



PUTTING TECHNOLOGY INTO PRACTICE IN THE NHS

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**On behalf of ABCD DTN-UK CSII best practice
working group**



Disclosures

- Previous educational advisory roles and educational talks for:
 - Medtronic
 - Dexcom
 - Astra Zeneca, MSD and NAPP pharmaceuticals

Outline

- Putting Technology into Practice in the NHS
 - Current UK data on T1D outcomes
 - Diabetes technologies
 - Variations in access, uptake and socio-economic disparities
 - Key principles for improving outcomes and overcoming barriers
 - Current priorities and next steps

Type 1 diabetes – investing in improving outcomes vs spending on complications

~10% of people with diabetes have type 1 diabetes

Intensive management and complex needs at a younger age of onset than type 2 DM

CVD risk for people with diabetes compared to people without diabetes

| RISK | Type 1 diabetes | Type 2 (and other) diabetes |
|---------------|--------------------|-----------------------------|
| Angina | 3.8 x more likely | 2.7 x more likely |
| Heart attack | 4.3 x more likely | 2.35 x more likely |
| Heart failure | 4.7 x more likely | 2.7 x more likely |
| Stroke | 3.45 x more likely | 2.0 x more likely |

End stage kidney disease

19 x more likely
4.5 x more likely

NHS Digital National Diabetes Audit, 2015-16
Report 2a: Complications and Mortality

Sight-threatening DR

11.2% prevalence
2.9% prevalence

Prevalence of Diabetic Retinopathy Within a National Diabetic Retinopathy Screening Service."The British Journal of Ophthalmology. 2015;99(1):64-68

Type 1 diabetes – current data

HbA1c 58MMOL (7.5%) OR LESS



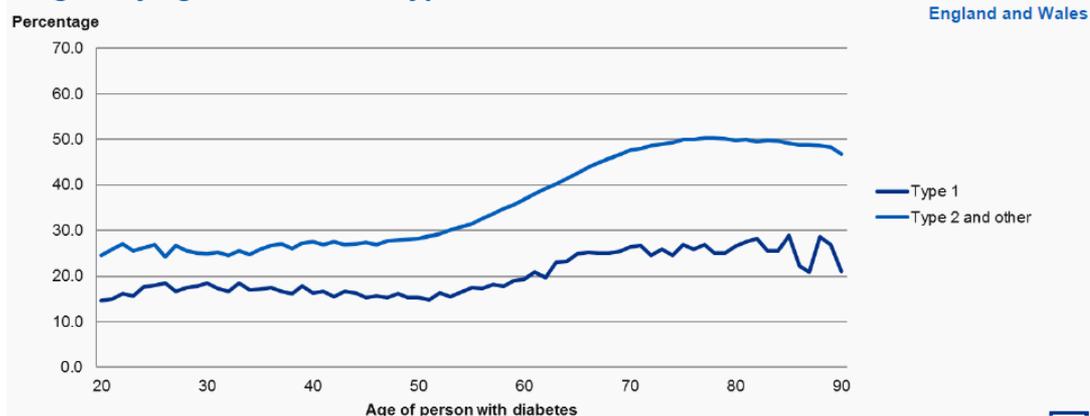
Type 1
30%



Type 2
67%



Figure 9: Percentage of all people with diabetes achieving all three treatment targets by age and diabetes type, 2016-17.

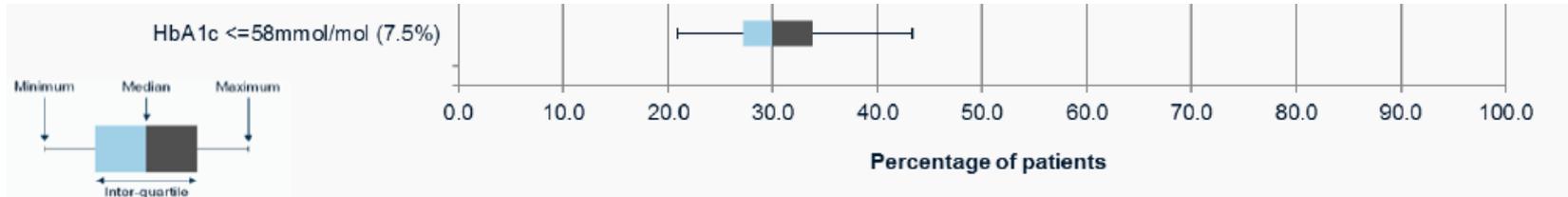


NHS Digital National Diabetes Audit, 2016-17, Report 1: Care Processes and Treatment Targets

(Figure adapted from: How good is diabetes care in England and Wales? 2015-16)

Type 1 diabetes – variation

Range of CCG/LHB HbA1c treatment target achievement for people with type 1 diabetes 2016-17



- 64 specialist services with more than 400 Type 1 diabetes patients
- Almost 100% variation between services



Diabetes technologies

Meters



Smarter pens and meters



Apps and advisors



Resources and support



Consultation tools



Pumps (CSII)



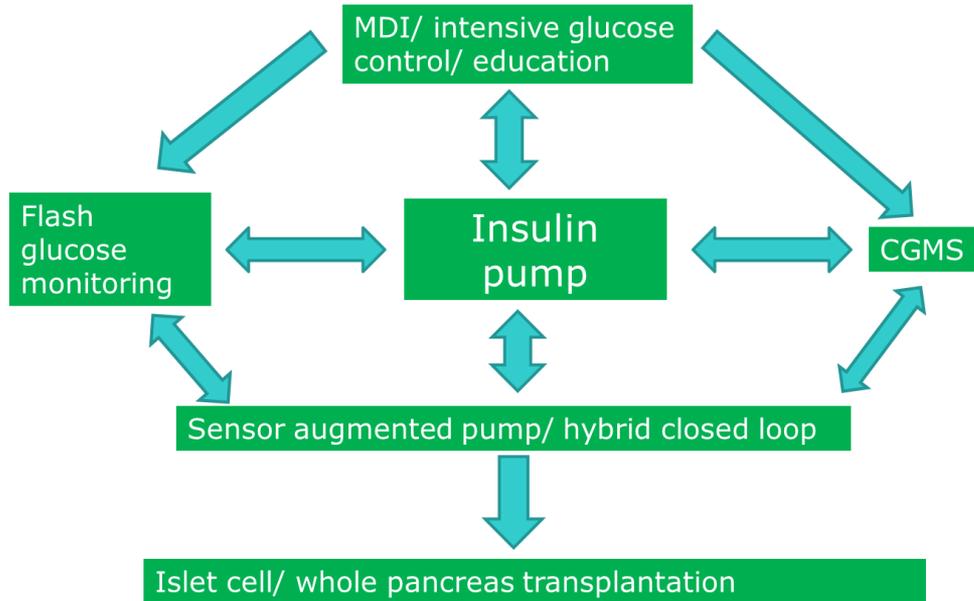
CGM and flash GM



“Artificial pancreas”



Diabetes technologies



- Data downloads
- Diabetes management Apps
- Integration with smartphone and wearable technologies
- Patient accessible integrated care records
- Education, learning, support and behaviour change tools
- “DiY” technologies
- Telemedicine and remote consultations

What's the purpose of a diabetes management device?

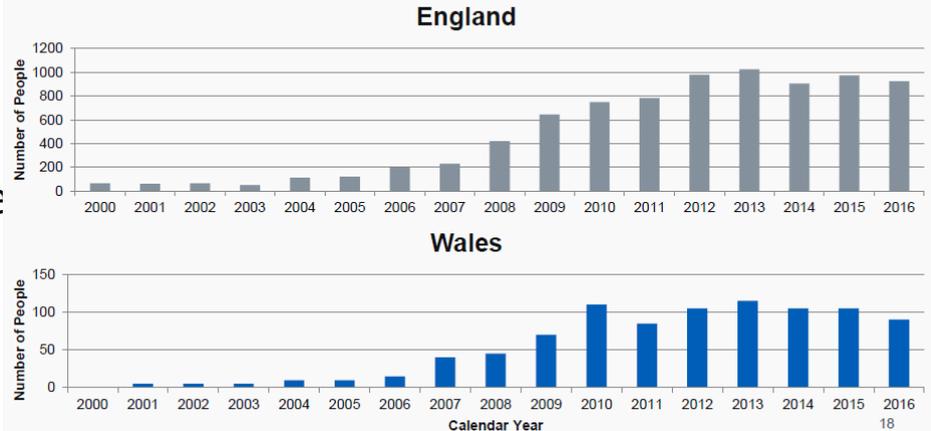
1. Lower HbA1c?
2. Prevent severe hypoglycaemia?
3. Both 1 and 2?
4. Spend more time in range and reduce variability?
5. Make living with diabetes safer and easier?

Can access to insulin pumps improve type 1 diabetes outcomes?

NICE Technology Appraisal 151 (TA151)

- Attempts to reach target HbA1c with multiple daily injections → 'Disabling hypoglycaemia'
- HbA1c levels ≥ 69 mmol, 8.5% with multiple daily injections despite high level of care

Figure 8: Number of people with Type 1 diabetes by year started on pump, by country, England and Wales, 2016-17.



Can access to insulin pumps improve type 1 diabetes outcomes?

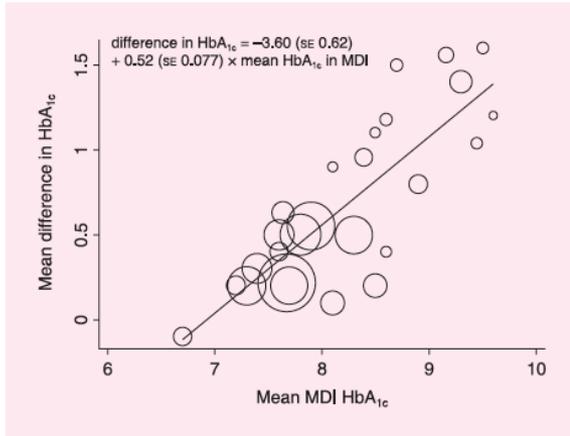
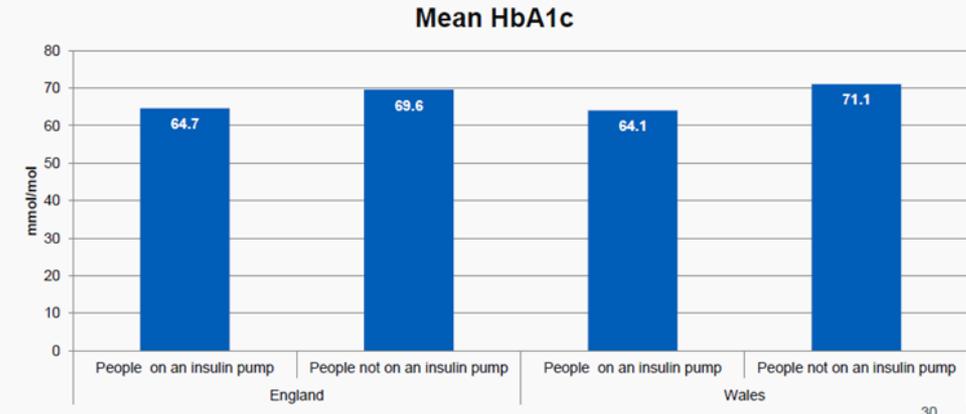
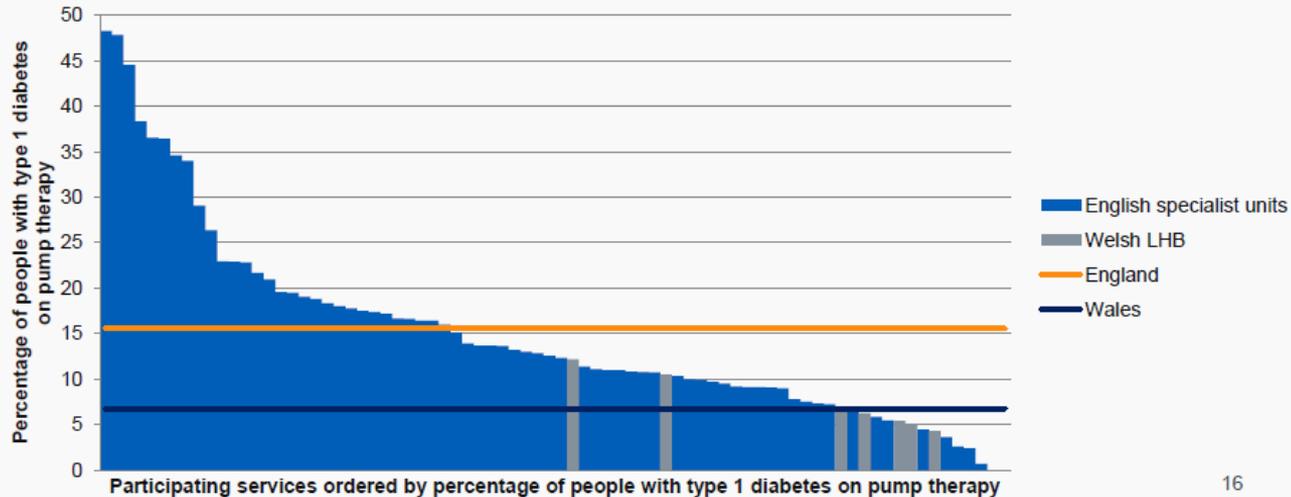


Figure 15: Mean HbA_{1c} (mmol/mol) for those with Type 1 diabetes on an insulin pump compared to those not on a pump, by country, England and Wales, 2016-2017



Variation in uptake in CSII

Figure 6: Percentage of people with Type 1 diabetes on pump therapy by participating specialist service¹, England and Wales, 2016-2017



16

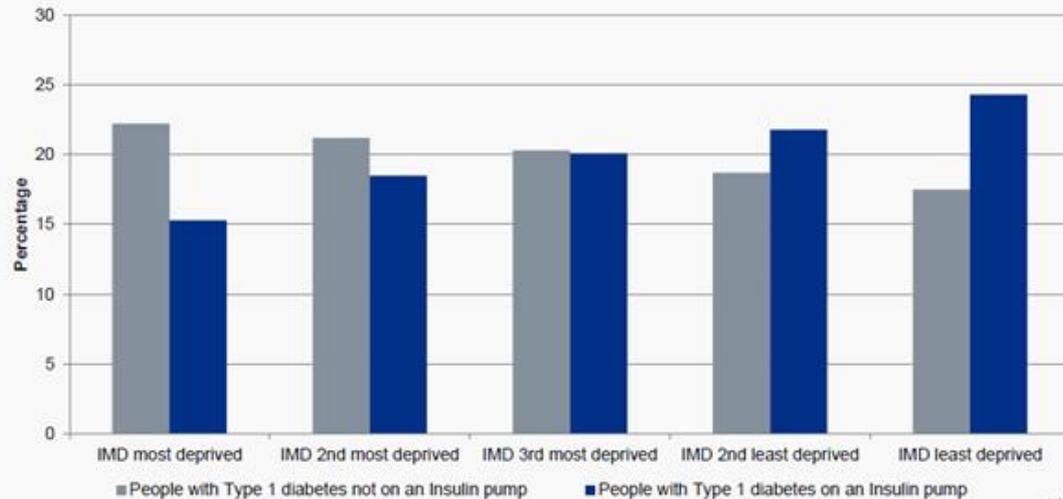
¹ The two trusts reporting 100% of patients using insulin pumps have been excluded from this graph.



Deprivation and CSII

The number of people using pumps decreases with increasing levels of deprivation.

Figure 5: The percentage in each IMD quintile for people on pump, compared to those not on pump, Type 1 diabetes, England and Wales, 2016-17



NHS Digital NDA Insulin Pump Audit 2016-17 Recommendations:

- More people should be considered for pump treatment
- Ten-fold variation in pump use between specialist services should be investigated



**SOCIO-ECONOMIC
DISPARITIES**

Access to CGM

- Only 21% (43/205) commission CGM in-line with NICE guidance
- Main route to reimbursing CGM: Individual Funding Requests (IFRs) 60% (122/205)

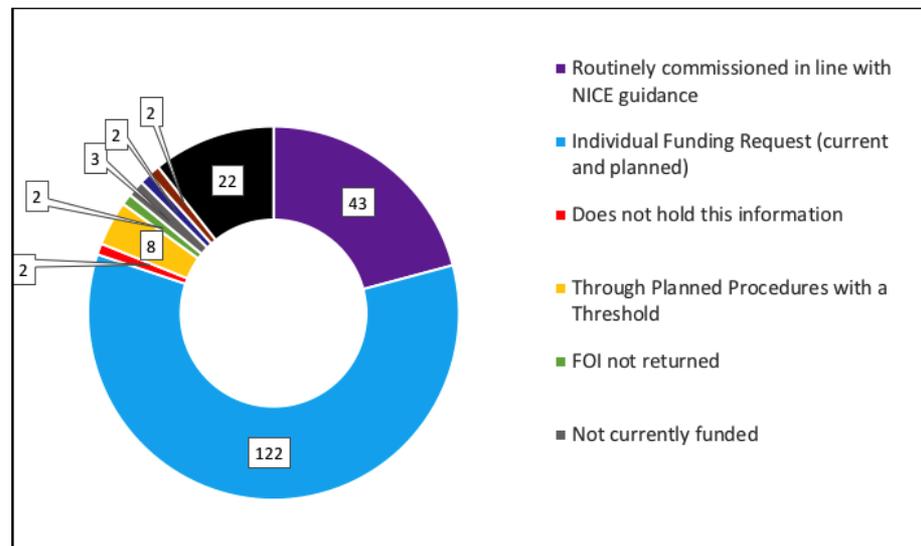


Figure 1: Current routes to funding for continuous glucose monitoring (CGM)

Priorities 2018



- Address unacceptable variation in access and uptake in pumps and CGM
- Continue to provide educational opportunities for HCP

Diabetes technologies: Current issues

- Unaccepted variation in access and uptake
 - Perceived high costs
 - Variation in
 - commissioning
 - clinical culture
 - HCP skillset and competencies
 - service capacity and support for people with diabetes
 - High administrative burden for reimbursement in certain regions



Socio-economic divide

- Reasons?
 - Variation in services
 - Funding criteria and patient selection ...widens divide?
 - A high degree of motivation, commitment and competence
 - Estimating CHO consumption throughout every day
 - Delivering multiple daily injections of insulin
 - Regular glucose self-monitoring (≥ 4 times /per day)

**Key principles for improving
outcomes in type 1 services?**

Key themes in services that are in the top 15% for achieving HbA1c<58 mmol/mol

All

- Commitment to Type 1 care
- Desire to do better
- Dedicated Pump clinics
- Importance of structured education

Most

- DSN training and rotation
- Dedicated medical staff
- Psychology service availability
- Integration with community services
- MDT working style
- Staff availability via phone/email/Skype
- CGMS
- Diasend

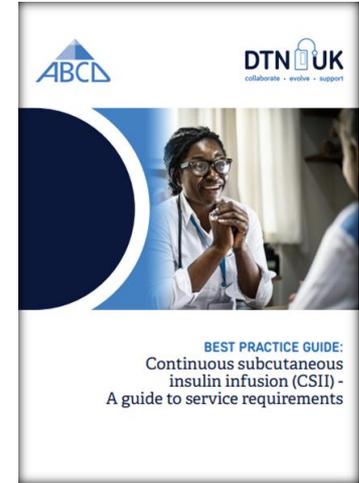
NHS RightCare Pathway: Diabetes

Minimum requirements for a Type 1 service:

- Consultant delivered, specialist multidisciplinary support for the person with Type 1 diabetes. All staff working with people with Type 1 diabetes should be trained in DAFNE or NICE compliant alternative
- Each person with Type 1 diabetes should have a named Type 1 diabetes consultant and diabetes specialist nurse. They should be offered a review with the team at least annually.
- The service should have:
 - Sufficient capacity to enable same day review and frequent follow up of the person newly diagnosed with Type 1 diabetes
 - A diabetes structured education programme in line with NICE Guidance, [NG17](#) for Type 1 and [NG28](#) for Type 2 NICE and ensure adequate capacity for places on the programme are commissioned
 - Staff members trained in and able to deliver insulin pump therapy and CGM as per NICE guidelines
 - Dedicated transition service for young people with Type 1 diabetes (age 16-25 years) who are transferring from paediatrics care into adult services
 - Access to a diabetes trained clinical psychologist
 - Have an annual care plan (which includes the 9 care processes) that is shared with the person with diabetes

Overcoming the barriers for technology

- Culture
- Training – HCP and people with diabetes
- Multi-disciplinary team including psychology
- Negotiating service capacity (Trust management)
- Negotiating funding (Commissioning)



Key priorities– improving outcomes, technology uptake, reducing variation and socio-economic disparities

- Type 1 diabetes care needs are different from Type 2 diabetes
- Everyone with Type 1 diabetes should have access to specialised type 1 services
- What do we value?

Key themes in services that are in the top 15% for achieving HbA1c<58 mmol/mol

| All | Most |
|---|---|
| <ul style="list-style-type: none">• Commitment to Type 1 care• Desire to do better• Dedicated Pump clinics• Importance of structured education | <ul style="list-style-type: none">• DSN training and rotation• Dedicated medical staff• Psychology service availability• Integration with community services• MDT working style• Staff availability via phone/email/Skype• CGMS• Diasend |

Personal communication between Dr A. Brackenridge and Dr Bob Young
Acknowledgement : Diabetes team at Guy's and St Thomas, NHS Digital NDA

&

NHS Diabetes Right Care Pathway -
minimum service requirements for a type 1
service

Commissioning technologies

Real world data fundamental to assessing technology

Developing a consistent clinical and health economics procurement approach to new technologies

Maximising value



Summary:

- Outcomes for T1D and uptake of technology needs to improve
 - Variation and socio-economic disparity
- Reviewing T1D commissioning and access to specialised services and technologies is a key priority

Invest in preventing complications with improved care rather than treating complications with expensive treatments

Acknowledgements

- **ABCD DTN-UK CSII best practice working group**

- Dr Emma Willmott
- Dr Peter Hammond



- **Colleagues at Diabetes & Endocrine department, Guy's & St Thomas**

- Dr Stephen Thomas, Dr Anna Brackenridge, Dr Dulmini Kariyawasam and other colleagues

- **NHS Digital / National Diabetes Audit**

- **People with diabetes**



@sugarydoc

Best Practice Guides

www.DTN-UK.care



The cover features the ABCD logo in the top left and the DTN UK logo in the top right. The central image is a circular cutout showing a person's midsection with two insulin infusion sites on their abdomen and a small insulin pump device clipped to their jeans. The background of the cover is white with a blue circular graphic element on the left side.

BEST PRACTICE GUIDE:
Continuous subcutaneous insulin infusion (CSII)
A clinical guide for adult diabetes services

The cover features the DTN UK logo in the top right. The central image is a circular cutout showing a close-up of a hand holding a black insulin pump device. The background of the cover is white with a blue circular graphic element on the left side.

CLINICAL GUIDELINE:
Guidelines for managing continuous subcutaneous insulin infusion (CSII, or 'insulin pump') therapy in hospitalised patients

The cover features the ABCD logo in the top left and the DTN UK logo in the top right. The central image is a circular cutout showing a smiling female healthcare professional in a white lab coat with a stethoscope, looking towards another person. The background of the cover is white with a blue circular graphic element on the left side.

BEST PRACTICE GUIDE:
Continuous subcutaneous insulin infusion (CSII) -
A guide to service requirements