South East London Continuous Glucose Monitoring in Type 1 diabetes (adults) - Primary Care Information Sheet

Who is eligible for continuous glucose monitoring?

In South East London (SEL), all adults living with type 1 diabetes are eligible for access to continuous glucose monitoring (CGM). This is in line with the updated National Institute for Health and Care Excellence (NICE) Guidance for adults with type 1 diabetes (NG17) and the London Diabetes Clinical Network pan-London implementation documents. SEL guidance for access to CGM for people living with type 2 diabetes and for children and young people under 18 years living with diabetes will be updated in due course. All current SEL guidance on access to CGM including the South East London Continuous Glucose Monitoring Guidance – Adults living with type 1 diabetes, and a primary care information sheet which supplement this document can be found here. This document has been adapted with permission from the London Diabetes Clinical Network pan-London implementation document for continuous glucose sensors for adults with type 1 diabetes.

What is continuous glucose monitoring?

CGM allows an individual to continually monitor glucose levels. A CGM system consists of a sensor worn on the body which sends glucose readings to a display device ('reader') or smartphone via a transmitter. A CGM system measures glucose levels in the interstitial fluid (the fluid between cells under the skin) in comparison to finger-prick or capillary blood glucose testing which measures capillary blood glucose levels. 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, also known as 'flash' glucose monitoring 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. There are a number of different CGM systems available on the NHS and each have slightly different features. Some have mandatory low/high glucose alerts, some link with insulin pumps and some allow data sharing with family members /carers and healthcare professionals (HCPs). The choice of device will be jointly made by the person living with type 1 diabetes and the HCP and will depend on individual need. The choice of device will be reviewed on an ongoing basis by the initiating team to ensure the individual is gaining benefit from use.

Who can initiate continuous glucose monitoring?

In line with NICE guidance, in SEL, CGM should be initiated by a team with expertise in its use, as part of supporting people to self-manage their diabetes. CGM devices have been added on to the SEL formulary with a RAGG category of **"AMBER 1"** for adults living with type 1 diabetes. The AMBER 1 RAGG category means that the CGM devices available on FP10 prescriptions (Lists 2 and 3) can be initiated in primary care after a recommendation from an 'appropriate specialist' in line with SEL guidance. Whilst initiation is most likely to be undertaken by specialist diabetes teams, initiation can be undertaken by an 'appropriate specialist' in other settings (e.g. GP practices). The 'appropriate specialist' must be able to assess suitability of the CGM device for the individuals clinical need, have experience and expertise in CGM use, be competent in initiating (including training on the use of the device) and provide ongoing support and monitoring. There are certain CGM systems that can only be initiated by specialist teams and these are listed below.

If initiated by the specialist diabetes team, a minimum of 4 weeks of sensors and transmitters will be issued to the individual at initiation. A request for primary care to take over prescribing will be detailed in a standard clinic letter. There is no requirement for a shared care or transfer of prescribing form for CGM for adults living with type 1 diabetes. Where people are changed from one CGM device to another CGM device due to clinical need, if urgent, the specialist team will supply a minimum of 4 weeks of sensors and transmitter. If the changeover is not deemed to be urgent, the specialist team will request primary care initiate the new device. Specialist teams will have provided education to the individual on use of the new CGM system and a standard clinic letter will detail the CGM device and primary care prescribing request.

Some CGM systems are only available through specialist diabetes teams .(supply chain only) Therefore, any requests for supplies for the following CGM systems should be referred back to the initiating team as these are not available through GP practices/community pharmacy:

– Dexcom G6 & Dexcom G7
– Freestyle Libre 3
– Medtronic Guardian 3 & Medtronic Guardian 4
– Medtrum Touchcare Nano

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South East London Integrated Medicines Optimisation Committee (SEL IMOC). A partnership between NHS organisations in South East London Integrated Care System: NHS South East London (covering the boroughs of Bexley/Bromley/Greenwich/ Lambeth/Lewisham and Southwark) and GSTFT/KCH /SLaM/ Oxleas NHS Foundation Trusts and Lewisham & Greenwich NHS Trust

Which continuous glucose monitoring systems are available on FP10?

There are a number of different CGM systems available on NHS FP10 prescription which are summarised in the tables below. Table 1 outlines the two rtCGM systems available on FP10 prescription whereas table 2 outlines the only isCGM system currently available on FP10 prescription. The tables detail some key information regarding the different systems to support dispensing and answers some key questions that may be asked in a GP practice setting.

The information below is not exhaustive. For further information, please see the individual user manuals (see reference list) or contact the companies direct (see tables 1 and 2).

Do people still need blood glucose test strips if they are using continuous glucose monitoring (CGM)?

All individuals with type 1 diabetes will require ongoing FP10 prescriptions for CBG testing (lancets and strips). This is to ensure a safe mechanism of glucose testing is available should the CGM device or reader fail/be damaged/lost, and to facilitate glucose testing when use of the CGM device is not appropriate. Some CGM devices also require additional adjunctive blood glucose testing, testing for calibration, or to confirm hypoglycaemia. In addition, for individuals with diabetes who drive group 1 vehicles (motorbikes, cars and light vehicles), the Driver and Vehicle Licensing Agency (DVLA) rules state that those with interstitial glucose monitoring systems (rtCGM or isCGM) may need to carry out CBG testing in certain circumstances . Individuals with type 1 diabetes who drive group 2 vehicles cannot rely on interstitial glucose testing before or whilst driving and will require ongoing regular FP10 prescriptions for CBG testing kit (lancets and strips).

It is not expected that the requirement for blood glucose test strips should be excessive. On average we expect people living with type 1 diabetes who are using CGM devices to require approximately 200 strips per year however some individuals may require more, particularly if their CGM device requires adjunctive capillary blood glucose testing for calibration or confirmation, to confirm hypoglycaemia or in line with driving requirements. The quantity required should be jointly reviewed regularly by the prescriber and the individual with type 1 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.

GP practices should have prescribing systems in place to ensure the quantity of CBG testing kits (lancets and strips) and CGM sensors and transmitters (where applicable) are appropriate. Where there are concerns regarding under or over prescribing of CBG testing kit and/or CGM sensors and transmitters (where applicable), this should be discussed with the initiating team and the individual with type 1 diabetes.

Individuals with type 1 diabetes can continue to use their current CBG meter and ketone meter alongside the CGM device. The brand chosen should reflect local formularies, the functionality required and patient choice.

References: (1)Advice from Dexcom representatives, February 2023. (2)Advice from GlucoRx representatives, February 2023. (3) Dexcom One User manual version AW00096-07 Rev 002 MT00096-07 Rev Date: 2022/07. Accessed 18/02/2023. (4) Driver and Vehicle Licencing Agency. Assessing fitness to drive: a guide for medical professionals - GOV.UK (www.gov.uk). Last updated June 2022, accessed 18/02/2023. (5) NHS Business Services Authority. The Drug Tariff. March 2023, accessed 06/03/2023.. (6) NHS England/The NHS London Procurement Partnership and the London Diabetes Clinical Network. A pan-London implementation document for continuous glucose sensors for adults with type 1 diabetes: device list. Last updated October 2022, version 5.0, accessed 18/02/2023. (7) NHS England/The NHS London Procurement Partnership and the London Diabetes Clinical Network. A pan-London implementation document for continuous glucose sensors for adults with type 1 diabetes: written pathway. Last updated October 2022, version 7.0, accessed 18/02/2023. (8) NHS England/The NHS London Procurement Partnership and the London Diabetes Clinical Network. A pan-London implementation document for continuous glucose sensors for adults with type 1 diabetes: flowchart. Last updated October 2022, version 6.0, accessed 18/02/2023. (9) National Institute for Health and Care Excellence. Type 1 diabetes in adults: diagnosis and management. Last updated August 2022, accessed 18/02/2023. (10) South East London Integrated Care System. Community Pharmacy information sheet Freestyle Libre 2 March 2021. (11) South East London Integrated Care System. Patient FAQ flash glucose. March 2021. (11) Dexcom One Help Centre Help Centre | Dexcom ONE CGM System | Dexcom accessed 18/02/2023. (12) Freestyle Libre 2 user manual 2019-2021 Abbott ART40901-208 Rev. A 11/21 Accessed 18/02/2023. (13) GlucoRx Aidex user manual 016-PMTL-261. V02. Accessed 18/02/2023.

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Table 1 - Real time CGM devices available on FP10 prescription

Name of CGM system	Details of CGM system	Further information
Dexcom One	**10 day sensor** Come in packs of 1 sensor or 3 sensors. Prescribe in line with usual prescribing interval: One month supply = 3 sensors Two months supply = 6 sensors Three months supply = 9 sensors Annually, approximately 37 sensors will be required. If there are any concerns regarding the number of sensors issued, please discuss with the specialist diabetes team. **3 month transmitter** Prescribe one Dexcom One transmitter approximately every 90 days (approximately four per year). As sensors are likely to be issued every 1-2 months rather than every 90 days, please review frequency of transmitter prescriptions. Please discuss any over or under use with the specialist diabetes team. **Reader device:** Use of Dexcom ONE app on compatible smartphone. Alternatively a reader device will be issued by the initiating team.	**Sensors** Faulty sensors (including those that fall off early and those that stop working) should be reported to the Dexcom technical support team directly on 0800 0315763. Replacements will be posted to the home address directly on a case by case basis. For adults aged 18 years and older, the sensor should be applied to either the abdomen or back of upper arms. For further information on sensor sites, see the Dexcom One user manual. Sensor insertion sites should be changed for each new sensor. **Transmitters** If the transmitter stops working, the individual should be advised to contact Dexcom technical support directly on 0800 0315763. Transmitters hold a warranty for 90 days post insertion, product defects can be reported to Dexcom technical support directly via the website - https://www.dexcom.com/en-gb/contact-us-direct. Lost transmitters are not covered under this warranty and would not be replaced by Dexcom in most circumstances. **Additional capillary blood glucose (CBG) testing** If the Dexcom one system is not working individuals should continue to check blood glucose levels using their CBG testing kit. For further information on when CBG testing is required, see notes above (page 1) and the SEL Continuous Glucose Monitoring – Adults living with type 1 diabetes guidance. **Safe disposal** Dexcom advise following local guidelines for appropriate disposal. The applicator has a sharp, the sensors & transmitters are considered biohazardous waste. See Borough guidance for further information. **Managing skin reactions from the sensor** If significant skin irritation occurs, or where skin irritation is causing concern, the individual should stop using Dexcom One. The initiating team can be contacted for further advice if required. If people are no longer able to check glucose levels using the Dexcom One system, advise the individual to continue to check blood glucose levels using their CBG testing kit and advise the specialist diabetes team. **Managing bruising or bleeding** In order for the Dexcom One insertion needle to reach the interstitial fluid, it must penetrate the dermis layer of the skin. This can cause bleeding if the needle pierces through a blood vessel. Further information is available from the Dexcom support section of the website or through the Dexcom support team. As with all sensors, if the bleeding is recurrent or if the individual has any concerns, the initiating team can be contacted for further advice if required. If people are no longer able to check glucose levels using the Dexcom One system, advise the individual to inform the specialist diabetes team and continue to check blood glucose levels using their CBG testing kit. **Swimming/showering and bathing** The Dexcom sensor and transmitter can be fully submerged in water for up to 24 hours at a depth limit of 2.4 meters. **Further information** For more information, contact Dexcom direct on 0800 031 5763. Short video tutorials on how to set up the device and apply the sensor can be found by clicking on the following link

Table 1 continued - Real time CGM devices available on FP10 prescription

Name of CGM system	Details of CGM system	Further information
GlucoRx Aidex	**14 day sensor** Come in packs of 1 sensor. Prescribe in line with usual prescribing interval: 28 days supply = 2 sensors 56 days supply = 4 sensors 84 days supply = 6 sensors Annually, approximately 27 sensors will be required. If there are any concerns regarding the number of sensors issued, please discuss with the specialist diabetes team. **4 year transmitter** This cannot be prescribed on the NHS. Patients can order free replacement transmitters from the customer care team on 0800 007 5892, email: orders@glucorx.co.uk or via LiveChat at: www.glucorx.co.uk. **Reader device** Use of GlucoRx AiDEX app on compatible smartphone.	**Sensors** If the sensor falls off, a new sensor should be applied (if the transmitter falls off this can be reattached without applying a new sensor) and ensure patients are wearing the overpatch on a hair free area. Cleaning the skin prior to attaching the sensor with an alcohol wipe (can be purchased over the counter) will help the sensor stay on. If there is a problem with the sensor e.g. stops working, patients should be advised to contact the customer care team on 0800 007 5892, email: orders@glucorx.co.uk or via LiveChat at: www.glucorx.co.uk . GlucoRx will not replace sensors that fall off, or those deemed faulty. The sensor should be applied to either the abdomen or outside and back of upper arms. For further information on sensor sites, see the GlucoRx Aidex user manual. GlucoRx strongly recommended putting the sensor on the abdomen rather than the arms or other areas. Sensor application sites should be rotated regularly to avoid discomfort or skin irritation. **Additional capillary blood glucose (CBG) testing** Additional capillary blood glucose testing is required for all treatment adjustments. Please see notes above (page 1) and the SEL Continuous Glucose Monitoring – Adults living with type 1 diabetes guidance regarding additional blood glucose testing for further information. If the GlucoRx Aidex system is not working, individuals should continue to check blood glucose levels using their CBG testing kit. **Safe disposal** Sensors should be disposed of in a biohazardous bag or a sharps bin. Transmitters should be disposed of according to local council guidelines (recycle small electrics). If there is blood contamination then they need to be disposed of in a biohazardous bag. See Borough guidance for further information. **Managing skin reactions from the sensor** Contact dermatitis can be caused by CGM sensors. If severe irritation occurs, GlucoRx advise stopping using the GlucoRx AiDEX system. The specialist diabetes team can be contacted for further advice as needed and individuals should continue to check blood glucose levels using their CBG testing kit. **Managing bruising or bleeding** On application there can be slight bruising, this will not affect the sensor and should go down in a couple of days. On rare occasions the sensor can hit a capillary on application and can result in bleeding through the sensor. If this happens, GlucoRx advise wiping away any blood until the bleeding stops. The sensor should work as normal however if there is a large amount of blood, advise removing the sensor. As with all sensors, if the bleeding is recurrent or if the individual has any concerns, they may contact the practice for advice. Additional support/advice can be sought from the specialist diabetes team if needed. If people are no longer able to check glucose levels using the GlucoRx Aidex system, advise the individual to inform the specialist diabetes team and continue to check blood glucose levels using their CBG testing kit. **Swimming/showering and bathing** The GlucoRx Aidex sensor and transmitter have an IPX7 waterproof rating and can be submerged up to 1 meter for up to 30 minutes in water. People should be advised to avoid applying shower gel on the CGM adhesive pad when showering. **Further information** For more information, contact GlucoRx direct on 0800 007 5892, email: orders@glucorx.co.uk or via LiveChat at: www.glucorx.co.uk. Short video tutorials on how to set up the device and apply the sensor can be found by clicking on the following link

Table 2 - Intermittently scanned CGM devices available on FP10 prescription

Name of CGM system	Details of CGM system	Further information
Freestyle Libre 2	**14 day sensor** Come in packs of 1 sensor. Prescribe in line with usual prescribing interval: 28 days supply = 2 sensors 56 days supply = 4 sensors 84 days supply = 6 sensors Annually, approximately 27 sensors will be required. If there are any concerns regarding the number of sensors issued, please discuss with the specialist diabetes team. **Reader device** Use of Freestyle Libre Link app on compatible smartphone. Alternatively a Freestyle Libre 2 reader device will be issued by the initiating team. If a replacement Freestyle libre 2 reader is required, people can either contact Abbott directly on 0800 1701177 or contact their initiating team.	**Sensors** If there is a problem with the sensor (faulty or falls off), Abbott should be contacted directly by the person using the sensor/carer. Advise to contact Abbott Customer Careline on 0800 170 1177 on the day that a problem is identified. The displaced/faulty FreeStyle Libre 2® sensor should be kept and instructions of the Abbott Customer Careline representative should be followed. If a replacement sensor is issued, these should be received from Abbott within 3-5 days. Sensors should be applied to the back of the upper arm. Sensor application sites should be rotated. **How to access the reader/smartphone app** The Freestyle LibreLink app can be downloaded on a compatible smartphone to use as the 'reader'. Alternatively a Freestyle Libre 2 reader can be used to scan the sensor. A Freestyle Libre 2 reader should be issued by the initiating team if the LibreLink app cannot be used. If a replacement Freestyle libre 2 reader is required or there are any questions about smartphone compatability, people can either contact Abbott directly on 0800 1701177 or contact their initiating team. **Additional capillary blood glucose (CBG) testing** If the Freestyle Libre 2 system is not working, individuals should continue to check blood glucose levels using their CBG testing kit. For further information on when CBG testing is required, see notes above (page 1) and the SEL Continuous Glucose Monitoring – Adults living with type 1 diabetes guidance. **Safe disposal** Used/unused sensor packaging can go in general waste. Once the senor has been placed on the arm, the used applicator (contains a needle) and the lid can be screwed back together and placed in a yellow biohazard bag or sharps bin. The used sensors are not sharps. The used sensor should be removed and wiped down with disinfectant and then disposed of as electrical waste (the same as a battery). See Borough guidance for further information. **Managing skin reactions from the sensor** Skin symptoms are generally mild but in a few cases can be severe. Advise gently removing the sensor with warm water. If necessary, use baby oil or a moisturiser to remove the adhesive. In some cases adhesive removal products may be required. If significant skin irritation around or under the sensor (e.g. redness, itching, blistering), the individual should remove the sensor and stop using FreeStyle Libre 2®. They should contact their healthcare professional before continuing FreeStyle Libre 2®. If they are no longer able to use FreeStyle Libre 2®, they should inform the GP practice and the specialist diabetes team and continue to check blood glucose levels using their CBG testing kit. If patients suffer from skin reaction to adhesive, advise patients not to use creams, patches or sprays under the sensor to reduce skin reactions, which may affect device performance (MHRA 2019). **Managing bruising or bleeding** Applying the sensor may cause some bruising or bleeding. Advise if the bleeding does not stop, the sensor should be removed and a new one applied to a different site. If the bleeding is recurrent or if any concerns, they may contact the practice for advice. Additional support/advice can be sought from the specialist diabetes team if needed. If they are no longer able to use FreeStyle Libre 2®, they should inform the specialist diabetes team and continue to check blood glucose levels using their CBG testing kit. **Swimming/showering and bathing** Sensors can be worn while bathing, showering or swimming. The sensors should not be submerged in water for more than 30 minutes and not taken deeper than 1m (3 feet) in water. **Further information** Short video tutorials on how to set up the device and apply the sensor can be found by clicking on the following link