www.ggc-youngdiabetes.org

Blood Glucose Diary

Call these numbers to contact your Diabetes Team:

- Royal Hospital for Children, Glasgow patients: 0141 201 0331
- Inverclyde Royal Hospital, Greenock patients: 0141 314 6911
- Royal Alexandra Hospital, Paisley patients: 0141 314 6911

Before coming to clinic please always remember the following:

1. Bring your Blood Glucose Meter AND
2. Bring your Blood Glucose Diary AND/OR
3. Upload your Blood Glucose or Pump Data AND
4. Bring a First morning Urine Specimen

childrenwithdiabetes@ggc.scot.nhs.uk

Clinic Results

Clinic Date: _____ Age: _____ yrs _____ mths

Today's HbA1c: _____ mmol/mol **HbA1c Target** = **48** mmol/mol

Last HbA1c: _____ mmol/mol **HbA1c Target Max** = **58** mmol/mol

Meter BG Avg.: _____ mmol/l **BG Avg. Target** = **8** mmol/l

Height: _____ cm BMI: _____ kg/m^2

Weight: _____ kg BP: _____/_____ mm Hg

Ketone Dose (see Page 32): ☐ units

If Glucose over 14 mmol/l & Urine ketones mod, large OR Blood ketones 1·0 mmol/l (0.6 mmol/l if using an insulin pump) & above (use only Novorapid or other fast insulin)
Remember: Use a Correction Dose if ketones low and blood glucose above 6.9 mmol/l.

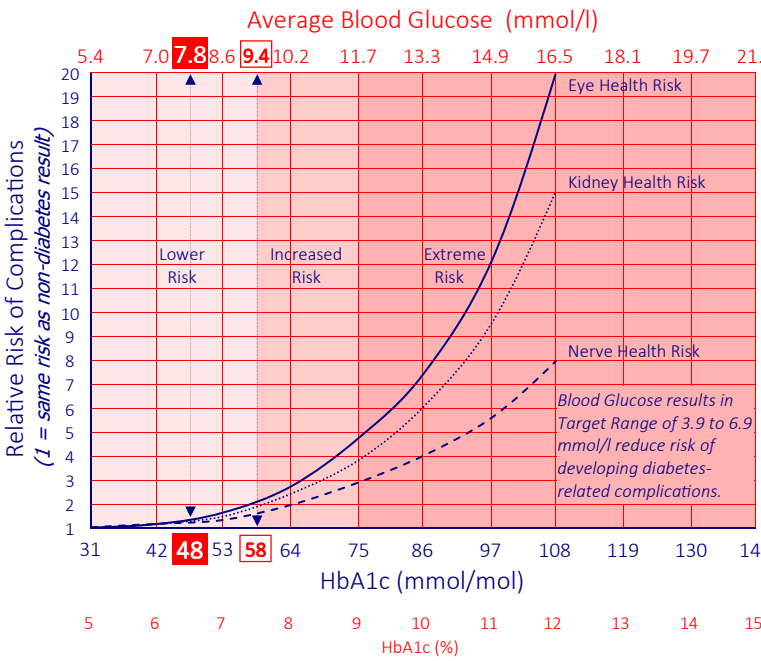
Off-Pump Insulin Dose:

If needing to change from using an insulin pump to giving insulin by injection (e.g. due to pump failure) follow these steps to work out required injected doses of insulin:

1. Count average Insulin "Total Daily Dose" for at least 3 days *before* the day of change.
2. Give 20% Total Daily Dose (TDD) as a Levemir injection twice daily (every 10-12 hrs).
3. Give 20% TDD as a Novorapid (or other Rapid-Acting insulin) Before main meals **OR**
4. Use the Carb Ratios from the insulin pump settings with main meals.

Care Plan until next contact with Diabetes Team

HbA1c, Average Blood Glucose & Risk of Complications



The above chart shows the direct link between Average Blood Glucose, the HbA1c test, and the risk to future health. The information comes from the 1993 "Diabetes Control & Complications Trial", the first study to prove that normal and near-normal blood glucose results give us all the best chance of preserving long-term good health.

The chart shows "Relative Risk" of problems for those with and without diabetes. A Relative Risk of "1" means someone *with* diabetes has exactly the same risk as a person *without* diabetes, and a Relative Risk of 20 indicates someone with diabetes would be 20 times more likely to develop that particular problem than a person without diabetes.

An Average Blood Glucose less than 8 mmol/l results in an HbA1c of 48 mmol/mol. Achieving this gives someone with diabetes the best balance between protection from health difficulties and a risk of frequent or severe low blood glucose readings.

Diabetes complications. The importance of glucose control. Skyler JS. End & Met Clin NA. 1996 v25 n2 p243

Step 1

B					L					D					S				

BOLUS INSULIN STEP 1: CALCULATE CARBOHYDRATE DOSE

CARBOHYDRATE: INSULIN RATIO (grams per Unit) to keep Blood Glucose steady after meals

CARBOHYDRATE TO BE EATEN (Grams) — CR=	2	2·5	3	3·5	4	4·5	5	6	7	8	9	10	12	14	16	18	20	22	24
5-9	2.5	**2**	1·5	**1**	1	**1**	1	**0·5**	0·5	**0·5**	0·5	**0·5**	-	-	-	-	-	-	-
10-14	5	**4**	3	**2·5**	2·5	**2**	2	**1·5**	1	**1**	1	**1**	0·5	**0·5**	0·5	**0·5**	0·5	-	-
15-19	7.5	**6**	5	**4**	3·5	**3**	3	**2·5**	2	**1·5**	1·5	**1·5**	1	**1**	0·5	**0·5**	0·5	**0·5**	0·5
20-24	10	**8**	6·5	**5·5**	5	**4**	4	**3**	2·5	**2·5**	2	**2**	1·5	**1**	1	**1**	1	**0·5**	0·5
25-29	12	**10**	8	**7**	6	**5·5**	5	**4**	3·5	**3**	2·5	**2·5**	2	**1·5**	1·5	**1**	1	**1**	1
30-34	15	**12**	10	**8·5**	7·5	**6·5**	6	**5**	4	**3·5**	3	**3**	2·5	**2**	1·5	**1·5**	1·5	**1**	1
35-39	17	**14**	11	**10**	8.5	**7·5**	7	**5·5**	5	**4**	3·5	**3·5**	2·5	**2·5**	2	**1·5**	1·5	**1·5**	1
40-44	20	**16**	13	**11**	10	**8·5**	8	**6·5**	5·5	**5**	4	**4**	3	**2·5**	2·5	**2**	2	**1·5**	1·5
45-49	22	**18**	15	**12**	11	**10**	9	**7·5**	6	**5·5**	5	**4·5**	3·5	**3**	2·5	**2·5**	2	**2**	1·5
50-54	25	**20**	16	**14**	12	**11**	10	**8**	7	**6**	5·5	**5**	4	**3·5**	3	**2·5**	2·5	**2**	2
55-59	27	**22**	18	**15**	13	**12**	11	**9**	7·5	**6·5**	6	**5·5**	4·5	**3·5**	3	**3**	2·5	**2·5**	2
60-69	30	**24**	20	**17**	15	**13**	12	**10**	8·5	**7·5**	6·5	**6**	5	**4**	3·5	**3**	3	**2·5**	2·5
70-79	35	**28**	23	**20**	17	**16**	14	**11**	10	**8·5**	7·5	**7**	5·5	**5**	4	**3·5**	3·5	**3**	2·5
80-89	40	**32**	26	**22**	20	**18**	16	**13**	11	**10**	8·5	**8**	6·5	**5·5**	5	**4**	4	**3·5**	3
90-99	45	**36**	30	**25**	22	**20**	18	**15**	12	**11**	10	**9**	7·5	**6**	5·5	**5**	4·5	**4**	3·5
100+	50	**40**	33	**28**	25	**22**	20	**16**	14	**12**	11	**10**	8	**7**	6	**5·5**	5	**4·5**	4

Divide Carbohydrate eaten (grams) by Carb:Insulin Ratio (CIR)

CARBOHYDRATE: INSULIN RATIO = Carbohydrate (grams) for each Unit of Insulin to keep after-meal BG steady.

CARBOHYDRATE DOSE = Carbohydrate Eaten (grams) ÷ Carbohydrate: Insulin Ratio (or "Carb Ratio", CR)
= Number where "Carbohydrate Eaten" row meets "Carb.: Insulin Ratio" column.
e.g. If eating 40 grams, and CR = 8 g/Unit, then Carbohydrate Dose = 40 ÷ 8 = 5 Units.

BOLUS INSULIN STEP 2: CALCULATE **CORRECTION DOSE**

Divide required Fall in Blood Glucose (mmol/l) by Insulin Sensitivity (IS)

Step 2

B					L					D					S				

INSULIN SENSITIVITY (mmol/l fall per Unit) with Target Blood Glucose 6 mmol/l

CURRENT BLOOD GLUCOSE (mmol/l)	TDD =	100 +	80-99	67-79	58-66	50-57	40-49	34-39	29-33	23-28	19-22	16-18	14-15	12-13	10-11	8-9	6-7	4-5
	IS =	1	**1·2**	1·5	**1·7**	2	**2·5**	3	**3·5**	4	**5**	6	**7**	8	**10**	12	**15**	20
	7-7·9	1	**0·5**	0·5	**0·5**	0·5	-	-	-	-	-	-	-	-	-	-	-	-
	8-8·9	2	**1·5**	1	**1**	1	**0·5**	0·5	**0.5**	0·5	-	-	-	-	-	-	-	-
	9-9·9	3	**2·5**	2	**1·5**	1·5	**1**	1	**0.5**	0·5	**0·5**	0·5	-	-	-	-	-	-
	10-10·9	4	**3**	2·5	**2**	2	**1·5**	1	**1**	1	**0·5**	0·5	**0·5**	0·5	-	-	-	-
	11-11·9	5	**4**	3	**2·5**	2·5	**2**	1·5	**1**	1	**1**	0·5	**0·5**	0·5	**0·5**	-	-	-
	12-12·9	6	**5**	4	**3·5**	3	**2**	2	**1.5**	1·5	**1**	1	**0·5**	0·5	**0·5**	-	-	-
	13-13·9	7	**5·5**	4·5	**4**	3·5	**2·5**	2	**2**	1·5	**1**	1	**1**	0·5	**0·5**	0·5	-	-
	14-14·9	8	**6·5**	5	**4·5**	4	**3**	2·5	**2**	2	**1·5**	1	**1**	1	**0·5**	0·5	**0·5**	-
	15-15·9	9	**7·5**	6	**5**	4·5	**3·5**	3	**2.5**	2	**1·5**	1·5	**1**	1	**0·5**	0·5	**0·5**	-
	16-16·9	10	**8**	6·5	**5·5**	5	**4**	3	**2.5**	2·5	**2**	1·5	**1**	1	**1**	0·5	**0·5**	0·5
	17-17·9	11	**9**	7	**6**	5·5	**4**	3·5	**3**	2·5	**2**	1·5	**1·5**	1	**1**	0·5	**0·5**	0·5
	18-18·9	12	**10**	8	**7**	6	**4·5**	4	**3**	3	**2**	2	**1·5**	1·5	**1**	1	**0·5**	0·5
	19-19·9	13	**11**	8·5	**7·5**	6·5	**5**	4	**3.5**	3	**2·5**	2	**1·5**	1·5	**1**	1	**0·5**	0·5
	20+	14	**11**	9	**8**	7	**5·5**	4·5	**4**	3·5	**2·5**	2	**2**	1·5	**1**	1	**0·5**	0·5

INSULIN SENSITIVITY = Blood Glucose (BG) fall from each Unit of insulin = 100 ÷ Insulin Total Daily Dose (TDD).

CORRECTION DOSE = Insulin dose to lower Current BG to Target BG of 6 mmol/l

THEN ADD CARB DOSE = (Current BG - 6) ÷ Insulin Sensitivity

TO CORRECTION DOSE = Number where "Current Blood Glucose" row meets "Insulin Sensitivity" column.

TDD = **ALL** BASAL (Levemir, Lantus) + **ALL** BOLUS (Novorapid, H'log) Insulin

How to Make Regular Insulin Dose Adjustments

1. Basal Dose of insulin for steady, long-term effect (Lantus, Levemir)

- Adjust Basal dose looking at trend of before-meal and overnight BG results.
- A correct Basal dose should keep BG steady from midnight to 3 am to 7 am.
- If BG rises overnight then Basal Dose too low: ↑ dose 10% (see *Caution).
- If BG falls overnight then Basal Dose too high: ↓ dose 10%.
  * Caution: Adolescents often have BG rise after 04:00 due to hormones, so may have to accept higher BG on waking to prevent overnight hypos.
- If BG on target overnight until 3 am *but high on waking,* be sure basal insulin dose *not* cause overnight hypos, and use Bolus Correction Dose on waking.

2. Bolus Carbohydrate Dose for meal-time carbohydrate (Novorapid)

- An appropriate Carb Dose causes before-meal BG to be unchanged 2 hours later.
- Divide Carbs eaten (g) by "appropriate" dose → Carb:Insulin Ratio ("Carb Ratio")
- Divide Carbs eaten (g) by Carb Ratio (CR) → Carbohydrate Dose
- e.g. If eating 50 grams carbohydrate and Carb Ratio = 5 g/Unit ®
  Carbohydrate Dose = 50 g ÷ 5 g/Unit = **10 Units**
- Meals may need different Carb Ratios (e.g. Breakfast often has a lower CR).

BG 2 hours after meal	Cause	Carb Ratio	Action	By
↑ by more than 2 mmol/l	Too much Carb for insulin dose	Too High	↓ CR	10%
↓ by more than 2 mmol/l	Too little Carb for insulin dose	Too Low	↑ CR	10%

3. Bolus Correction Dose for lowering high Blood Glucose (Novorapid)

- The "100 Rule" = 100 ÷ Insulin Total Daily Dose (TDD = Basal+Bolus insulin)
  = expected BG fall for each Unit of insulin given = Insulin Sensitivity (IS).
- Divide BG fall required (mmol/l) by Insulin Sensitivity (IS) → Correction Dose
  = insulin dose to lower high BG to Target BG (of 6 mmol/l).
- e.g. If BG now = 16 mmol/l, Target 6 mmol/l & IS = 2 mmol/l fall per Unit →
  Correction Dose = (16 - 6) ÷ 2 mmol/l per U= (10 mmol/l fall ÷ 2) = **5 Units**
- Correction Doses may be given every 4 hours, either *added to* a Carbohydrate Dose, or as *separate injection* at other times. May need less insulin overnight.
- Correct the cause if 3 or more Correction Doses needed at same time of day.
- Ketones are made when the body has too little insulin. A Ketone Dose **must** be used (not a Correction Dose) if ketones mod, large or over 1 mmol/l (p32).

Daily Blood Glucose Results

Different insulin types recorded

	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Carb Dose bolus	Correction Dose bolus
	Divide Carbs eaten (g) by CIR (g/U) to give Carb dose							0 17/10	18/10
B	LEV		10	10	10	10	10	10	10
B	NOV	5	8	8 +1·5	8 +3	8 +2	8	8	8
L	NOV	7	7·5	7·5	9	7·5	6	7·5	7·5
T	NOV	5	10	10 +1·5	12	12	10	8	10 +4
T	LEV		12	12	12	14	14	14	14
S	NOV							+2	
03:00 to 04:00									6·1
B	HIGH			12·6	16·2	14·3			
R	3·9 - 6·9		6·9				6·7	5·7	4·8
E	LOW								
2 hrs after meal								4·5	
L	HIGH				8.4				
U	3·9 - 6·9		5·6	6·2		6·2			4·9
N	LOW							3·8	
2 hrs after meal								8·9	
T	HIGH			13·9					18·7
E	3·9 - 6·9		3·9			5·9	6·4	5·2	
A	LOW				3·2				
2 hrs after meal								7.8	
S	HIGH				12·5			14·6	
U	3·9 - 6·9		6·3	4·9		5·4	6·7		5·8
P	LOW								
2 hrs after meal									
00:00 to 01:00					4·7	5·9		6·5	

Using CIRs results in different doses of meal-time Novorapid

Correction Dose given at supper

3 high results in a row have been corrected, so basal dose must also be increased, taking care patient not hypo overnight

Day used to check paired readings of before & after meal blood glucose results (once or twice a fortnight)

Low & high glucose results are recorded in highlighted rows

No correction dose given for this high result as it immediately follows a hypo

Test for ketones if glucose over 14

3 LOW or HIGH results at the same time of day means CHANGE IS NEEDED NOW!

Daily Blood Glucose Results

W 1

	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

3 LOW or HIGH results at the same time of day means CHANGE IS NEEDED NOW!

Divide Carbohydrate eaten (grams) by Carb:Insulin Ratio to give Carbohydrate Dose.

WK	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
BRE	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
LUN	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
TEA	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
SUP	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

Each week record meter 7-Day Average Blood Glucose. Target = UNDER 8 mmol/l

Daily Blood Glucose Results

W3

	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
00:00 - 01:00									

7d Avg BG

3 LOW or HIGH results at the same time of day means CHANGE IS NEEDED NOW!

Divide Carbohydrate eaten (grams) by Carb:Insulin Ratio to give Carbohydrate Dose.

W 4	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
00:00 - 01:00									

7d Avg BG

Daily Blood Glucose Results

W5

	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

3 LOW or HIGH results at the same time of day means CHANGE IS NEEDED NOW!

Divide Carbohydrate eaten (grams) by Carb:Insulin Ratio to give Carbohydrate Dose.

W 6	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
00:00 - 01:00									

7d Avg BG

Daily Blood Glucose Results

W 7

	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

 3 LOW or HIGH results at the same time of day means CHANGE IS NEEDED NOW!

Divide Carbohydrate eaten (grams) by Carb:Insulin Ratio to give Carbohydrate Dose.

W 8	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
00:00 - 01:00									

7d Avg BG

Daily Blood Glucose Results

WK 9	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
00:00 - 01:00									

7d Avg BG

 3 LOW or HIGH results at the same time of day means CHANGE IS NEEDED NOW!

Divide Carbohydrate eaten (grams) by Carb:Insulin Ratio to give Carbohydrate Dose.

W10	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
00:00 - 01:00									

7d Avg BG

Daily Blood Glucose Results

W 11

	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

 3 LOW or HIGH results at the same time of day means CHANGE IS NEEDED NOW!

Divide Carbohydrate eaten (grams) by Carb:Insulin Ratio to give Carbohydrate Dose.

W 12	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

Each week record meter 7-Day Average Blood Glucose. Target = UNDER 8 mmol/l

Daily Blood Glucose Results

W 13

	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

 3 LOW or HIGH results at the same time of day means CHANGE IS NEEDED NOW!

Divide Carbohydrate eaten (grams) by Carb:Insulin Ratio to give Carbohydrate Dose.

W14	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

Each week record meter 7-Day Average Blood Glucose. Target = UNDER 8 mmol/l

Daily Blood Glucose Results

W 15

	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

 3 LOW or HIGH results at the same time of day means CHANGE IS NEEDED NOW!

Divide Carbohydrate eaten (grams) by Carb:Insulin Ratio to give Carbohydrate Dose.

W16	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B	HIGH								
R	3·9 - 6·9								
E	LOW								
2 hrs after meal									
L	HIGH								
U	3·9 - 6·9								
N	LOW								
2 hrs after meal									
T	HIGH								
E	3·9 - 6·9								
A	LOW								
2 hrs after meal									
S	HIGH								
U	3·9 - 6·9								
P	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

Each week record meter 7-Day Average Blood Glucose. Target = UNDER 8 mmol/l

Daily Blood Glucose Results

W 17

	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

 3 LOW or HIGH results at the same time of day means CHANGE IS NEEDED NOW!

Divide Carbohydrate eaten (grams) by Carb:Insulin Ratio to give Carbohydrate Dose.

W 18	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

Each week record meter 7-Day Average Blood Glucose. Target = UNDER 8 mmol/l

Daily Blood Glucose Results

W 19

	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
00:00 - 01:00									

7d Avg BG

3 LOW or HIGH results at the same time of day means CHANGE IS NEEDED NOW!

Divide Carbohydrate eaten (grams) by Carb:Insulin Ratio to give Carbohydrate Dose.

W 20	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

Each week record meter 7-Day Average Blood Glucose. Target = UNDER 8 mmol/l

Daily Blood Glucose Results

W 21

	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
00:00 - 01:00									

7d Avg BG

3 LOW or HIGH results at the same time of day means CHANGE IS NEEDED NOW!

Divide Carbohydrate eaten (grams) by Carb:Insulin Ratio to give Carbohydrate Dose.

W 22	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

Each week record meter 7-Day Average Blood Glucose. Target = UNDER 8 mmol/l

Daily Blood Glucose Results

W 23	Insulin Type	CIR (g/U)	Mon	Tue	Wed	Thu	Fri	Sat	Sun
B									
B									
L									
T									
T									
S									
03:00 - 04:00									
B R E	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
L U N	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
T E A	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal									
S U P	HIGH								
	3·9 - 6·9								
	LOW								
2 hrs after meal								7d Avg BG	
00:00 - 01:00									

 3 LOW or HIGH results at the same time of day means CHANGE IS NEEDED NOW!

Hypoglycaemia

- means "low blood glucose", and refers to a blood glucose of 3·8 mmol/l or lower.
- severity is graded by seeing what symptoms occur when the blood glucose falls.
- causes include delayed meals and snacks, taking too much or the wrong type of insulin, or taking a dose at the wrong time. Extra exercise, or vomiting and diarrhoea (with poor carbohydrate absorption) can also cause hypoglycaemia.
- is best treated with glucose (such as in Lucozade® Original or Dextrose tablets), as this is absorbed more quickly than other forms of simple carbohydrate. The fat in chocolate delays sugar absorption, so this is *not* a good hypo treatment.
- should be treated with fast acting glucose at first, and 15 minutes should pass before giving starchy carbohydrate or this will delay the absorption of glucose.
- if severe, may cause drowsiness, or rarely a fit (convulsion or seizure), and is treated with a glucagon injection into the front of the thigh muscle.

<table>
<tr><th>Severity</th><th>Symptoms</th><th>Treatment</th></tr>
<tr><td>Mild</td><td>• Shaky.
• Dizzy.
• Hungry.
• Feeling Sick.
• Stomach Ache.
• Headache.
• Pallor.
• Mood Swings.
• "Jelly"/Tired Legs.
• Lack of Concentration.

See other Young People's Diabetes Service materials for more Best Ideas on How to Treat Hypos!</td><td>• Give 5, 10 or 15 g fast-acting carbohydrate as below:
<table>
<tr><th>Body Wt (kg)</th><th>10 - 19·9</th><th>20 - 34·9</th><th>35 - 49·9</th></tr>
<tr><td>Lucozade</td><td>60 ml (5g)</td><td>120 ml (10g)</td><td>180 ml (15g)</td></tr>
<tr><td>Cola</td><td>50 ml</td><td>100 ml</td><td>150 ml</td></tr>
<tr><td>Glucotab</td><td>1 tab</td><td>3 tabs</td><td>4 tabs</td></tr>
<tr><td>Glucogel</td><td>½ tube</td><td>1 tube</td><td>1½ tubes</td></tr>
</table>
• Repeat every 15 mins until BG over 3.9 mmol/l.
• If blood glucose risen to 4 mmol/l or higher give STARCHY CARBOHYDRATE such as:
  • digestive biscuit.
  • small sandwich.
  • snack or meal (if due).</td></tr>
<tr><td>Moderate</td><td>• Same as above, however
• Slightly more confused.
• Dizziness.
• Unable to treat self.
• Too confused to eat/drink.
• Slurred speech.
• Unsteady on feet.</td><td>• Treat as for Mild hypoglycaemia, but consider using Glucogel as fast-acting carbohydrate, instead of Glucose tablets, Lucozade® Original or non-diet drink.
• Do not use Glucogel if person unable to swallow.</td></tr>
<tr><td>Severe</td><td>• Not able to eat/drink.
• Sleepy/Unconscious.
• May be fitting.</td><td>• GlucaGen glucagon injection into the large, front-facing muscle of the thigh.
• Call 999 if no or slow response to treatment.</td></tr>
</table>

Ketone Dose: What to do if unwell or blood glucose over 14

Check blood glucose before meals, bed, and every 3 to 4 hours overnight

Blood Glucose 14 and over

Blood Glucose 7 - 13·9

Blood Glucose 3·9 - 6·9

Continue usual carbo-hydrate (or Lucozade) as well as giving sugar -free fluids

Check for Ketones in urine or blood

Negative, trace, small (urine), or <1 mmol/l (*or 0·6 mmol/l if on an Insulin Pump)

Give a **Correction Dose** (Page 03)

Continue giving usual insulin doses at usual times

Fewer than 3

Call for advice

3 times

Count all Ketone Doses given so far

Urine ketones Moderate (++) or Large (+++, ++++), or Blood ketones 1 mmol/l* & above (*or 0·6 mmol/l on Insulin Pump)

If Insulin Total Daily Dose:	**Ketone Dose** is:
1 - 10	1 unit
11 - 20	2
21 - 30	3
31 - 40	5
41 - 60	7
61 - 80	10
81 - 100	13
Over 100	Call

Take this NOW as a **Ketone Dose** of fast-acting insulin: *Novorapid, FiAsp, Humalog* or *Apidra* (in place of giving a Correction Dose) **Rpt** every 3-4 hours

Add up all the insulin taken on each day to find Total Daily Dose

Look up insulin ↑ Total Daily Dose in column above

↑ Find matching **Ketone Dose** in column above

If using Insulin Pump & Ketones 0·6 mmol/l & over give **Ketone Dose** by injection ONLY (**not** by pump) & retest in 1 hour

More details on ketones and illness found in "My Health Record", Page | 23 of the Information Section

Call for advice if:

1. requiring 3 or more Ketone Doses in a row.
2. vomiting persists.
3. child looks ill (sleepy, dry mouth, sunken eyes).

OR YOU ARE *WORRIED FOR ANY REASON*

* Ketones are *very dangerous* & **must** be dealt with as quickly as possible.