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What is GDM?

Why should we test for and treat GDM?

Diagnosis of GDM

Treatment for GDM

Management of GDM postpartum

GDM is defined as glucose intolerance with first recognition in pregnancy (this definition therefore includes women with previously undiagnosed abnormalities)



HbA1c 6.5% or Fasting 7.0 / 2-hour 11.1

Refer to diabetes educator, dietician and physician

Baseline urinary albumin:creatinine ratio

If suspicion of T1DM also check TFT and autoantibodies

Women with pre existing diabetes are at greater risk of adverse outcomes than those with GDM

Elevated HbA1c at conception and first trimester

Increased risk of miscarriage

Increased risk of major malformation

HbA1c >10% -> 25% chance of major malformation (esp cardiac)

Refer for tertiary level ultrasound and fetal echo

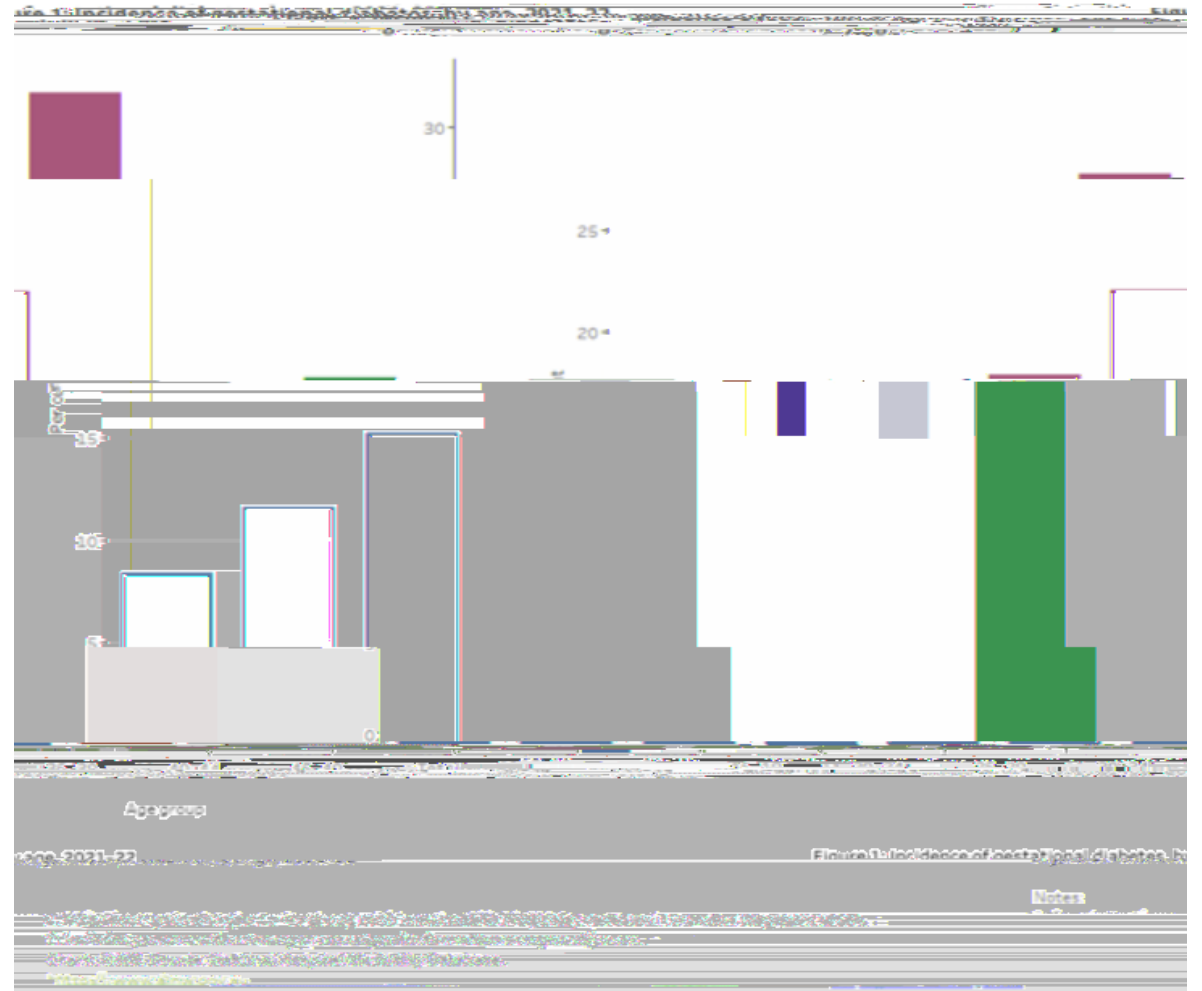
Aspirin to reduce risk of pre eclampsia

Growth surveillance

Growth US 28, 32, 36 weeks gestation

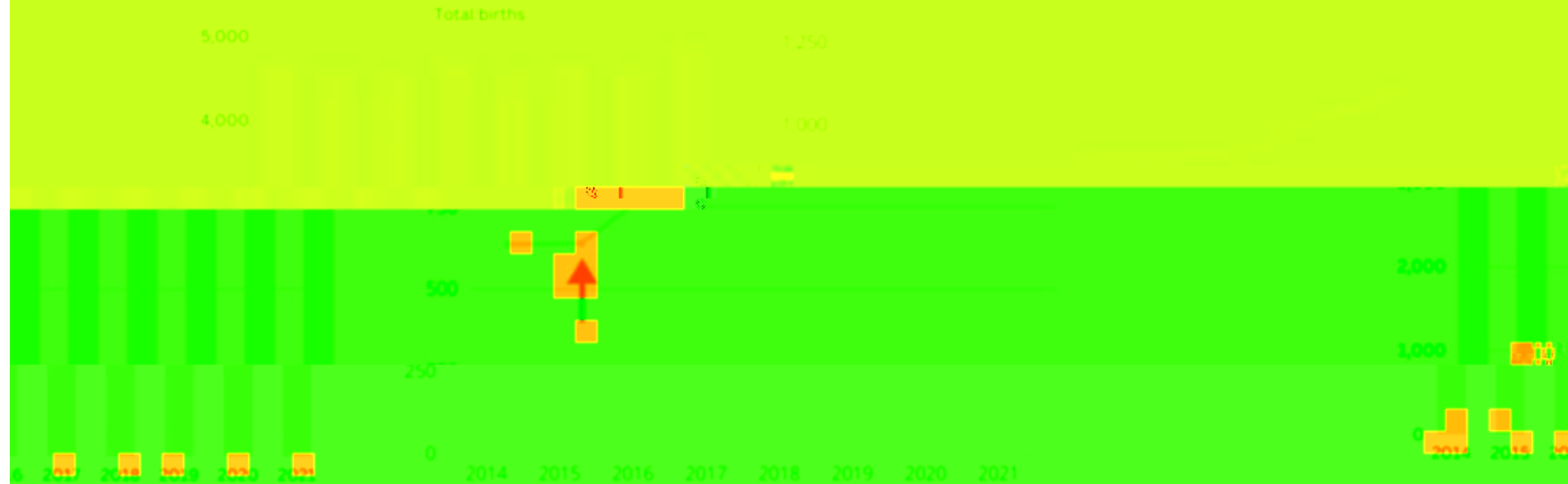
More than 1:6 women (17.9%) who gave birth in Australia in 2020-21 was diagnosed with GDM- 53 900 women

It is important because it tells us about the risk of T2DM in 2 generations!



Diabetes in pregnancy

at the Women's and Children's Hospital, Adelaide, South Australia



Incidence of Diabetes in pregnancy at the WCH

in 2015 the WCH introduced new Perinatal Practice Guidelines

for the management of Diabetes in pregnancy

and the incidence of Diabetes in pregnancy has increased

from 1,000 women being diagnosed with gestational diabetes

in 2014 to 1,200 women with Diabetes in pregnancy

in 2021 - 1,201 women with Diabetes in pregnancy

GDM is the fastest growing type
of diabetes in Australia

Contributing factors include age

In a pregnancy NOT affected by GDM

Multiple factors – growth hormones, placental lactogen, progesterone, corticotrophin releasing hormones are produced by the placenta which result in insulin resistance

The pancreas can secrete sufficient insulin to cope with the increase in insulin resistance over the pregnancy

Normal blood sugar levels are maintained

The fetus receives adequate glucose, produces a normal amount of insulin and has normal growth

In GDM

The same factors are produced by the placenta resulting in insulin resistance

The pancreas is unable to secrete sufficient insulin to overcome the insulin resistance of pregnancy

This results in maternal hyperglycaemia

Excessive maternal glucose crosses the placenta resulting in fetal hyperglycaemia

The fetus responds by secreting extra insulin which results in excessive fetal growth

Primary outcomes

Birth weight >90%

Primary caesarean delivery

Neonatal hypoglycaemia

Cord blood serum C – peptide >90th %

Secondary outcomes



Maternal hyperglycaemia increases adverse pregnancy outcome: macrosomia, adiposity, neonatal hypoglycaemia, preterm delivery, neonatal ICU admission, hyperinsulinaemia and pre-eclampsia

The effect of maternal hyperglycaemia on pregnancy is a continuum and its diagnostic criteria and cut off threshold is by consensus and opinion

IADPSG defined diagnostic values on the basis of an odds ratio of 1.75 for adverse neonatal outcomes

75g OGTT one-step approach

Fasting 5.1 / 1 hour 10 / 2 hour 8.5 (mmol/L)

2013 WHO endorsed the criteria

In the presence of overt DM, do not offer OGTT

HbA1c 6.5%

Fasting 7.0 / 2 hr 11.1

Increased risk of

Pre eclampsia

LGA

Late stillbirth

Enduring effect on the metabolic health of the offspring

Previous GDM

AMA 40

Medications – prednisolone, tacrolimus, antipsychotics

BMI > 30

Previous macrosomic baby

Hx of PCOS

First degree relative with diabetes

Ethnic origin (Asian, Indian, ATSI)

26-28 weeks gestation

75g OGTT performed

Consumption of standard carbohydrate load 3 days prior to test

Can get a false negative test if patients restrict carbs prior to the test

Vomiting during the test

- Repeat OGTT

- Commence QID BGL home monitoring

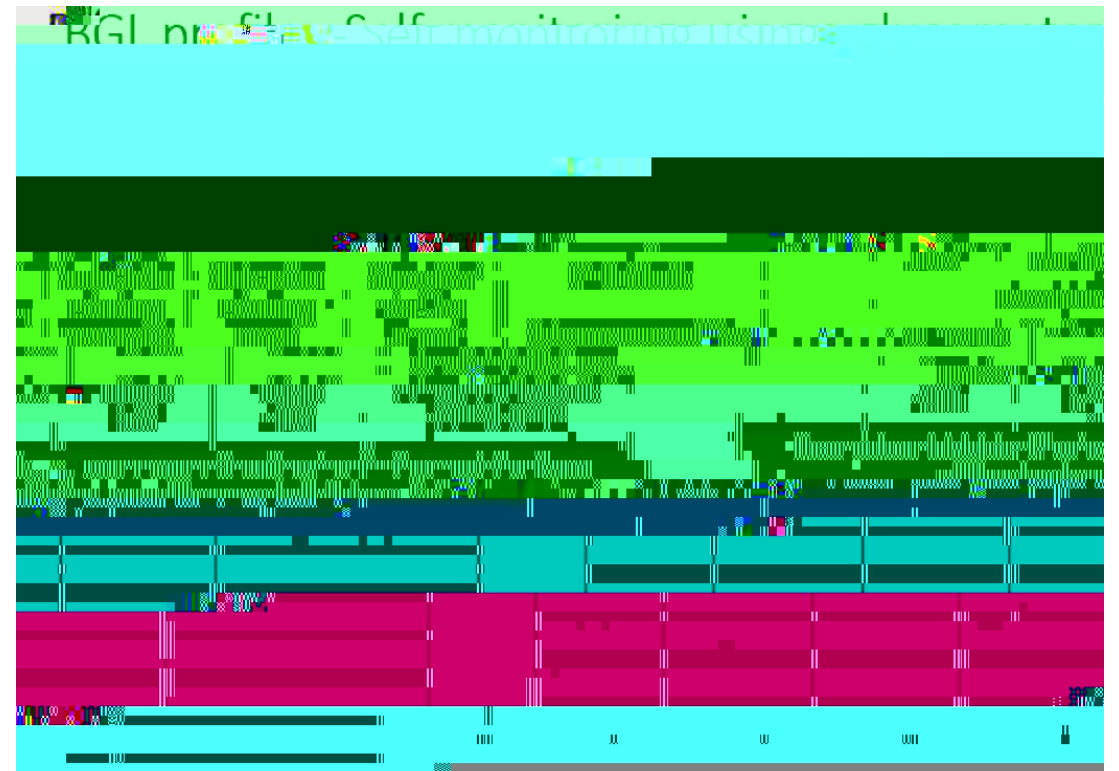
Bariatric surgery

- Altered glucose absorption through GIT, dumping resulting in reactive hyperglycaemia

- QID BGL home monitoring

Jet lag / night shift worker

- Ideally delay test until normal routine



Fasting < 5

2 hours PP < 6.7

Dietary modification

3 meals and 3 snacks each day with the carbohydrate evenly distributed across the day

Best foods are high fibre, low GI

Gestational weight gain within targets

Exercise

Aim for 30 min walk each day (puffing but not speechless)

Insulin sensitivity increases for 24-48 hours after exercise

If physically limited (back pain etc) try walking 10 mins three times a day

Insulin

Replaces the hormone that is insufficient

Has been used for nearly 100yrs

Does NOT cross the placenta

Has to be injected

Metformin

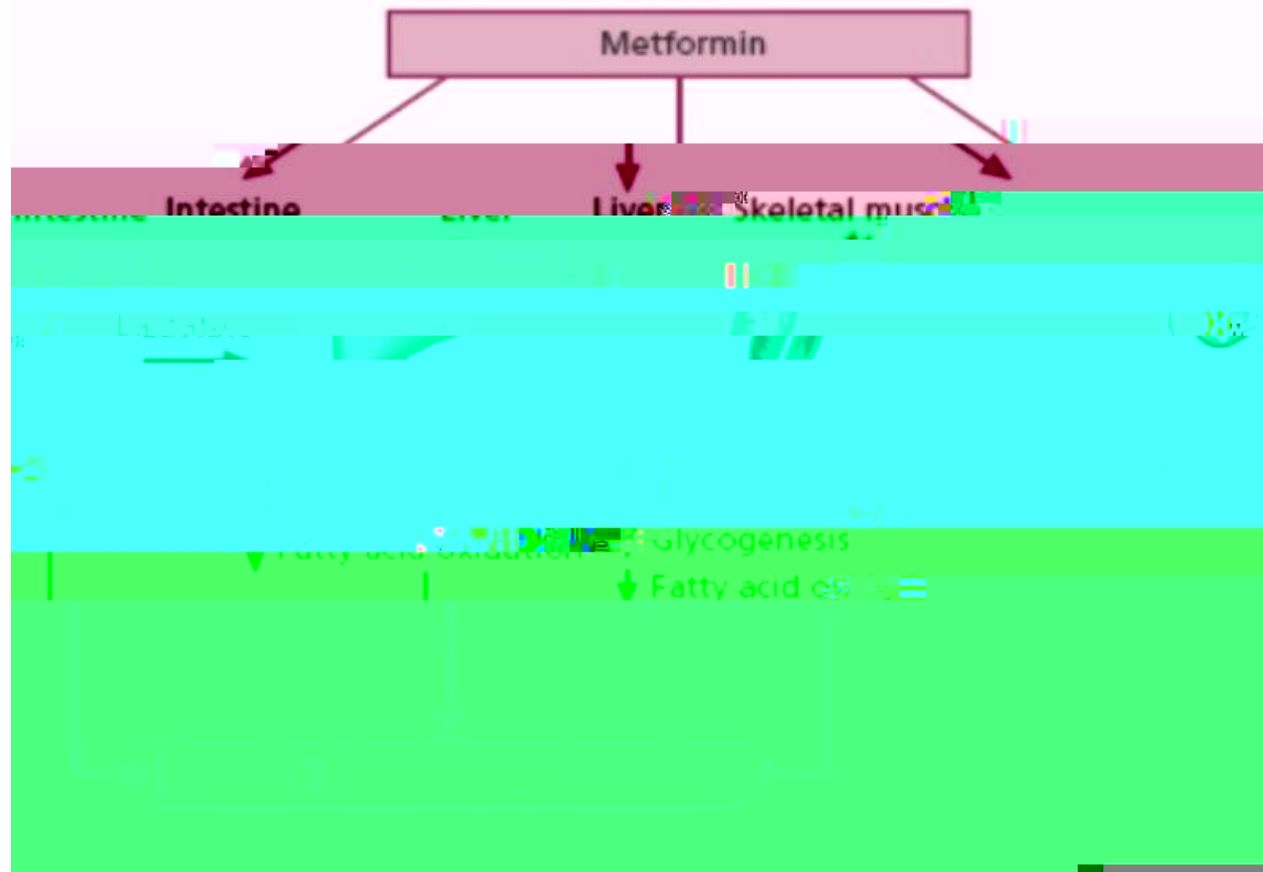
It makes the insulin that the body produces work better

Has been used for 10-12 years in pregnancy

Crosses placenta- concerns about fetal programming in utero

Oral medication

Mechanism of action of metformin .





More women in the metformin group said they would choose to receive their assigned treatment again (76.6 vs 27.2%)

Short and long term outcome of metformin



Metformin lowered risk of

- Neonatal hyperglycaemia

- LGA babies

- Pregnancy induced hypertension

- Total maternal pregnancy weight gain

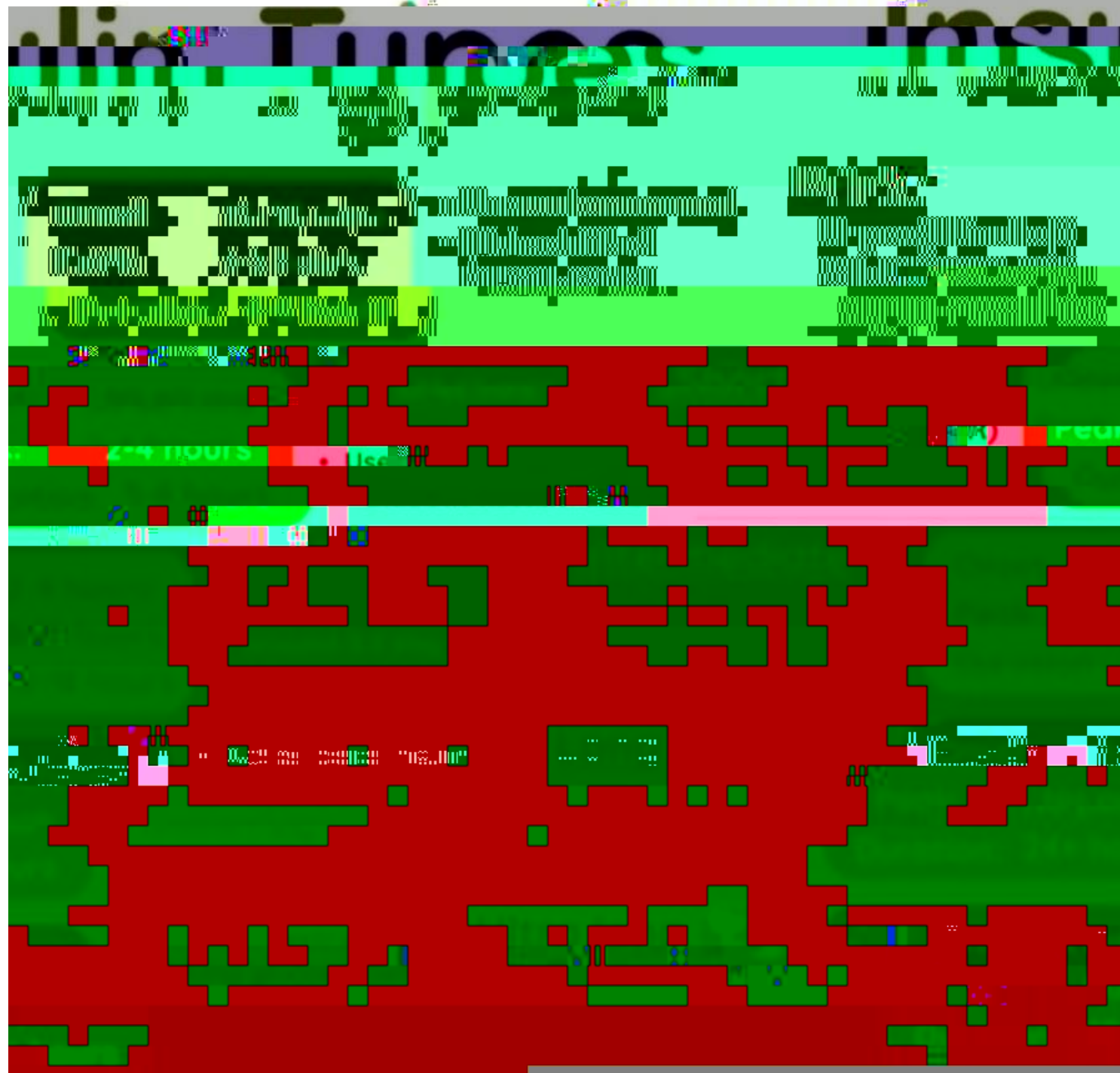
Metformin did not increase

- Preterm delivery

- Small for gestational age

- Perinatal mortality

- CS



Shoulder dystocia

Perineal trauma

CS

Birth trauma

Nursery admission

Neonatal hypoglycaemia

RDS

hypocalcaemia

Mother – 7x more likely to develop T2DM

Most women return to normal glycaemic control after delivery

Can check BGL's BD after delivery then cease (different protocols in different hospitals)

75g OGTT 6-12 weeks post delivery

Screen 1-3 years

Baby

Baby will not be born with diabetes

Heel prick to check glucose level immediately post-delivery

If hypoglycaemia, breast milk/formula/glucose may be required for 24-48 hours

Mother

- Increased risk of developing T2DM

- Increased risk of GDM in future pregnancies

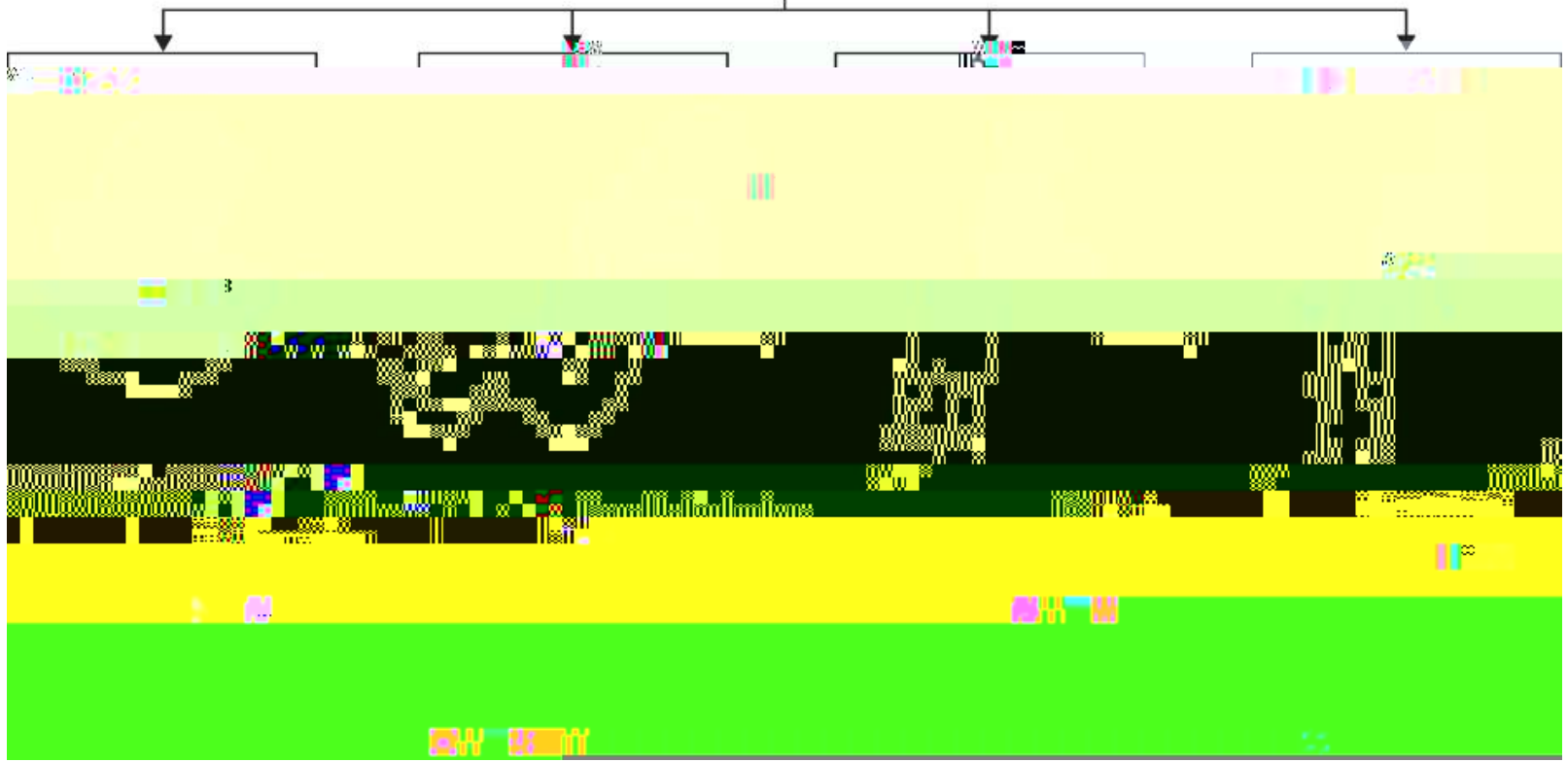
Child

- Increased risk of obesity

- Increased risk of developing GDM and T2DM later in life

These effects are likely to exacerbate the current epidemic of obesity and diabetes

Epigenetic biomarkers



Encourage women to attend GP for pre pregnancy assessment

More support to help women optimise their weight before pregnancy

Access to diabetes education and dietetic services

Ensuring women receive follow up after pregnancy

Improving screening for T2DM after GDM

