



Association Of British Clinical Diabetologists Freestyle Libre (FSL) UK-wide Audit: Determinants Of Time In Range

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ABCD nationwide audit of FreeStyle Libre

Disclosures

- EW has received personal fees from Abbott Diabetes Care, Dexcom, Diasend, Eli Lilly, Insulet, Medtronic, Novo Nordisk, Sanofi Aventis
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Time In Range

- International consensus on time in range (TIR) recommends aiming for >70% of glucose values between 3.9-10mmol/l (70-180mg/dL)
- Utilizing data from the ABCD FreeStyle Libre UK audit, we aimed to explore
 - The glucose ranges commonly reported in routine clinical practice
 - Achievement of TIR
 - Predictors of TIR



ABCD nationwide audit of FreeStyle Libre: Methods

- Routine clinical data from FSL users at 101 UK hospitals were submitted to a secure web-based tool
- TIR was categorised as internationally accepted (3.9-10mmol/l) or individualised (any range other than 3.9-10mmol/l)
- Linear regression analysis was used to identify predictors of TIR



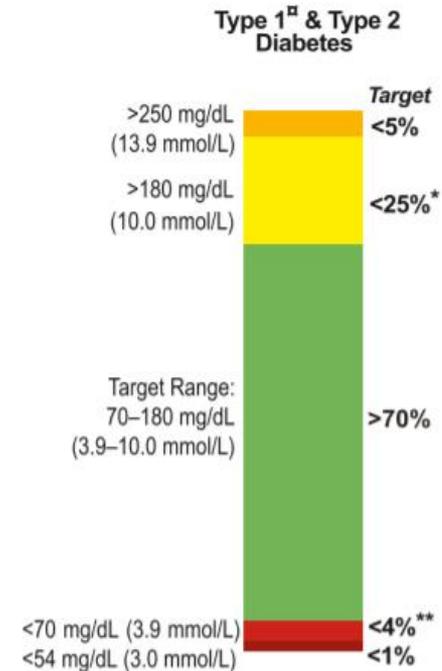
ABCD nationwide audit of FreeStyle Libre: Results

Demographics and audit characteristics (n=**2,191**)

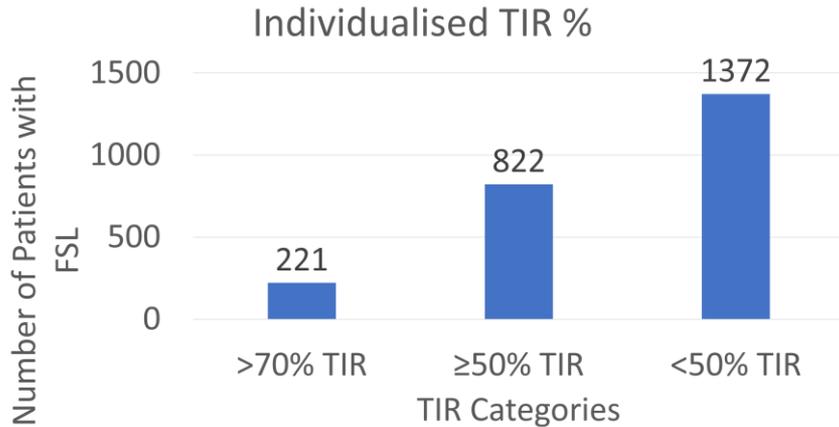
Age (IQR)	42 (26-56)
Type 1 Diabetes	99%
Female (%)	54%
Diabetes duration (yrs) (IQR)	18 (6-32)
BMI (kg/m ²) (IQR)	25 (21-28)
Baseline HbA1c mmol/mol (%)	67 (8.3%)
HbA1c readings at baseline	2 (1-4)
HbA1c readings at follow-up	2 (1-3)
Median follow-up (months) (IQR)	7.5 (1-5)

Results

- Overall, HbA1c reduced from 67 to 61mmol/l (8.3 to 7.7%) ($P < 0.0001$)
- Clinicians reported on the internationally accepted TIR (3.9-10mmol/l) **in 15%** (n=343) of cases, median TIR of 43% (27%-56%)



Achievement of TIR



Regardless of the TIR achieved:

- Gold score improved
 - TIR \leq 50% GOLD score -0.25 (P=0.0005)
 - TIR >50% GOLD score -0.45 (P<0.0001)
- HbA1c improved
 - TIR \leq 50% HbA1c 9.8% to 8.8% (P<0.0001)
 - TIR >50% HbA1c 9.6 to 7.7 % (P<0.0001)

Independent predictors of TIR

Predictors of greater time in range were:

- older age
- lower baseline HbA1c
- greater number of FSL scans/day

	Beta	P-value
Age	0.13	<0.0001
HbA1c	-0.45	<0.0001
FSL Scans/day	0.22	<0.0001

Conclusion

- This population-based study of FSL users demonstrates a limited use of 3.9-10mmol/l recommended range
- Highlights a need to increase the awareness of TIR measures
- Only a small proportion of people with Type 1 diabetes achieve their goals
- The number of scans per day predicts greater TIR and should be encouraged

ABCD nationwide FreeStyle Libre audit – initial setup, maintenance and nationwide analysis: Sathyapalan T, Wilmot E, Walton C, Deshmukh H, Ryder, REJ, Cull ML.

England: Aintree University Hospital NHS Foundation Trust, Aintree University Hospital : Wallymahmed M, Samad S. Alder Hey Children's NHS Foundation Trust – Paediatric, Alder Hey Children's Hospital: Mehta F, Spengler C. Ashford And St Peter's Hospitals NHS Foundation Trust, St Peter's Hospital: Banatwalla R, McBride J, Roberts M. Bedford Hospital NHS Trust - Adult and Paediatric, Bedford Hospital: Brown J, Khetriwal B, Long J, Tomeo J. Birmingham Community Healthcare NHS Trust, Lansdowne Health Centre: Tait K. Birmingham Women's and Children's NHS Trust, Birmingham Children's Hospital: Pemberton J. Brighton And Sussex University Hospitals NHS Trust, Royal Sussex County Hospital: Chakera A, Suarez A. Bromley Healthcare Community Interest Company (Community Diabetes Services), Beckenham Beacon: Cheah Y. Cambridge University Hospitals NHS Foundation Trust, Addenbrooke's Hospital: O'Reilly F, Thankamony A. Chesterfield Royal Hospital NHS Foundation Trust, Chesterfield Royal Hospital: Bills G, Cooper H, Foley C. City Hospitals Sunderland NHS Foundation Trust, Sunderland Royal Hospital: Bishop D, Fenwick L, Hopper N, Lee A, Nayar R., Countess Of Chester Hospital NHS Foundation Trust, Countess Of Chester Hospital: Ahmed SH, Bridges J, Esram I. County Durham And Darlington NHS Foundation Trust, University Hospital Of North Durham: Devlin S, Dobson H, Kamaruddin S. County Durham And Darlington NHS Foundation Trust, Darlington Memorial Hospital: Kamaruddin S, Kirby C. County Durham And Darlington NHS Foundation Trust, Bishop Auckland Hospital: Stelling A. Croydon Health Services NHS Trust, Croydon University Hospital: Chuah L, Lovie K. Derby Teaching Hospitals NHS Foundation Trust, Royal Derby Hospital: Carpenter J, Gerrard K, Hesketh E, Hughes M, Langeland L, Marchant E, Monks K, Morrison A, Owen S, Ruston S, Sellahewa K, Smith J, Stanton P, Taylor A, Taylor N, Taylor R, West S, Wildsmith S, Wilmot E. Doncaster And Bassetlaw Hospitals NHS Foundation Trust, Doncaster Royal Infirmary: Garbutt S. Dorset County Hospital NHS Foundation Trust, Dorset County Hospital: Wotherspoon F. East And North Hertfordshire NHS Trust, Lister Hospital: Thornton M, Troke R. East And North Hertfordshire NHS Trust, Queen Elizabeth II Hospital: Thornton M. East Kent Hospitals University NHS Foundation Trust, William Harvey Hospital: Christian P. East Lancashire Hospitals NHS Trust, Royal Blackburn Hospital: Ramtoola S. East Suffolk and North Essex NHS Foundation Trust, Colchester General Hospital: Cackett N, Jordan N. East Sussex Healthcare NHS Trust, Conquest Hospital: Aung KK, Dashora U. Frimley Health NHS Foundation Trust, Frimley Park Hospital: Bailey N, Henke C, Mukhtar R, Tringham J. Gateshead Health NHS Foundation Trust, Queen Elizabeth Hospital: Tsalitidis V, Scott L, Reid J, Pearsall A. Harrogate And District NHS Foundation Trust, Harrogate District Hospital: Hammond P, Rahman S. Hull and East Yorkshire Hospitals NHS Trust, Hull Royal Infirmary: Deshmukh H, Gupta S, Van-Tilburg Rogers R, Sathyapalan T. Isle Of Wight NHS Trust, St Mary's Hospital: Tapus M, Whittingstall L. Lancashire Care NHS Foundation Trust - (Diabetes Specialist Nursing Service), Minerva Health Centre: Keag G. Lancashire Teaching Hospitals NHS Foundation Trust: Royal Preston Hospital: Baxter S, Byrne J, Orme K, Vaidya A. London North West Healthcare NHS Trust, Central Middlesex Hospital: Muralidhara K. Luton And Dunstable Hospital NHS Foundation Trust, Luton & Dunstable Hospital: Wong KF. Maidstone And Tunbridge Wells NHS Trust, The Tunbridge Wells Hospital: Barnes D. 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Wales: Abertawe Bro Morgannwg University NHS Trust, Morriston Hospital: Shirikrishnapalasureja N, Udiawar M. Abertawe Bro Morgannwg University NHS Trust, I



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