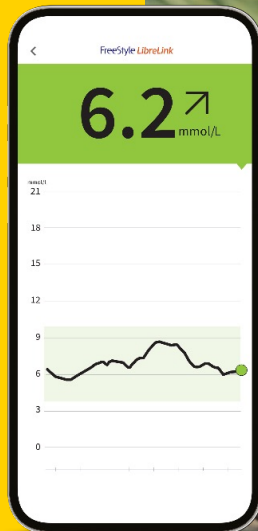




FreeStyle
Libre 2

Case study

Case study: Rita



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Case study: Rita

Age	81	BMI	26.0 kg/m ²
Diabetes (Type)	Type 1 diabetes	Last HbA1c value	74 mmol/mol (8.9%)
Profession	Retired	Target glucose range	3.9–10 mmol/L
Duration of diabetes	34 years	Treatment	Basal-bolus insulin therapy



Summary

Rita lives alone and values her independence. She has impaired awareness of hypoglycaemia and worries about falling when her glucose is low.



Comorbidities

Coronary heart disease, hypertension, high cholesterol, peripheral neuropathy, peripheral vascular disease (stage II).



Specific objective

Minimising risk of hypoglycaemia. At her age, duration of diabetes and with her comorbidities, her HbA1c is not the main priority.

Case study: Rita

AGP Report

20 May 2021 - 2 June 2021 (14 Days)

GLUCOSE STATISTICS AND TARGETS

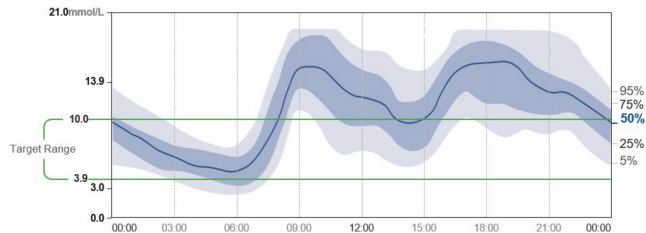
20 May 2021 - 2 June 2021 **14 Days**
 % Time Sensor is Active **95%**

Glucose Ranges	Targets % of Readings (Time/Day)
Target Range 3.9-10.0 mmol/L	Greater than 70% (16h 48min)
Below 3.9 mmol/L	Less than 4% (58min)
Below 3.0 mmol/L	Less than 1% (14min)
Above 10.0 mmol/L	Less than 25% (9h)
Above 13.9 mmol/L	Less than 5% (1h 12min)

Each 5% increase in time in range (3.9-10.0 mmol/L) is clinically beneficial.

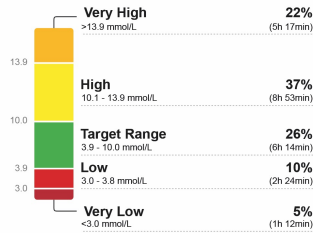
Average Glucose **10.9** mmol/L
 Glucose Management Indicator (GMI) **8.5%** or **69** mmol/mol
 Glucose Variability **54.8%**
 Defined as percent coefficient of variation (%CV); target ≤36%

AMBULATORY GLUCOSE PROFILE (AGP)



LibreView

TIME IN RANGES



Snapshot

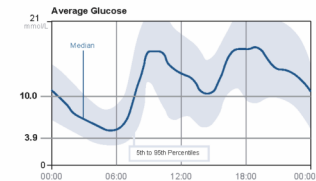
20 May 2021 - 2 June 2021 (14 Days)

LibreView

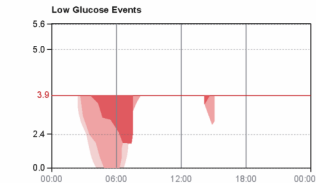
Glucose

GMI **8.5%** or **69** mmol/mol

AVERAGE GLUCOSE **10.9** mmol/L
 % above target **59%**
 % in target **26%**
 % below target **25%**

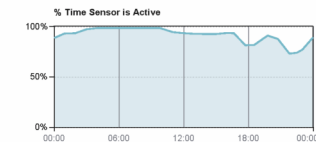


LOW GLUCOSE EVENTS **9%**
 Average duration **167** Min



Sensor Usage

% TIME SENSOR IS ACTIVE **95%**
 Average scans/views **7** / Day



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

What does the 4-step review tell us?

STEP 1

Data capture and Time in Range (TIR)

Rita has been scanning regularly, with 95% data capture, which means we can review a 14-day AGP with confidence in the assessment. That's a good place to start. Her Time in Range is low at 26%, so that will certainly be a focus for the discussion.

STEP 2

Look for patterns of hypoglycaemia

Rita's profile shows a very prominent trend to low glucose overnight from 3:00am onwards, with significant low glucose events shown in her **Snapshot report**, both below 3.9 mmol/L, and below 3.0 mmol/L. Her blue and grey bands are narrow here, indicating this is a consistent occurrence. This is a priority for resolution.

STEP 3

Look for patterns of hyperglycaemia

Another notable feature of Rita's AGP Report are the two large upswings in her glucose profile in the morning and later afternoon. These take her well above her target range until after midnight. Her glucose levels are above target levels for 59% of time. This persistent hyperglycaemia is a concern.

STEP 4

Look for patterns of glucose variability

The blue and grey bands in Rita's AGP Report are fairly narrow overnight but widen considerably about 8:00am. Variability through the rest of the day is significant until approximately 10:00pm. Her current Time in Range is only 26%, which needs to be addressed. The width of the blue IQR band indicates that this variability may be caused by issues with Rita's treatment parameters. The width of her grey band also suggests that there are aspects of Rita's daily routines that need to be discussed.

What actions might you agree with Rita?

- Rita's nocturnal and early-morning hypoglycaemia is the priority for treatment adjustment here. A reduction in her basal glargine is indicated to reduce this adverse low glucose.
- The steep and extensive upward swing in the morning is likely due to Rita 'chasing her sugars' as a consequence of her consistent prior hypoglycaemia. No treatment adjustment is recommended until the impact of reducing her basal insulin can be evaluated.

Case study: Rita

AGP Report

25 October 2021 - 7 November 2021 (14 Days)

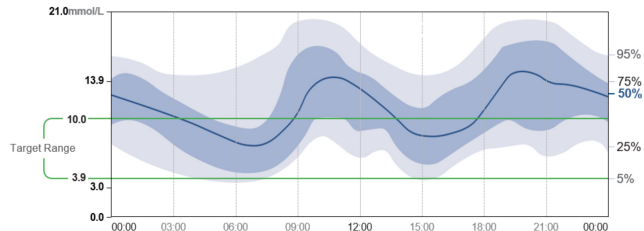
GLUCOSE STATISTICS AND TARGETS

25 October 2021 - 7 November 2021 **14 Days**
 % Time Sensor is Active **97%**

Ranges And Targets For	Type 1 or Type 2 Diabetes
Glucose Ranges	Targets % of Readings (Time/Day)
Target Range 3.9-10.0 mmol/L	Greater than 70% (16h 48min)
Below 3.9 mmol/L	Less than 4% (58min)
Below 3.0 mmol/L	Less than 1% (14min)
Above 10.0 mmol/L	Less than 25% (6h)
Above 13.9 mmol/L	Less than 5% (1h 12min)
Each 5% increase in time in range (3.9-10.0 mmol/L) is clinically beneficial.	

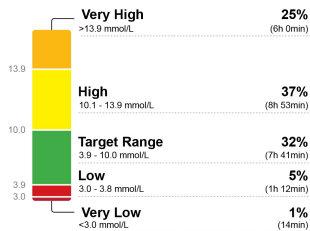
Average Glucose **11.0** mmol/L
Glucose Management Indicator (GMI) **8.5%** or **69** mmol/mol
Glucose Variability **60.1%**
 Defined as percent coefficient of variation (%CV); target ≤36%

AMBULATORY GLUCOSE PROFILE (AGP)



LibreView

TIME IN RANGES



Snapshot

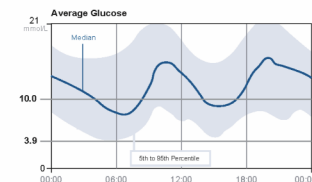
25 October 2021 - 21 November 2021 (28 Days)

LibreView

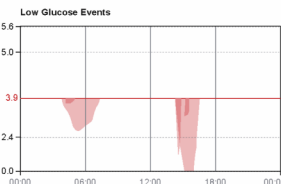
Glucose

GMI **8.5%** or **69** mmol/mol

AVERAGE GLUCOSE **11.0** mmol/L
 % above target **62%**
 % in target **32%**
 % below target **6%**

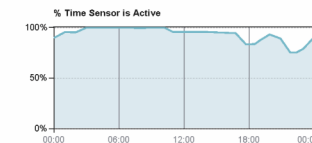


LOW GLUCOSE EVENTS **5**
 Average duration **115** min



Sensor Usage

% TIME SENSOR IS ACTIVE **97%**
 Average scans/views **8** / Day



What does the 4-step review tell us?

STEP 1

Data capture and Time in Range (TIR)

Rita's data capture is really good at 97%, and her Time in Range has increased to 32%. Overall, a positive way to start this consultation!

STEP 2

Look for patterns of hypoglycaemia

Her low glucose events Snapshot profile show that Rita is reducing her risk for hypoglycaemia, but her profile still shows a trend to low glucose overnight with a clear risk of dropping below 3.9 mmol/L. Her blue and grey bands are now wider at this time, especially the grey one. This suggests Rita's overnight behaviour has changed since her last visit. Also, Rita's blue and grey bands are dropping towards the low-glucose zone between 2:00pm–4:00pm in the afternoon, and her Snapshot report reveals some low glucose events at this time. This is a priority for resolution.

STEP 2

Look for patterns of hyperglycaemia

The two large upswings in Rita's average glucose in the morning and later afternoon are still present and most of Rita's readings are above target from 8:00am onwards. She is spending 62% of time with glucose levels above 10 mmol/L, a slight increase since her last visit. These excursions suggest Rita is not managing her prandial insulin to match her meals.

The information provided is not intended to be used for medical diagnosis or treatment or as a substitute for professional medical advice. Individual symptoms, situations and circumstances may vary.
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 Use of FreeStyle LibreLink requires registration with LibreView.

STEP 4

Look for patterns of glucose variability

The blue and grey bands in Rita's AGP have become wider at most points in the day, most notably between 08:00am–10:00am. Her Time in Range is improved slightly at 32%, but this is well below recommended targets. A discussion with Rita is warranted to understand how her night-time routine has changed since her last visit and the reduction in her basal dose. Since no particular focus on improving Rita's glucose variability was emphasised at her last visit, this is not a concern for immediate adjustment.

What actions might you agree with Rita?

- Rita's nocturnal and early-morning hypoglycaemia is still the priority for treatment adjustment here. A further reduction in her basal glargine is recommended to eliminate her adverse low glucose in the morning.
- An investigation of Rita's overnight routine and behaviour is recommended, both through a conversation and also by looking at other data collected by her FreeStyle LibreLink¹ – for example her daily glucose logs.
- An increase in Rita's mealtime insulin doses is also recommended, maybe starting with her evening injection, to avoid making too many changes at once.