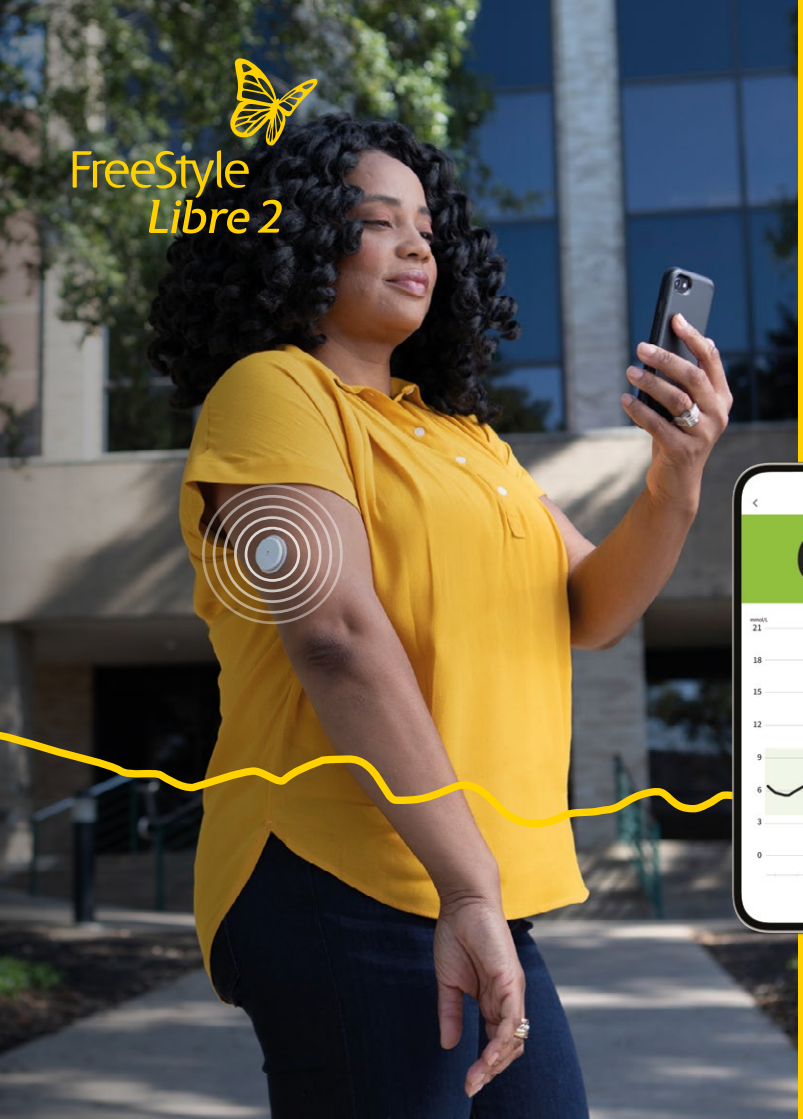
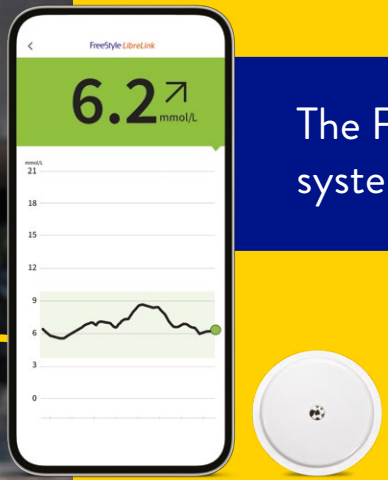


Support people with diabetes monitor their glucose with confidence[1]



The FreeStyle Libre 2 system support guide

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Images are for illustrative purposes only. Not actual patient or data.
The FreeStyle LibreLink app is only compatible with certain mobile devices and operating systems. Please check the website for more information about device compatibility before using the app.
Use of FreeStyle LibreLink may require registration with LibreView.

1. Fokkert M. *BMJ Open Diab Res Care* (2019): http://dx.doi.org/10.1136/bmjdrc-2019-000809.

What is the FreeStyle Libre 2 system?

The FreeStyle Libre 2 system measures interstitial fluid glucose levels (the fluid between the body's cells) and has been shown to be a reliable indicator of glucose levels in blood.

The FreeStyle Libre 2 Plus sensor

- Sensor lasts for up to 15 days
- Applied to the back of the upper arm
- A thin, sterile filament is inserted approx. 5mm under the skin
- Continuously measures glucose levels every minute

A compatible smartphone or the FreeStyle Libre 2 reader is used to view glucose readings.

Sensor

The FreeStyle LibreLink app

It's FREE to download from the **Apple App Store** or **Google Play**

Optional Reader

For those without compatible smartphones

Applicator used to apply sensor

Sensor pack

A list of compatible smart devices can be found **here** by scanning this QR code

Watch how to apply and activate the FreeStyle Libre 2 Plus sensor

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Benefits of FreeStyle Libre 2 system

- Real-time glucose readings automatically updated every minute and sent directly to users' smartphone[1,2]
- Easy to apply and comfortable[3] to wear for up to 15 days
- Outstanding accuracy, including strong low-end performance[4], no more finger pricks[5]
- Optional glucose alarms[6] let the wearer know the minute their glucose is too low or too high

TIPS

1. Ensure the FreeStyle LibreLink app is open to receive continuous real-time glucose readings.
2. FreeStyle Libre 2 reader users must scan the sensor to view glucose readings.
3. The smartphone needs to be within 6 metres of the person to receive alarm notifications.
4. Finger prick testing is required when glucose readings and alarms do not match symptoms or expectations.

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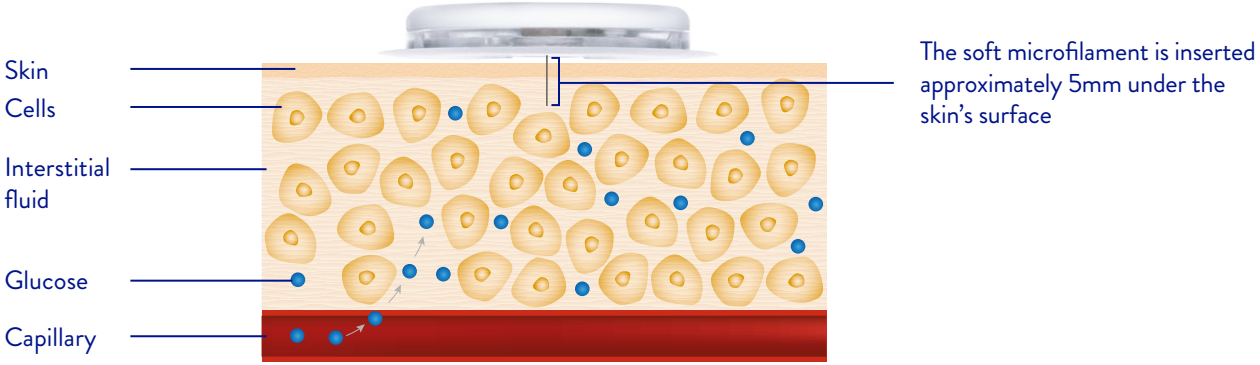
1. The FreeStyle LibreLink app is only compatible with certain mobile devices and operating systems. Please check the website for more information about device compatibility before using the app. Use of FreeStyle LibreLink may require registration with LibreView. **2.** Glucose readings are automatically displayed in the app only when the smartphone and sensor are connected and in range. **3.** Haak, T. *Diabetes Ther*. (2017): https://doi.org/10.1007/s13300-016-0223-6. **4.** Data on file, Abbott Diabetes Care, Inc. **5.** Finger pricks are required when glucose readings and alarms do not match symptoms or expectations. **6.** Notifications will only be received when alarms are turned on and the sensor is within 6 metres unobstructed of the reading device.

Blood glucose vs. interstitial fluid

The FreeStyle Libre 2 system measures glucose in the interstitial fluid. Blood glucose and sensor glucose are closely related but not identical.

Understanding glucose measurements



A finger prick blood glucose test should be done if glucose readings and alarms do not match symptoms or expectations. Therefore, a person with diabetes should have access to appropriate quantities of finger prick blood glucose equipment.

Driving

The FreeStyle Libre 2 system can be used for DVLA requirements[1] for **group 1 drivers** but finger prick testing must be carried out to confirm blood glucose levels:

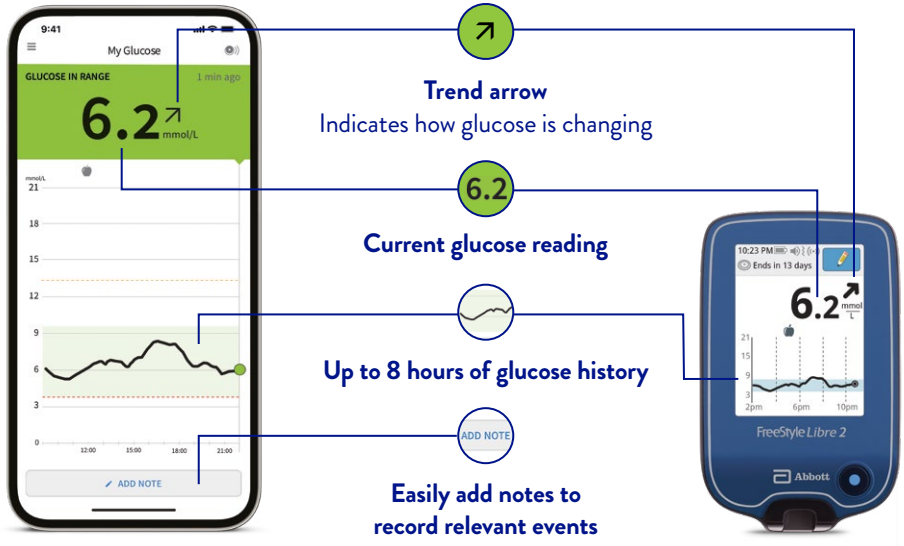
- If glucose level is 4.0mmol/L or below
- If there are symptoms of hypoglycaemia
- If readings are not consistent with a person's symptoms
- If the person becomes hypoglycaemic or have indication of impending hypoglycaemia

Group 2 drivers still need to use finger prick glucose testing.

Images are for illustrative purposes only. Not actual patient.

1. Diabetes and driving: https://www.gov.uk/diabetes-driving. Accessed February 2024

What information is shown on the app or reader?



- Glucose is rising quickly
- Glucose is rising
- Glucose is changing slowly
- Glucose is falling
- Glucose is falling quickly

- The FreeStyle Libre 2 system enables the user to learn about how diet, exercise, stress, insulin, and other activities affect glucose levels
- The trend arrows show the direction that glucose is heading, supporting insulin management decisions per Healthcare Professionals advice
- Optional glucose alarms[1] let the wearer know the minute their glucose is too low or too high but people with diabetes who drive should have adequate hypo-awareness so they are not reliant on alarms

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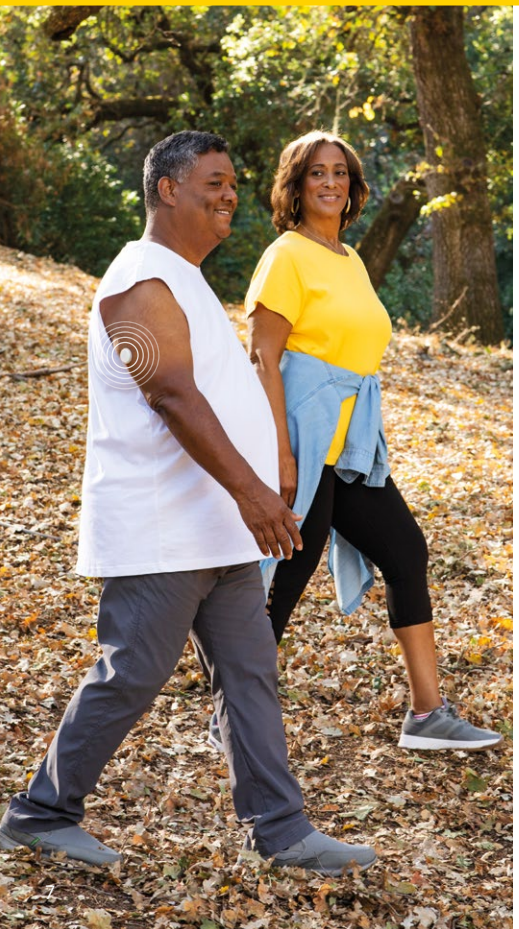
Important Information: When starting FreeStyle Libre 2 Plus sensor with the FreeStyle Libre 2 reader, users will not receive real-time glucose readings, even if they use the updated FreeStyle LibreLink app as their second device. Users will need to scan to get their glucose reading on both devices. Glucose alarms are only received on the device used to start the sensor.
1. Notifications will only be received when alarms are turned on and the sensor is within 6 metres unobstructed of the reading device.

Identify people with type 2 diabetes who may be eligible



Offer FreeStyle Libre 2 to adults with T2DM on multiple daily injections if any of the following apply[1]:

- 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 monitoring but could use an isCGM device
- They would otherwise be advised to self-measure at least 8 times a day

Offer FreeStyle Libre 2 system to adults with insulin-treated type 2 diabetes who would otherwise need help from a care worker or healthcare professional to monitor their blood glucose

Please check local guidance as it may vary in your locality. For example Health Technology Wales guidance states that FreeStyle Libre 2 is indicated for use in anyone on insulin therapy.

Images are for illustrative purposes only. Not actual patient.
T2DM=type 2 diabetes mellitus; isCGM=Intermittently scanned continuous glucose monitoring.
1. NICE NG28 available at: https://www.nice.org.uk/guidance/ng28/resources/type-2-diabetes-in-adults-management-pdf-1837338615493.

How to initiate the FreeStyle Libre 2 system

Having identified suitability for FreeStyle Libre 2, follow local pathways.

There is a dedicated website to help you easily get people with diabetes started on the FreeStyle Libre 2 system. Simply choose **1 of the 4 options** that fits their needs the best.

Get started

Pro.FreeStyle.Abbott/uk-en/home/primary-care.html

Option 1

Self-learning:
Allows people with diabetes to get started in their own time, at home.

Option 2

HCP-led training:
Use resources on our website to assist you to get people with diabetes started.

Option 3

Live online training:
Saves you time as it's delivered by an Abbott trainer.

Option 4

In-person training:
Face-to-face group sessions delivered as needed by an Abbott trainer.

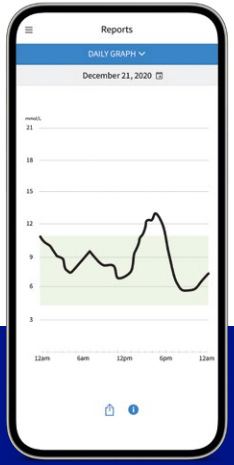
Next steps

- 2 x FreeStyle Libre 2 Plus system sensors per 30 days [PIP CODE: 428-0194] – each sensor lasts for 15 days
- Supply an appropriate quantity of capillary blood glucose test strips and lancets for finger prick testing
- Sharps disposal unit
- **Agree** target glucose ranges in line with guidelines and individual preferences and discuss optional alarm settings
- Set a review date
- **Signpost** to additional information, including the Abbott Customer Careline for general enquiries

0800 170 1177 (Mon–Fri 8:00am–8:00pm, Sat 9:00am–5:00pm)

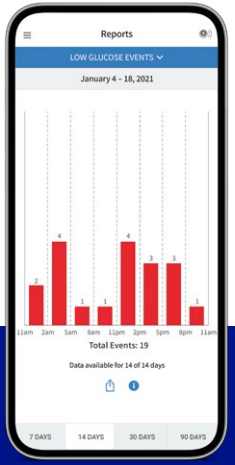
Making sense of the data

The FreeStyle Libre 2 system will show **daily graphs,** and after five days or more of data, it will start to show patterns such as **time spent in target range, low glucose events, average glucose reading, daily patterns** and **estimated HbA1c***. The user can also add notes on food, insulin doses and exercise.



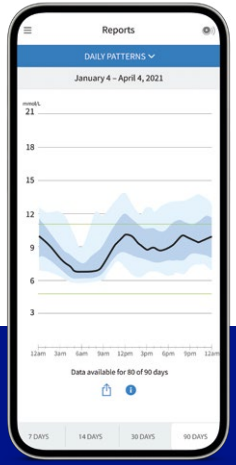
Daily Graph

Shows glucose levels for specific days



Low Glucose Events

Shows the number and times of low glycaemic events over a chosen period e.g. 7, 14, 30 and 90 days



Daily Patterns

This shows typical patterns/ variation in glucose variability

*Estimated A1c is available for FreeStyle LibreLink app users only.
Images are for illustrative purposes only. Not actual patient data.
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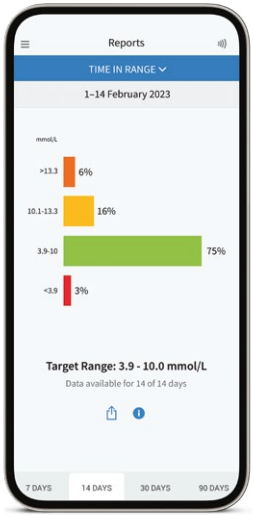
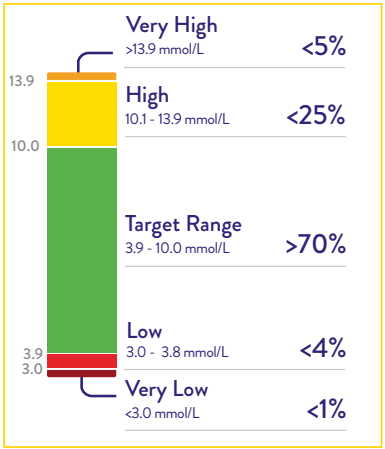
Making sense of the data: Time in Range

Time in Range (TIR)

This shows the percentage of time glucose readings are in various ranges. The consensus for Time in Range is to aim for >70% but for people with frailty this needs to be adjusted to >50%[1].





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1. Battelino T, Danne T, Bergenstal RM, *et al. Diabetes Care.* (2019);42(8):1593-1603. **2.** Beck RW *et al. Diabetes Care* 2018;42:400–405.

Greater time in target range is associated with reduced diabetes complications

For example every 10% increase in Time in Range is associated with a

40% reduction in microalbuminuria[2]

64% reduction in retinopathy[2]

An individual's Time in Range report is available via the FreeStyle LibreLink app and is trackable over 7, 14, 30 and 90 day periods, as shown here.

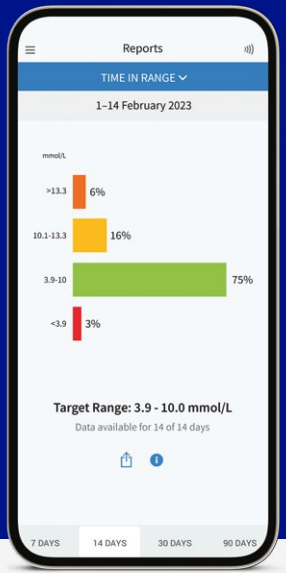
Consultation: Validate data and review Time in Range

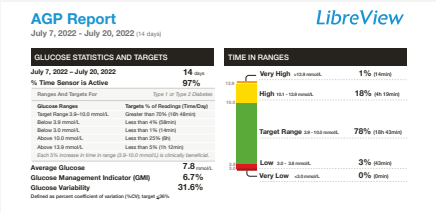
Validate the data

- Number of days of sensor wear (aim for 15 days)
- How much data is captured (aim for >70% of time)
  - Are there any gaps in data?
  - If using the app, is the user closing down the app?
  - If using the reader, is the user scanning at least once every 8 hours?
- Confirm insulin regimen, current dosing, timing of injections
- Ask for permission to view their data and reinforce achievements before focusing on areas for review
- Always respect a person's data and avoid negative language: https://diabetesonthenet.com/diabetes-primary-care/how-find-ideal-wordsconsultations

Images are for illustrative purposes only. Not actual patient or healthcare professional.

Consultation: Step 1 – Review Time in Range





Review Time in Range (TIR)

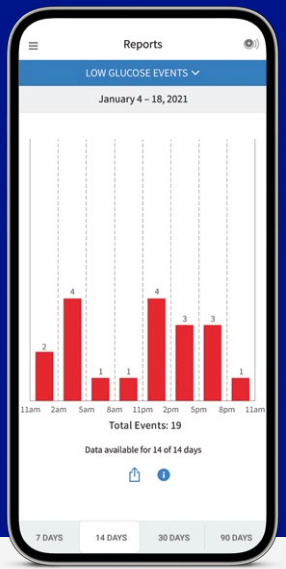
Overall goal is to aim for >70% of time in glucose range of 3.9-10.0 mmol/L (this reflects an HbA1c of 53 mmol/mol, each 10% increase in TIR equates to ~ 5 mmol/mol reduction in HbA1c)

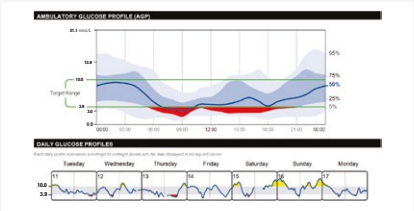
- % Time in Range – what % of readings are within the target range?
  - Is the TIR appropriate for the person?
  - Are the alarms set at appropriate levels?
- % Time Below Range (TBR) – did the user have more than 4% of readings in the hypoglycaemia range?
  - Identify episodes of hypoglycaemia, are there any patterns?
- % Time Above Range (TAR) – how much time did the user spend with high glucose above the target range?
  - Identify episodes of hyperglycaemia, are there any patterns?

Time in Range for people with frailty should be adjusted to >50%

Images are for illustrative purposes only. Not actual patient data.

Consultation: Step 2 – Patterns of Hypoglycaemia





Look for patterns of hypoglycaemia

- Are there any episodes of hypoglycaemia (below 3.9 mmol/L)?
  - What time of day are they occurring?
  - Are there any trends or patterns?
- Investigate causes of low glucose
  - What activities may have caused the trend to low glucose?
    - For example, alcohol, exercise, fasting, stress, or sickness
  - Is there any over correction of raised glucose levels if self-adjusting insulin?
  - Is the timing of insulin doses appropriate?

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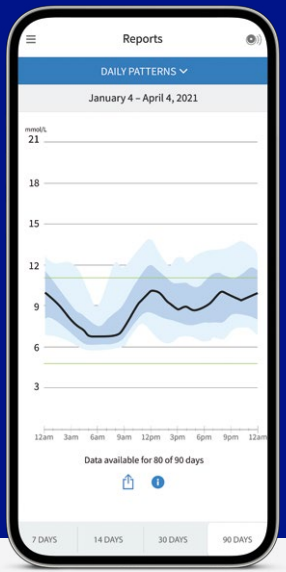
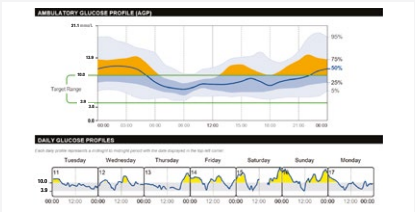
Consultation: Step 3 – Patterns of Hyperglycaemia



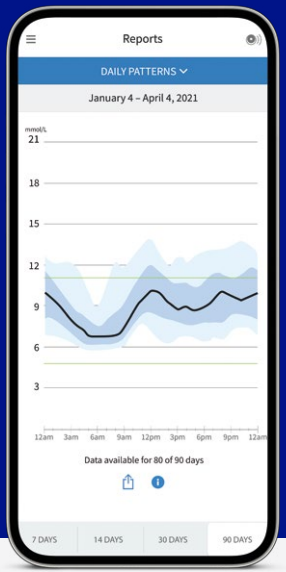


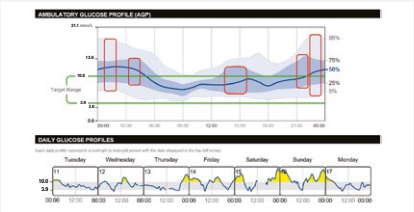
Look for patterns of hyperglycaemia

- Are there any episodes of hyperglycaemia (above 10.0 mmol/L) (individualise for persons with frailty)
  - What time of day are they occurring?
  - Are there any trends or patterns?
- Investigate causes of high glucose
  - Discuss what may be contributing to high glucose levels
  - Has there been any missed insulin injections/glucose lowering medications?
  - Have meals been high in carbohydrate content?
  - Is the high glucose seen after low glucose, which suggests over treatment of low glucose levels?
  - Are weekends and weekdays different?

Images are for illustrative purposes only. Not actual patient data.

Consultation: Step 4 – Patterns of Glucose Variability





Look for patterns of glucose variability

- Check for themes that may give glucose variability or reduced TIR
  - Discuss what activities/eating patterns are changing from one day to the next
  - Are the timings of insulin doses correct?
  - Is there any under/overreacting to glucose levels?
  - Is there any over treatment of hypoglycaemia?
  - Exclude any potential poor injection technique, examine injection sites for any lipohypertrophy
- A wider dark blue shaded band can indicate a need to adjust medication doses or timings
- A wider light blue shaded band is more likely to represent factors related to behaviour or lifestyle

TIR=Time in Range.
Images are for illustrative purposes only. Not actual patient data.

Additional resources

FreeStyle Academy – certified-bite sized learning modules (each taking 10-15 minutes to complete). HCPs and people with diabetes can sign up to and create an account using **https://progress.freestylediabetes.co.uk**

FreeStyle Libre 2 system tutorial videos – including LibreView, getting started, sensor application, alarms etc: **https://progress.freestylediabetes.co.uk/public/hcp-tutorial-page-uk**

Foreign language guides: **https://www.FreeStyle.Abbott/uk-en/support/accessibility.html**

Easy-read materials: **https://www.FreeStyle.Abbott/uk-en/support/accessibility.html**

DTN-UK – Independent educational videos for HCPs and people with diabetes: **https://abcd.care/dtn/education**

Six Steps to Insulin Safety – online learning to support HCPs (only) in making safe decisions around insulin use: **https://diabetesonthenet.com/cpd-modules/the-six-steps-to-insulin-safety/**

HCP=healthcare professional.

Additional resources

Insulin Craft Cards Series: **https://www.issuesandanswers.org/resource-types/clinical-craft-cards/**

Injection Technique resource: **http://fit4diabetes.com/united-kingdom/**

Hypoglycaemia article: **https://diabetesonthenet.com/diabetes-primary-care/hypoglycaemia-how-to/**

Journal of Diabetes Nursing: How to interpret CGM data: **https://diabetesonthenet.com/journal-diabetes-nursing/quick-guide-interpreting-cgm-data/**

Hypoglycaemia unawareness article: **https://diabetesonthenet.com/diabetes-primary-care/at-a-glance-factsheet-impaired-hypoglycaemia-awareness**

How to use CGM guide: **https://diabetesonthenet.com/wp-content/uploads/Milne-CGM_How-to-1.pdf**

CGM=continuous glucose monitoring.

Acknowledgements

This guide has been developed in collaboration with the following people who we would like to acknowledge and thank.

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Diabetes UK Clinical Champion

Dr Pam Brown

GP with interest in Diabetes, Obesity & Lifestyle – Swansea

Editor in Chief Diabetes Distilled

Tutor, Global MSc Diabetes – University of Warwick

Jane Diggle

Specialist Diabetes Nurse Practitioner – College Lane Surgery

Committee member of Primary Care Diabetes Society

Editor in Chief for Diabetes & Primary Care Journal

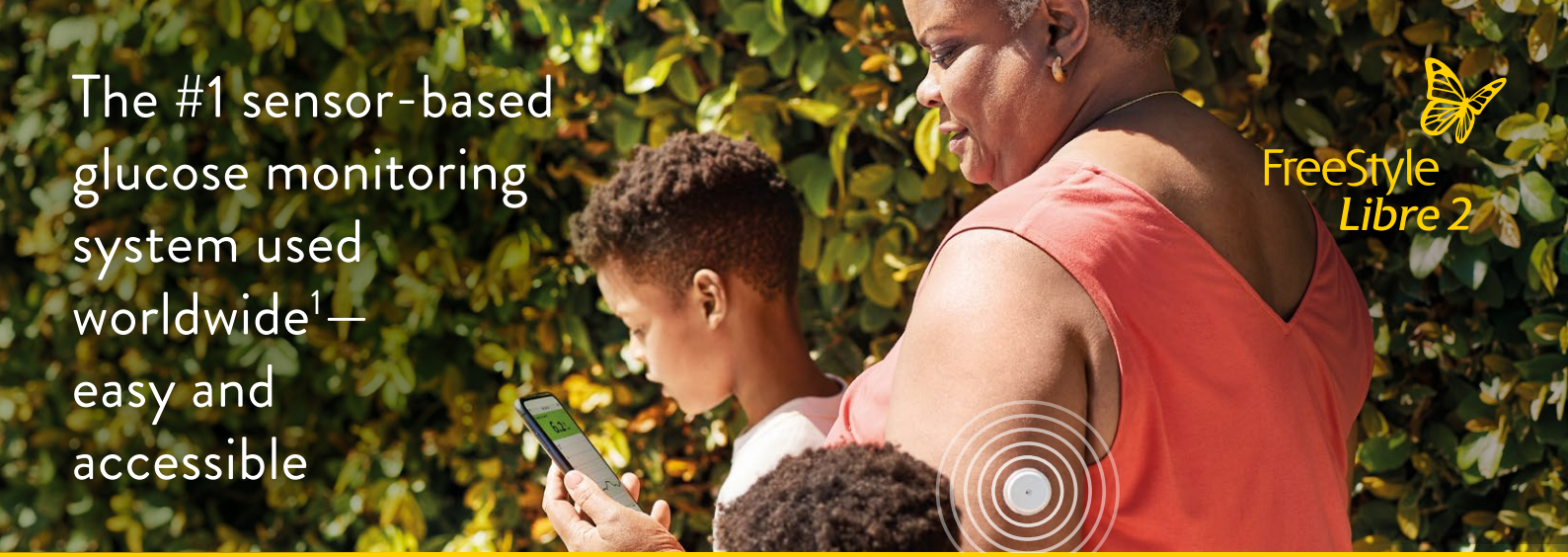
Dr Sarah Davies

GP Partner, Woodlands Medical Centre – Cardiff

Clinical Director for Diabetes Primary Care for Cardiff & Vale UHB

Diabetes UK Clinical Champion

Committee member of Primary Care Diabetes Society



Easy for patients.[2]
Easy for you.[3]

Real-time glucose readings sent right to your patients' smartphone[4,5]

Clinically proven to decrease HbA1c and increase Time in Range[6-8]

Visit **Pro.FreeStyle.Abbott** for more information

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1. Data on file, Abbott Diabetes Care, Inc. Based on the number of users worldwide for the FreeStyle Libre portfolio compared to the number of users for other leading personal use sensor-based glucose monitoring systems. **2.** Haak, T. *Diabetes Ther* (2017): https://doi.org/10.1007/s13300-016-0223-6. **3.** Campbell, F. *Pediatr Diabetes* (2018): https://doi.org/10.1111/pedi.12735. **4.** The FreeStyle LibreLink app is only compatible with certain mobile devices and operating systems. Please check the website for more information about device compatibility before using the app. Use of FreeStyle LibreLink may require registration with LibreView. **5.** Glucose readings are automatically displayed in the app only when the smartphone and sensor are connected and in range. **6.** Leelarathna, L. *N Engl J Med*. (2022): DOI: 10.1056/NEJMoa2205650. **7.** Bolinder, J. *Lancet* (2016): https://doi.org/10.1016/S0140-6736(16)31535-5. **8.** Yaron, M. *Diabetes Care* (2019): https://doi.org/10.2337/dc18-0166.

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