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.
Insulin

- Sliding scale - all 2-hourly.

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

<table>
<thead>
<tr>
<th>Blood glucose level (mm/L)</th>
<th>NovoRapid S/C (Humalog if patient using this already)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6</td>
<td>nil</td>
</tr>
<tr>
<td>6.1-8.0</td>
<td>2 units</td>
</tr>
<tr>
<td>8.1-10.0</td>
<td>4 units</td>
</tr>
<tr>
<td>10.1-14.0</td>
<td>6 units</td>
</tr>
<tr>
<td>&gt;14</td>
<td>8 units and call RMO</td>
</tr>
</tbody>
</table>

**High dose**
For Type 2 diabetes and women with GDM on insulin receiving ≥ 40 Units/day antenatally.

<table>
<thead>
<tr>
<th>Blood glucose level (mm/L)</th>
<th>NovoRapid S/C (Humalog if patient using this already)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6</td>
<td>nil</td>
</tr>
<tr>
<td>6.1-7.0</td>
<td>4 units</td>
</tr>
<tr>
<td>8.1-10.0</td>
<td>6 units</td>
</tr>
<tr>
<td>10.1-14.0</td>
<td>8 units</td>
</tr>
<tr>
<td>&gt;14</td>
<td>10 units and call RMO</td>
</tr>
</tbody>
</table>

**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 4-7 mmol/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

PGP Disclaimer Statement
The Royal Women’s Hospital Clinical Guidelines present statements of ‘Best Practice’ based on thorough evaluation of evidence and are intended for health professionals only. For practitioners outside the Women’s this material is made available in good faith as a resource for use by health professionals to draw on in developing their own protocols, guided by published medical evidence. In doing so, practitioners should themselves be familiar with the literature and make their own interpretations of it.

Whilst appreciable care has been taken in the preparation of clinical guidelines which appear on this web page, the Royal Women's Hospital provides these as a service only and does not warrant the accuracy of these guidelines. Any representation implied or expressed concerning the efficacy, appropriateness or suitability of any treatment or product is expressly negated.

In view of the possibility of human error and/or advances in medical knowledge, the Royal Women's Hospital cannot and does not warrant that the information contained in the guidelines is in every respect accurate or complete. Accordingly, the Royal Women's Hospital will not be held responsible or liable for any errors or omissions that may be found in any of the information at this site.

You are encouraged to consult other sources in order to confirm the information contained in any of the guidelines and, in the event that medical treatment is required, to take professional, expert advice from a legally qualified and appropriately experienced medical practitioner.

NOTE: Care should be taken when printing any clinical guideline from this site. Updates to these guidelines will take place as necessary. It is therefore advised that regular visits to this site will be needed to access the most current version of these guidelines.
## Appendix 1

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

<table>
<thead>
<tr>
<th></th>
<th>GDM DIET</th>
<th>GDM INSULIN</th>
<th>TYPE 2</th>
<th>TYPE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insulin</strong></td>
<td>N/A</td>
<td>NO</td>
<td>NO, May require on discharge if BGL’s are elevated or oral agents</td>
<td>YES, reduced dose</td>
</tr>
<tr>
<td><strong>Monitoring of BSL</strong></td>
<td>BD</td>
<td>QID</td>
<td>QID, Pre breakfast and pre main meals Continue on discharge</td>
<td>QID, Pre breakfast and pre main meals + Sliding scale Continue on discharge</td>
</tr>
<tr>
<td>Target levels post birth:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• pre breakfast:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ &lt;6mmol/L</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• pre-prandial:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ 4-6mmol/L</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 2 hr post-prandial</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ &lt;8mmol/L</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Follow-up in diabetes clinic</strong></td>
<td>NO</td>
<td>YES in 6/52, booked by Diabetes Educator</td>
<td>YES in 6/52, booked by Diabetes Educator</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• GP in 6 weeks</td>
<td>• Diab Phys (Diabetes Physician)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Diab diet (Diabetes Dietitian)</td>
<td></td>
</tr>
<tr>
<td><strong>Postnatal GTT</strong></td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>6 weeks organised by Diabetes Educator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weekend discharge</strong></td>
<td>Contact Diabetes Educator (ext 2153) and leave patients name and UR number and follow-up GTT and/or appointments will be arranged.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 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