is 48mmol/mol
- All data is submitted to National Paediatric Diabetes Audit and reviewed quarterly
- We are benchmarked regionally and nationally against other teams



Diabetes Burnout / Psychological Impact

- Emotional Wellbeing - DigiBete Type 1 WebsiteDigiBete Type 1 Website

The LUCY Project

Supported by Bright Young Dreams

In partnership with NHS Sheffield Children's NHS Foundation Trust

Branching Minds Barnsley

CHILYPEP
CHILDREN AND YOUNG PEOPLE'S EMPOWERMENT PROJECT

DIABETES UK KNOW DIABETES. FIGHT DIABETES. | Steve Morgan FOUNDATION

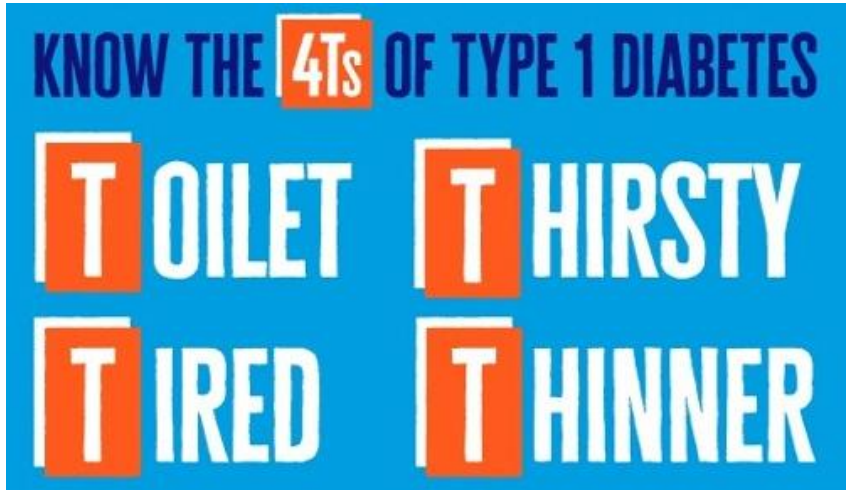
TOGETHER TYPE 1

- Children with Type 1 diabetes are 50% more likely to develop mood, anxiety, sleep and eating disorders.
- Children do not want to feel different from their peers and can be quite private about their diagnosis
- There is no psychologist in our team at present but we often refer to:
  - GP/ IAPT
  - Chilypep (aged 11 – 25)
  - Branching Minds (aged 5 – 19)
  - Together Type 1 (aged 11- 25)
- The team try and hold peer support days where children and young people can do activities together

Lyla's Law: Think; could it be Type 1 Diabetes?

- Check the patient's blood glucose if they present with any of the 4 T's
- Lyla; 2 Year old girl died 16 hours after visiting her GP who missed the signs of Type 1 Diabetes.
- Her symptoms were: lethargy, excessive thirst, vomiting and weight loss.

  - Diagnosed by the GP with an ear infection
  - Coroner found she was undiagnosed Type 1 Diabetic and checking her blood glucose could have saved her life.
- Petition for **'Lyla's Law'** to be brought in which would;
- Require routine urine/blood testing during GP consultations where symptoms are present
- Improve adherence to NICE guidelines
- Protect young, non-verbal children who can't advocate for themselves
- Educate healthcare professionals and families about the signs of Type 1 Diabetes
- Update : June 2026. All GP's must now have blood glucose monitors available in practices to ensure timely checks done if any child presents with symptoms



The Future of Diabetes

There are 3 stages of Diabetes:

- Stage 1 – diabetes auto-antibodies are detectable in the blood
- Stage 2 – glucose levels start to rise but there are no clinical symptoms
- Stage 3 – clinical symptoms develop

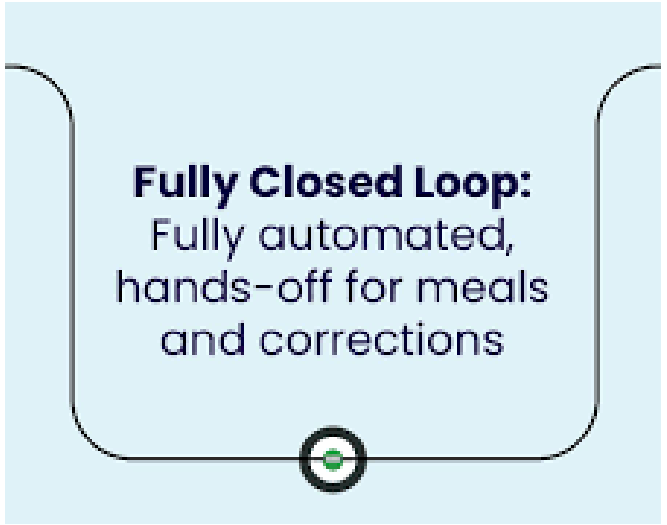
Most children are diagnosed in stage 3 – when clinical symptoms appear. However recent progressions in testing and treatment include:

- ELSA study – Research study that screens antibodies of children aged 2 – 17 years for their risk of developing diabetes www.elsadiabetes.nhs.uk
- T1DRA study- research study screens antibodies of UK adults 18 – 70 years for their risk of developing diabetes www.t1dra.Bristol.ac.uk

Children with early stage type 1 diabetes may be entitled to immunotherapy Teplizumab which has been shown to delay the need for insulin for up to 3 -5 years. This has recently been approved by NICE and would entail children to be admitted for a 14 day infusion of Teplizumab under close observation

Fully Closed Loop Pumps

- Fully closed Loop pumps are expected to be introduced in the next few years. This will mean that patients do not need to work out carbohydrate content and input into pump, as this will automatically be delivered.



Continuous Glucose Monitors

- The Libre Duo system integrates continuous ketone sensing alongside glucose monitoring in a single wearable sensor. The clinical benefit is straightforward: continuous ketone data enables earlier detection of rising ketones, allowing patients and clinicians to intervene before DKA develops — rather than reacting to a metabolic emergency that has already occurred. (This is not available in the UK so far)

Questions