Driving and Diabetes

Mark Evans and Pratik Choudhary

Assessing Fitness to Drive: A fine balance

Fury as diabetic property tycoon who ploughed into Daylesford pub garden killing five people has charges dropped: Family say there is 'no justice' as BMW driver walks free - after magistrate unleashed in court

- **Diabetic driver William Swale walks free from court**
- **He killed three adults and two children in 2023 crash**
- **READ MORE:** Wealthy tycoon William Swale has 'no memory' of fatal crash

By EMILY WOODS FOR AUSTRALIAN ASSOCIATED PRESS and NCA NEWSWIRE
PUBLISHED: 07:20, 19 September 2024 | **UPDATED:** 13:20, 19 September 2024

Share 103 shares 240 View comments

The devastated families of the victims killed when a diabetic driver ploughed into a beer garden have spoken of their anger after charges against him were dropped.

Property tycoon William Swale, 66, faced a three-day committal hearing this week in Ballarat Magistrates Court as he contested 14 charges, including five counts of culpable driving causing death, over the deadly November 2023 crash.

The type-1 diabetic, who was diagnosed in 1994, claimed he suffered a 'severe hypoglycaemic attack' while driving his white BMW SUV when it crashed into patrons outside the Royal Daylesford Hotel.

Irish Independent News Opinion Business Sport Life Style Entertai

Fatal dangerous driving accused could have been 'in and out of consciousness due to low glucose levels'

Kildare motorist has pleaded not guilty to dangerous driving causing the death of woman

Dublin Circuit Criminal Court

Claire Henry
Fri 17 Nov 2023 at 09:19

A professor who specialises in treating diabetes has told a jury that the driver of a car could have been in and out of consciousness due to low glucose levels when he caused a fatal car accident on a Dublin motorway.

Gerry Daly (57) Derby Lodge, Brownstown, the Curragh, Kildare, pleaded not guilty at Dublin Circuit Criminal Court to dangerous driving causing the death of

Diabetic driver 'devastated' family by causing man's death on A120

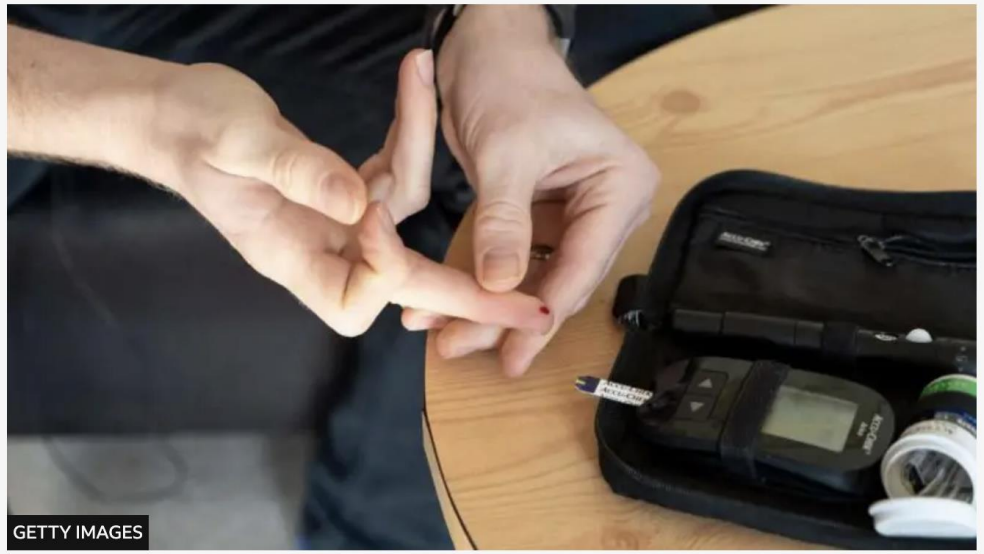
19th March 2022

IPSWICH CROWN COURT CRIME

Thomas Treadwell appeared at Ipswich Crown Court *(Image: Archant)*

By Dominic Bareham

Coroner criticises DVLA over diabetic driver checks



GETTY IMAGES

A coroner says diabetic motorists should face tougher scrutiny when renewing licences

David Mckenna

BBC News

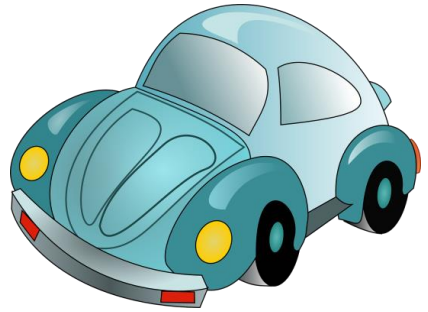
Things you need to know

- What is the difference between “group 1” and “group 2” driving licence
- Understand the requirements for blood glucose testing around diabetes
- Know when you should tell them that they need to stop driving and to inform the DVLA

“But I’m a coach driver doc…”

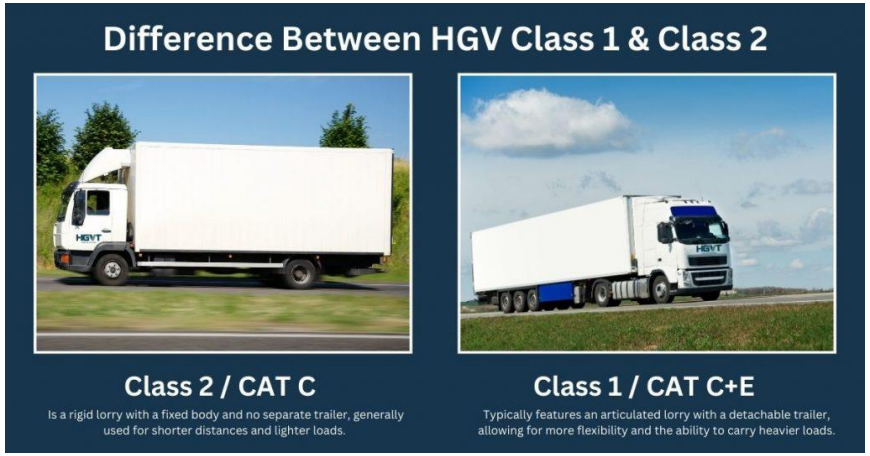
- 54 year old with Type 2 diabetes for 8 years
- Maximum oral therapy plus injectable GLP1a
- HbA1c 89 mmol/mol-
- Agreed to start on insulin
- “What do I need to do and what will happen to my licence doc”?

Driving and Diabetes:



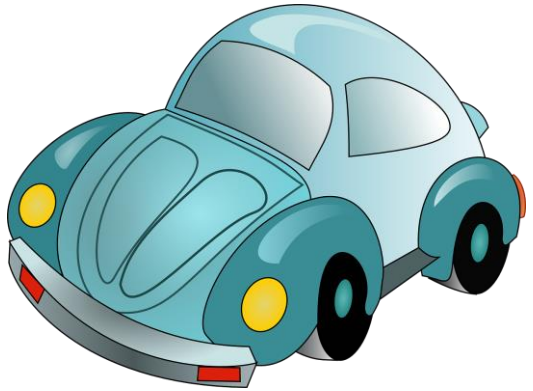
- In the UK, around 40 million currently active driving licences exist with around 600,000 of these drivers having diabetes.
- Driving licences are grouped into 2 categories
- Group 1 covers cars and motorbikes
- Group 2 covers lorries (C licences) and buses (D licences)

C1: 3.5-7.5 tonnes



D1: 9-16 seats

Driving and Diabetes:



- Type 1 vs type 2 diabetes?
- DVLA regulations don't distinguish between different diabetes types (type 1 vs type 2)
- Driving licences for insulin-treated diabetes usually subject to "short period licencing"- typically 1 or 3 year licences
- "Section 88" permits for a short period driving beyond the licence expiry date

DVLA doesn’t apply to off road, quarries, forestry, race tracks, airports

Severe hypoglycaemia and Group 1 licences

Hypoglycaemia needing help
= "Severe hypoglycaemia"

Severe hypoglycaemia and Group 1 licences

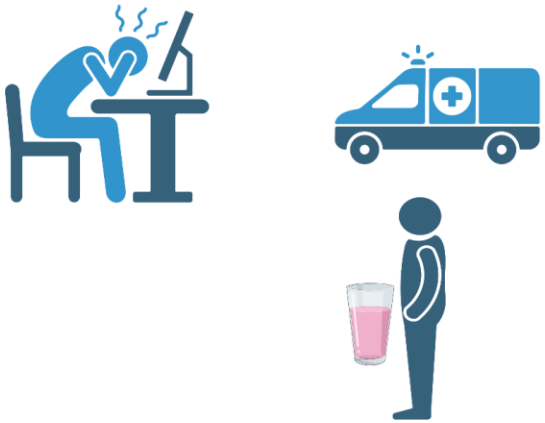
Hypoglycaemia needing help
= "Severe hypoglycaemia"

Severe hypoglycaemia and Group 1 licences

Hypoglycaemia needing help
= "Severe hypoglycaemia"

Severe hypoglycaemia and Group 1 licences

Hypoglycaemia needing help
= "Severe hypoglycaemia"



Group 1 licence holders-"...no more than 1 episode of severe hypoglycaemia while awake in the last 12 months and the most recent episode occurred more than 3 months ago."

Severe Hypoglycaemia while driving…rare!

Hypoglycaemia needing help = "Severe hypoglycaemia" while driving

Driver & Vehicle Licensing Agency

INF294

A guide to **insulin treated diabetes** and **driving**

Drivers who have any form of diabetes treated with any insulin preparation must inform DVLA.

CUSTOMER SERVICE EXCELLENCE

INVESTORS IN PEOPLE | Silver Until 2019

9/19

Hypoglycaemia

Hypoglycaemia (also known as a hypo) is the medical term for a low glucose (sugar) level.

Severe hypoglycaemia means the assistance of another person is required.

The risk of hypoglycaemia is the main danger to safe driving and this risk increases the longer you are on insulin treatment. This may endanger your own life as well as that of other road users. Many of the accidents caused by hypoglycaemia are because drivers carry on driving even though they get warning symptoms of hypoglycaemia. If you get warning symptoms of hypoglycaemia whilst driving you must stop safely as soon as possible – **do not ignore the warning symptoms**.

Early symptoms of hypoglycaemia include sweating, shakiness or trembling, feeling hungry, fast pulse or palpitations, anxiety and tingling lips.

If you do not treat this it may result in more severe symptoms such as slurred speech, difficulty concentrating, confusion and disorderly or irrational behaviour, which may be mistaken for drunkenness.

If left untreated this may lead to unconsciousness.

Sleep hypoglycaemic episodes

If you have frequent sleep hypoglycaemic episodes, you should discuss them with your doctor even though this is unlikely to affect your application for a car or motorcycle (Group 1) driving licence.

Drivers with insulin treated diabetes are advised to take the following precautions

- You should **always** carry your glucose meter and blood glucose strips with you, even if you use a real time glucose monitoring system (RT-CGM) or flash glucose monitoring system (FGM).
- You should check your glucose less than 2 hours before the start of the first journey and every 2 hours after driving has started.
- A maximum of 2 hours should pass between the pre-driving glucose check and the first glucose check after driving has started.
- More frequent testing may be required if for any reason there is a greater risk of hypoglycaemia for example after physical activity or an altered meal routine.
- In each case if your glucose is **5.0mmol/L or less, eat a snack. If it is less than 4.0mmol/L or you feel hypoglycaemic do not drive**.

- Always keep an emergency supply of fast-acting carbohydrate such as glucose tablets or sweets within easy reach in the vehicle.
- You should carry personal identification to show that you have diabetes in case of injury in a road traffic accident.
- You should take extra care during changes of insulin regimens, changes of lifestyle, exercise, travel and pregnancy.
- You must eat regular meals and snacks and take rest periods on long journeys. Always avoid alcohol.

Advice on managing hypoglycaemia or developing hypoglycaemia at times relevant to driving

- In each case if your glucose is **5.0mmol/L or less, eat a snack. If it is less than 4.0mmol/L or you feel hypoglycaemic do not drive**.
- If hypoglycaemia develops while driving stop the vehicle safely as soon as possible.
- You should switch off the engine, remove the keys from the ignition and move from the driver's seat.
- You should not start driving again until 45 minutes after finger prick glucose has returned to normal (at least 5.0mmol/L). It takes up to 45 minutes for the brain to recover fully.
- If you use a real time (RT-CGM) or flash glucose monitoring (FGM) system to check your glucose levels and the reading is 4.0mmol/L or below, you must stop driving and confirm your finger prick glucose test reading.
- Your finger prick glucose level must be at least 5.0mmol/L before returning to driving.

Appropriate glucose monitoring systems

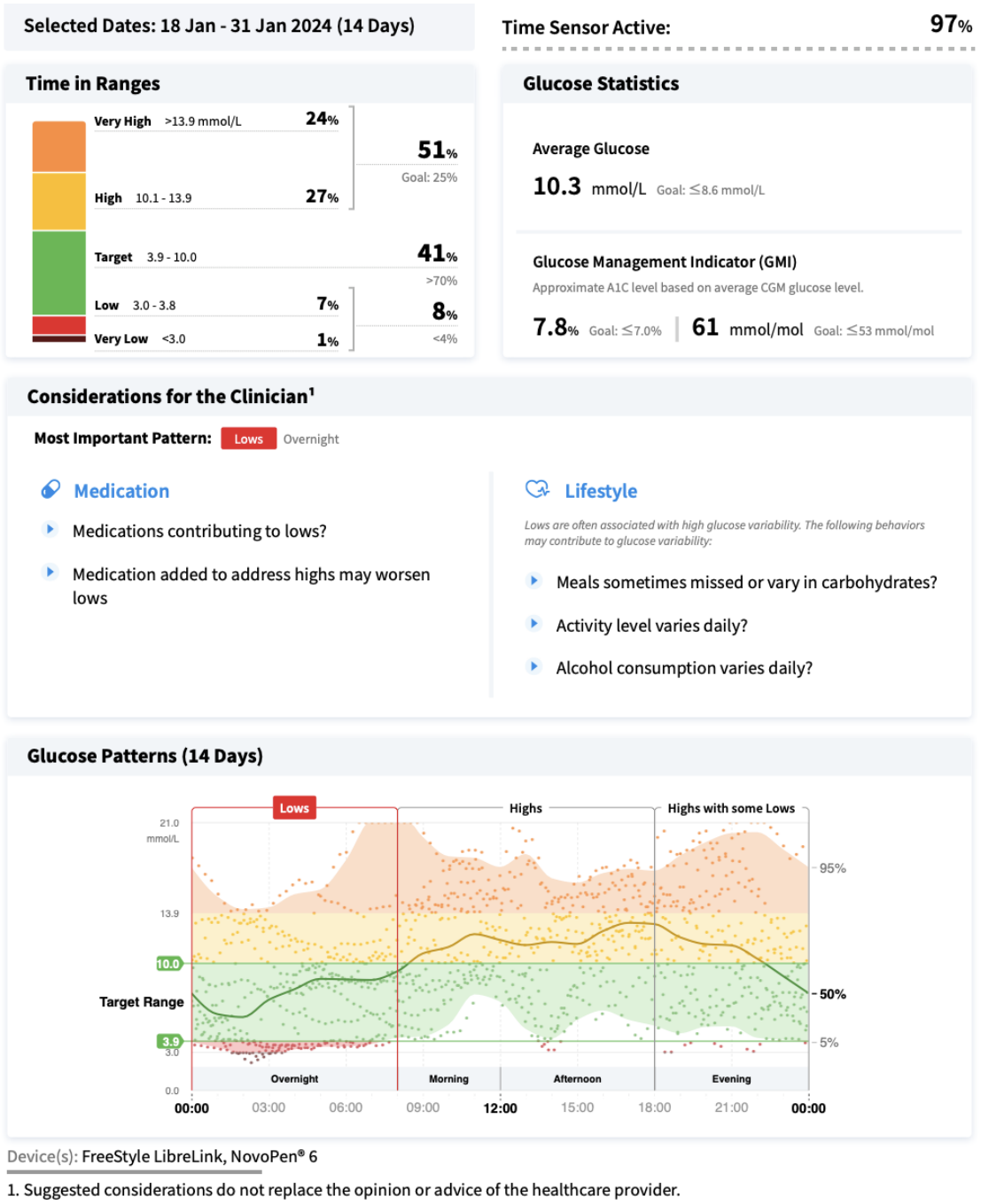
- **Group 1** drivers may now use finger prick glucose testing and continuous glucose monitoring systems (FGM and RT-CGM) for the purposes of driving.
- **Group 2** drivers **must continue to use** finger prick testing for the purposes of driving. RT-CGM and flash glucose monitoring systems are **not** legally permitted for the purposes of Group 2 driving.
- All glucose monitoring systems used for the purposes of driving must carry the CE mark.
- As there are times when FGM and RT-CGM users are required to check their finger prick glucose, users of these systems must also have finger prick glucose monitors and test strips available when driving.

Case

- 45 year old sales manager
- Drives 25,000 miles a year
- T1D x 24 years
- Some night time lows he did not recognise

- Ticks the box – I don't always recognise when I am low
- Scores GOLD 5

- Should he be allowed to drive?



Case 2

Case 1

- 59 year male
- T1D x 55 yrs
- HBA1c 5.9%
- 10% TBR
- No SH
- Gold score 3
- Lantus 40 units
- NR 2 + 4 + 30

- Glucose 2.4mM before appointment, not rechecked.
- Dosen’t see the hypos as a problem
- “never been hypo while driving”
- “If I have a hypo in the evening why is that a problem? “

Letter to patient…

There are a couple of important features seen on your download:

1. Many of your blood glucose readings are within normal range (48%), but you are having frequent (almost every other day) episodes of hypoglycaemia (30%).
2. You are not routinely testing your blood glucose four times per day. It is not possible to judge whether you are also testing at times appropriate to driving, but there are frequently large gaps in your monitoring.
3. There are a number of episodes of hypoglycaemia where your glucose level has been below 2.5mmol/L. During this 3 month period there are 14 episodes below 2.5mmol/L and 5 of these episodes were below 2mmol/L.
4. There is no evidence that you are treating your hypoglycaemia and rechecking your blood glucose levels within 15-20 minutes. It is often some hours until you re-test.

I am particularly concerned regarding the last point. This morning (6/1/22) you recorded a blood glucose level of 1.8n
hypoglycaemia or retested
11am.

On the basis of this, I am advising that you stop driving and inform the DVLA. I am making this assessment on the grounds of:

- Lack of hypoglycaemia awareness: You have demonstrated an inability to detect the onset of hypoglycaemia (<4.0mmol/L) because of a total absence of warning symptoms.
- It is my opinion that you lack sufficient awareness of your hypoglycaemia to bring your vehicle to a safe controlled stop.
- You have provided no evidence that you are treating and responding to hypoglycaemia symptoms or low glucose readings.
- You are not taking the necessary precautions to ensure the safety of yourself and the general public.

On the basis of this, I am advising that you stop driving and inform the DVLA. I am making this assessment on the grounds of:

- Lack of hypoglycaemia awareness: You have demonstrated an inability to detect the onset of hypoglycaemia (<4.0mmol/L) because of a total absence of warning symptoms.
- It is my opinion that you lack sufficient awareness of your hypoglycaemia to bring your vehicle to a safe controlled stop.
- You have provided no evidence that you are treating and responding to hypoglycaemia symptoms or low glucose readings.
- You are not taking the necessary precautions to ensure the safety of yourself and the general public.

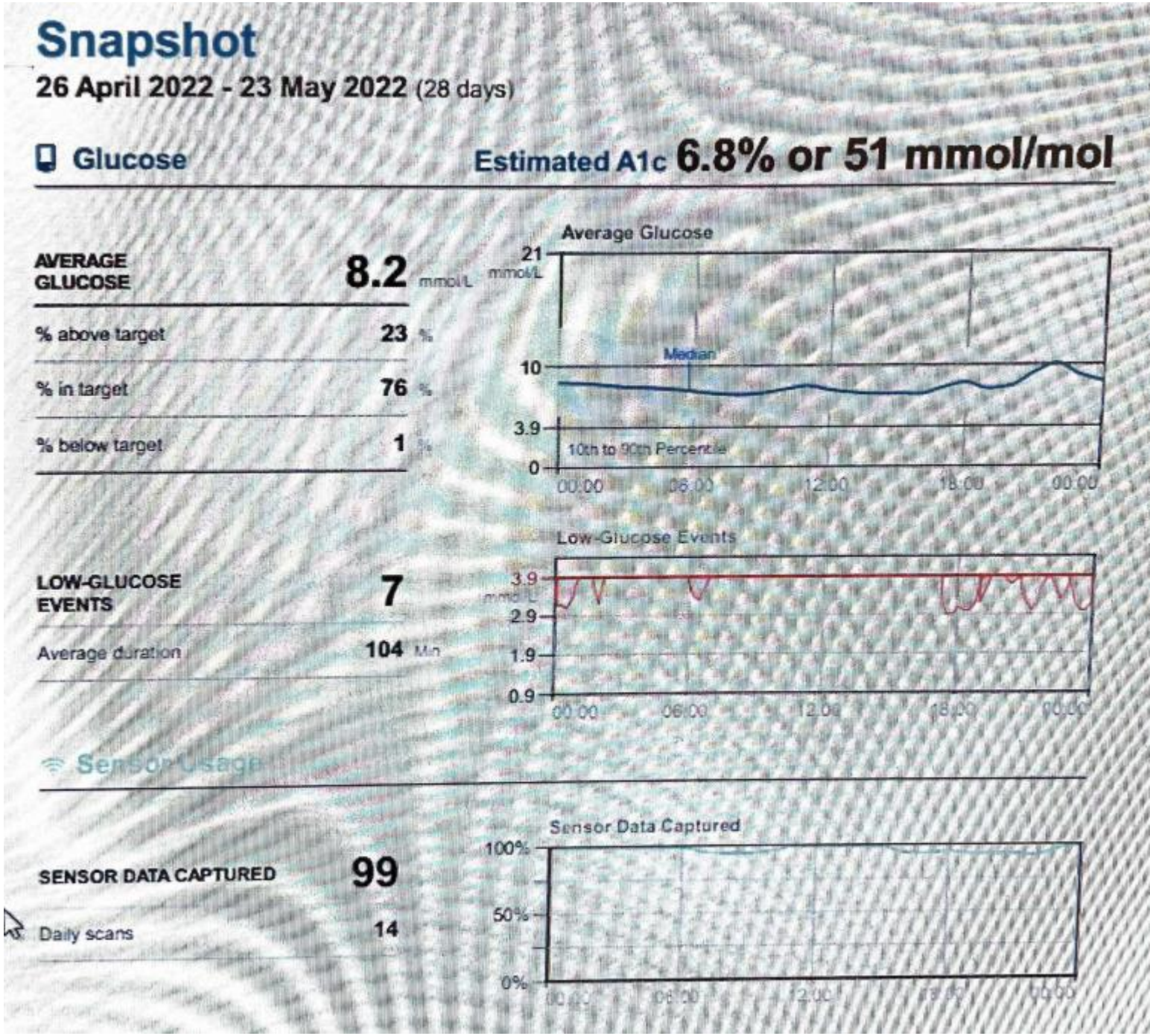
Provided with Freestyle libre

- I only use the car to go to the shops
- im always careful when I drive
- I haven’t crashed in 50 years
- if I can’t drive I can’t survive .. “May as well die…”

2nd opinion

- No understanding of the impact of hypo on cog function
- Achieving A1c of 5.8% with 30% TBR is like getting pole position by cutting the corners
- There is evidence that repeated hypo can increase the risk of cardiovascular complications that is the reason that you are trying to keep glucose low
- All you have to do to keep your license is have < 4% TBR
- Insulin… Lantus 40 units + NR 2+2 + 30 (!!)
- Doses readjusted to prevent the post dinner hypos

- 4 weeks later ..



Case 3

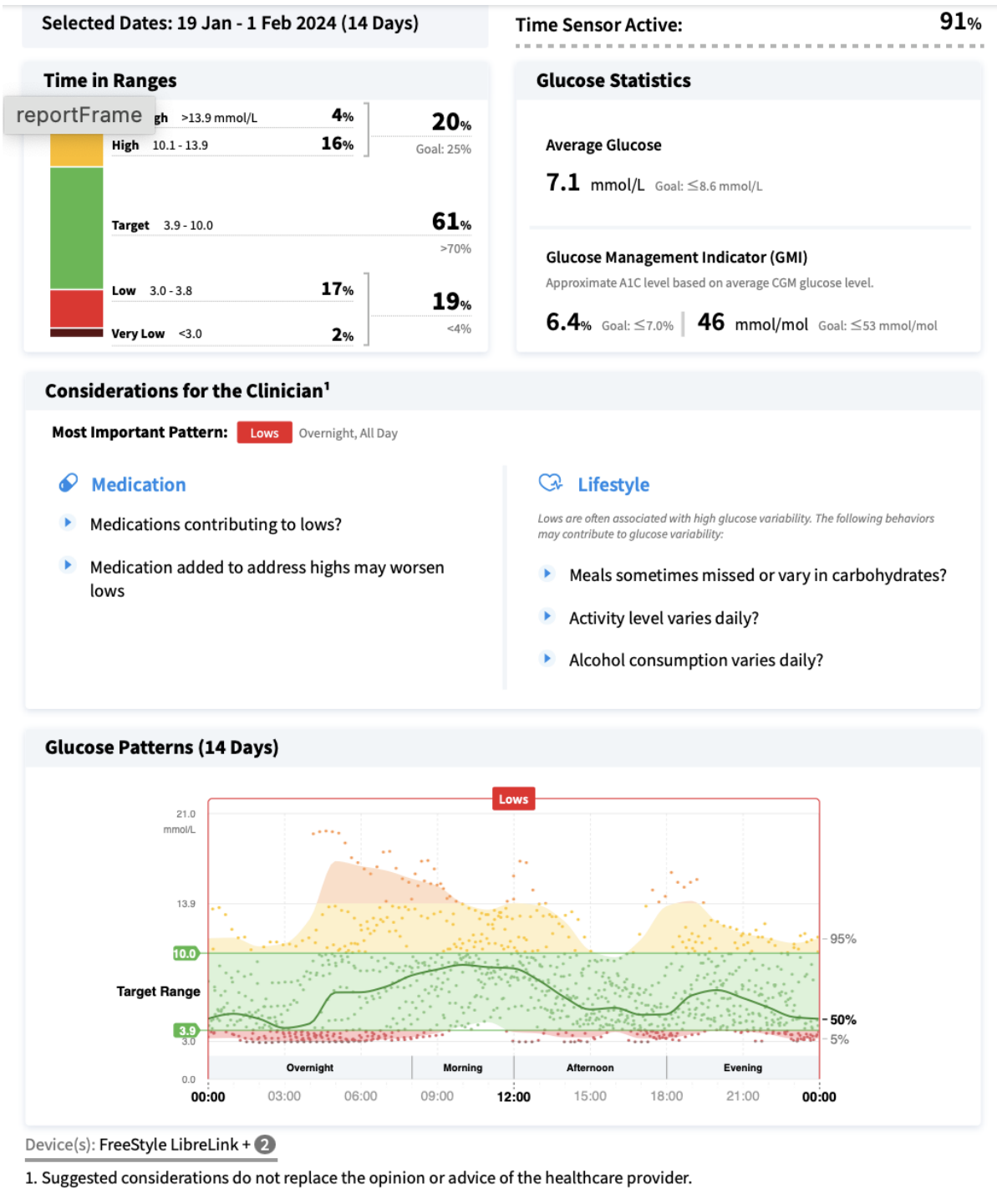
54 year female

Drives prisoners between prisons

Twice in the last 6 months received help from a colleague as she was “ looking a little pale”

Usually feels hypos around 3mmol/l

What should we advise her?



Severe Disabling Hypo and DVLA

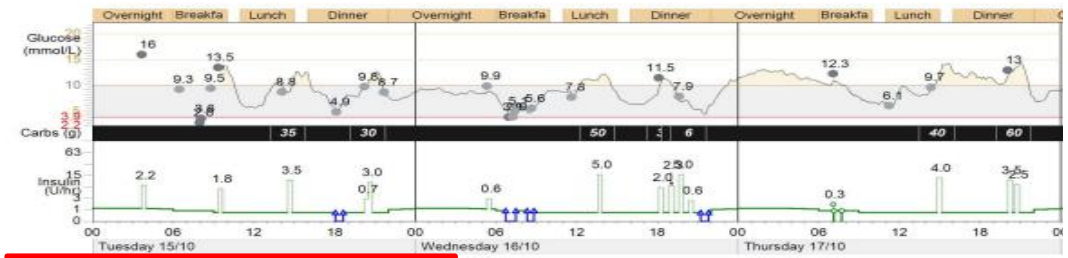
Shahriar Shafiq, Clinical Fellow and ST7 HST
Pratik Choudhary, Professor and Consultant
University Hospitals of Leicester

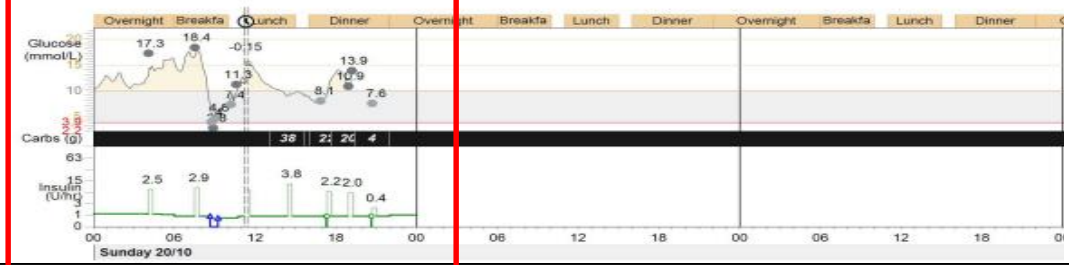
Case

- T1D patient, diagnosed at the age 27
- Other medical history: Epilepsy, Diabetic maculopathy, Diabetic nephropathy
- C1 Licence holder
- Previously was on MDI, and started on a self funded Medtronic 640G pump in 2009
- Despite being on pump, glycaemic control was variable
- He had extreme fear of hypo and has been overriding the pump quite a lots
- Avg HbA1C in Oct 2019 was 9.7%
- On the 20th December 2019, he went for a walk. Pump recorded BG was 17 mmol/L before starting. Whilst on his walk , pump alerted him of a drop in BG. He tried to take a banana and coke, but developed a tonic clonic seizure and had bitten his tongue , no incontinence. GCS 14/15 (with crew)

Medtronic

Sensor & Meter Overview (4 of 4)
15/10/2019 - 20/10/2019





Statistics

Sensor Wear (per week)	81% (5d 16h)
Average SG ± SD	10.3 ± 3.3 mmol/L
GMI[3]	7.8% (61.3 mmol/mol)
Coefficient of Variation (%)	32.2%
Low / High SG Alerts (per day)	1.6 / 4.7
Average BG	9.5 ± 5.2 mmol/L
BG / Calibration (per day)	8.0 / 5.9
Total daily dose (per day)	36.5 units
Bolus amount (per day)	16.2U (44%)
Basal amount (per day)	20.3U (56%)
Set Change	3.2 days
Reservoir Change	3.2 days
Meal (per day)	4.2
Carbs entered (per day)	114 ± 30 g
Active Insulin time	4:00 hrs

Basal

Maximum Basal Rate	2.00 U/Hr		Updates

Workday (active)

24-Hour Total	22.225 U	

Time	U/Hr	
00:00	0.975	
04:00	0.925	
05:00	0.900	
06:00	0.900	
08:00	0.900	
09:00	0.900	
22:00	1.05	
23:00	1.05	

Basal 1

24-Hour Total	20.200 U	

Time	U/Hr	
00:00	1.20	
05:00	1.15	
06:00	1.10	
08:00	0.900	
09:00	0.600	
22:00	1.05	
23:00	1.10	

Basal 2

24-Hour Total	--	

Time	U/Hr	
--	--	

Bolus

Bolus Wizard	On
Units	g, mmol/L
Active Insulin Time (h:mm)	4:00
Maximum Bolus	12.0 U

Easy Bolus	Off
Bolus Increment	0.1 U
Bolus Speed	Standard
Dual/Square	On/On

Carbohydrate Ratio (g/U)

Time	Ratio	
0:00	10.0	

Insulin Sensitivity (mmol/L per U)

Time	Sensitivity	
0:00	4	
8:00	3.5	
21:00	3.7	

Blood Glucose Target (mmol/L)

Time	Low	High	
0:00	6	7.2	

Continue

- What could have been done to prevent the severe hypoglycaemia?
- What happens with his C1 Licence

Continue

- Continued to improve with basal adjustment and later he was switched to Medtronic 780G HCL
- Unfortunately he had another severe disabling hypoglycaemia on HCL.
- Went out to super market, sensor glucose was 17, which quickly dropped to 7.5. He checked a finger prick BG, which was 3.0
- Had two cans of 250ml of Coke. When his wife arrived, he was unable to talk, eyes rolled up, was sat up and had a seizure, lasting couple of minutes.

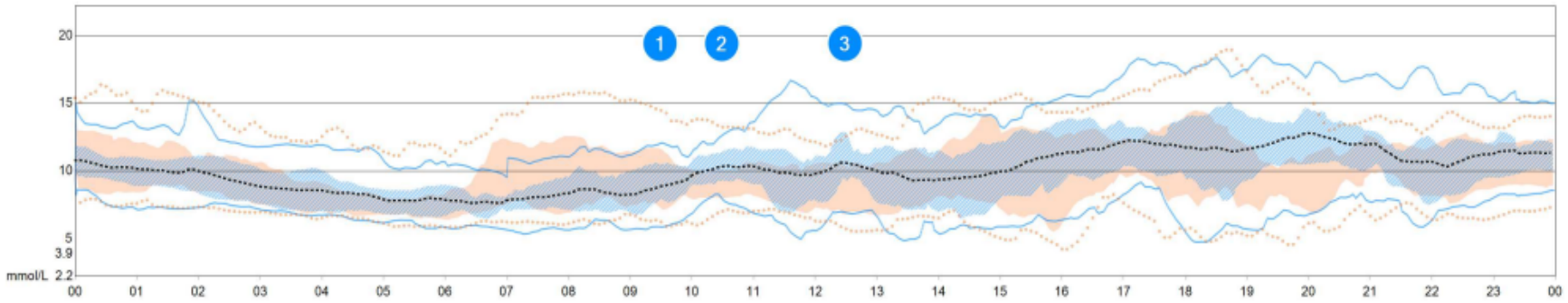
Medtronic

Assessment and Progress

Ⓐ 16/12/2024 - 31/12/2024 (16 Days)

Ⓑ 17/09/2024 - 02/10/2024 (16 Days)

Percentile comparison



Carb Ratio (g/U)[1]				
A	13.0	13.0	13.0	13.0
B	13.0	13.0	13.0	13.0

Hypoglycemic patterns (0)

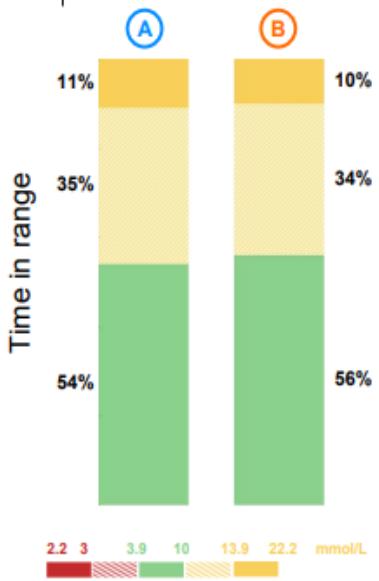
Episodes (per day): 0.1

None

Hyperglycemic patterns (15)[2]

Episodes (per day): 3.1

1. 09:00 - 09:59 (4 occurrences)
2. 10:00 - 10:59 (4 occurrences)
3. 12:00 - 12:59 (4 occurrences)



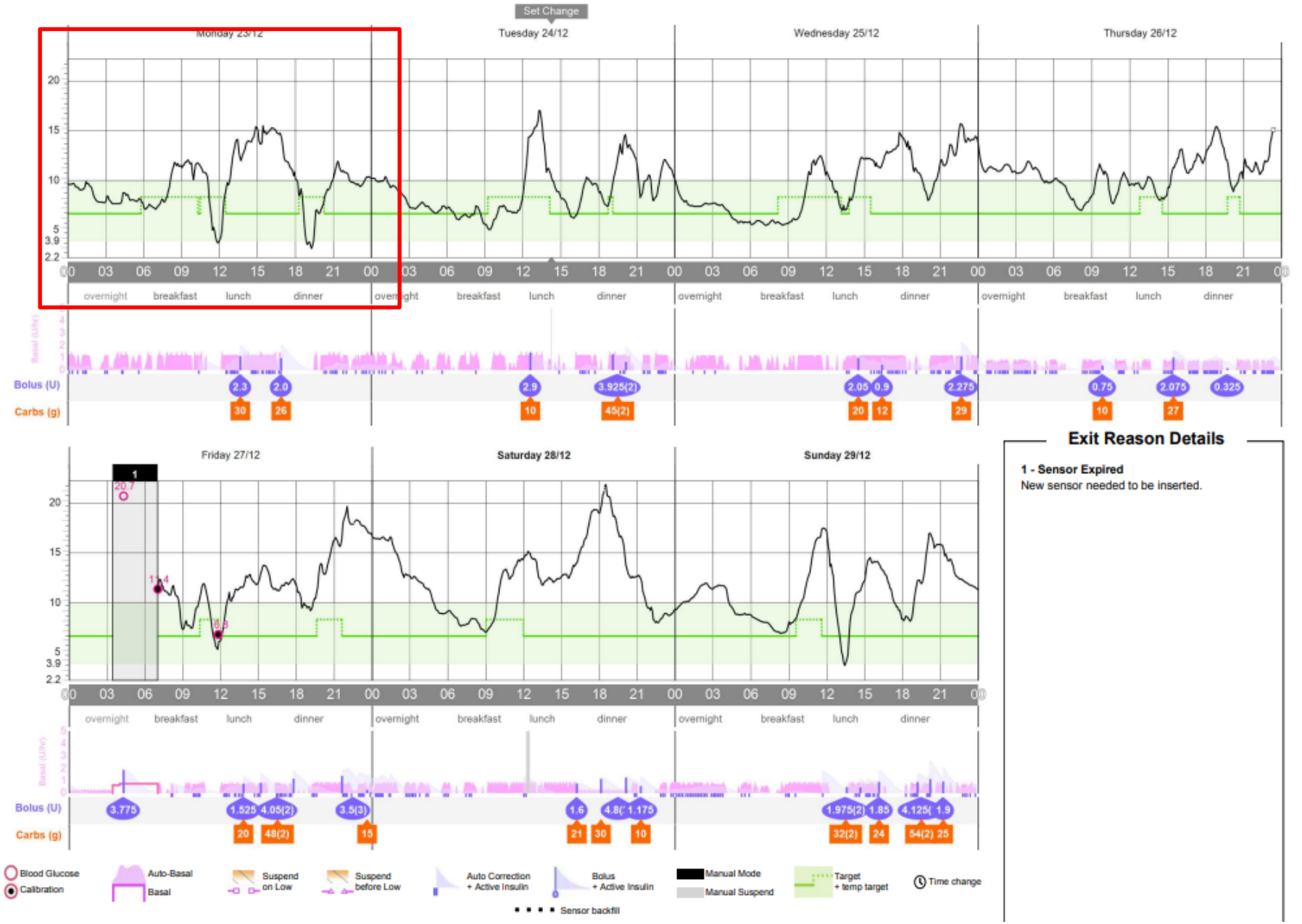
SmartGuard Exits	A	B
No Calibration	0	0
SmartGuard max delivery	0	0
SmartGuard min delivery	0	0
BG required for SmartGuard	0	0
Sensor Algorithm Underread	0	0
Sensor Updating	0	0
No SG values	0	0
Sensor Expired	• • 2	1 •
SmartGuard disabled by user	0	0
Prolonged Suspend	0	0
SmartGuard Warm Up	0	0
Unidentified	0	0

Statistics	A	B
SmartGuard (per week)	97% (6d 19h)	98% (6d 21h)
Manual Mode (per week)	3% (05h)	2% (03h)
Sensor Wear (per week)	97% (6d 18h)	98% (6d 20h)
Average SG ± SD	10 ± 3 mmol/L	9.8 ± 2.9 mmol/L
GMI[3]	7.6% (60.0 mmol/mol)	7.5% (59.0 mmol/mol)
Coefficient of Variation (%)	29.6%	29.8%
Low / High SG Alerts (per day)	1.2 / 1.0	1.9 / 0.6
Average BG	13 ± 5.8 mmol/L	18 ± 4.6 mmol/L
BG / Calibration (per day)	0.3 / 0.2	0.6 / 0.4
Total daily dose (per day)	35.1 units	35.9 units
Bolus amount (per day)	17.9U (51%)	17.3U (48%)
Auto Correction amount (per day)	10.8U (60%)	11.5U (66%)
Auto Basal / Basal amount (per day)	17.2U (49%)	18.6U (52%)
Set / Reservoir Change	4.7 / 3.5 days	3.5 / 3.5 days
Carbs entered / Meal (per day)	80 ± 34 g / 3.6	61 ± 34 g / 2.9
Active Insulin time	2:30 hrs	2:30 hrs
24hr programmed manual basal [4]	17.550U	17.550U

1 Most recent pump settings are displayed
2 Only highest priority shown.
3 Glucose Management Indicator
4 Manual mode 24hr programmed total from the active basal pattern

Medtronic

Weekly Review (2 of 3)
23/12/2024 - 29/12/2024 (7 Days)



Exit Reason Details

1 - Sensor Expired
New sensor needed to be inserted.

Medtronic

Device Settings (1 of 2)
01/01/2025

Basal

Maximum Basal Rate	2.00 U/Hr		Updates

Basal 1 (active)

24-Hour Total	17.550 U	

Time	U/Hr	
00:00	0.650	
04:00	0.775	
07:00	0.725	
12:00	0.725	
18:00	0.775	

Basal 2

24-Hour Total	26.525 U	

Time	U/Hr	
00:00	1.15	
04:00	0.975	
07:00	1.10	
12:30	1.10	
18:00	1.15	

Basal 3

24-Hour Total	--	

Time	U/Hr	
--	--	

Bolus

Bolus Wizard	On
Units	g, mmol/L
Active Insulin Time (h:mm)	2:30
Maximum Bolus	4.0 U

Easy Bolus	Off
Bolus Increment	0.025 U
Bolus Speed	Standard
Dual/Square	Off/Off

Carbohydrate Ratio (g/U)

Time	Ratio	
0:00	13.0	
10:00	13.0	
14:00	13.0	
19:00	13.0	

Insulin Sensitivity (mmol/L per U)

Time	Sensitivity	
0:00	3.7	
10:00	3.7	
14:30	3.7	
19:00	3.4	

Blood Glucose Target (mmol/L)

Time	Low	High	
0:00	6.7	6.7	

Preset Bolus

Name	Normal	Square	Updates
Bolus 1			
Breakfast			
Dinner			
Lunch			
Snack			
Bolus 2			
Bolus 3			
Bolus 4			

Preset Temp

Name	Rate	Duration	
High Activity			
Moderate Activity			
Low Activity			
Sick			

Name	Rate	Duration	
Temp 1	60%	2:00	
Temp 2			
Temp 3			
Temp 4			

Points for discussion

- Is it possible to have severe hypoglycaemia with HCL
- What should be the ideal pump setting
- DVLA guideline on patients using sensors and HCL

24 year old with Type 1 diabetes has held a driving licence for 5 years.

He reports that he has had 2 hypos needing assistance in last 2 months (1 during night with a seizure with paramedics being called and a further one during daytime assisted by a workmate)

Q. What do you advise him about driving?

What happens with a nocturnal hypoglycaemia induced (first) seizure?

	Group 1 car and motorcycle	Group 2 bus and lorry
Provoked seizures	✘ - Must not drive and must notify DVLA. In most cases driving must cease for 6 months after the provoked seizure. See the special considerations in Appendix B and Provoked seizures.	✘ - Must not drive and must notify DVLA. Driving must cease for up to 5 years after the provoked seizure. See the special considerations in Appendix B and Provoked seizures.

Driver & Vehicle Licensing Agency

Assessing fitness to drive

– a guide for medical professionals

www.gov.uk/dvla/fitnesstodrive

March 2021

Contents

Introduction 4

General information 6

Chapter 1
Neurological disorders 16

Chapter 2
Cardiovascular disorders 50

Chapter 3
Diabetes mellitus 70

Chapter 4
Psychiatric disorders 79

Chapter 5
Drug or alcohol misuse or dependence 88

Chapter 6
Visual disorders 96

Chapter 7
Renal and respiratory disorders 104

Chapter 8
Miscellaneous conditions 107

Appendix A: The legal basis for the medical standards 115

Appendix B: Epilepsy regulations and further guidance 116

Appendix C: Cardiovascular considerations 121

Appendix D: INF188/2 leaflet 'Information for drivers with diabetes' and DIABINF leaflet 'A guide to insulin treated diabetes and driving' 125

Appendix E: Important notes concerning psychiatric disorders 130

Appendix F: Disabilities and vehicle adaptations 132

Appendix G: Mobility Centres and Driving Assessment Centres 133

Index 137

https://www.gov.uk/government/publications/assessing-fitness-to-drive-a-guide-for-medical-professionals

Response Driving?

- Serving Police officer says that she wants to change role to include “blue light” driving… can she?

Importance: High

Hi Mark,
Wonder if you can help this patient. You saw him back in November as a Ward f/u as a newly diagnosed diabetic. He's informed the DVLA that he's on insulin and they've written to him to advise that he cannot drive with immediate effect. His wife has phoned me today and they are both panicking as he's a taxi driver. He has never had a hypo and cannot understand why this has been done. The letter they've received from DVLA states that he does not have or recognise warning signs of hypoglycaemia. The letter from the DVLA states for them to contact their healthcare professional.

Are we able to assist in him getting his license back asap? There is an email address DMdecisionreview@dvla.gov.uk that we can send supporting evidence to.

Best Wishes,