

# Diabetes in Pregnancy

## Definition and classification

**Diabetes in pregnancy** includes:

- **Pregestational diabetes:** type 1 or type 2 diabetes present before pregnancy
- **Gestational diabetes mellitus (GDM):** diabetes first recognized in pregnancy and not clearly overt diabetes before gestation

## Why pregnancy is diabetogenic

- Placental hormones increase insulin resistance
- Maternal insulin requirements rise as pregnancy advances
- In susceptible women, pancreatic beta-cell reserve becomes insufficient → hyperglycemia

**maternal risks :** Maternal complications include:

- Preeclampsia
- Polyhydramnios
- Operative delivery / cesarean birth
- Birth trauma related to macrosomia
- Hypoglycemia or ketoacidosis in insulin-treated women
- Long-term future type 2 diabetes after GDM

**fetal and neonatal risks ( Fetal/neonatal complications ):**

- Congenital malformations, especially with poor control in pregestational diabetes
- Miscarriage
- Fetal macrosomia
- Shoulder dystocia
- Neonatal hypoglycemia
- Perinatal death
- Later-life metabolic risk

### **Who should be tested for GDM?**

Offer a **75-g 2-hour OGTT** to women with risk factors. Women with previous GDM should have **early self-monitoring or early OGTT after booking**, and if normal, repeat OGTT at **24–28 weeks**. Women with other risk factors should have OGTT at **24–28 weeks**. Glycosuria can also trigger further testing.

You can summarize the common risk factors for GDM

### **OR the indications of the OGTT ?**

- Previous GDM
- Obesity
- Previous macrosomic baby
- Family history
- High-risk ethnicity

### **Diagnosis of GDM**

- Fasting plasma glucose  $\geq 5.6$  mmol/L
- or 2-hour plasma glucose  $\geq 7.8$  mmol/L after a 75-g OGTT.

### **Preconception care in women with known diabetes**

- Use contraception until good glycemic control is achieved
- Aim HbA1c **below 48 mmol/mol (6.5%)** if safely achievable
- Strongly advise avoiding pregnancy if HbA1c is **above 86 mmol/mol (10%)**
- Give **folic acid 5 mg/day** until 12 weeks
- Review medicines, stop unsafe drugs such as **ACE inhibitors**.
- Assess retinal and renal status before conception or early in pregnancy.

### **Glycemic targets in pregnancy**

capillary plasma glucose targets:

- **Fasting: below 5.3 mmol/L**
- **1 hour after meals: below 7.8 mmol/L**
- **2 hours after meals: below 6.4 mmol/L**

## Initial management of GDM

At diagnosis:

- Review in the joint diabetes-antenatal clinic within **1 week**
- Teach self-monitoring
- Dietary advice
- Exercise
- Refer to dietitian.

recommends regular physical activity in pregnancy, generally **150 minutes of moderate-intensity aerobic activity per week** for healthy pregnant individuals when no contraindication exists.

## Pharmacologic treatment of GDM

- If fasting glucose at diagnosis is **below 7.0 mmol/L**: trial of **diet and exercise**
- If targets are not met within **1–2 weeks**: **offer metformin**
- If metformin is contraindicated or unacceptable: **offer insulin**
- If targets still not met on diet + metformin: **add insulin**
- If fasting glucose at diagnosis is **≥7.0 mmol/L**: offer **immediate insulin**, with or without metformin
- If fasting glucose is **6.0–6.9 mmol/L** and there is **macrosomia or hydramnios**, consider immediate insulin as well.

### Initial insulin dose in pregnancy:

- 1st trimester → 0.7–0.8 U/kg/day
- 2nd trimester → 0.8–1.0 U/kg/day
- 3rd trimester → 0.9–1.2 U/kg/day

### Distribution of Insulin Dose (Basal–Bolus Regimen) :

#### 50% Basal insulin

- NPH / detemir / glargine

#### 50% Prandial insulin

**Lispro / aspart before meals**

## **Classic Obstetric Regimen (Split-Mixed Insulin)**

*Morning dose :2/3 of total daily dose*

**Evening dose : 1/3 of total daily dose**

Morning dose composition

- **2/3 NPH**
- **1/3 Regular or rapid insulin**

Evening dose composition

- **1/2 rapid insulin before dinner**
- **1/2 NPH at bedtime**

### **• Glucose Targets in Pregnancy :**

<b>Measurement</b>	<b>Target</b>
Fasting	<b>&lt; 95 mg/dL (5.3 mmol/L)</b>
1-hour post meal	<b>&lt; 140 mg/dL (7.8 mmol/L)</b>
2-hour post meal	<b>&lt; 120 mg/dL (6.7 mmol/L)</b>

### **What is the glucose target during labour?**

→ **4–7 mmol/L . and hourly glucose level checked in labour?**

## **Management of pregestational diabetes**

- Joint obstetric-diabetes care
- Frequent glucose monitoring
- Medication review
- Early dating scan and anomaly scan
- Retinal and renal surveillance
- Adjust insulin as pregnancy progresses

recommends close contact with the joint clinic every **1–2 weeks** throughout pregnancy for women with diabetes.

## **Fetal assessment**

For women with diabetes:

- Detailed anomaly scan at **20 weeks**, including the fetal heart
- Ultrasound assessment of **growth and amniotic fluid every 4 weeks from 28 to 36 weeks**.

Routine fetal wellbeing testing before 38 weeks is **not** recommended unless there is suspected growth restriction or another indication.

## **Timing of birth**

**Pregestational type 1 or type 2 diabetes, no other complications**

- Advise elective birth between **37+0 and 38+6 weeks**.

## **GDM**

- Advise birth **no later than 40+6 weeks**
- Offer induction or cesarean if not delivered by then
- Consider earlier birth if maternal or fetal complications develop.

## **Intrapartum care**

- Timing and mode of birth should be discussed antenatally
- Diabetes is **not** a contraindication to VBAC
- In macrosomia, discuss risks and benefits of vaginal birth, induction, and cesarean section.

## **Neonatal care**

Babies of mothers with diabetes:

- Should stay with mother unless complications occur
- Need blood glucose testing at **2–4 hours after birth**
- Should be fed **within 30 minutes of birth**, then every **2–3 hours**
- Additional treatment is required if glucose remains low or the baby is symptomatic.

## **Postpartum care**

### **For women with GDM:**

- Stop glucose-lowering therapy immediately after birth
- Offer **fasting plasma glucose at 6–13 weeks postpartum**
- Counsel about long-term risk of type 2 diabetes, weight control, diet, exercise, and future pregnancy planning.

### **For women with pre-existing diabetes:**

- Reduce insulin immediately after birth
- Watch for postpartum hypoglycemia, especially with breastfeeding.

