CASE STUDY 3
CGM AND LGS
VALUE OF LOW GLUCOSE SUSPEND

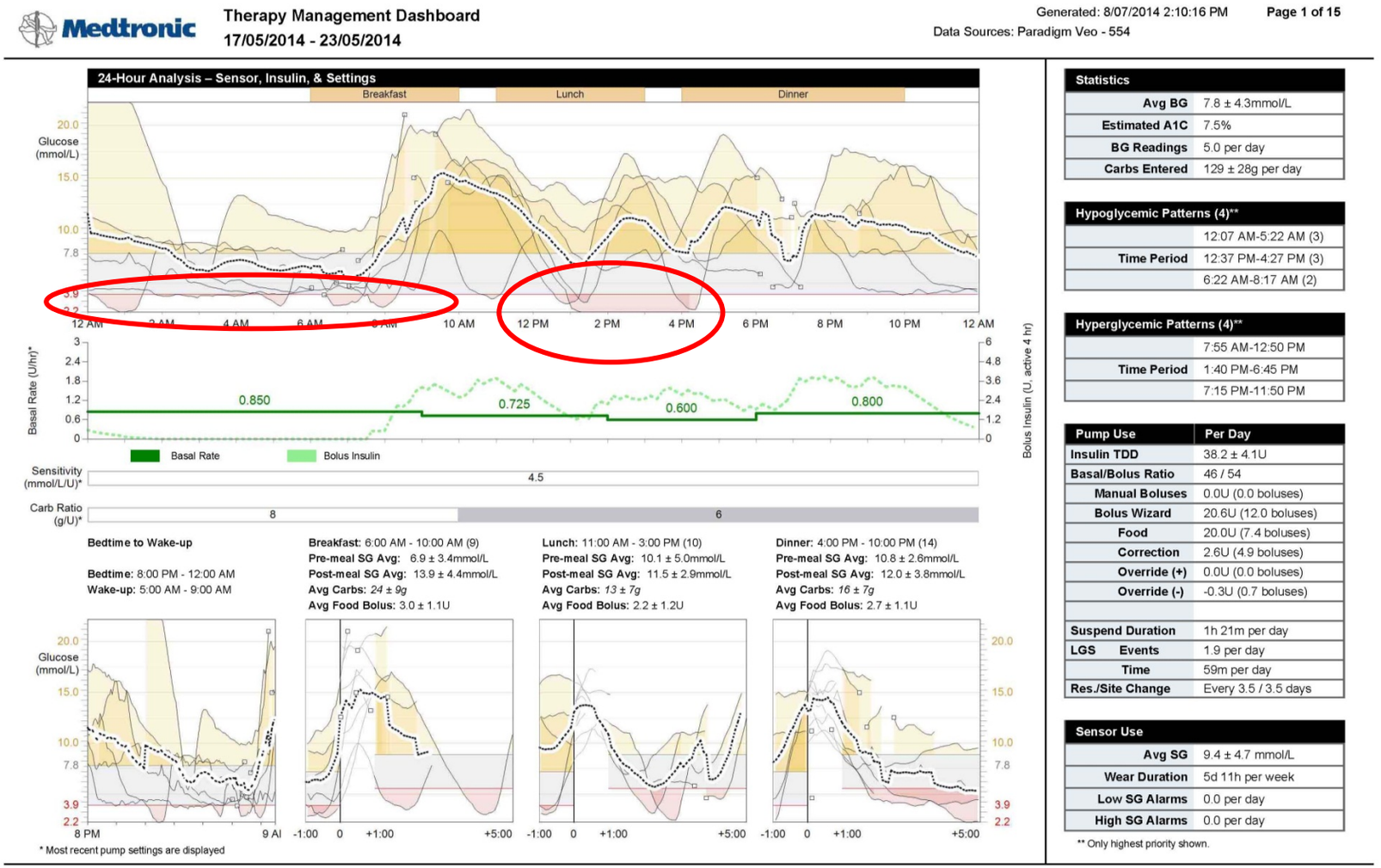
Medtronic
Further, Together

CASE STUDY 3 CGM AND LGS
VALUE OF LOW GLUCOSE SUSPEND

Patient information:

- 34 year old lady
- Type 1 diabetes for 19 years
- On CSII for 6 years
- Works as a Physiotherapist
- Exercise - loves to run marathons
- Currently 22 weeks pregnant
- Significant hypoglycaemia events in first trimester – awareness decreased requiring third party assistance
- MiniLink® transmitter – used sporadically
- HbA1c 7.5% at conception, currently 6.5%

CASE STUDY 3 CGM AND LGS
PRE MODIFICATION



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Therapy Management Dashboard
17/05/2014 - 23/05/2014

Generated: 8/07/2014 2:10:16 PM
Data Sources: Paradigm Veo - 554

24-Hour Analysis – Sensor, Insulin, & Settings

Breakfast | Lunch | Dinner

Glucose (mmol/L)

Basal Rate (U/hr)*

0.850 | 0.725 | 0.600 | 0.800

Basal Rate | Bolus Insulin

Bolus Insulin (U, active 4 hr)

Sensitivity (mmol/L/U)*: 4.5

Carb Ratio (g/U)*: 8 | 6

Bedtime to Wake-up
Bedtime: 8:00 PM - 12:00 AM
Wake-up: 5:00 AM - 9:00 AM

Breakfast: 6:00 AM - 10:00 AM (9)
Pre-meal SG Avg: 6.9 ± 3.4mmol/L
Post-meal SG Avg: 13.9 ± 4.4mmol/L
Avg Carbs: *24 ± 9g*
Avg Food Bolus: 3.0 ± 1.1U

Lunch: 11:00 AM - 3:00 PM (10)
Pre-meal SG Avg: 10.1 ± 5.0mmol/L
Post-meal SG Avg: 11.5 ± 2.9mmol/L
Avg Carbs: *13 ± 7g*
Avg Food Bolus: 2.2 ± 1.2U

Dinner: 4:00 PM - 10:00 PM (14)
Pre-meal SG Avg: 10.8 ± 2.6mmol/L
Post-meal SG Avg: 12.0 ± 3.8mmol/L
Avg Carbs: *16 ± 7g*
Avg Food Bolus: 2.7 ± 1.1U

* Most recent pump settings are displayed

Statistics	
Avg BG	7.8 ± 4.3mmol/L
Estimated A1C	7.5%
BG Readings	5.0 per day
Carbs Entered	129 ± 28g per day

Hypoglycemic Patterns (4)**	
	12:07 AM-5:22 AM (3)
Time Period	12:37 PM-4:27 PM (3)
	6:22 AM-8:17 AM (2)

Hyperglycemic Patterns (4)**	
	7:55 AM-12:50 PM
Time Period	1:40 PM-6:45 PM
	7:15 PM-11:50 PM

Pump Use	Per Day
Insulin TDD	38.2 ± 4.1U
Basal/Bolus Ratio	46 / 54
Manual Boluses	0.0U (0.0 boluses)
Bolus Wizard	20.6U (12.0 boluses)
Food	20.0U (7.4 boluses)
Correction	2.6U (4.9 boluses)
Override (+)	0.0U (0.0 boluses)
Override (-)	-0.3U (0.7 boluses)
Suspend Duration	1h 21m per day
LGS Events	1.9 per day
Time	59m per day
Res./Site Change	Every 3.5 / 3.5 days

Sensor Use	
Avg SG	9.4 ± 4.7 mmol/L
Wear Duration	5d 11h per week
Low SG Alarms	0.0 per day
High SG Alarms	0.0 per day

** Only highest priority shown.

Visibly experiencing hypoglycaemia- both nocturnal and post prandial

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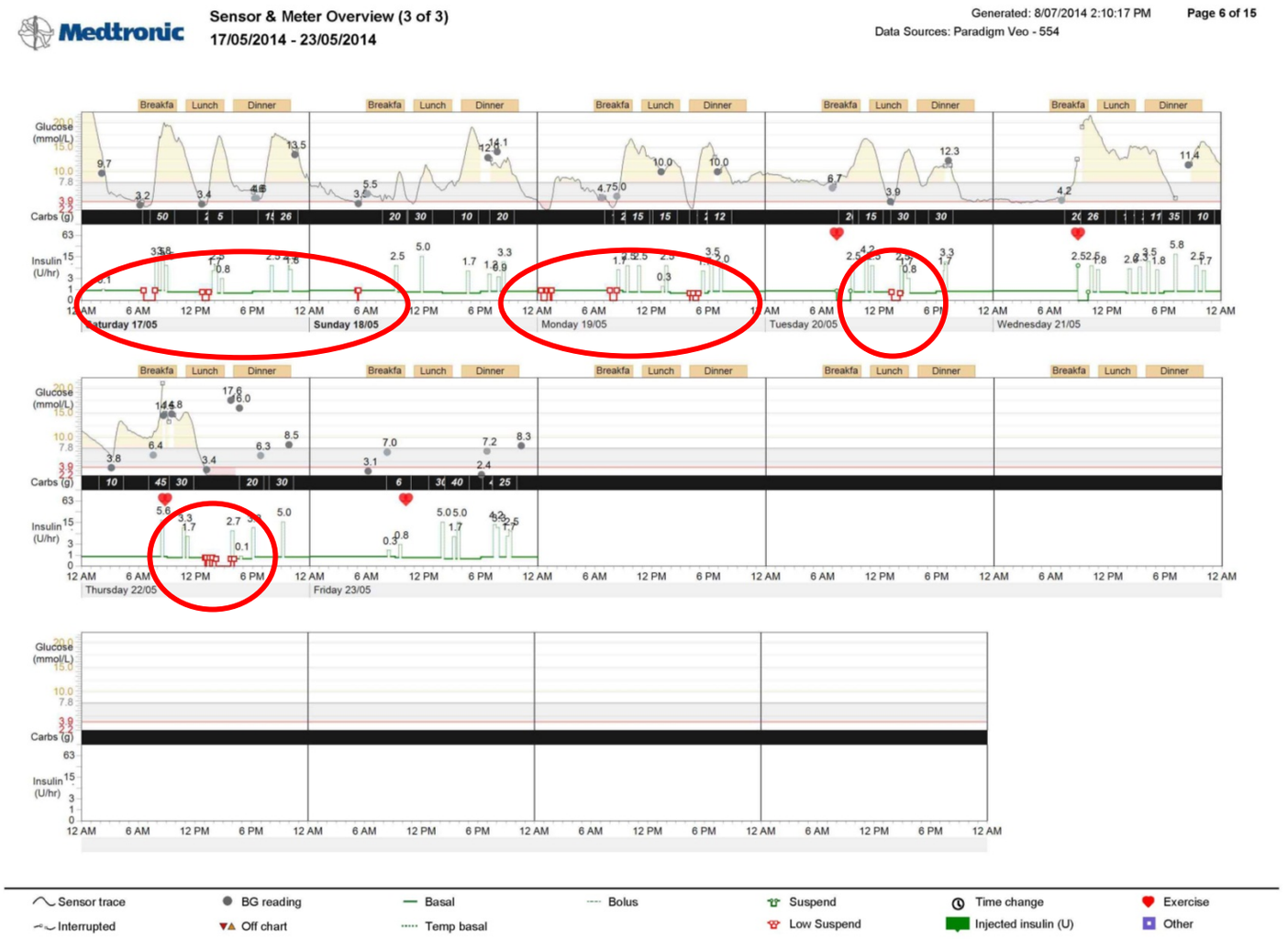
PRE MODIFICATION



Patient went into low glucose suspend 13 times over the week

CASE STUDY 3 CGM AND LGS
PRE MODIFICATION

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Daily Detail (3 of 7)
Monday 19/05/2014

Generated: 8/07/2014 2:10:17 PM
Data Sources: Paradigm Veo - 554

Bolus Events

Bolus Event	1	2	3	4	5	6	7	8	9	10
Time	6:48 AM	8:21 AM	9:20 AM	10:33 AM	1:02 PM	1:25 PM	5:17 PM	6:10 PM	6:57 PM	7:10 PM
Bolus Type	--	Normal	Normal	Normal	Normal	Normal	Normal	Normal	--	Normal
Delivered Bolus Norm (U)	--	1.70	2.50	2.50	0.250	2.50	1.65	3.50	--	2.00
+ Square Portion (U, h:mm)	--	--	--	--	--	--	--	--	--	--
Recommended Bolus (U)	--	1.70	2.50	2.50	0.250	2.50	1.65	3.50	--	2.00
Difference (U)	--	--	--	--	--	--	--	--	--	--
Carbs (g)	--	*15*	*20*	*15*	--	*15*	*10*	*21*	--	*12*
Carb Ratio Setting (g/U)	8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Food Bolus (U)	--	1.85	2.50	2.50	--	2.50	1.65	3.50	--	2.00
BG (mmol/L)	**4.7**	**5.0**	**--**	**--**	**10.0**	**--**	**--**	**--**	**10.0**	**--**
BG Target Setting (mmol/L)	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Insulin Sensitivity Setting (mmol/L per U)	4.0	4.0	4.0	4.0	4.0	4.0	4.5	4.5	4.5	4.5
Correction Bolus (U)	-0.225	-0.150	--	--	1.10	--	--	--	0.975	--
Active Insulin (U)	--	--	1.40	2.50	0.850	0.700	0.150	1.45	4.03	3.65

Statistics	19/05		17/05 - 23/05	
Avg BG (mmol/L)	**7.4**		**7.8 ± 4.3**	
BG Readings	4		35	5.0/day
Readings Above Target	2	50%	14	40%
Readings Below Target	--	0%	8	23%
Sensor Avg (mmol/L)	**9.1 ± 3.8**		**9.4 ± 4.7**	
Avg AUC > 7.8 (mmol/L)	2.28	0d 23h	2.74	5d 11h
Avg AUC < 3.9 (mmol/L)	0.13	0d 23h	0.08	5d 11h

Daily Carbs (g)	*108*		*129 ± 28*	
Carbs/Bolus Insulin (g/U)	6.5		6.3	

Total Daily Insulin (U)	33.9		38.2 ± 4.1	
Daily Basal (U)	17.3	51%	17.6	46%
Daily Bolus (U)	16.6	49%	20.6	54%
Fills	--	--	4	15.6U

Sensor trace · BG reading · Linked BG · Basal · Bolus · Suspend · Time change · Exercise · Glucose alert
Interrupted · Off chart · Calibration BG · Temp basal · Pump rewind · Low Suspend · Injected insulin (U) · Other · Alarm

Showing LGS during the night when the patient is asleep and has not woken up to intervene. Also shows that during the day the patient is awake and able to perform actions to respond to LGS. However, this patient is eating too many carbs to rectify going into LGS and hence experiencing hyperglycaemia.

CASE STUDY 3 CGM AND LGS
SUGGESTED MODIFICATIONS

- Changes made to reduce significant hypoglycaemia events requiring assistance
- Reduction in basal rates
- Assessed ISF – in particular pre bed / overnight
- Requested patient to increase testing pre/post meals
- Carb intake of meals too high in response to hypoglycaemia
- Dietary advice around meals provided
- Use CGM with LGS for mother and baby safety

CASE STUDY 3 CGM AND LGS

This case study relates to accounts of each individual's response to the treatment. Each individual's response does not provide any indication, guide, warranty or guarantee as to the response other persons may have to the treatment. The response other persons have to the treatment could be different. 2385-102015