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Diabetes Medical Management Plan

| | |
|-----------------------------------|--|
| Child's Name | |
| School/Nursery | |
| Group/class/form | |
| Date of Birth | |
| Child's address | |
| Medical condition | |
| Date Completed | |
| Review Date | |
| Family Contact Information | |
| Name | |
| Phone no. (home) | |
| Mobile no. | |
| Work no. | |
| Name | |
| Phone no. (home) | |
| Mobile no. | |
| Work no. | |
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Introduction

This document provides staff with a guide to managing diabetes during school hours / school trips; to define responsibilities and to reduce the risk of acute diabetes complications.

X has Type 1 diabetes, which means that the cells in the pancreas that produce insulin have been destroyed and are no longer able to produce insulin. Insulin is essential to enable the body to use glucose for energy. Glucose is produced by the body when eaten in the form of carbohydrates, and it also arises naturally out of body processes. Without insulin, the body cannot use the glucose and it will build up in the blood stream. This can quickly reach high levels which can cause the child to become very unwell.

Diabetes cannot be cured, but it can be treated effectively by giving insulin. **X** uses an insulin pump to deliver the insulin. The aim of treatment is to keep the blood glucose level close to the normal range (4–8mmol, rising to no higher than 10mmol two hours after a meal) so it is neither too high (hyperglycaemia) nor too low (hypoglycaemia, also know as a hypo). Keeping blood glucose levels within this range for as much time as possible reduces the risk of developing long term complications. Staff therefore play an important role in this by doing monitoring blood glucose levels and using the insulin pump to deliver insulin for food whilst at school.

Please ensure that all staff are aware **X** that has diabetes and wears an insulin pump. It is important that all staff know how to treat a hypoglycaemic episode and the location of the “hypo treatment box” and how to respond in the event of a pump problem.

While at school/nursery, a key worker will be responsible for **X** daily care and in case of emergency or in his/her absence an alternative named member of staff will be responsible.

Notify parents/ in the following situations: In cases of hyperglycemia, hypoglycemia, when the set site needs to be changed and generally at times of uncertainty it is preferable to contact the parents.

Routine tasks that staff will be involved in

- (1) Blood glucose monitoring
- (2) Delivering a bolus for food
- (3) Corrections to high and low blood glucose readings
- (4) Identify and respond to alarms
- (5) Sensor monitoring

1) Blood glucose monitoring

- X is unable to do his/her own blood glucose tests, therefore it has been agreed that the key worker will be responsible for this and in his/her absence there will be another nominated member of staff identified to the parent.

Procedure for blood glucose testing

Equipment needed: Blood glucose meter, test strips, finger-pricking device, lancet, sharps bin and cotton wool/tissue.

- Ensure child washes their hands and dries them thoroughly. (warm up cold hands up in water).
- Insert lancet into finger pricking device and prepare device as taught.
- Insert test strip into the meter.
- Prick the side of the finger (it is less painful than the finger tips) and wipe away the first drop of blood with cotton wool.
- Squeeze a small drop of blood by milking the finger from the base to the tip.
- Hold the test strip to the blood and allow the strip to suck up the blood. The meter will beep or the display will start counting down when enough blood is received.
- After a few seconds the blood glucose level should appear on the screen. (If an "error" appears on screen this may be due to insufficient blood sample therefore repeat the test. If problem persists, refer to meter reference guide or contact parents for advice.)
- Dispose of lancet and test strip as taught.
- Record blood glucose result.

There are many different types of blood glucose meters, each requiring a slightly different method of use. The above is only a guide – always perform/supervise the test as taught by the children's diabetes nurse specialist.

Usual times to check blood glucose:

- Parent will notify staff of most recent blood glucose test on arrival, and this will be noted in the log book. If parent feels there is a need, this will be done on arrival at school/nursery.
- Before mid morning or mid afternoon snack
- Before lunch

Times to do extra blood glucose checks:

- If child is 'hypo' or unwell; **See section 3 below for symptoms of hypoglycaemia (low blood sugar levels)**
- if staff are concerned about child's behaviour in any way;
- if child has been involved in extended exercise, not usual to normal routine;
- if staff suspect that there is a problem with the pump connection site.

- Target range for blood glucose is **4-14 mmols/l**
- **Any blood glucose level outside of this target range should be acted upon, following the instructions in this management plan.**
See section (3) below for corrections to high and low blood glucose readings
- Results of any tests taken should be recorded in the log book with the date and time and communicated with the parents at the end of each session.

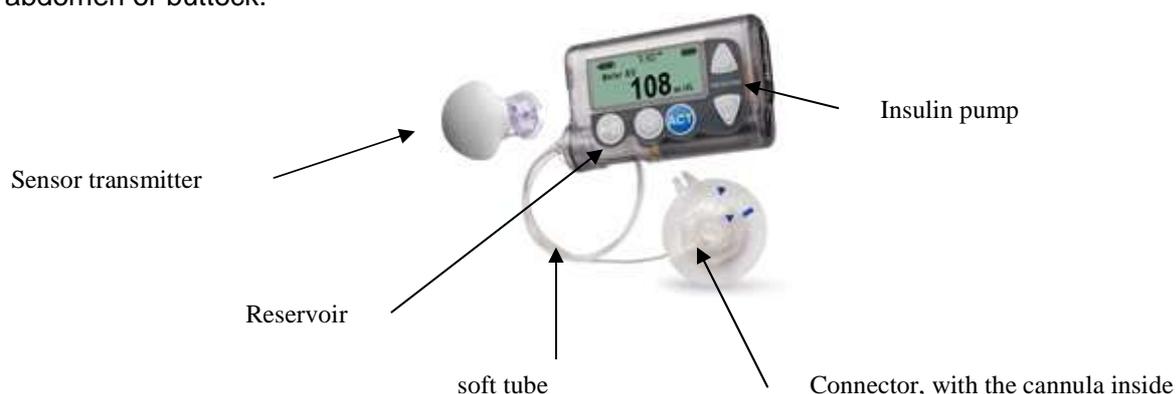
Insulin Pump (Medtronic Paradigm 522)

The insulin pump is powered by one AAA battery. The insulin pump performs two main functions:

- (1) It delivers insulin constantly over a 24 hour period, known as the basal rate (school need to be aware of this but will not be required to make any changes).
- (2) It can be used to deliver additional insulin when food is eaten, known as giving a bolus for food. Staff will need to do this at snack and lunchtime. (or as discussed)

How the pump is attached

Insulin is stored in the reservoir and the pump delivers the insulin through a thin soft tube – which enters under the skin at the end of the tube through an even smaller, softer tube called a cannula. The cannula is held in place by a white circular plaster. This is locked into place by the connector. The connector is locked when the triangle lines up with the line on the plaster. The whole attachment is referred to as a set. The set is then attached to the lower abdomen or bottom. If a sensor is used, a separate sensor transmitter will be inserted on the other side of abdomen or buttock.



Practical issues for staff to be aware of

- Please **ensure at the start of the session that the pump is locked** by trying to press the ACT key. If it is not please lock it, to avoid the buttons being accidentally pressed.
- Please **ensure that the pump does not get wet.**
- If the child falls on his/her bottom or appears to catch the set, please **check to see if it still looks firmly in place**, in the locked position and it has not been yanked out.
- If wearing a sensor, also check to see if this has been knocked.
- Please could staff check that the **tube is not dangling down to avoid it getting caught when the child is playing.** Handle the tube gently, do not bend it. It can be tucked inside the trousers or loosely coiled in the pump case.
- When using the toilet, please could staff make sure that the connector doesn't get caught/pulled when he/she is pulling clothing up.
- If there are any incidences which may have affected the set/ sensor, please note the incident in the log book. It will help us understand if there are any problems later in the day.

Supplies to be kept at School

- Fast-acting sources of glucose: honey, fruit pastilles, apple juice, lucozade, coke (non diet)
- Snacks: e.g. biscuits, carbohydrate snacks
- Glucagel (formerly known as Hypostop)
- Spare set change kit
- Spare insulin, pen and needles
- Blood glucose test kit, strips and lancets

How the pump works

The diagram below details the different buttons on the pump which are used to navigate through the menus and screens, and to program the features of the pump.

The buttons on the pump are used to navigate through the menus and screens, and to program the features of the pump.



From the HOME screen

 EASY BOLUS button—Shortcut to set and deliver an Easy Bolus.

 Turns the backlight on/off from the HOME screen.

 Opens the MAIN MENU.

 If Sensor is Off:
Opens the pump STATUS screen.
If Sensor is On:

1 press shows a 3-hour sensor glucose graph,
2 presses shows a 24-hour sensor glucose graph,
3 presses opens the pump STATUS screen,
4 presses opens the sensor STATUS screen.

From the menus and programming screens

 Increases / decreases the value of a flashing item.

 Scrolls up and down the items in a list.

 Accepts a selected menu item or activates a selected setting.

 Returns to previous screen. Backs out of unintentional menu selections if the ACT button has not been pressed yet.

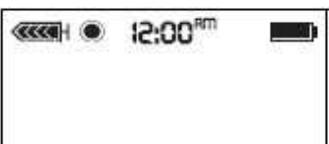
 EXPRESS BOLUS button: Short-cut to the SET BOLUS MENU or Bolus Wizard to set up any bolus.

Press simultaneously with  to turn on backlight when in the menus or press as a "shift" button in combination with another button to access certain features.

Pump operating modes

The screen lets you know when a special feature is active or there is a situation that needs your attention.

The three modes are:

| Screen | Explanation |
|---|---|
|  <p data-bbox="293 689 432 719">Normal Mode</p> | <p data-bbox="608 533 1353 622">Mode for standard pump operations for normal basal and bolus delivery. No special features are active. No alarms or alerts exist.</p> |
|  <p data-bbox="300 880 437 909">Special Mode</p> | <p data-bbox="608 719 1369 936">This indicates an active or alert condition exists. None of the pump functions are restricted. An open circle appears at the top of the screen indicating that the pump is in special mode. It will also beep or vibrate periodically to remind you of the condition. Conditions which will put the pump in special mode are:</p> <ul data-bbox="608 936 895 1032" style="list-style-type: none"> <li data-bbox="608 936 895 965">• Low insulin reservoir <li data-bbox="608 965 895 994">• Low battery <li data-bbox="608 994 895 1023">• Sensor alerts <p data-bbox="608 1055 1337 1115">See Section 4 for more information on dealing with alarms and alerts.</p> |
|  <p data-bbox="288 1276 443 1305">Attention Mode</p> | <p data-bbox="608 1115 1369 1384">This needs urgent attention as insulin delivery has stopped. The pump is in suspend mode. It can also mean an alarm is active or an alarm condition exists that needs immediate attention for insulin delivery to resume. A solid circle appears at top of the screen and the pump will beep and vibrate periodically until the pump is taken out of suspend mode or the condition is cleared. The beep frequency depends on what condition put the pump in Attention mode.</p> <p data-bbox="608 1415 1369 1509">The screen will show text describing the condition that put the pump in Attention mode. Follow instructions on screen. Call parents if necessary.</p> |

2) Delivering a bolus for food

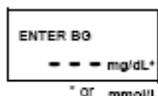
The pump is used to deliver the right amount of insulin for the amount of food that has been eaten.

Snack time/ Lunchtime procedure

- Do a blood glucose test. Note reading in log book.
- Snack time: Parents will develop, in conjunction with staff, a list of carbohydrate values to give for snack items usually eaten at nursery/school. If staff are unsure of the values of any food, please contact parent.
- Birthday cakes etc: It would be helpful if there was going to be cake or treat at school on a particular day, staff could let parents know who would then be able to suggest the appropriate carbohydrate amount to use. (or contact parent for advice)
- Lunchtime: packed lunch items will be clearly marked with the total amount of carbohydrate for each item.
- Before the child has eaten his/her snack or lunch, the key worker (or an alternative adult) will need to bolus for the amount of the carbohydrate as per instructions by the parent for food **using the bolus wizard** (see below) to deliver the correct amount of insulin for what is eaten.
- If the child doesn't finish something, staff will need to make a best guess of how much has been eaten and subtract the amount off that is left. I.e if a sandwich was 20 g of carbohydrate and only $\frac{3}{4}$ of it eaten, then this would be 15g of carbohydrate. 15g would be the amount to input in the bolus wizard.
- Please would staff make a note in the log book of any of these estimates, as this will allow parents to make any necessary adjustments at the end of the session. Leave any uneaten food in the lunch box, so parents can better understand blood glucose levels.
- Please write in the log book when and how much insulin was delivered.

Using the bolus wizard

- 1) Check the log book to make sure someone else hasn't already given the food bolus.
- 2) To unlock the pump, press  (B button) and the UP arrow at the same time.
- 3) Press  (B button) on the pump. *The ENTER BG screen will appear.*
- 4) Enter your BG value. Press ACT



If the blood glucose is less than 4 mmols treat for hypoglycaemia first. (see section 3) Once the child has recovered allow them to eat lunch and then give a bolus of insulin for the food.

- 5) In the ENTER FOOD screen, enter the amount of carbohydrate that has been eaten and press ACT.

| if this is a food bolus: | if this is a correction bolus: |
|---|--|
| enter the food value you will eat and press ACT . | select 0 (zero) as the value and press ACT . |
| <p>ENTER FOOD 45 grams* * or exoh (flashing)</p> | <p>ENTER FOOD 0 grams* * or exoh (flashing)</p> |

- 6) Review the information in the ESTIMATE DETAILS screen.

| ESTIMATE DETAILS | (values shown are for example only) |
|-------------------|-------------------------------------|
| Eat total: 4.0U | |
| Food Intake: 46gr | |
| (Meter) BG: 180 | |
| Food: 3.0U | |
| Correction: 2.0U | |
| Active Ins: 1.0U | |
| ACT to proceed. | ESC returns to the ENTER BG screen |
| ESC to back up | |

ACT to continue

Note: If blood glucose level is high prior to food, the wizard will automatically calculate a correction dose.

Press **ACT** to continue.

- 7) Before delivering the bolus, get a second member of staff to check the amounts. **Take particular care to check that the decimal point is in the right place.**

If you need to make any changes, press **ESC** to return to the ENTER BG screen (step 3) and make changes as necessary.

- 8) Press Act to accept normal bolus. Amount will then flash. Press **ACT** to accept and start delivery of the bolus.

| SET BOLUS |
|-----------------------|
| Estimate 4.0 U |

ACT to accept

The BOLUS DELIVERY screen appears. The pump will beep or vibrate at the start and end of the bolus. As the bolus is delivered, the screen shows the bolus type and amount until the total units have been delivered. The screen then defaults to the home screen.

| BOLUS DELIVERY |
|-------------------|
| 3:24P 0.1U |
| NORMAL |

- 9) Make sure after delivering the bolus that the key pad has been relocked. See section below on locking pump.
- 10) Write in the log book the time insulin was given and by who.

3) Corrections to high and low blood glucose readings

Hypoglycaemia (Low Blood Sugar) less than 4mmols

**Treat hypos immediately you are aware of them; if left untreated the situation will worsen.
The child should not be left unsupervised when he/she is having a hypo.**

Symptoms and awareness are not consistent; sometimes the child will appear completely normal but is in fact very low.

A child can show any of the following symptoms if the blood glucose level is low:

- Look very pale and sometimes sweaty.
- May ask for food; complain of tummy ache (hunger).
- May be shaking.
- May be “wobbly” unsteady.
- May complain of a headache or feel unwell.
- Be grumpy, silly or have challenging behaviour – different to their usual behaviour patterns.
- Poor concentration, sleepy. A young child will often lie on the floor when he/she is having a hypo saying they are tired.

Treating hypoglycaemia (hypo)

If you test for a hypo, please treat blood glucose readings as follows.

Note: Child must be alert and responsive before treatment otherwise see severe hypoglycaemia

| Blood Glucose Reading | Staff response |
|--|--|
| less than 6 and more than 4mmol/l | If lunch is due give lunch and calculate bolus using bolus wizard and give mid way through lunch. Otherwise give small snack containing carbohydrate but do not give insulin for this. (plain biscuit or piece of fruit) |
| 4 - 3.5 mmols He/she is having a hypo. | Give fast acting glucose i.e. 100mls coke or 50mls lucozade as agreed. Or 3-5 fruit pastilles Retest in 10 mins Repeat if Blood glucose remains low |
| 3.5mmol or less | Give fast acting glucose as above. Retest in 10 mins For these lower blood glucose levels a carbohydrate snack or the next meal should be eaten. |
| | |

- If blood glucose is still low 'suspend' the pump (or disconnect at the site) until blood glucose naturally rises. **Call parent to advise that you are doing this.**
- Re check blood glucose in 10 mins

Moderate Hypoglycaemia

- If drowsy and unable to eat /drink, disconnect or suspend the pump
- and then give GlucaGel.
- Squirt the 25 gram tube into the mouth, between the cheeks and the teeth.

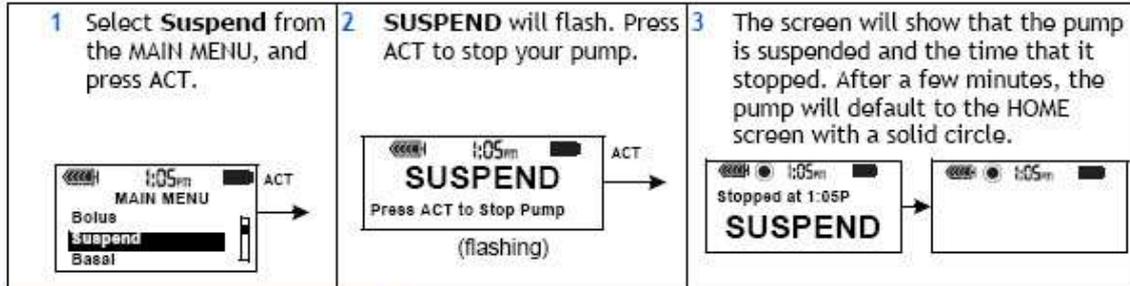
Severe Hypoglycaemia

If child is unconscious or you are unable to rouse them or he/she is having a seizure:

- Place them in the recovery position
- Call 999 for an ambulance.
- Do not put anything in mouth.
- Disconnect or suspend the pump.
- Inform parents as soon as possible.

Suspending the pump

The pump can be stopped with the suspend function. Suspend stops all basal and bolus insulin delivery. When the pump is resumed, the basal insulin will automatically restart. The pump will beep every 15 minutes to remind you that the pump is in suspend mode.



NOTE - Press ESC once (three times if the Sensor feature is ON) to view the STATUS screen and verify that your pump is suspended.

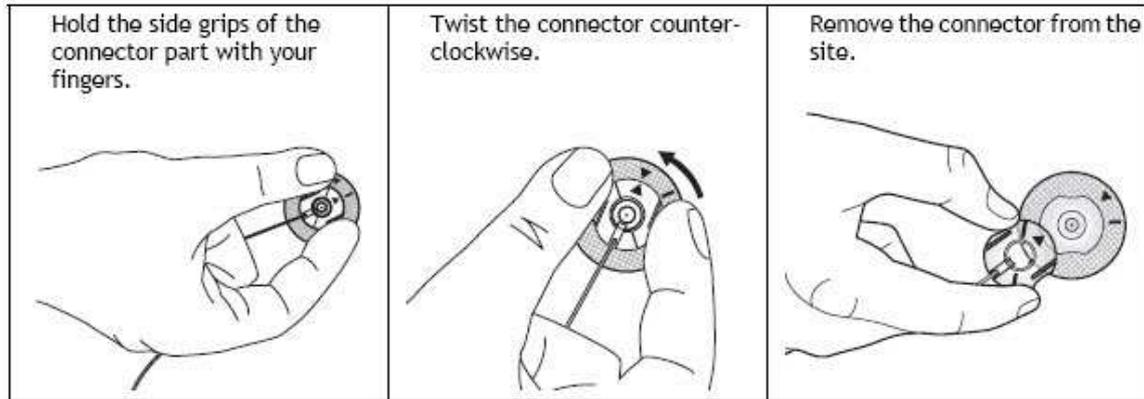
STATUS U100
Suspended at 01:05P
Last Bolus N 3.8U
7:58A 22 FEB

If the pump has been suspended for more than 1 hour please inform parent

Disconnecting the site

Disconnecting Quick-set

The Quick-set allows you the freedom to temporarily disconnect from your pump without removing the infusion set from your body.



Moderate Hypoglycaemia

- If drowsy and unable to eat /drink, disconnect or suspend the pump
- and then give GlucaGel.
- Squirt the 25 gram tube into the mouth, between the cheeks and the teeth.

Severe Hypoglycaemia

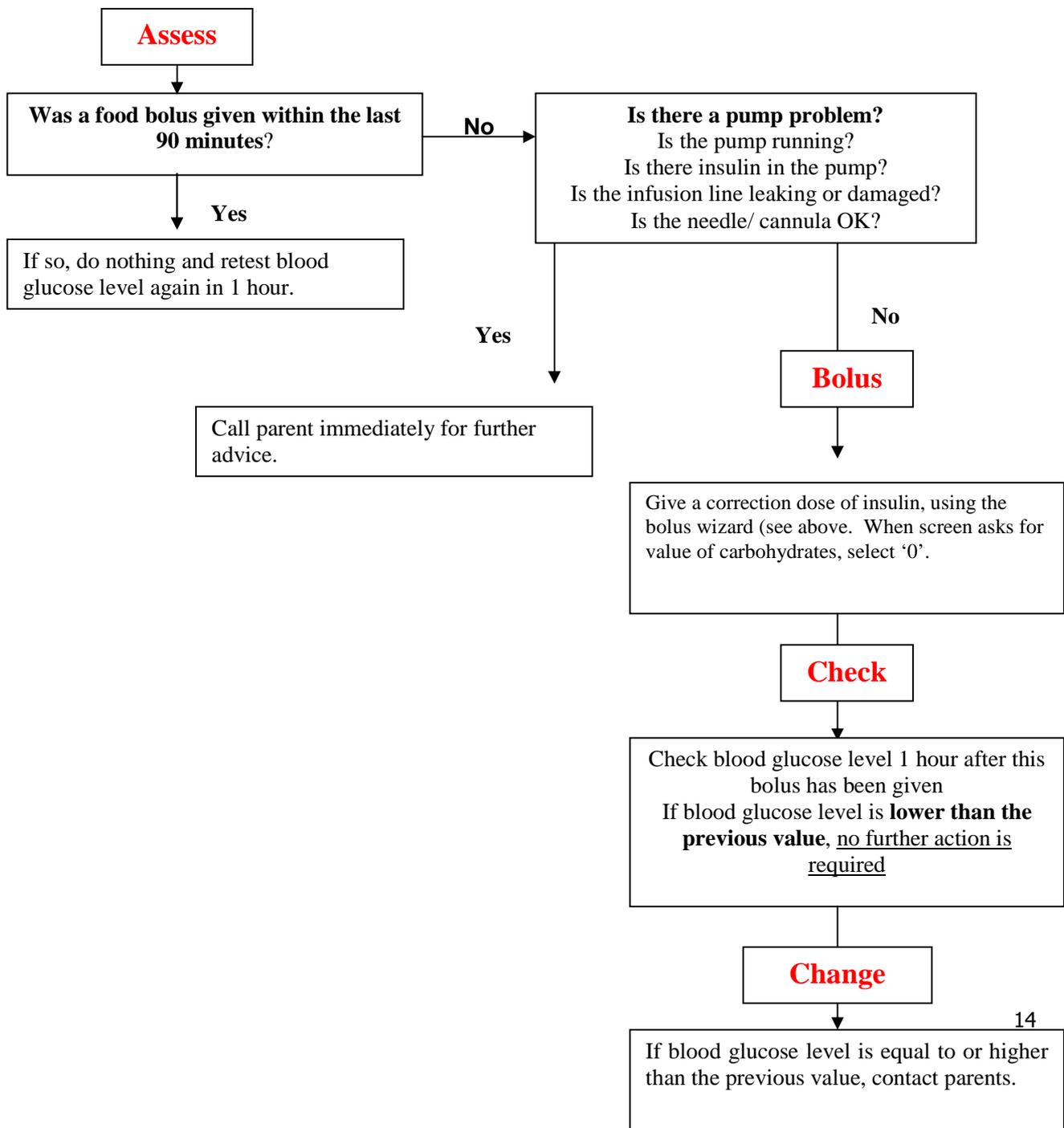
If child becomes unconscious or you are unable to rouse them or he/she is having a seizure, place her in the recovery position and call for an ambulance 999. Do not put anything in mouth. Then inform parents.

Hyperglycemia (High Blood Sugar)

Staff need to be aware that when blood glucose levels are high the child may need to urinate more often, be thirsty and ask for drinks more, may be flushed and/ or irritable. This means he/she will need to be encouraged to go to the loo more often to prevent accidents, and have access to drinking water.

If the blood glucose level is above the target range of **14 mmols at snack time or lunch time**, follow the **ABCC**.

If the child seems unwell, particularly if there is any vomiting or complains of tummy ache, call parents immediately for advice.



4) Identify and respond to alarms

The pump has a combination of 'alarm' and 'error' messages that are both visual and audible.

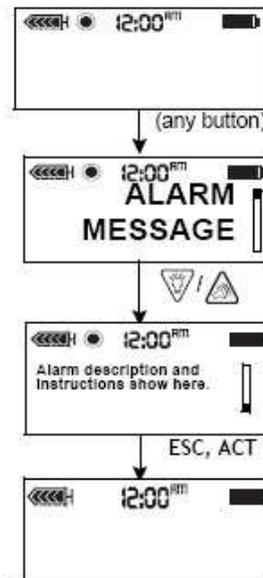
If an alarm is triggered, you will need to read the message on the pump's screen and clear the alarm. If you have any question about an alarm message, please phone parent immediately.

| Alert | Meaning | Staff action |
|----------------------------|---|---|
| Error alarm (EXX) | This results in all settings needing to be reprogrammed into the pump. | Parents should be contacted immediately and told the message displayed on the visual screen. |
| Low reservoir volume alert | The insulin in the pump is below a certain level. | Note in log book. Let parent know at the end of the school day. The reserve tank setting is set for 24hours. |
| Low battery condition | A 'low battery' alarm goes off, this means that only 10% of the battery power is left | Note in log book. Let parent know at the end of the school day. There is sufficient to last until the end of the school day and the pump will continue. Deal with alarm as noted below in Section 3. |
| Sensor alerts | The blood glucose is out of range and an alarm will sound. | Deal with as below in Section 4. |

What to do

When an alarm is triggered, the pump goes into Attention mode and an alarm message shows on the screen. The pump then defaults to the HOME screen. Do these steps when you get an alarm:

- 1 **View the alarm:**
From the HOME screen, press any button to see the alarm message.
- 2 **Read all of the alarm text.** There are instructions on how to fix the alarm condition. (Press  to read more text, if available.)
- 3 **Clear the alarm:**
Press ESC then ACT after you read the alarm instructions.
- 4 The HOME screen appears.
- 5 Follow the instructions that appeared with the alarm to fix the alarm condition.
- 6 Check your settings (i.e., time/date, basal, etc.) to make sure they are correct.



Remember to relock the pump after clearing the alarm.

Key pad lock

Lock keypad prevents accidental keypad presses. The only screen you can access if the STATUS screen. The remote control can be used to give a bolus or put the pump into suspend.

A lock keypad is automatically unlocked during the following:

- Battery insertion
- Alarms
- Alerts

To lock keypad

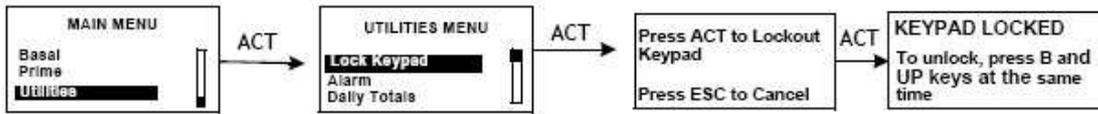
- 1 Go to the Lock Keypad screen

Main > Utilities > Lock Keypad

- 2 Select **Utilities**
Press ACT.

- 3 Select **Lock Keypad**
Press ACT.

- 4 Press ACT to lock keypad.



To unlock keypad

- 1 Press  and  at the same time.

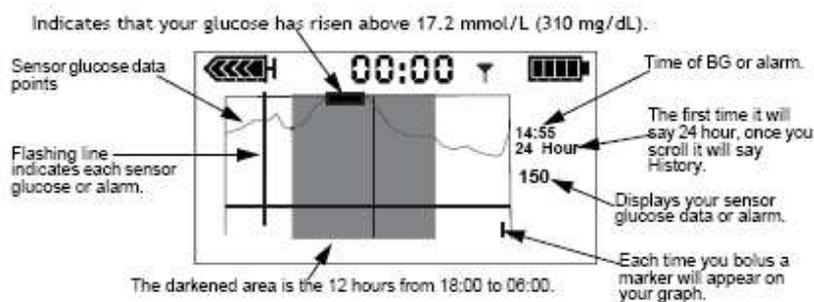
KEYPAD UNLOCKED

5) Continuous Glucose Monitoring / Wearing a sensor

There will be times when a continuous glucose sensor that monitors the glucose level constantly is worn also. This enables us to see trends and patterns and to check whether we have got the pump set up in the best way to meet the child's routine, minimising the incidences of hypoglycaemia and hyperglycemia.

Whilst he/she is wearing the sensor, it is an additional resource for staff, as the pump will display an average glucose reading every 5 minutes and alarm when the glucose level goes outside target range.

The screen should be checked periodically within the school environment (or when it alarms)



- ↑ = 1.1-2.2mmol/l raise within last 20 min
- ↑↑ = 2.2mmol/l or more raise within last 20 min
- ↓ = 1.1-2.2mmol/l reduction within last 20 min
- ↓↓ = 2.2mmol/l or more reduction within last 20 min

As there is a slight data discrepancy between the way sensor reads glucose levels and blood glucose readings, **any suspected high or low glucose level should be confirmed with a finger prick blood glucose level before taking any action.** Any blood glucose level that is outside of the target range should be acted upon (**using the bolus wizard**) following the instructions in this management plan.

