Updates in Hypertension, Diabetes & Thyroid Disease in Pregnancy

- Dr Maylene Pineda
- Head of the Department - Obstetrics
- Nepean Hospital

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- High-risk maternal conditions are increasing.
- Modern antenatal care is shifting from reactive to predictive/preventive care.
- GPs are crucial at the entry point for early risk identification, pre-conception counselling, shared antenatal care, early diagnosis, referral, postpartum follow-up.

Hypertension in Pregnancy

Classification (ISSHP 2021, ACOG 2024 updates):

- **Chronic hypertension**: pre-existing or diagnosed <20 weeks
- **Gestational hypertension**: new onset >20 weeks, BP ≥140/90, no proteinuria
- **Preeclampsia**: hypertension with proteinuria OR organ dysfunction (e.g. renal, liver, hematologic, neurological, uteroplacental)

Threshold and Targets

- **Diagnosis**: ≥140/90 mmHg
- **Treatment target**:
  - SBP 110–135 mmHg
  - DBP 70–85 mmHg (especially for pre-existing hypertension)
- Avoid SBP <110 mmHg to prevent placental hypoperfusion.

Medications

- **Safe options**:
  - *Labetalol*
  - *Nifedipine*
  - *Methyldopa*

- **Contraindicated**: ACEIs, ARBs, thiazides (generally avoided)

Screening: NICE guidelines

Advise women at high risk of pre-eclampsia to take 75 mg of aspirin* daily from 12 weeks until the birth of the baby. Women at high risk are those with any of the following:

- hypertensive disease during a previous pregnancy
- chronic kidney disease
- autoimmune disease such as systemic lupus erythematosis or antiphospholipid syndrome
- type 1 or type 2 diabetes
- chronic hypertension.

Advise women with more than one moderate risk factor for pre-eclampsia to take 75 mg of aspirin* daily from 12 weeks until the birth of the baby. Factors indicating moderate risk are:

- first pregnancy
- age 40 years or older
- pregnancy interval of more than 10 years
- body mass index (BMI) of 35 kg/m² or more at first visit
- family history of pre-eclampsia
- multiple pregnancy.

Screening: Fetal Medicine Foundation

Use combined algorithms:

- Maternal factors (age, BMI, ethnicity, parity, personal history)
- Mean arterial pressure (MAP)
- Uterine artery Doppler PI
- Biomarkers: PlGF, PAPP-A

Risk prediction

- FMF model detects 80% of early-onset preeclampsia.
- Simple maternal risk factors alone detect only ~40%.

SPREE trial = Screening Programme for pre-eclampsia

Method	Detection Rate (All PE)	Detection Rate (Preterm PE)
NICE 2010	30.4%	40.8%
Mini-combined test (maternal factors + MAP + PAPP-A)	42.5%	69.0%
Full combined test (maternal factors + MAP + PAPP-A + PlGF + UtA-PI)	Not specified for all PE	**82.4%**

Prevention

- **Aspirin 150 mg nightly** from 12–16 weeks until 36 weeks
- **Calcium supplementation** 1-1.5g/day if low dietary intake.

ASPRE trial- Aspirin for Evidence-Based Preeclampsia Prevention, New Engl J Med, 2017, Rolnik et al

- Preterm PE incidence:
  1.6% in aspirin group vs 4.3% in placebo group
- Risk reduction of 62% (OR 0.38; 95% Cl 0.20-0.74)
- No increase in adverse maternal or neonatal outcomes

Postpartum

- BP often rises Day 3–5; monitor closely
- Consider transition to longer-term antihypertensives
- Increased risk of PET (15% - term, 40% - 24 weeks)cardiovascular disease in the long term
- VIP/Preeclampsia clinic - Wednesdays

Diabetes in Pregnancy

Types

- Pre-existing type 1 or 2 diabetes
- Gestational diabetes mellitus (GDM): diagnosed for the first time in pregnancy.

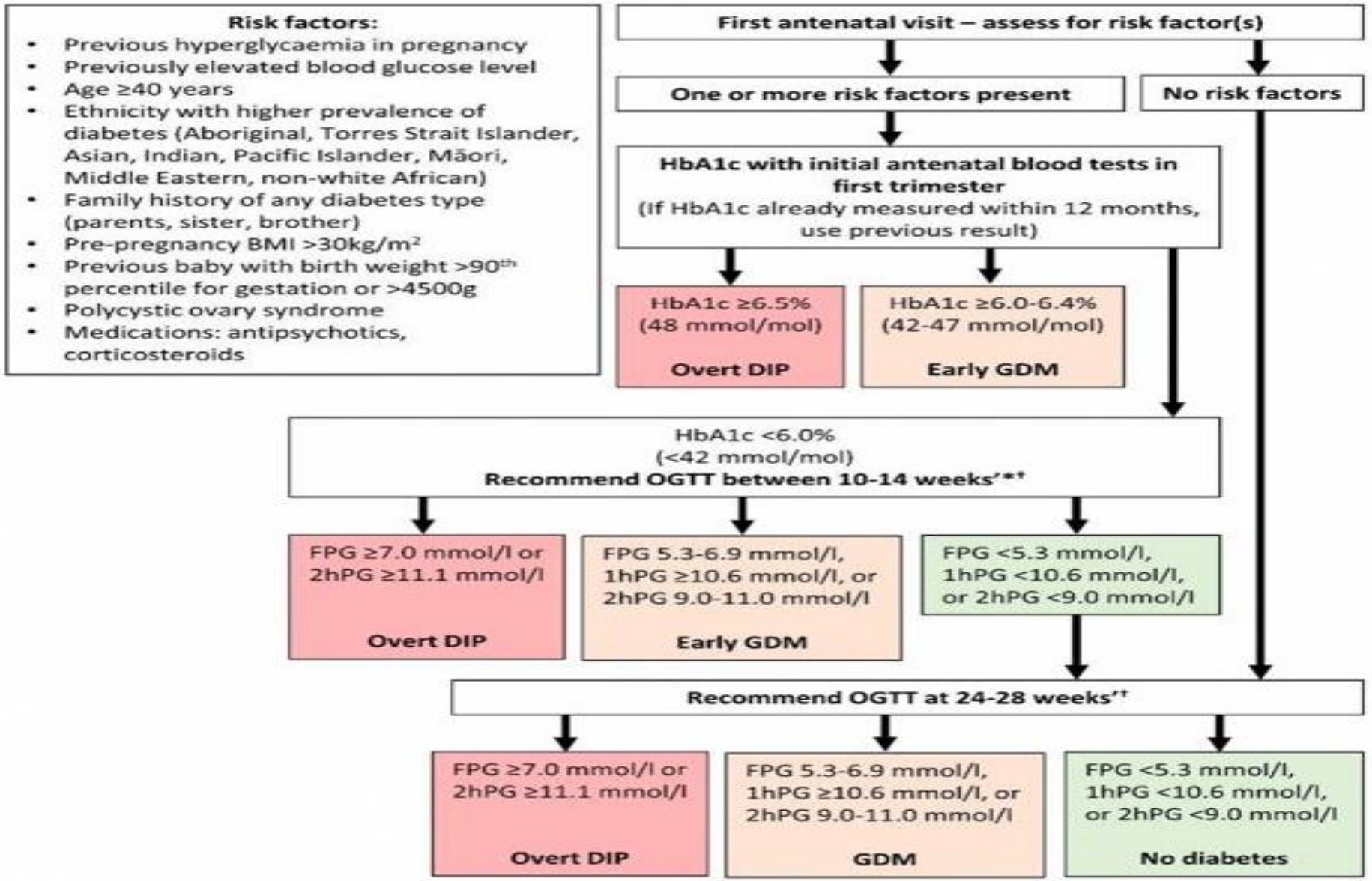
Screening

- **Screening (ADIPS / RANZCOG 2024 update)**

- **Early screening (before 20 weeks):**
  - High-risk women (BMI >30, prior GDM/macrosomia, family history, PCOS, ethnic risk groups)

- **Routine screening (24–28 weeks):**
  - One-step 75g OGTT:
    - Fasting ≥5.1 mmol/L
    - 1-hr ≥10.0 mmol/L
    - 2-hr ≥8.5 mmol/L

Changes in the ADIPS guidelines



Management

- Lifestyle first: dietician input, exercise
- **First-line pharmacotherapy**: insulin
- **Metformin**: increasingly used if patient declines insulin or as adjunct
- Goal: Fasting <5.5 mmol/L; 2-hr postprandial <7.0mmol/L.

Use of Metformin

MiG trial

- No significant difference in primary composite neonatal outcome
- 46% of women in the metformin group required supplemental insulin
- Less maternal weight gain in metformin group
- Higher maternal satisfaction with

MiTy Trial

- Lower neonatal birthweight z-score in metformin group
- Less maternal weight gain
- Lower insulin requirements
- No significant difference in composite neonatal morbidity
- Increased rate of SGA in metformin group (13 % vs 7%)

Complications

- Macrosomia, shoulder dystocia, preeclampsia, preterm birth, stillbirth

- Tight glucose control reduces risk.

Postpartum

- OGTT 6–12 weeks postpartum to assess for ongoing diabetes
- Overall recurrence: **45–65%**
- Higher risk if:
  - Higher BMI or weight gain
  - Prior insulin use
  - Early diagnosis in prior pregnancy
  - Persistent postpartum dysglycemia
  - Short (<12 months) or long (>5 years) interpregnancy interval
- Lifelong risk of type 2 diabetes: counselling, weight optimisation, glucose control, ongoing screening.

Thyroid Diseases

Physiologic changes

- BHCG stimulates TSH receptor → decreased TSH early in pregnancy

- Increased thyroxine-binding globulin → higher total T4.

Recommendation

- Women who are pregnant, planning a pregnancy or breast feeding should take an **iodine supplement of 150 micrograms (µg)** each day.

Who to screen:

- Universal screening remains controversial due to lack of conclusive benefit in improving pregnancy outcomes in women without risk factors.
- Screen high-risk women:
  - Personal or family thyroid disease
  - Symptoms of thyroid dysfunction
  - Infertility or pregnancy loss
  - Type 1 DM, autoimmune disease
  - IVF/ART

RANZCOG does not support universal screening

- **Reference ranges (Trimester-specific)**

- TSH reference ranges narrower:
  - 1st trimester: 0.1–2.5 mIU/L
  - 2nd trimester: 0.2–3.0 mIU/L
  - 3rd trimester: 0.3–3.5 mIU/L

Hypothyroidism

- **Overt hypothyroidism** (TSH↑, FT4↓): treat with levothyroxine.

- Increase levothyroxine dose by ~25–30% once pregnancy confirmed

- **Subclinical hypothyroidism** (TSH↑, FT4 normal)
  - *Screening for subclinical hypothyroidism or TPO antibodies, and subsequent treatment with thyroxine is not recommended prior to pregnancy or in pregnancy*
  - *Treatment of TPO antibodies in euthyroid women does not reduce miscarriage and so is not recommended*

Hyperthyroidism

- **Graves' disease most common.**
- Treatment:
  - *Propylthiouracil* (PTU) 1st trimester.
  - *Carbimazole* may be used after 16 weeks.
- Monitor closely to avoid fetal hyper/hypothyroidism.
- Beta-blockers for symptomatic control.

Postpartum thyroiditis

- Autoimmune occurs 6–12 weeks postpartum
- May have transient hyperthyroidism then hypothyroid phase
- Patients will be back to their pre-pregnancy dose

Conclusion

- Hypertension, diabetes, and thyroid dysfunction remain major contributors to pregnancy morbidity

- GPs have a critical role in:
  - Early identification and referral
    - Diabetes Clinic – Wednesdays AM
    - Preeclampsia/Renal Clinic – Wednesdays AM
    - Thyroid Clinic – Wednesdays - PM
  - Medication safety counselling
  - Postpartum follow-up for chronic disease prevention

- Keep up with guideline updates — they do change!

Summary

Condition	Screening	Prevention	GP Actions
Hypertension / PE	Maternal factors, MAP, uterine artery Doppler, PlGF, PAPP-A	Aspirin 150 mg nightly, Calcium	Early booking, aspirin if high risk
Diabetes	Hba1c if high-risk, OGTT 24–28w	Early diet, metformin/insulin	Screen pre-pregnancy, lifestyle advice
Thyroid	TSH if high-risk	Levothyroxine adjustment	Preconception optimisation, early TSH