NATIONAL MEDICINES SYMPOSIUM 2025

Diabetes management and pregnancy

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Australian Commission on Safety and Quality in Health Care

NATIONAL MEDICINES SYMPOSIUM 2025

Disclosures

- None relevant to this presentation

Outline

- Impact of diabetes on pregnancy
- Pre-existing diabetes vs Gestational Diabetes
- Diabetes management
  - Pre-pregnancy
  - During pregnancy
  - Post-delivery
  - Longer term

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Why is Diabetes in Pregnancy a concern?

Mother

Pre-existing diabetes

- Miscarriage
- New/worsening diabetes complications

ALL diabetes in pregnancy

- Hypertensive disorders of pregnancy
- Caesarean delivery

Gestational diabetes

- Future Diabetes risk
  - *60% will develop T2DM within ~15 years*
- Future Cardiovascular disease
  - *2-3x increased risk even if normal glucose tolerance*

Infant

Pre-existing diabetes

- Congenital anomalies
- Stillbirth/neonatal death

ALL diabetes in pregnancy

- Macrosomia / Large for Gestational Age
- Neonatal hypoglycaemia
- Neonatal unit admission
- Future metabolic syndrome risk
- Autism [T1D > T2D > GDM]
- Fatty Liver

Acta Diabetol. 2018 Apr;55(4):315-322 (Canadian data)
Diabetologia 2019 Jun;62(6):905-914 (systematic review and meta-analysis)

Diabetes and pregnancy outcomes

	Congenital Anomalies	Hypertension in Pregnancy	Caesarean Delivery	Stillbirths per 1000 births
Type 1 Diabetes	~6-9%	24%	71%	16
Type 2 Diabetes		21%	56%	27
Gestational Diabetes	?	11%	38%	
No Diabetes	~2.2%	6%	30%	6

AIHW 2010 (pregnancy data)

Diabetes and pregnancy outcomes

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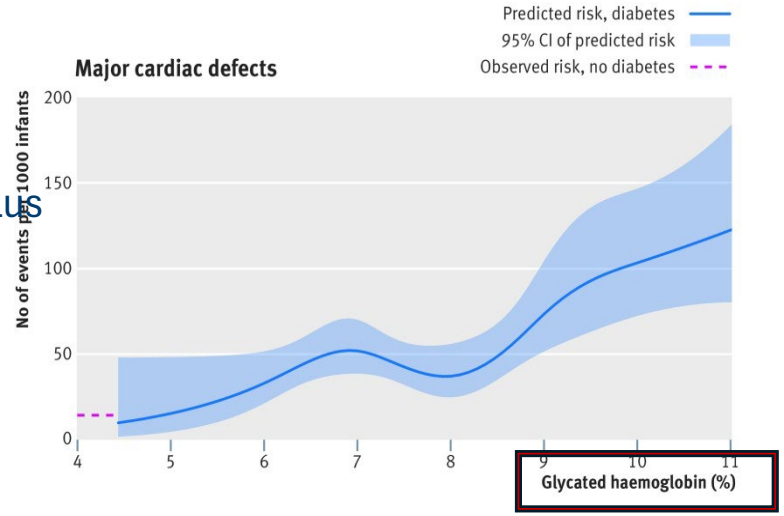
Anomalies

- **Cardiac** Transposition/VSD/ASD/coarctation/asymm septal hypertrophy
- **Central Nervous System** Neural tube incl anencephaly/microcephaly/ isolated hydrocephalus
- **Sacral Agenesis / Caudal dysplasia**
- **Urinary Tract** Cystic kidney/renal dysgenesis/hydronephrosis/ureteral duplication
- **GI Tract** Duodenal atresia/anorectal atresia/hypoplastic L colon
- **Musculoskeletal** Talipes/arthrogryphosis



BMJ. 2018; 362 Ludvigsson

AIHW 2010 (pregnancy data)

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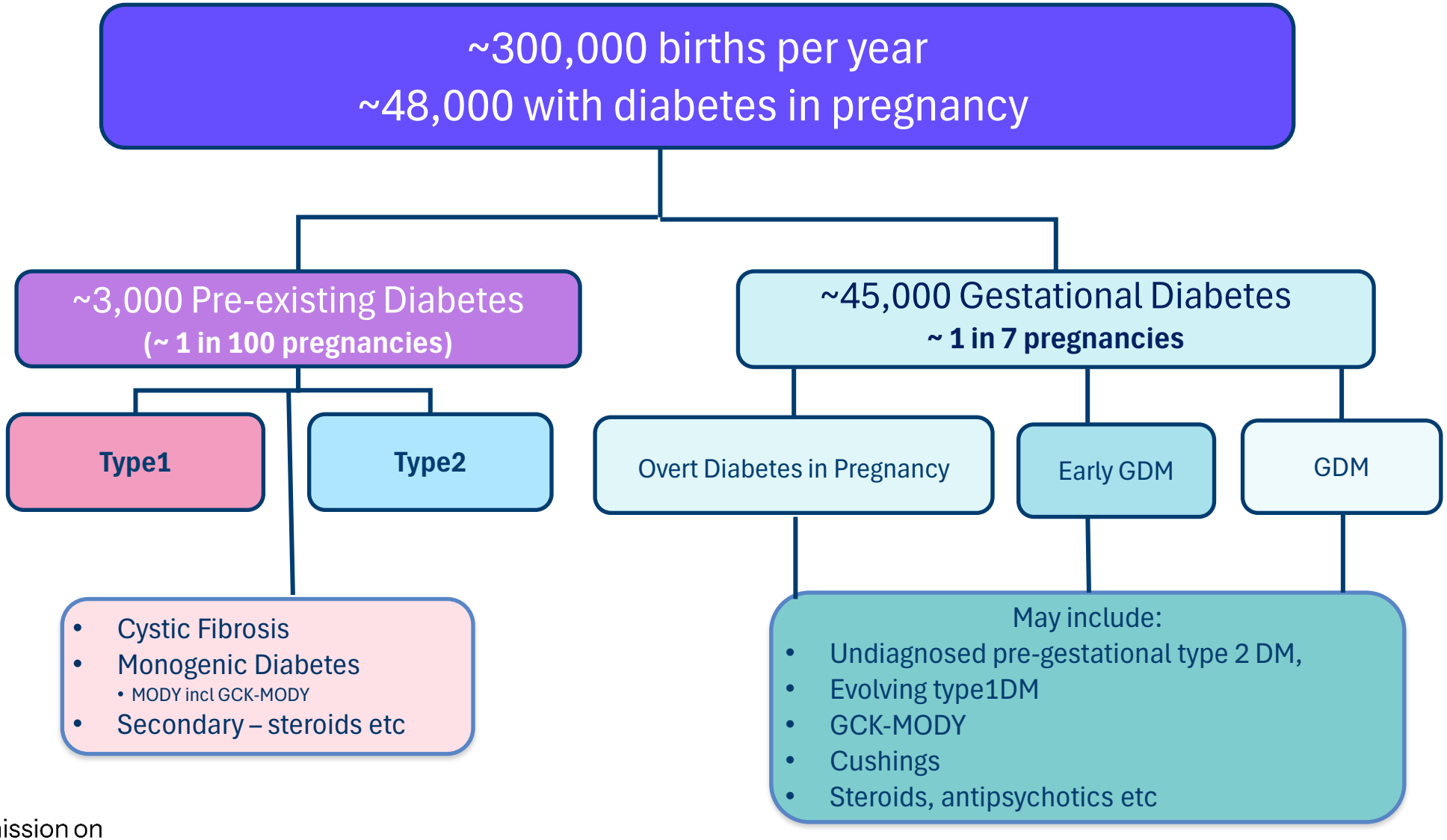
Pregnancies in Australia



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Pre-pregnancy

Pre-Existing Diabetes Type 1 / Type 2

- Refer for diabetes specific pre-pregnancy counselling
- Reliable contraception until optimal setting
- Optimal glycaemic control
- Diabetes medications
  - Insulin, metformin safe
  - Cease sulfonylureas, DPP4i, SGLT2i, GLP1
- Other medications
  - Antihypertensives - ensure pregnancy safe
  - Nephroprotection - cease ACEI/A2RB as soon as pregnancy confirmed
  - Statins- cease
- High dose folic acid
  - 2.5-5mg/d x min 2-3mo
- Diabetes complications assessment

Risk assessment for Gestational Diabetes

- Ideally pregnancy plan - reliable contraception and health assessment
- Assess risk factors for diabetes
  - Consider glycaemic status assessment pre-pregnancy
  - ?HbA1c, fBGL, GTT
- Low dose folic acid (unless indication for high dose)

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History of Diagnosis of GDM in Australia

Prior to 1991:
High variation in practice
No routine testing
Likely only if **high risk factors**
50-100g oGTT
timing 16-30 weeks

1991-2014:
ADIPS Consensus MJA 1991
(a) High risk factors: oGTT 14-20 wks
–if negative rpt oGTT at 28 wks

(b) No high risk factors – all:
- 50g GCT at ~28 weeks
- if 1 hr glucose ≥ 7.8mmol/L
  → oGTT

2015-mid 2025:
ADIPS Consensus statement 2014
Post HAPO & IADPSG international consensus
1.75 odds ratio of an adverse event (HAPO data)
(a) High risk factors: oGTT 14-20 wks
–if negative rpt oGTT at 28 wks
(b) No high risk factors – all oGTT

100g 3-hr oGTT (USA) GDM if 2 or more abnormal values	
Fasting	5.8
1-hour	10.6
2-hour	9.2
3-hour	8.1

75g 2-hr oGTT GDM if 1 or more abnormal values	
Fasting	5.5
1-hour	(10.0)
2-hour	8.0

75g 2-hr oGTT GDM if 1 or more abnormal values		**Overt Diabetes in Pregnancy**
Fasting	5.1	7.0
1-hour	10.0	
2-hour	8.5	11.1

Overt DiP also if HbA1c ≥ 6.5% or rBG ≥ 11.1

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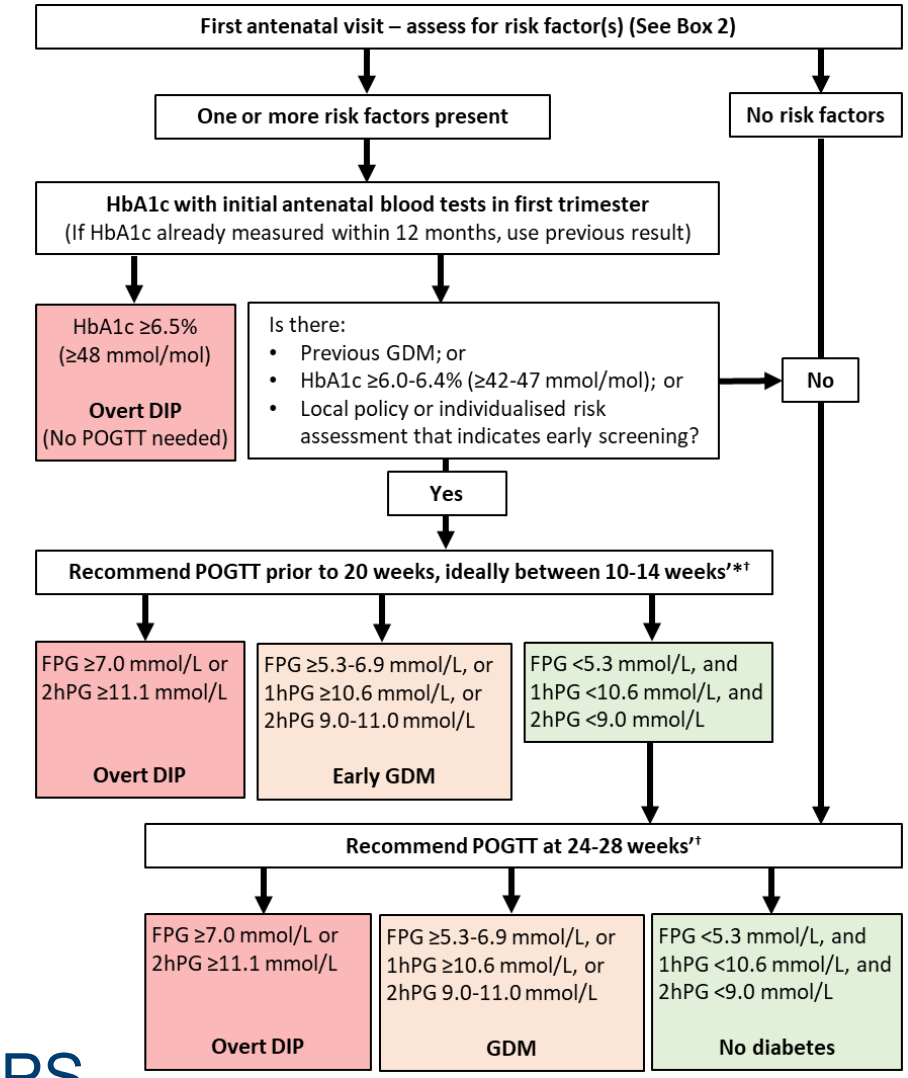
2025 GDM Screening & Diagnostic Pathway



- **IF risk factors:**
- **6-10 wks: With antenatal bloods HbA1c + ?fBGL**
- **10-14 wks: 75g POGTT** (unless already DM)
- **~28 wks: 75g POGTT** (unless already DM)

- **IF NO risk factors:**
  - ❖ **~ 28 wks:** POGTT

- **IF Clinical Concerns at any stage:**
  - ❖ consider POGTT or other glycaemic status assessment as individually indicated

- **For POGTT**: Use HAPO 2.0 odds ratio

❖ *NOTE Women who have been diagnosed with GDM on ANY criteria are at higher risk of future diabetes*

Sweeting
MJA 2025

ADIPS

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During pregnancy

Pre-Existing Diabetes Type 1 / Type 2

- Specialist diabetes & pregnancy services
- Optimal glycaemic control
  - Meter, + CGM
- Diabetes Medication
  - ?metformin
  - Multiple daily insulin regimen – tailor
  - Insulin pump therapy
  - Marked increase in insulin requirement especially after 24 weeks
  - If T2 may need > 500 units/d
- Diabetes complications assessment
- High dose folic acid till 12-14 weeks
- Aspirin 150 mg pre-bed –start 6-14 weeks, continue till 34-36 weeks

Gestational Diabetes

- Diabetes and pregnancy team referral
  - May be a shared care setting
- Education
- Dietary assessment, advice, support
  - Nutrient dense, balanced diet including adequate calcium
  - Adequate carbohydrate, lower glycaemic index carbohydrate
- Exercise…eg 10-15mins post meal
- Glucose monitoring –meter, ?+CGM
  - Tight glycaemic targets
- Above target - start medication
  - Insulin – tailor and titrate (may need > 250 units/d)
    - Humalog, NovoRapid
    - Protaphane/Humulin NPH
    - Optisulin/Toujeo
  - ?metformin

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During pregnancy – outside major centres

Challenging – no easy solution

Pre-Existing Diabetes

Type 1 / Type 2

- Link to Specialist diabetes & pregnancy services
- Telehealth option
- Consider ‘shared care’ with a major centre
- ?late pregnancy or additional concerns, transfer care to major centre…especially T1D

Gestational Diabetes

- Optimise available supports locally
- ? link to Specialist diabetes & pregnancy services

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After pregnancy

Pre-Existing Diabetes Type 1 / Type 2

- Contraception
- Re-stabilize diabetes management – provide:
  - Contact information
  - Guidance re frequency of glucose monitoring
  - Parameters for seeking advice between appointments
- Review within 6-8 weeks
- Ideally specialist care if type 1 diabetes or complex type 2 diabetes
- If breastfeeding :
  - Insulin safe – higher targets, simplify T2D regimens
  - Metformin – low passage to breastmilk
  - Not DPP4i, GLP1, SGLT2i

Gestational Diabetes

- Contraception
- If overt diabetes in pregnancy and/or high insulin requirement: advise some glucose monitoring in the first few months
  - Provide parameters for contact (and contact person/team)
  - ?lab fasting glucose at 6-8 weeks
  - No HbA1c until at least 4 months postpartum
- Advise review by GP within 2 months
  - Provide summary information & followup plan at discharge
- GTT at 2-6 months postpartum
- Discuss future pregnancy plans
- Appropriate ongoing glycaemic monitoring
  - HbA1c, fBGL, GTT
- Monitoring of other cardiovascular risk factors
- Longterm diabetes prevention strategies for mother and family – diet, exercise, weight management

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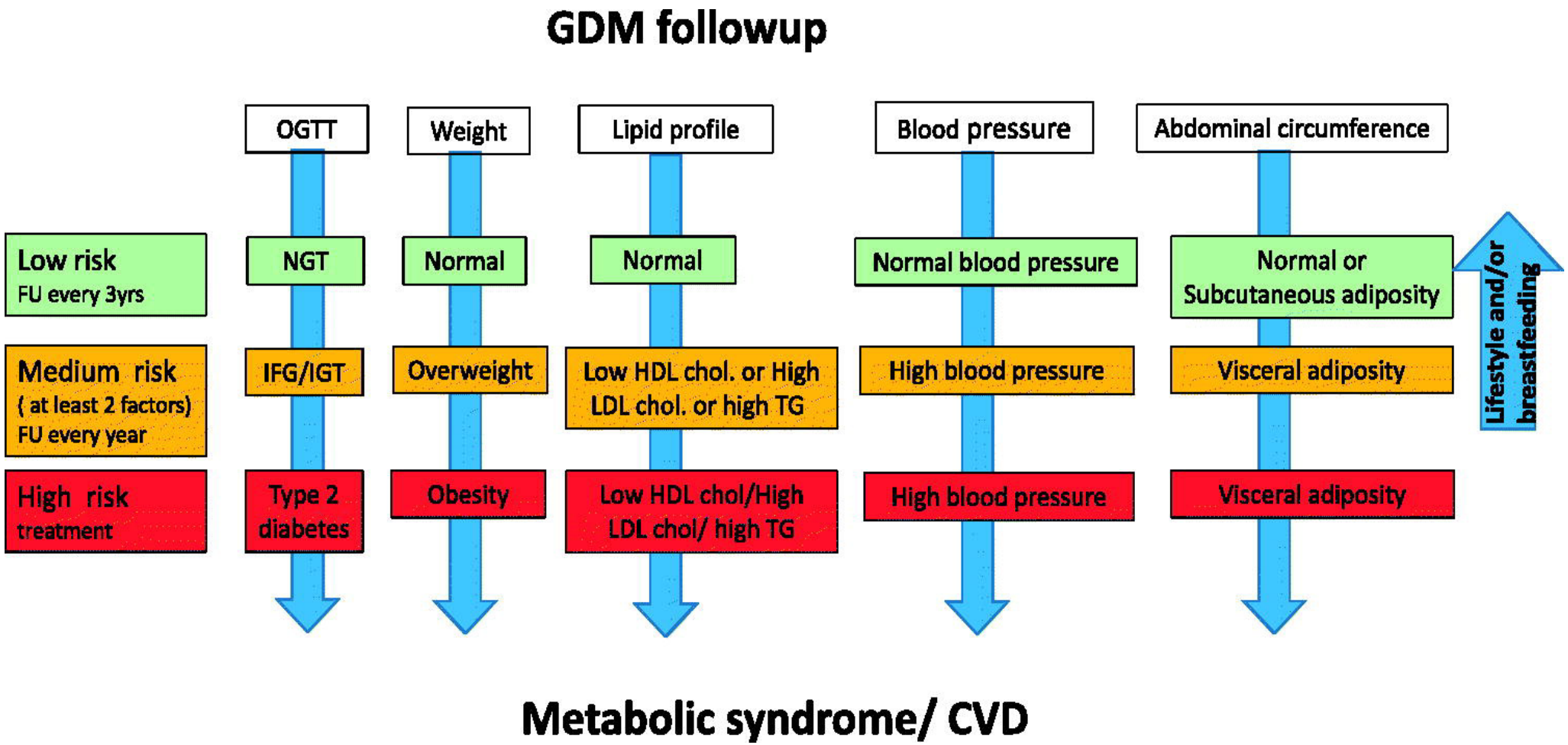
Stratification of the cardio-metabolic risk of women with previous GDM



Australian Commission on **Safety and Quality** in Health Care

S. Burlina, M. G. Dalfrà & A. Lapolla (2021) Long-term cardio-metabolic effects after gestational diabetes: a review, The Journal of Maternal-Fetal & Neonatal Medicine, DOI: 10.1080/14767058.2021.1903863

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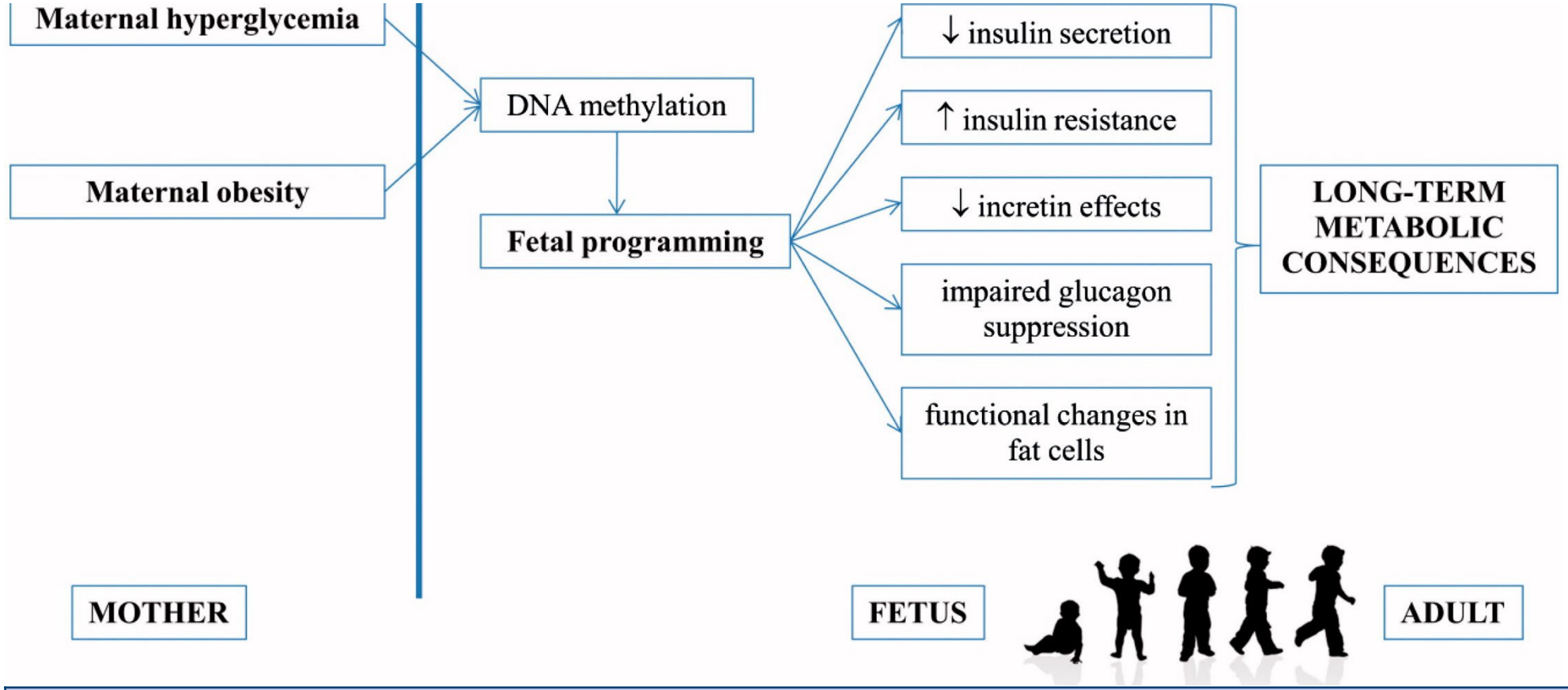
Long-term effect of Diabetes for the offspring



- **Offspring** by age 27 ~ 4 x more likely obese, 8x more likely to have diabetes / abnormal glucose tolerance

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Summary

- Diabetes in pregnancy has impacts on the pregnancy outcomes and future health of the offspring
- Pre-existing diabetes is particularly high risk – specialist care essential
  - pre-pregnancy planning AND optimal glycaemic control before and after pregnancy are critical
- Diabetes medications that are considered safe are insulin and probably metformin
- Gestational diabetes is associated with increased future risk for diabetes and cardiovascular disease
  - modifiable risk factors should be addressed pre-pregnancy
  - long term follow up includes planning for future pregnancies, reducing modifiable risk factors, monitoring of glycaemic status and optimizing all cardiovascular risk factors
- Children: at present no recommendations beyond ‘healthy lifestyle’

Key clinical references

ADIPS 2020 Guideline for Pre-Existing Diabetes and Pregnancy www.adips.org

ADIPS 2025 Consensus Recommendations for the Screening, Diagnosis and Classification of Gestational Diabetes

NDSS Resources- Contraception, Pregnancy planning, Pregnancy & Type 1 Diabetes, Pregnancy & Type 2 Diabetes, Gestational Diabetes, CPD Modules