

# DIABETES MANAGEMENT PLAN 2024 Insulin Pump

## EARLY CHILDHOOD CENTRE

Use in conjunction with Diabetes Action Plan.  
This has been developed by specialist diabetes clinicians.

*As kaitiaki (carers/guardians) of diabetes related services, it is a collective responsibility to establish an environment that facilitates a pathway for people with diabetes to navigate te ao mate huka - the world of diabetes<sup>1</sup>.*

Child's name:	Age:	Date:
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### RESPONSIBLE STAFF

Centre staff who have voluntarily agreed to undertake training and provide support with diabetes care to the child.

Responsible staff will need to receive training on how to check glucose levels and how to put information into the pump and how to administer insulin via the insulin pump or injection if required.

The Centre manager /director is responsible to ensure the appropriate documentation is completed for staff who are required to administer / supervise insulin given via the pump or injection.

List below and tick those that apply.

Staff's name/s:	Glucose checking	Insulin administration

### INSULIN PUMP

The child wears an insulin pump that continually delivers insulin.

Insulin Pump model:
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**The responsible trained centre staff will need to be able to: (tick all those that apply)**

Count carbohydrate foods (Parent /caregiver will label all food)

Enter glucose levels into pump

Enter grams of carbohydrate food into pump

Do a 'correction dose' as per Diabetes Action Plan

Disconnect & reconnect pump if needed

**Information on how to do this will be provided by the parent / caregiver**

### NOTES

- Parent / caregiver will determine insulin doses and any pump setting adjustments that need to be made.
- Parent / caregiver will need to be contacted to troubleshoot any pump alarms or malfunctions
- If the cannula comes out, a new pump cannula will need to be inserted by the parent / caregiver.
- If the cannula comes out and the parent / caregiver cannot be contacted, contact the child's Diabetes Medical Team.

## GLUCOSE LEVEL (GL) CHECKING

Target range for blood glucose levels (GLs): 4 – 8 mmol/L

- GL results outside of this target range are common
- GL check should be done where the child is, whenever needed
- The child should always wash and dry their hands when doing a BGL check via finger prick.

Glucose levels will vary day-to-day and be dependent on a number of factors such as:

- Insulin Dose
- Excitement / stress
- Age
- Growth spurts
- Type/quantity of food
- Level of activity
- Illness / infection

### Times to check GLs (tick all those that apply)

Anytime, anywhere

Before snack

When feeling unwell

Before activity

Before lunch

Anytime hypo suspected

Other routine times - please specify:

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A finger prick (blood glucose check) is required if GL is less than 4.0 mmol/l or greater than 15.0 mmol/l. Refer to diabetes action plan.

### AND/OR

If the meter reads **LO** this means the BGL is too low to be measured by the meter

Follow the **Hypoglycaemia** (Hypo) treatment on Diabetes Action Plan

If the meter reads **HI** this means the BGL is too high to be measured by the meter

Follow **Hyperglycaemia** (Hyper) treatment on Diabetes Action Plan

## SENSOR GLUCOSE (SG) MONITORING

Some children will be wearing a small sensor that sits under the skin and measures glucose levels in the fluid surrounding the cells (interstitial fluid).

A sensor glucose (SG) reading can differ from a finger prick blood glucose reading during times of rapidly changing glucose levels e.g. eating, after insulin administration, during exercise. Therefore, **LOW** or **HIGH** SG readings must be confirmed by a finger prick blood glucose check. Hypo treatment is based on a blood glucose finger prick result.

The child is wearing Continuous Glucose Monitor (CGM) or Intermittently Scanned Continuous Glucose Monitor (ISCGM)

Dexcom G6®

Freestyle Libre - ISCGM

Dexcom G7®

Guardian™ Connect

Guardian™ Sensor 3

Guardian™ Sensor 4

- With CGM, a transmitter sends data to either a receiver, phone app or insulin pump.
- An ISCGM device will only give a glucose reading when the sensor disc is scanned by a reader or phone app.
- These devices are **not** compulsory management tools.

### CGM ALARMS

- CGM alarms may be 'on' or 'off'.
- If 'on' the CGM will alarm if interstitial glucose is low or high.

**ACTION:** Check finger prick blood glucose level (BGL) and if less than 4.0 mmol/L, treat as per Diabetes Action Plan for treatment.

Alerts for high glucose levels or in response to changing glucose trends are not recommended in this setting

### USE AT CENTRE

- Staff are not expected to do more than the current routine diabetes care as per the child's Diabetes Action and Management plans.
- Staff do not need to put CGM apps on their computer, smart phone or carry receivers.
- Parents/carers are the primary contact for any questions regarding CGM/ISCGM use.
- Some CGM/ISCGM devices can be monitored remotely by family members. They should only contact the Centre if they foresee a prompt response is required.
- If the sensor/transmitter falls out, staff are required to keep it in a safe place to give to parents/carers.
- The sensor can remain on the child during water activities.

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## HYBRID CLOSED LOOP PUMP SYSTEMS

Contemporary pumps with automation via a paired CGM can either increase or decrease insulin delivery in real-time. However insulin bolus is still required for food.

If the Child has a pump with a low glucose suspend function the pump may stop insulin delivery when the glucose level is low or predicted to go low.

**ACTION:** For any low alert a finger prick blood glucose check is required.

- If BGL is less than 4.0 mmol/L only glucose treatment is required as per Diabetes Action Plan (do not give insulin bolus for this treatment).
- If BGL greater than or equal to 4.0mmol/L, no action (i.e. glucose treatment) is required, unless the BGL drops further and is LESS THAN 4.0mmol/L; the pump will automatically restart when the sensor recognises that the glucose level has risen.
- Should the mealtimes insulin bolus be required (e.g. for snacks or lunch) the pump will need to be restarted manually for this mealtime bolus to occur.

### PHYSICAL ACTIVITY

“Exercise Mode” or “Temporary Targets” are settings that can be used around planned activity. Please discuss the use of these functions with the family for a plan. More details are outlined on page 7.

# LOW BLOOD GLUCOSE LEVELS

(Hypoglycaemia / Hypo)

Follow the child's Diabetes Action Plan if BGL less than 4.0 mmol/L.

Mild hypoglycaemia can be treated by using supplies from the child's HYPO BOX.

Hypo box location/s: \_\_\_\_\_

## HYPO BOX

### FAST ACTING CARBOHYDRATE FOOD

### AMOUNT TO BE GIVEN

FAST ACTING CARBOHYDRATE FOOD	AMOUNT TO BE GIVEN

### LONG-ACTING CARBOHYDRATE FOOD

### AMOUNT TO BE GIVEN

LONG-ACTING CARBOHYDRATE FOOD	AMOUNT TO BE GIVEN

- If the child requires more than 2 consecutive fast acting carbohydrate treatments, as per their Diabetes Action Plan, call the child's parent / caregiver. Continue hypo treatment if needed while awaiting further advice.
- If initial BGL between 3.0 and 4.0 mmol/L - follow-up long-acting carbohydrate not required. However if child is hungry, can eat but requires insulin bolus for this long-acting carbohydrate.
- If initial BGL is less than 3.0 mmol/L – give follow up long acting carbohydrate but DO NOT bolus for this long-acting carbohydrate
- All hypo treatment foods should be provided by the parent/caregiver.
- Ideally, packaging should be in serve size bags or containers and labelled as fast acting carbohydrate food and long-acting carbohydrate food.

Mild hypoglycaemia is common. However, if the child is having more than 3 episodes of low BGLs at Centre in a week, make sure that the parent/carer is aware.

## SEVERE HYPOGLYCAEMIA (HYPO) MANAGEMENT

**Severe hypoglycaemia is not common.**

Follow the child's Diabetes Action Plan for any episode of severe hypoglycaemia.

**DO NOT** attempt to give anything by mouth to the child or rub anything onto the gums as this may lead to choking.

If the centre is located more than 30 minutes from a reliable ambulance service, then staff should discuss Glucagon injection training with the child's Diabetes Treating Team or with family. [A video resource is available here.](#)

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## HIGH BLOOD GLUCOSE LEVELS

(Hyperglycaemia / Hyper)

- Although not ideal, GLs above target range are common.
- If BGL is 15.0 mmol/L or more, follow the child's Diabetes Action Plan.
- If the child is experiencing frequent episodes of high BGLs at Centre, make sure the parent/carer is aware.

## KETONES

- Ketones occur most commonly when there is not enough insulin in the body.
- Ketones are produced when the body breaks down fat for energy.
- Ketones can be dangerous in high levels.
- Ketones are made more quickly when using insulin pump therapy

You will be required to check the child's blood ketone level if

- Child is unwell or
- BGL is above 15.0 mmol/L twice in 2 hours

If blood ketones are more than 1.0 mmol/L, follow action for positive ketones on the child's Diabetes Action Plan.

## EATING AND DRINKING

- The child should not go for longer than 3 hours without eating a carbohydrate meal or snack.
- Younger children will require supervision to ensure all food is eaten.
- The child should not exchange food/meals with another child.
- Seek parent/carer advice regarding appropriate foods for parties / celebrations that are occurring at Centre.
- Always allow access to drinking water and toilet (high blood glucose levels can cause increased thirst and extra toilet visits).
- Does the child have coeliac disease?

No                      Yes\*

\*Seek parent/carer advice regarding appropriate food and hypo treatments.

# PHYSICAL ACTIVITY, ACTIVE OUTDOOR PLAY AND SWIMMING

A blood glucose meter and hypo treatment should always be available.

- Check glucose level before physical activity.
- Physical activity may lower glucose levels.
- The child may require an extra 10g of carbohydrates before every 30 minutes of planned physical activity or swimming as provided in the Activity Food Box.

Activity Food Box location/s: \_\_\_\_\_

## ACTIVITY FOOD BOX

CARBOHYDRATE FOOD TO BE USED	AMOUNT TO BE GIVEN

- Physical activity should not be undertaken if BGL less than 4.0 mmol/L.
- Refer to the Diabetes Action Plan for hypo treatment.
- Vigorous activity should not be undertaken if BGL is greater than or equal to 15.0 mmol/L **AND** blood ketones are greater than or equal to 1.0mmol/L **AND/OR** the child is unwell.
- Suspend **AND** disconnect pump for intense and water-based activity.
- Pump should not be disconnected or suspended for longer than 90 minutes.
- If pump has been removed for physical activity, it is important it is reconnected as soon as possible.
- There are settings that can be used to manage the effect of physical activity on glucose levels, such as "Temporary Basal Rates", "Exercise Mode" or "Temporary Target". Please discuss with the family for a plan around activity at the centre.

## INDIVIDUALISED GUIDANCE

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\_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

## EXCURSIONS / TRIPS

It is important to plan for extracurricular activities.

Consider the following:

- Ensure blood glucose meter, blood glucose strips, ketone strips, insulin, hypo and activity food are readily accessible.
- Plan for meal and snack breaks.
- Always have hypo treatment available.

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## EXTRA SUPPLIES

Provided for diabetes care at the Centre by parent/carer for back up or in case of Civil Defence emergency

Insulin and syringes / pens / pen needles

Spare Infusion sets and tubing

Charging cords and power pack if required

Finger prick device

Blood glucose meter

Blood glucose strips

Blood ketone strips

Sharps container

Hypo food

Activity food

Consider Batteries and / or charger for meter or glucose monitoring device and pump

## GLOSSARY OF TERMS

### Common insulin pump terminology

#### **Insulin pump also known as continuous subcutaneous insulin infusion (CSII)**

Small battery operated, computerised device for delivering insulin.

#### **Cannula**

A tiny plastic or steel tube inserted under the skin to deliver insulin. Held in place by an adhesive pad.

#### **Line or tubing**

The plastic tubing connecting the pump reservoir / cartridge to the cannula.

#### **Reservoir / Cartridge**

Container which holds the insulin within the pump.

#### **Basal**

Background insulin delivered continuously.

#### **Food Bolus**

Insulin for food delivered following entry of BGL and carbohydrate food amount to be eaten.

#### **Correction Bolus**

Extra insulin dose given to correct an above target BGL and / or to clear ketones.

#### **Line failure**

Disruption of insulin delivery due usually to line kinking or blockage.



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# AGREEMENTS

## PARENT/CARER

I have read, understood and agree with this plan.

I give consent to the Early Childhood Centre to communicate with the Diabetes Treating Team about my child's diabetes management at Centre.

First name \_\_\_\_\_ Family name \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

## CENTRE REPRESENTATIVE

I have read, understood and agree with this plan.

First name \_\_\_\_\_ Family name \_\_\_\_\_

Role          Manager          Supervisor          Other (please specify) \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

*This document has been developed by Specialist Diabetes Clinicians.  
If you have concerns please contact the child's diabetes treating team.*