



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



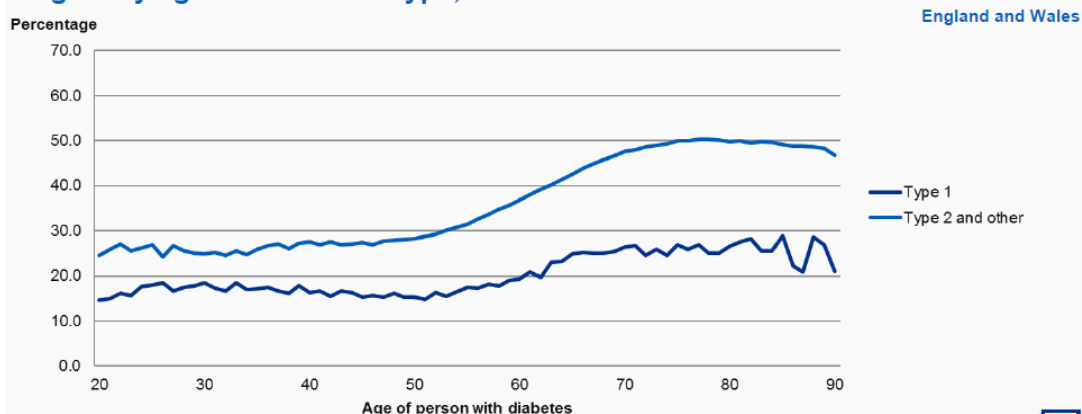
Type 1
30 %



Type 2
67 %



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

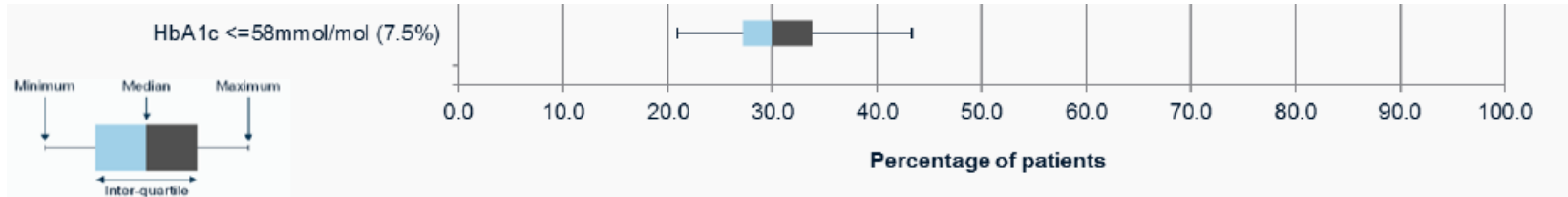


NHS Digital National Diabetes Audit,
2016-17, Report 1: Care Processes
and Treatment Targets

(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)



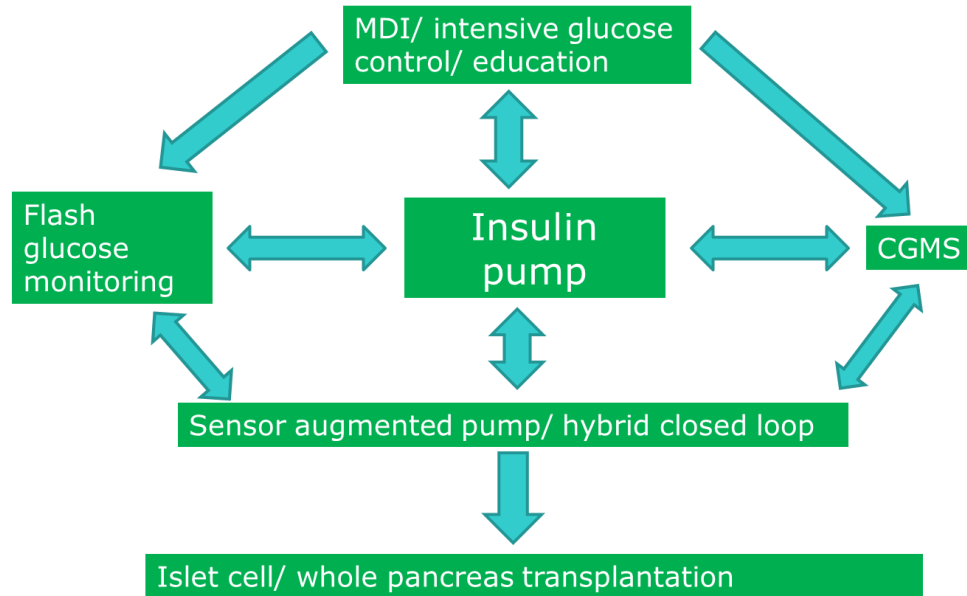
CGM and flash GM



“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?

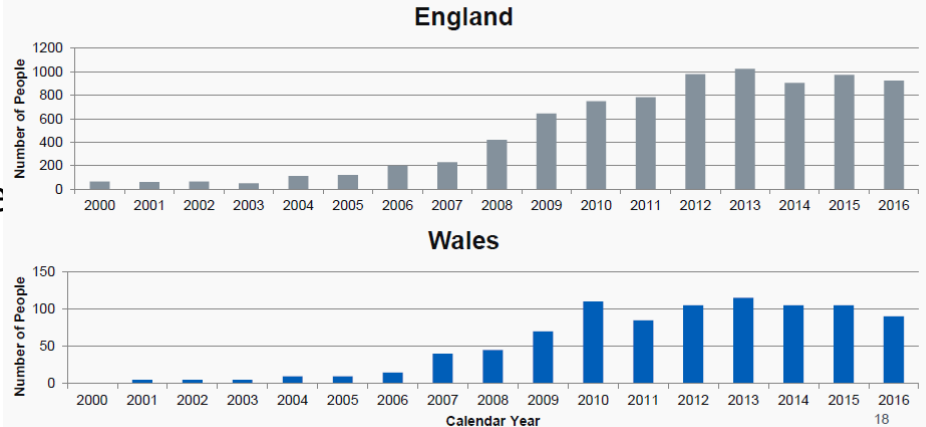
1. Lower HbA1c?
2. Prevent severe hypoglycaemia?
3. Both 1 and 2?
4. Spend more time in range and reduce variability?
5. Make living with diabetes safer and easier?

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 $\geq 69\text{mmol}$, 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?

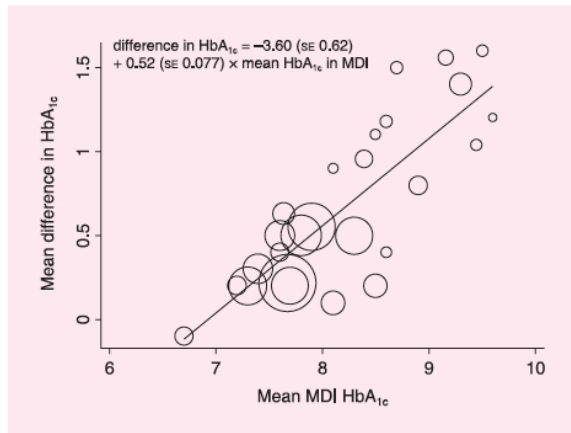
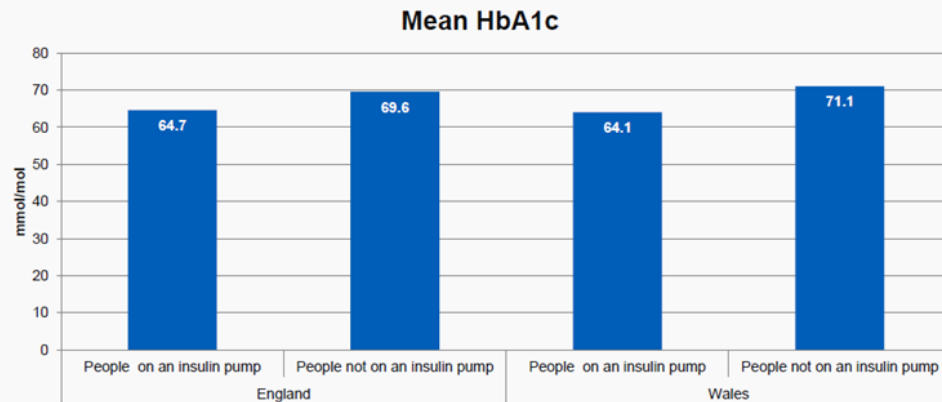
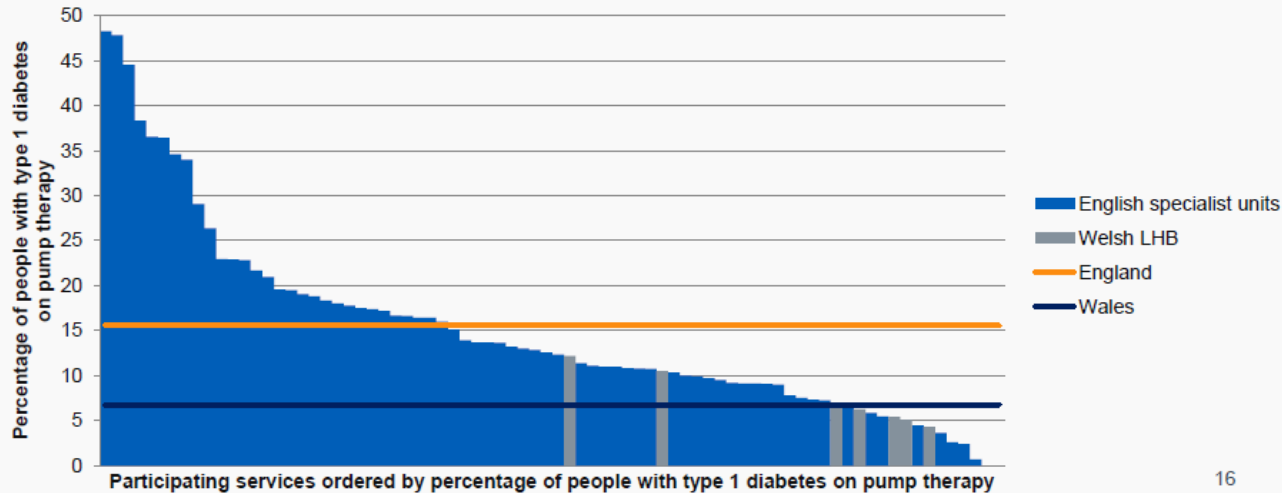


Figure 15: Mean HbA_{1c} (mmol/mol) for those with Type 1 diabetes on an insulin pump compared to those not on a pump, by country, England and Wales, 2016-2017



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



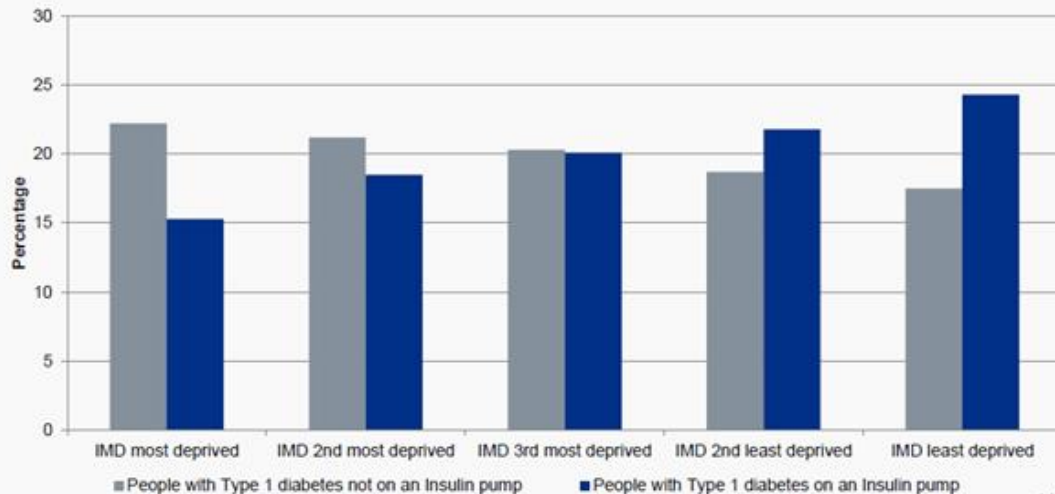
¹ The two trusts reporting 100% of patients using insulin pumps have been excluded from this graph.



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)

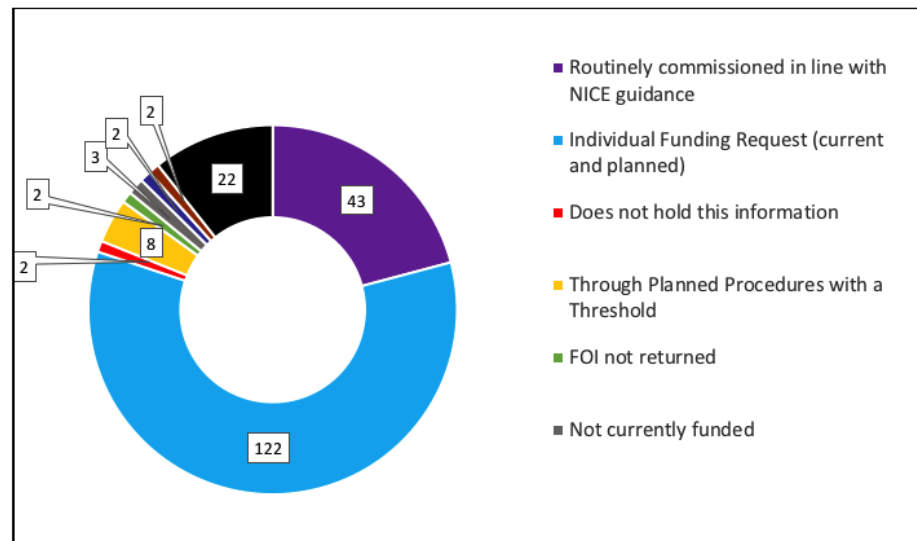


Figure 1: Current routes to funding for continuous glucose monitoring (CGM)

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

Personal communication between Dr A. Brackenridge and Dr Bob Young

Acknowledgement : Diabetes team at Guy's and St Thomas, NHS Digital NDA

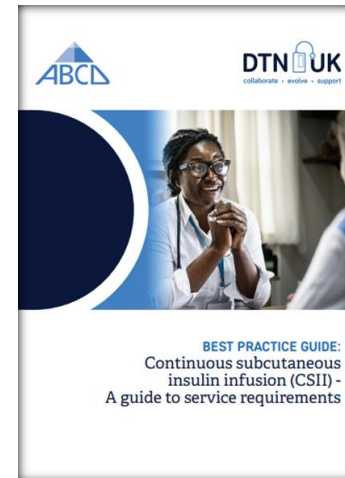
NHS RightCare Pathway: Diabetes

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

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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

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- **NHS Digital / National Diabetes Audit**
- **People with diabetes**



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Best Practice Guides

www.DTN-UK.care

