A pan-London implementation document for continuous glucose sensors for people living with type 2 diabetes

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This document was approved for circulation by the London Diabetes Clinical Network, following coproduction with the pan-London working group of Diabetes specialists. Each ICB was represented throughout.

Contents

1. Scope and rationale

The National Institute for Health and Care Excellence (NICE) Guidance for adults with type 2 diabetes (NG28) was amended in June 2022 to include access to continuous glucose monitoring (CGM) technologies for a specific cohort of adults living with type 2 diabetes[1]. Similarly, the NICE Guidance for Diabetes in children and young people (NG18) was updated to include information about use of CGM in type 2 diabetes[2].

This implementation document aims to support London Integrated Care Systems (ICS) to adopt the recommendations made in NG28 and NG18 and ensure equitable access to CGM technology for eligible people living with type 2 diabetes across London.

It may be useful for ICS diabetes programme leads and commissioners to consider this document in terms of the structure of diabetes services within their local areas. If there are concerns about capacity for implementing NG28 CGM recommendations within current service structures, ICS's may wish to consider using the risk stratification criteria on page 5 to phase the introduction of CGM. This would allow time for development of new initiatives and service structures including upskilling and training of non-diabetes specialist healthcare professionals to support full implementation. It should be noted that NG18 states that children and young people with type 2 diabetes should be referred to a multidisciplinary paediatric diabetes team for specialist review to confirm diagnosis and to provide immediate and continuing care[2].

We recommend that individuals are given the opportunity to self-manage their device initiation and ongoing monitoring with the appropriate level of support. NHS North East London have developed a resource for healthcare professionals and people living with diabetes detailing training options for CGM. We recommend the use of online digital education as far as possible for upskilling non-diabetes specialist healthcare professionals.

All clinical terms and acronyms used within this document are defined in Appendix 1.

2. Access to continuous glucose monitoring

Flowchart 1 outlines CGM eligibility criteria for people living with type 2 diabetes. Criteria are based on:

- NICE Guideline 28 (NG28) – Type 2 diabetes in adults: management [1]
- NICE Guideline 18 (NG18) - Diabetes (type 1 and type 2) in children and young people: diagnosis and management[2]
- NICE Guideline 3 (NG3) - Diabetes in Pregnancy: from preconception to the postnatal period recommendations [3]
- London Diabetes Clinical Network and NHS London Procurement Partnership Guidance for the implementation of flash glucose monitoring prescribing across the NHS in London (April 2019) [4]
- NHS England Guidance - Saving babies' lives version three: a care bundle for reducing perinatal mortality[5]

NHS England London

NHS London Clinical Networks

Flowchart 1: NHS eligibility for CGM for adults, children and young people living with type 2 diabetes

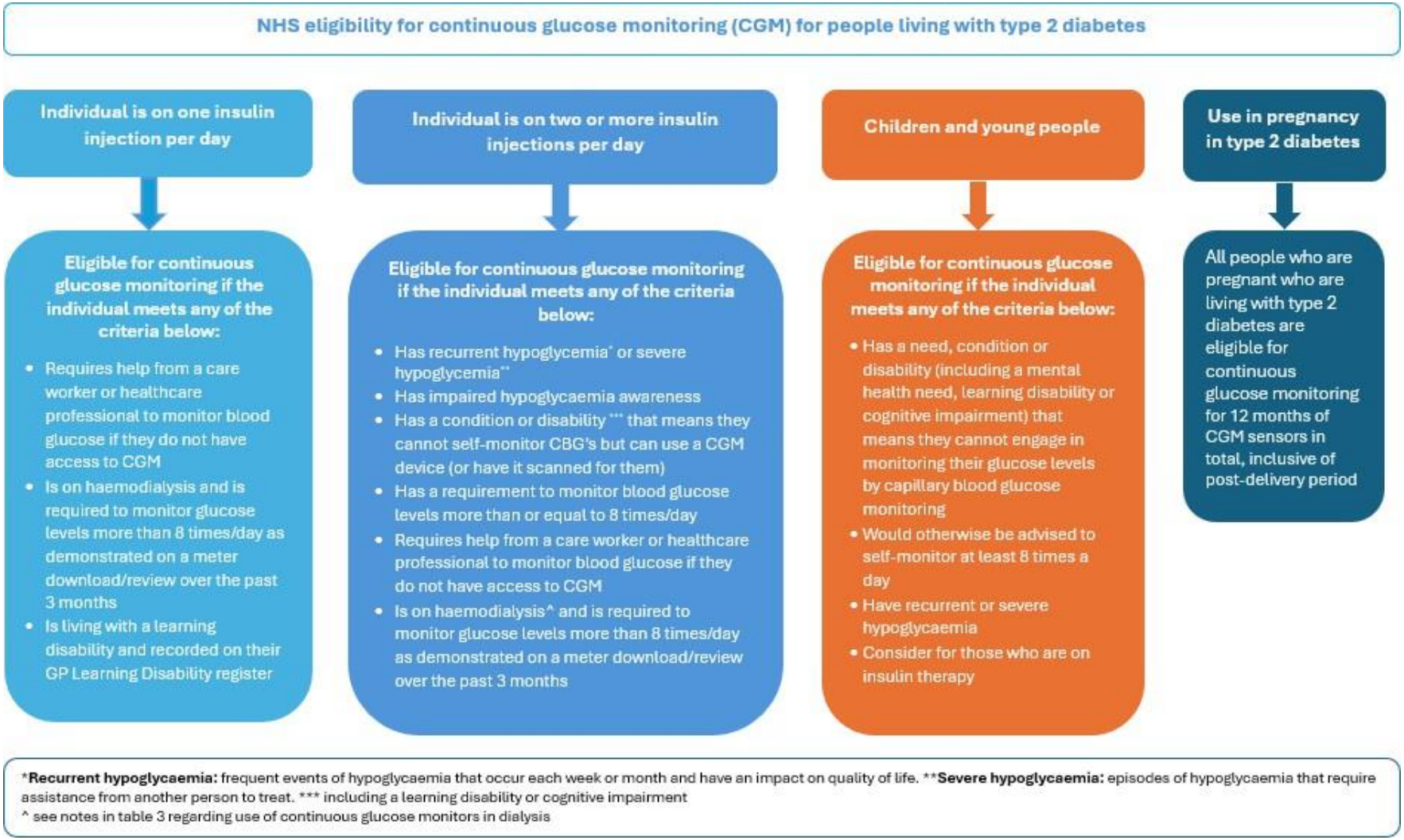

Table 1 highlights the rationale for inclusion for the groups that fall outside of NG28 and NG18.

Table 1: Rationale for additional eligibility criteria

Criteria	Rationale
On haemodialysis and insulin with a requirement to monitor glucose levels more than 8 times/day as demonstrated on a meter download/review over the past 3 months.	Legacy criteria from NHS England guidance[4] already adopted across London
People with insulin treated Type 2 diabetes who are living with a learning disability and recorded on their GP Learning Disability register.	
All people who are pregnant who are living with type 2 diabetes are eligible for continuous glucose monitoring for 12 months of CGM sensors in total, inclusive of post-delivery period	- Criteria is in line with: • NICE Guideline NG3: Diabetes in pregnancy: management from preconception to the post natal period[3]: • *People who are pregnant who are on insulin therapy but do not have type 1 diabetes (12 months sensors in total inclusive of post-delivery period), and have:* ▪ *problematic severe hypoglycaemia (with or without impaired awareness of hypoglycaemia)* ***OR*** ▪ *unstable blood glucose levels that are causing concern despite efforts to optimise glycaemic control* • This criteria has been adopted by South East London ICS and South West ICS. • NHS England Guidance: Saving babies' lives version three: a care bundle for reducing perinatal mortality[5]: • *People living with type 2 diabetes who are pregnant who require an alternative to blood glucose monitoring (finger-prick testing) if glycaemic targets are not achieved* - To ensure equitable access to CGM in pregnancy across London

When children and young people are transitioned from paediatric to adult services, a shared decision should be made between the individual and the healthcare professional regarding continuation of rtCGM.

Table 2: Definition of terms and explanatory notes on eligibility criteria for NG28[1] and NG18[2]

Criterion:	Eligibility:	LPP-NHSE explanatory notes and suggestions/definitions of terms:
NG28 1.6.17	**Offer intermittently scanned continuous glucose monitoring ('isCGM') to adults with type 2 diabetes on multiple daily insulin injections if any of the following apply:** • They have recurrent hypoglycaemia or severe hypoglycaemia • They have impaired hypoglycaemia awareness • They have a condition or disability (including a learning disability or cognitive impairment) that means they cannot self-monitor their blood glucose by capillary blood glucose ('CBG') monitoring but could use an isCGM device (or have it scanned for them). • They would otherwise be advised to self-measure CBG's ≥8 times per day	- Severe hypoglycaemia is defined by NG28[1] as '**episodes of hypoglycaemia that require assistance from another person to treat'** - Recurrent hypoglycaemia is defined by NG28[1] as **'frequent events of hypoglycaemia that occur each week or month and have an impact on quality of life'.** - **Recurrent hypoglycaemia:** we suggest clinicians undertake an individual assessment with the individual to determine if their hypoglycaemia is problematic for them and whether use of CGM would be of benefit in prevention, identification and treatment of the hypoglycaemia. This may also involve medication changes to help reduce hypoglycaemia risk. - Impaired hypoglycaemia awareness can be defined as **'loss of subjective awareness of a falling blood glucose in time to take action to avoid a severe hypoglycaemic episode'[6].** - We suggest that impaired hypoglycaemic awareness is formally assessed via use of either Gold or Clarke scores [7,8]. A Gold score of ≥4 and/or a Clarke score of ≥4 indicates impaired hypoglycaemic awareness. - There are no formal definitions of conditions or disability that would confer eligibility within NG28. We therefore suggest that clinicians undertake a joint assessment of circumstances with the individual and/or their partners, relatives, carers, or friends about use of CGM. The issue of consent will need to be considered for individuals with more severe cognitive impairment and more severe learning disabilities. - In terms of having a device scanned for an individual, we suggest that a key 'responsible person' is identified to scan and replace the CGM device. - We would caution against an individual reluctance or dislike of CBG monitoring indicating eligibility for CGM. - Consider whether isCGM or equivalent-cost rtCGM would be most appropriate device for individual, based on their particular circumstances and preferences.
NG28 1.6.18	**Offer isCGM to adults with insulin-treated type 2 diabetes who would otherwise need help from a care worker or healthcare professional**	- Please note that adults on **less than two insulin injections per day** are eligible for CGM under this criterion. - We suggest that clinicians undertake a CGM suitability assessment for this cohort of individuals, also involving carers/relatives/other healthcare professionals responsible for their care if required.

	('HCP') to monitor their blood glucose	- Consider whether isCGM or equivalent-cost rtCGM would be most appropriate device for individual, based on their particular circumstances and preferences.
NG18 1.3.38	**Offer real-time continuous glucose monitoring (rtCGM) to children and young people with type 2 diabetes if any of the following apply:** • have a need, condition or disability (including a mental health need, learning disability or cognitive impairment) that means they cannot engage in monitoring their glucose levels by capillary blood glucose monitoring • would otherwise be advised to self-monitor at least 8 times a day • have recurrent or severe hypoglycaemia	- There are no formal definitions of needs, conditions or disability that would confer eligibility within NG18. We therefore suggest that clinicians undertake a joint assessment of circumstances with the individual and their parents/carers about their ability to monitor their glucose by capillary blood glucose monitoring and whether they would benefit from the use of CGM.
NG18 1.3.39	**Consider rtCGM for children and young people with type 2 diabetes who are on insulin therapy**	- This would include those who are on one or more insulin injections per day

Risk stratification

We suggest the following approach to risk stratification, if required for capacity reasons or 'phasing' of introduction of CGM for adults living with type 2 diabetes within an ICS:

Impaired Hypoglycaemia Awareness (as defined by Gold/Clarke score ≥4) and individuals with a history of severe hypoglycaemia
Pregnancy
Individuals with a cognitive or physical impairment that are unable to monitor CBG's themselves
Individuals with problematic recurrent hypoglycaemia
On haemodialysis and prescribed insulin
Individuals who would otherwise be advised to self-monitor CBG's ≥8 times per day
Insulin-treated individuals who would otherwise need help from a care worker or HCP to monitor their blood glucose

3. Choice of continuous glucose monitoring device

There are two types of CGM systems, real time CGM (rtCGM) systems and intermittently scanned CGM (isCGM) systems. rtCGM allows a continuous display of real-time glucose readings via a display device. Scanning a sensor to display the glucose result is not required. isCGM allows an intermittent display of glucose readings. The sensor records glucose readings continuously, but the sensor must be scanned by the individual (using a reader device or smartphone) to display the reading.

Adults

NICE NG28 states that eligible individuals living with type 2 diabetes should be offered isCGM, or rtCGM if it is available for the same or a lower cost[1]. Table 3 below details the list of devices that currently meet this criterion. rtCGM devices available via NHS Supply Chain, or those available via FP10 prescription where the cost is significantly more than isCGM have not been included in the list.

Children and Young People

Type 2 diabetes in children and young people is the most aggressive form of the disease, and this population will live with the condition for longer than adults with type 2 diabetes, so timely intervention is important to reduce the risk of developing severe long-term (and possibly life-threatening) complications, such as peripheral neuropathy[2].

NICE NG18 states that children and young people with type 2 diabetes who meet the criteria in flowchart 1 should be offered rtCGM[2]. isCGM should be offered to CYP if they are aged 4 or over and rtCGM is contraindicated for them or they express a clear

preference for isCGM[2]. Please note, not all CGM devices are licensed for children, please refer to product literature for further information.

Where the devices listed in table 3 do not meet the needs of the individual, supply chain rtCGM or alternative FP10 prescribed rtCGM devices can be considered for children and young people.

Pregnancy

NICE NG3 states that rtCGM should be considered for those who are pregnant who meet the eligibility criteria[3] (see flow chart 1 and table 1 above). The choice of device should meet the needs of the individual patient whilst taking into consideration cost. Where the devices listed in table 3 do not meet the needs of the individual, supply chain rtCGM or alternative FP10 prescribed rtCGM devices can be considered in pregnancy.

CGM Devices

The device list below details currently available isCGM devices and cost-equivalent rtCGM devices available on FP10 prescription[9]. Please note that annual costs listed below are **estimates only** and are based on the following sources and assumptions:

1. NHS National Drug Tariff October 2024 [9]
2. Use of number of sensors per annum (p.a.) as per NICE NG28 costing template assumptions[1]

The list below does not constitute a complete list of features for every device. The lists will only be updated quarterly, therefore the list of devices may not be exhaustive at the time of use and device features may change. We are satisfied the list of available devices is accurate and complete as of October 2024. For full information on device features, please consult manufacturer information.

For each category of eligibility, we recommend that a joint assessment is undertaken between the patient and clinicians as to which type of CGM device would be most appropriate and beneficial for the patient. Clinicians should be aware that individuals (or carers where applicable) may need an email account (or ability to set up a new email account) in order to use all listed CGM devices.

Table 3: List of isCGM and cost equivalent rtCGM devices available on FP10 prescription

Device Name:	Device type	Key features of device[10,11,12, 13]	Estimated annual cost per individual[†, 8,12]
Dexcom ONE +® (10 day sensor and transmitter combined)	rtCGM	▪ Optional low and high glucose alerts ▪ Optional reader device if no smartphone access ▪ Data sharing with HCP's only (via DEXCOM Clarity software). ▪ Indicated for continuously measuring interstitial glucose in people aged 2 years and older ▪ Licensed for use in pregnancy ▪ Not licensed in dialysis[#]	**Dexcom ONE +:** £911.41 (integrated sensor and transmitter)
Freestyle Libre 2 Plus® (15 day sensor)	rtCGM when used with Freestyle LibreLink app isCGM if used with separate Freestyle Libre 2 reader	▪ Optional low and high glucose alerts ▪ Data sharing with HCP team, friends/relatives/carers via LibreLinkUp ▪ Optional reader device if no smartphone access (and CGM is not part of a hybrid closed loop system) ▪ Licensed for children aged 2 years and older ▪ Licensed for use in pregnancy ▪ Not approved for use in persons undergoing dialysis[#]	**Freestyle Libre 2 Plus** £912.50 (sensors only, no transmitter required)
GlucoRx Aidex® (14-day sensor, 4-year transmitter)	rtCGM	▪ Optional low and high glucose alerts ▪ Data sharing with HCP's, relatives/carers ▪ Indicated for use in people aged 14 years or older ▪ Not licensed in pregnancy ▪ Not licensed in dialysis[#]	**GlucoRx Aidex** £780.88 (£775.89 sensors, £4.99 transmitter) Additional CBG testing required to make treatment adjustments and for calibration. See user manual for further information

[†] costs are correct as per National Drug Tariff (NHS Drug Tariff) October 2024[9].

[#]Please note information above regarding use in dialysis. Please see product literature for more information and for information regarding other devices.

The information in the table is not exhaustive. Please refer to product literature for further information.

Please see notes below regarding prescribing of additional capillary blood glucose (CBG) test strips and lancets for the different devices. The cost of ongoing capillary blood glucose testing has not been incorporated into the cost assumptions above.

4. Ongoing prescribing of test strips and lancets for capillary blood glucose testing:

Everyone living with type 2 diabetes and eligible for CGM will still require ongoing FP10 prescriptions for capillary blood glucose (CBG) testing (lancets and strips). This is to ensure a safe mechanism of glucose testing should the CGM device or reader fail/be damaged/lost, and to facilitate glucose testing when use of the CGM is not appropriate.

Some CGM devices also require additional adjunctive blood glucose testing for calibration, to confirm hypoglycaemia or for treatment adjustments. For further information, please consult manufacturer information for each device.

For individuals with diabetes that drive group 1 vehicles (motorbikes, cars and light vehicles), DVLA rules state that those with interstitial glucose monitoring systems (rtCGM or isCGM) need to carry out capillary blood glucose testing in certain circumstances[14]. Individuals living with diabetes who drive group 2 vehicles cannot rely on interstitial glucose testing before or whilst driving and will therefore require ongoing regular FP10 prescriptions for capillary blood glucose testing (lancets and strips). For further information see the DVLA guidance on Assessing fitness to drive: a guide for medical professionals[14].

Given the information above, an assumption has been made that everyone living with type 2 diabetes using a CGM device will also require an FP10 prescription of a minimum 200 test strips and lancets per year for capillary blood glucose testing. Some individuals may require more than this, particularly if their device requires adjunctive capillary blood glucose testing for treatment adjustments, calibration, to confirm hypoglycaemia or for driving purposes. The quantity required should be jointly reviewed regularly by the prescriber and the individual with type 2 diabetes to ensure an appropriate number of test strips and lancets are prescribed. Please note once opened, most test strips have an expiry date of between 3-6months dependent on the brand and therefore it is recommended not to prescribe more than 3 months of test strips at any one time.

5. References

1. National Institute for Health and Care Excellence (NICE) (2022). NICE Guideline 28 (NG28) - Type 2 diabetes in adults: management. Accessed via https://www.nice.org.uk/guidance/ng28. Last accessed 29.10.2024
2. National Institute for Health and Care Excellence (NICE) (2023). NICE Guideline 18 (NG18) - Diabetes (type 1 and type 2) in children and young people: diagnosis and management. Accessed via https://www.nice.org.uk/guidance/ng18/. Last accessed 30.10.2024
3. National Institute for Health and Care Excellence (NICE) (2020). NICE Guideline 3 (NG3) - Diabetes in pregnancy: management from preconception to the postnatal period. Accessed via https://www.nice.org.uk/guidance/ng3 Last accessed 29.10.2024.
4. London Diabetes Clinical Network and NHS London Procurement Partnership (2019). Implementation of flash glucose monitoring prescribing across the NHS in London. Accessed via https://www.england.nhs.uk/london/wp-content/uploads/sites/8/2020/03/Flash-Glucose-implementation-guidance-London-v2.0-May-19.pdf Last accessed 29.10.2024.
5. National Health Service, England (2023). Saving babies' lives version three: a care bundle for reducing perinatal mortality. Accessed via https://www.england.nhs.uk/publication/saving-babies-lives-version-three/ Last accessed 29.10.2024
6. Pedersen-Bjergaard, U. et al. (2004). Severe hypoglycaemia in 1076 adult patients with type 1 diabetes: influence of risk markers and selection. Diabetes Metab. Res. Rev. 20, 479–486.
7. Gold, A. E., Macleod, K. M. & Frier, B. M. (1994). Frequency of severe hypoglycemia in patients with type I diabetes with impaired awareness of hypoglycemia. Diabetes Care 17, 697–703.
8. Clarke, W. L. et al. (1995). Reduced awareness of hypoglycemia in adults with IDDM: a prospective study of hypoglycemic frequency and associated symptoms. Diabetes Care 18, 517–522
9. The National Health Service Business Services Authority (2024). Drug Tariff October 2024. Accessed via https://www.nhsbsa.nhs.uk/pharmacies-gp-practices-and-appliance-contractors/drug-tariff Last accessed 28.10.24
10. Dexcom (2025). Dexcom One + user guide. Accessed via https://www.dexcom.com/en-GB/downloadsandguides/search Last accessed 17.3.25
11. Abbott (2025). Freestyle Libre 2 Plus user guide. Accessed via https://www.freestyle.abbott/uk-en/support/tutorialsanddownloads.html Last accessed 18.3.25
12. GlucoRx (2025). GlucoRx Aidex user guide. Accessed via https://glucorxaidex.com/pat-learn-more/ Last accessed 27.3.25

13. Communication from Abbott, GlucoRx and Dexcom pharmaceutical companies, March 2025
14. Driver and Vehicle Licensing Agency (DVLA) (2024). Assessing fitness to drive: a guide for medical professionals. Accessed via https://www.gov.uk/government/publications/assessing-fitness-to-drive-a-guide-for-medical-professionals Last accessed 29.10.2024

6. Appendices

Appendix 1: Clinical Terms and acronyms

Specialist care	A care setting in which the clinician(s) consider themselves to have sufficient knowledge and expertise in initiation and support of continuous glucose monitoring. This does not have to be a secondary care setting and could be setting in which there is the above expertise.
Non-specialist care	A care setting in which the clinician(s) do not consider themselves to have sufficient knowledge or expertise to carry out initiation and support of continuous glucose monitoring.
CGM	Continuous Glucose Monitoring A continuous glucose monitor is a device that measures glucose levels in the interstitial fluid via a sensor worn on the body, and sends the readings to a display device ('reader') or smartphone via a transmitter.
rtCGM	Real-time Continuous Glucose Monitoring This allows a continuous display of real-time glucose readings via a display device. Scanning a sensor to display the glucose result is not required.
isCGM	Intermittently scanned Continuous Glucose Monitoring This allows an intermittent display of glucose readings. The sensor records glucose readings continuously, but the sensor must be scanned by the individual (using a reader device or smartphone) to display the reading.
CBG testing	Capillary blood-glucose testing or traditional finger prick testing This involves use of a lancet device to prick the finger and draw a drop of blood. A testing strip is used to absorb the blood sample and deliver a blood glucose result via insertion into a glucometer. Some CGM devices recommend testing capillary blood glucose to support treatment adjustments. Some may additionally require capillary blood glucose checking for symptoms of hypoglycaemia and some devices also require regular capillary blood glucose testing to calibrate the CGM device. **These devices will require an additional regular FP10 prescription of capillary blood glucose testing strips and lancets.**

	For more detail on the suggested ongoing prescribing of strips and lancets for each device, please see notes above.
Impaired hypoglycaemia awareness	Defined as 'loss of subjective awareness of a falling blood glucose in time to take action to avoid a severe hypoglycaemic episode'.[6]
Gold score	A linear assessment scale to assess awareness of hypoglycaemia and existence of hypoglycaemia symptoms.
Clarke score	A questionnaire-based assessment to assess awareness of hypoglycaemia and existence of hypoglycaemia symptoms.
Severe hypoglycaemia	Defined by NG28 as 'episodes of hypoglycaemia that require assistance from another person to treat'. [1]
Recurrent hypoglycaemia	Defined by NG28 as 'frequent events of hypoglycaemia that occur each week or month and have an impact on quality of life'. [1]