



## 1. Purpose

The standard management of labour applies to women with diabetes, and includes the following special considerations:

- Timing of birth. Refer to guideline: [Diabetes Mellitus - Management of Pre-existing Diabetes Mellitus in Pregnancy](#) and refer to 'Timing'
- Continuous electronic fetal monitoring is recommended although may not be necessary for women with uncomplicated gestational diabetes (GDM) in spontaneous labour
- Ensure adequate analgesia with a lower threshold for epidural in labour
- Labour should not be prolonged
- The paediatric registrar should be notified of impending birth
- Birth should be supervised by an experienced accoucheur (Senior midwife or Obstetric registrar)
- Prepare for the possibility of shoulder dystocia. Refer to guideline: [Shoulder Dystocia](#)
- Active management of third stage. Refer to guideline: [Third Stage Labour - Management](#).

This clinical guideline outlines the requirement for the management of diabetic woman in labour at the Women's.

## 2. Definitions

Not applicable.

## 3. Responsibilities

Clinical staff caring for a woman with diabetes in labour should follow this guideline.

## 4. Guideline

### 4.1 Glycaemic control

#### Pre-induction

- Induction booked by Diabetes Clinic. Refer to guideline [Induction of Labour](#)
- Usual insulin while having prostaglandin
- Usual insulin dose night prior to planned amniotomy (ARM)
- Morning of ARM - fasting glucose level, light breakfast, adjust usual short-acting insulin according to fasting glucose level and breakfast.

#### Birth Centre

- Oral food and fluids at discretion lead clinician.

### 4.2 Monitoring

#### Urine

- Test for ketones. If ketones are present at a moderate or high level, consider hydration and contact Diabetes Nurse Educator (DNE) (or Diabetes Physician if DNE is not available)
- Test for protein.

#### Blood glucose monitoring

- Type 1 and Type 2 and GDM on insulin 2-hourly
- GDM not on insulin 4-hourly.

#### Intravenous therapy

- Not routinely required for diabetes management
- Normal Saline should be used if requires IV therapy, no need for routine IV Dextrose
- Caution with fluid overload in severe pre-eclampsia.



## Diabetes in Pregnancy: Management in Labour

### Insulin

- Sliding scale - all 2-hourly.

#### Low dose

For Type 1 diabetes and women with GDM on insulin receiving < 40 units/day antenatally.

Blood glucose level (mm/l/L)	NovoRapid S/C (Humalog if patient using this already)
0-6	nil
6.1-8.0	2 units
8.1-10.0	4 units
10.1-14.0	6 units
>14	8 units and call RMO

#### High dose

For Type 2 diabetes and women with GDM on insulin receiving > or= to 40 Units/day antenatally.

Blood glucose level (mm/l/L)	NovoRapid S/C (Humalog if patient using this already)
0-6	nil
6.1-7.0	4 units
8.1-10.0	6 units
10.1-14.0	8 units
>14	10 units and call RMO

#### Intravenous insulin infusion

Suitable for patients requiring intensive therapy and/or poor control on a sliding scale, for example severe pre-eclampsia. Consult with Diabetes Physician.

Via syringe pump

- 50 units NovoRapid insulin in 50 mLs of Normal saline

Aim to keep blood glucose level 4-7mmol/L

- Start rate of 1-2 units/hour depending on initial blood glucose level
- If blood glucose level > 7 mmol/l, increase insulin by 1 unit/hour
- If blood glucose level < 4 mmol/l, decrease insulin by 1 unit/hour
- If blood glucose level 4-7 mmol/L, maintain rate.

**Note:** do not use this regimen for diabetic ketoacidosis.

Consult Endocrinologist on call for all patients with DIABETIC KETOACIDOSIS.



### 4.3 Management of hypoglycaemia

- Treat orally if possible
- Refer to [Hypoglycaemia – Infant Management](#) (clinical algorithms)

### 4.4 Elective caesarean section

- usual insulin the night before caesarean section
- book first on the theatre list in the morning
- morning of caesarean section - withhold usual insulin
- measure blood glucose level in theatre prior to anaesthetic
- avoid IV Dextrose unless hypoglycaemic
- postoperatively use low-dose sliding scale
  - 0700: 1200: 1700: 2200: until oral intake established
  - then, fasting and before each meal.

### 4.5 Postpartum

Insulin requirements fall dramatically postpartum

Monitor glucose levels to avoid profound and/or prolonged hypoglycaemia. Management of Hypoglycaemia (clinical algorithm)

#### Type 1 and Type 2

- blood glucose monitoring within 2 hours of birth then:
  - QID: fasting and before each meal
  - sliding scale insulin (low dose)
  - regular review by Diabetes Clinical Nurse Consultant and Physician until discharge
  - type 2 women will usually not require insulin in the postnatal period unless blood glucose levels are consistently elevated
  - Oral hypoglycaemic agents are not recommended while breastfeeding except for low dose metformin.

#### GDM

- Blood glucose monitoring B.D. for 48 hours
- Insulin is ceased post birth
- If blood glucose levels > 7.0 mmol/L, continue to monitor until discharge - fasting and 2 hours after meals
- If blood glucose levels are persistently elevated after 72 hours, contact Diabetes Clinical Nurse Consultant

Note: Refer to summary in Appendix below: [Women with Diabetes: Postnatal Management and Follow-up](#).

### 4.6 Neonatal management

All well infants of mothers who have diabetes (type 1, type 2 or gestational diabetes, controlled by insulin or diet) should be transferred to the postnatal ward with their mother.

Refer to the guideline '[Hypoglycaemia, Infant Management](#)' for guidance on neonatal observations for babies of a diabetic mother.

**Note: Mother managed with insulin prior to or during pregnancy is not an indication alone for transfer of infant to SCN.**

## 5. Evaluation, monitoring and reporting of compliance to this guideline

Compliance to this guideline or procedure will be measured by review of incidents reported through VHIMS.

## 6. References

Refer to the Women's procedure: [Hypoglycaemia Infant Management](#).

Refer to NETS Neonatal Handbook: [Management Neonatal Hypoglycaemia](#).



## 7. Legislation/Regulations related to this guideline

Not applicable.

## 8. Appendices

Appendix 1: [Women with Diabetes: Postnatal Management and Follow-up](#)

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## Women with Diabetes: Postnatal Management and Follow-up



	GDM DIET	GDM INSULIN	TYPE 2	TYPE 1
<b>Insulin</b>	N/A	NO	NO May require on discharge if BGL's are elevated or oral agents	YES, reduced dose
<b>Monitoring of BSL</b>  Target levels post birth: <ul style="list-style-type: none"> <li>• pre breakfast:               <ul style="list-style-type: none"> <li>○ &lt;6mmol/L</li> </ul> </li> <li>• pre-prandial:               <ul style="list-style-type: none"> <li>○ 4-6mmol/L</li> </ul> </li> <li>• 2 hr post-prandial               <ul style="list-style-type: none"> <li>○ &lt;8mmol/L</li> </ul> </li> </ul>	BD  Pre breakfast and 2 hours post main meals for 48 hrs.  Contact Obs/med Reg if BSL's >8mmol	QID  Pre breakfast and pre main meals Continue on discharge  Obs/Med Reg to review	QID  Pre breakfast and pre main meals + Sliding scale Continue on discharge  Obs/Med Reg to review	
<b>Follow-up in diabetes clinic</b>	NO <ul style="list-style-type: none"> <li>• GP in 6 weeks</li> </ul>	YES in 6/52, booked by Diabetes Educator <ul style="list-style-type: none"> <li>• Diab Phys (Diabetes Physician)</li> <li>• Diab diet (Diabetes Dietitian)</li> </ul>	YES in 6/52, booked by Diabetes Educator <ul style="list-style-type: none"> <li>• Diab Phys (Diabetes Physician)</li> </ul>	
<b>Postnatal GTT</b>	YES 6 weeks organised by Diabetes Educator	NO	NO	
<b>Weekend discharge</b>	Contact Diabetes Educator (ext 2153) and leave patients name and UR number and follow-up GTT and/or appointments will be arranged.			

### Questions?

#### Diabetes Educators:

- Monday – Friday 8am-4pm, ext 2153
- Lan Page '*Diabetes Educator*' 52163 or via Switchboard

#### Obstetric Medicine Registrar:

- Monday – Friday, 8.30am – 5pm
  - Lan Page 52157 or via Switchboard
- After hours:
  - Endocrinologist (on-call 24 hour) page via Switchboard

#### Dietitian:

- Mon-Fri, 8am- 4pm, ext 3160