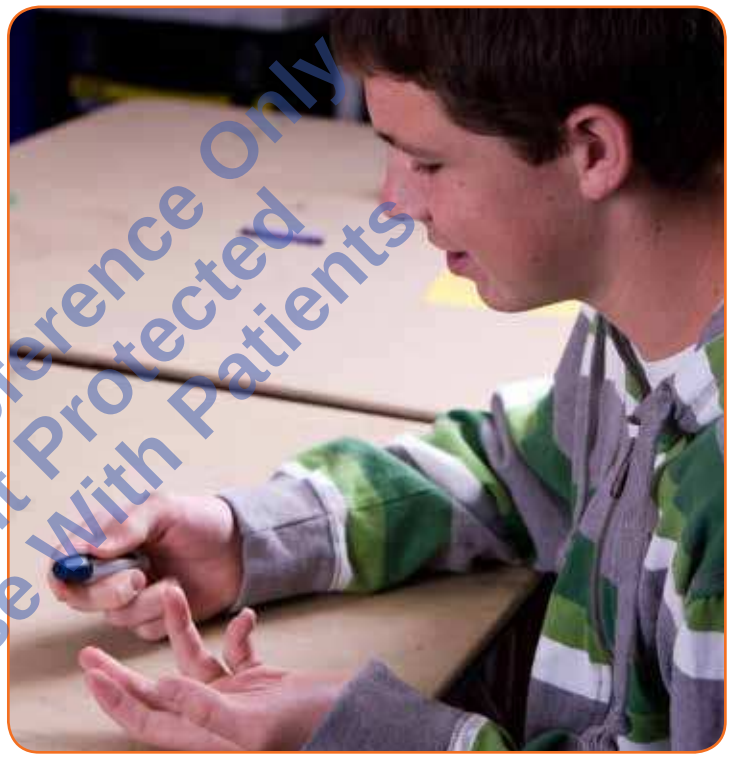
Corrections

It is important to stay within your target blood glucose range. Your target range is _____ mmol/l.



Sometimes it can become higher than this. Reasons that your blood glucose can be high include a mistake counting your carbohydrate, missing a bolus or a rebound from hypoglycaemia.

Your diabetes team will guide you on if, when and how you should use a correction bolus depending on your treatment plan.

- Bolus insulin lasts for about 4 hours with a peak around 2 hours after you take it. To avoid unnecessary corrections, you may be advised to only take corrections with your meal bolus.
- If you use a smart meter or bolus advisor, it will instruct correction doses that consider the active insulin in your body.
- Aim to test your blood glucose within 60-90 minutes of taking a correction. If your blood glucose is still above target, consider how much active insulin is in your body and follow your diabetes team's guidance to get back on target without risking a hypo.
- Do not apply a correction dose if you have treated a hypo recently – high blood glucose following a recent hypo may be a rebound.

You should correct when your blood glucose is above _____ mmol/l.

You should aim to get your blood glucose level to _____ mmol/l.

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Corrections checklist:

- Always check for ketones when your blood glucose is more than 14mmol/l.
- Give a maximum correction dose of _____ units.
- If your blood glucose meter reading is 'HI', your blood glucose is over _____ mmol/l. Bolus meters may not provide correction guidance if it gives a 'HI' reading.
  - Check for ketones
  - Contact your diabetes team
- Follow your diabetes team's guidance and use this leaflet to help you to safely correct your blood glucose.

Calculating your corrections

Calculating your correction factor (CF) or insulin sensitivity factor (ISF) will help you work out necessary correction boluses. Your CF/ISF is the amount that 1 unit of bolus insulin will reduce your blood glucose.

A useful way to work out your CF/ISF is the 100 rule.

The 100 rule:	For example:
1. Add up your typical total daily insulin (basal and bolus)	**1.** Charlie normally has 22 units of basal insulin and 5 bolus units with breakfast and lunch, and 8 units with his dinner. Charlie's daily insulin = 22 + 5 + 5 + 8 = 40 units
2. Divide 100 by this amount (100 ÷ total insulin)	**2.** Charlie's CF = 100 ÷ 40 = 2.5
3. This is your CF/ISF.	**3.** Charlie would use 1 unit of bolus insulin to reduce his blood glucose by 2.5mmol/l.

Use the space below to work out your correction/insulin sensitivity factor.

Charlie's target blood glucose is between 4 and 7mmol/l. Look at how he works out his correction bolus to help you calculate your correction if your blood glucose is above target.

	For example:
1. Subtract your target blood glucose from your current level to work out how much it needs to fall.	Charlie tests his blood glucose before his meal. It is 17mmol/l so he has to have a correction bolus. **1.** Charlie's blood glucose needs to fall into his target range. 17 - 7 = 10mmol/l
2. Calculate your CF/ISF.	**2.** Charlie's CF = 100 ÷ 40 = 2.5
3. Divide your desired fall by your CF/ ISF.	**3.** Charlie's correction bolus insulin dose =10 ÷ 2.5 = 4

Charlie should have a 4 unit correction insulin bolus in addition to his meal bolus. He should also continue to check his blood glucose regularly to make sure that it is working.

Use the space below to work out how you would correct your blood glucose if it was 12.5mmol/l.

Try this again. This time work out how you would correct your blood glucose if it was 18.5mmol/l.

It is important to correct high blood glucose. However, if you regularly have to take correction boluses, you may need to change your ICR or your basal dose. Discuss this with your diabetes team.

Once you know your CF/ISF and how much your blood glucose needs to fall, use the chart below to find your correction bolus.

Read along the bottom (yellow) line to your CF/ISF, then up the side (red) column to the amount that your blood glucose needs to fall. Your correction bolus is at the point where the lines meet.

If your insulin pen has half units, round to the nearest half unit; if it only has whole units, round to the nearest whole unit.

Correction bolus

Reduction in blood glucose required (mmol/l)

18	36	18	12	9	7	6	5	4.5	3.5	3	2.5	2.5	2	2
17	34	17	11.5	8.5	7	5.5	5	4.5	3.5	3	2.5	2	2	1.5
16	32	16	10.5	8	6.5	5.5	4.5	4	3	2.5	2.5	2	2	1.5
15	30	15	10	7.5	6	5	4.5	3.5	3	2.5	2	2	1.5	1.5
14	28	14	9.5	7	5.5	4.5	4	3.5	3	2.5	2	1.6	1.5	1.5
13	26	13	8.5	6.5	5	4.5	3.5	3.5	2.5	2	2	1.5	1.5	1.5
12	24	12	8	6	5	4	3.5	3	2.5	2	1.5	1.5	1.5	1
11	22	11	7.5	5.5	4.5	3.5	3	3	2	2	1.5	1.5	1	1
10	20	10	7	5	4	3.5	3	2.5	2	1.5	1.5	1.5	1	1
9.5	19	9.5	6.5	5	4	3	2.5	2.5	2	1.5	1.5	1	1	1
9.0	18	9	6	4.5	3.5	3	2.5	2	2	1.5	1.5	1	1	1
8.5	17	8.5	5.5	4.5	3.5	3	2.5	2	1.5	1.5	1	1	1	1
8.0	16	8	5	4	3	2.5	2	2	1.5	1.5	1	1	1	1
7.5	15	7.5	5.0	4	3.0	2.5	2	2	1.5	1.5	1	1	1	1
7.0	14	7	4.5	3.5	3	2	2	2	1.5	1	1	1	1	0.5
6.5	13	6.5	4.5	3.5	2.5	2	2	1.5	1.5	1	1	1	0.5	0.5
6.0	12	6	4	3	2.5	2	1.5	1.5	1	1	1	1	0.5	0.5
5.5	11	5.5	3.5	3	2	2	1.5	1.5	1	1	1	0.5	0.5	0.5
5.0	10	5	3	2.5	2	1.5	1.5	1	1	1	0.5	0.5	0.5	0.5
4.5	9	4.5	3	2.5	2	1.5	1.5	1	1	1	0.5	0.5	0.5	0.5
4.0	8	4	2.5	2	1.5	1	1	1	1	0.5	0.5	0.5	0.5	0.5
3.5	7	3.5	2.5	2	1.5	1	1.0	1	0.5	0.5	0.5	0.5	0.5	0.5
3.0	6	3	2.0	1.5	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2.5	5	2.5	1.5	1.5	1.0	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
2.0	4	2	1.5	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0
1.5	3	1.5	1.0	1	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0	0
1.0	2	1	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0
0.5	1	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0	0
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	5.0	6.0	7.0	8.0	9.0	10.0

CF/ISF

(The amount one bolus unit will reduce my blood glucose by (mmol/l))

Always check for ketones and contact your diabetes team if your correction bolus is over _____ units.

For example:

- Amy's CF is 2.0.
- Her target blood glucose is 4.0 to 7.0.
- She is about to have her lunch and has tested her blood glucose. It is 12.5.
- She needs to reduce her blood glucose by at least 5.5 (12.5 - 7.0 = 5.5).
- She uses the correction to check where her CF (2.0) and blood glucose reduction (5.5) meet.
- Amy should have the correction bolus noted at the point where the lines meet – 3 units.
- Amy calculates that her lunch has 50g of carbohydrate.
- Her ICR is 1:10, so she needs a food bolus of 5 units (50 ÷ 10 = 5).
- She needs to take her meal bolus (5) plus her correction bolus (3). Therefore her bolus is 8 units in total (5 + 3 = 8 units).

Correction bolus

Reduction in blood glucose required (mmol/l)	CF/ISF													
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	5.0	6.0	7.0	8.0	9.0	10.0
18	36	18	12	9	7	6	5	4.5	3.5	3	2.5	2.5	2	2
17	34	17	11.5	8.5	7	5.5	5	4.5	3.5	3	2.5	2	2	1.5
16	32	16	10.5	8	6.5	5.5	4.5	4	3	2.5	2.5	2	2	1.5
15	30	15	10	7.5	6	5	4.5	3.5	3	2.5	2	2	1.5	1.5
14	28	14	9.5	7	5.5	4.5	4	3.5	3	2.5	2	1.6	1.5	1.5
13	26	13	8.5	6.5	5	4.5	3.5	3	2.5	2	2	1.5	1.5	1.5
12	24	12	8	6	5	4	3.5	3	2.5	2	1.5	1.5	1.5	1
11	22	11	7.5	5.5	4.5	3.5	3	3	2	2	1.5	1.5	1	1
10	20	10	7	5	4	3.5	3	2.5	2	1.5	1.5	1.5	1	1
9.5	19	9.5	6.5	5	4	3	2.5	2.5	2	1.5	1.5	1	1	1
9.0	18	9	6	4.5	3.5	3	2.5	2	2	1.5	1.5	1	1	1
8.5	17	8.5	5.5	4.5	3.5	3	2.5	2	1.5	1.5	1	1	1	1
8.0	16	8	5	4	3	2.5	2	2	1.5	1.5	1	1	1	1
7.5	15	7.5	5.0	4	3.0	2.5	2	2	1.5	1.5	1	1	1	1
7.0	14	7	4.5	3.5	3	2	2	2	1.5	1	1	1	1	0.5
6.5	13	6.5	4.5	3.5	2.5	2	2	1.5	1.5	1	1	1	0.5	0.5
6.0	12	6	4	3	2.5	2	1.5	1.5	1	1	1	1	0.5	0.5
5.5	11	5.5	3.5	3	2	2	1.5	1.5	1	1	1	0.5	0.5	0.5
5.0	10	5	3	2.5	2	1.5	1.5	1	1	1	0.5	0.5	0.5	0.5
4.5	9	4.5	3	2.5	2	1.5	1.5	1	1	1	0.5	0.5	0.5	0.5
4.0	8	4	2.5	2	1.5	1	1	1	1	0.5	0.5	0.5	0.5	0.5
3.5	7	3.5	2.5	2	1.5	1	1.0	1	0.5	0.5	0.5	0.5	0.5	0.5
3.0	6	3	2.0	1.5	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2.5	5	2.5	1.5	1.5	1.0	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0
2.0	4	2	1.5	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0
1.5	3	1.5	1.0	1	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0	0
1.0	2	1	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0
0.5	1	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0	0

(The amount one bolus unit will reduce my blood glucose by (mmol/l)

REMEMBER:

- You can bring high blood glucose back into target with a correction bolus of insulin.
- Give a maximum correction dose of _____ units.
- Check for ketones if your blood glucose is more than 14mmol/l, then follow your diabetes team's guidance if ketones are present.
- Your correction/insulin sensitivity factor (CF/ISF) is how much 1 unit of bolus insulin will reduce your blood glucose.
  - Your sensitivity to insulin (CF/ISF) can change with activity, heat and/or stress, for example exercise can make you more sensitive to insulin, in turn increasing your CF/ISF. Discuss this with your diabetes team.

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This information is based on information originally developed by NHS Borders. It has been reviewed and updated for Nutrition and Diet Resources UK (NDR-UK) with the kind support of dietitians and related health and care professionals. At the time of publication the information contained within the resource was, to the best of our knowledge, correct and up-to-date. Always consult a suitably qualified dietitian and/or your GP on health problems. NDR-UK cannot be held responsible for how clients/patients interpret and use the information within this resource. Visit www.ndr-uk.org for more information and to contact the team on the development and evidence supporting this resource.

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