

# **Medical disorders and pregnancy**

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**What to screen for and what to follow up.**

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National Womens and Auckland Obstetric Centre.*

# Preparing for this talk

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- General practitioners no longer provide a large amount of obstetric care as lead maternity carers.

*BUT*

- Early pregnancy care and ongoing post delivery care is vital for the health of women in New Zealand.



# The beginning and the afterwards

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➤ Early pregnancy screening for medical disorders

- Hypertension
- Diabetes
- Obesity
- Thyroid disease
- HIV

➤ Follow-up after abnormal pregnancy outcomes

- Preeclampsia
  - Gestational diabetes
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# Early pregnancy hypertension

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- First trimester women should have a BP that is  $<130/80$ .
    - Ensure correct sized cuff.
  - Higher levels suggest chronic hypertension and increased pregnancy risks
    - Gestational hypertension
    - Preeclampsia
    - Intrauterine growth restriction.
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# Management

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- **If BP >160/100– urgent referral and treat with appropriate agent.**
    - Nifedipine, methyldopa, B blocker.
  
  - **If BP lower**
    - Monitor over coming weeks
    - Discuss aspirin, calcium prophylaxis
    - Not settling – refer for specialist review – especially if other risk factors.
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# Early pregnancy risk factors additive risks

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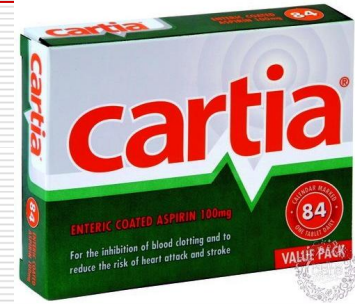
- Primigravida
  - Previous preeclampsia
  - >10years since last baby
  - Age>40 years
  - BMI > 35
  - Family hx of preeclampsia
  - Booking BP > 80 diastolic
  - Proteinuria or other renal disease
  - Multiple pregnancy
  - Diabetes
  - Autoimmune disease.
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# Prophylaxis against pregnancy complications

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## ➤ **Low dose aspirin (100mg daily)**

- Commence in first trimester
- Large database to suggest safety
- Risk reduction of 15% of preeclampsia and IUGR



## ➤ **Calcium supplementation (1.2g daily)**

- For women with low calcium diets
- Risk reduction between 40-60% in high risk populations.

## ➤ **Pregnancy multivitamins**

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# Gestational Diabetes Mellitus (GDM)

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# GDM – why is it important

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## Mother

- Increased pregnancy risks
- Increased risk of later type 2 diabetes

Intervention improves pregnancy outcomes

## Baby

- Increased pregnancy risks
- Increased newborn morbidity
- Increased risks of obesity and type 2 diabetes

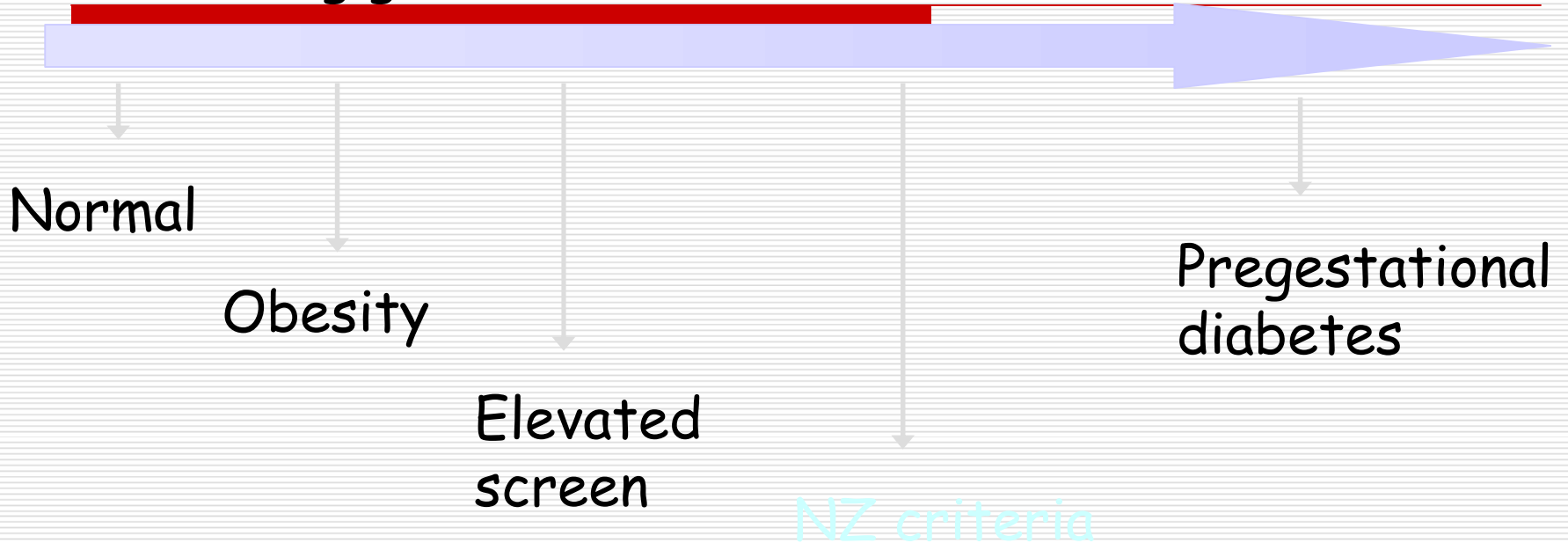
Potential to improve long term outcomes

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***TIMELY INTERVENTION IS VITAL.***

# When does GDM begin?

Increasing glucose



Increasing pregnancy (long term) RISKS



# GDM - screening and diagnosis

Prepregnancy prevention is ideal

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At booking identify risk factors....triage women

- Previous GDM
- Age
- Ethnicity
- Obesity (adiposity)
- Polycystic ovarian syndrome
- Low or high birth weight
- Family history
- Previous obstetric history

(If known impaired glucose tolerance, treat as GDM)

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# *GDM - a role for early screening*

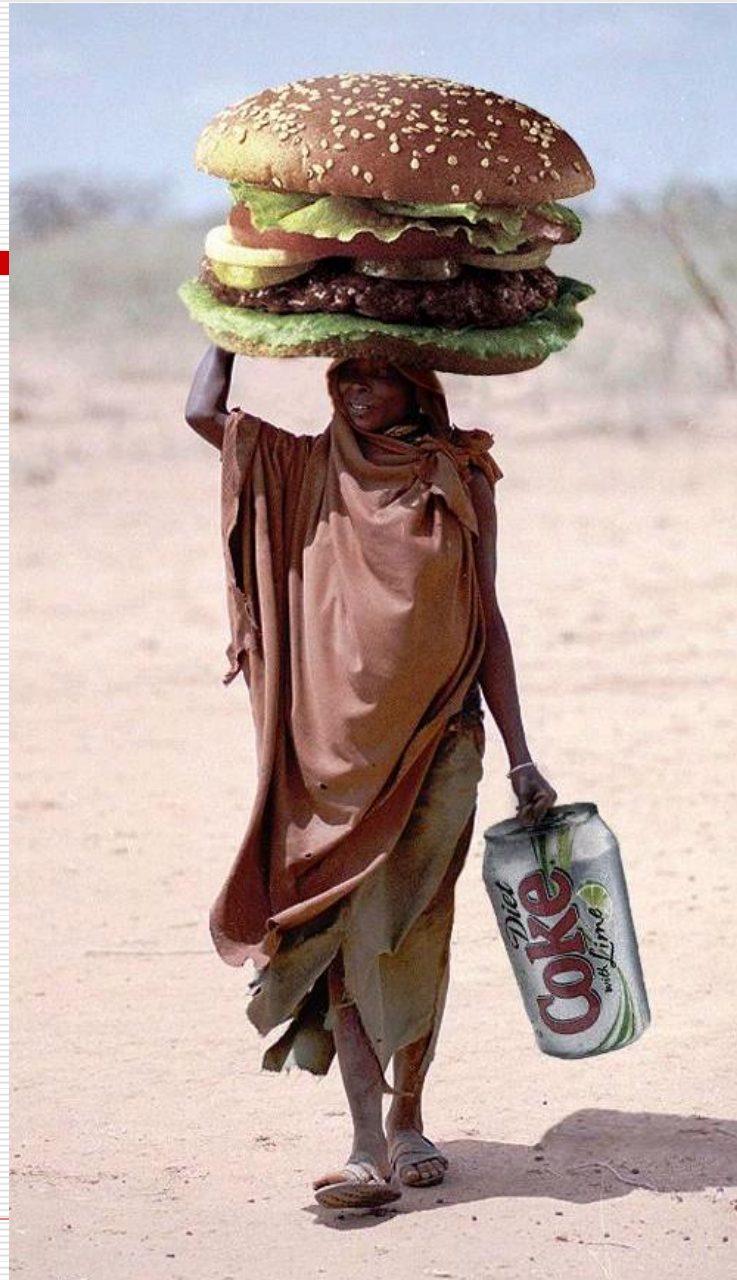
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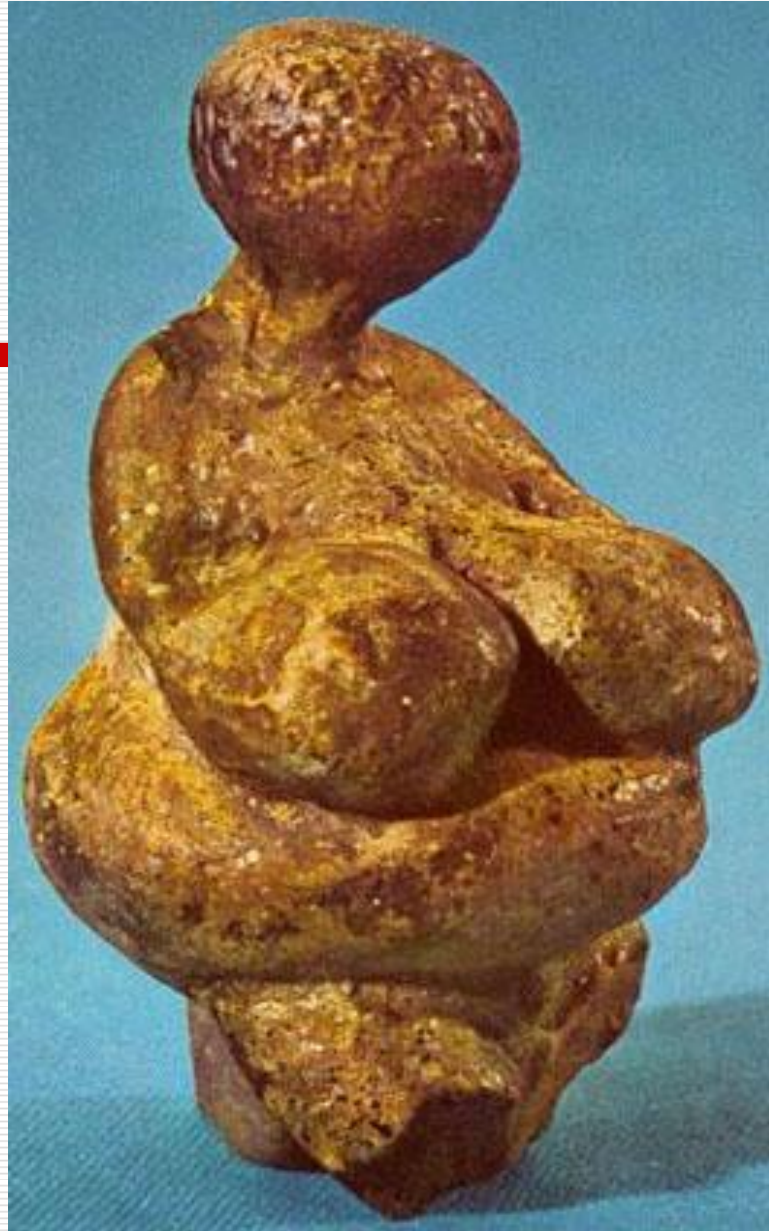
If previous GDM/ PCOS/ extreme or >1 risk factors...ie you think the woman may have undiagnosed T2DM/IGT

1. With booking bloods, add HbA1c (and fasting glucose?)
2. If HbA1c above reference range (6.0%), refer directly to diabetes in pregnancy clinic - phone
3. If HbA1c "normal range" still do early OGTT (14 weeks)
4. If OGTT normal, repeat at 24-28 weeks
5. Consider OGTT at 30-32 weeks

There is no need to do a polydose in these women

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**Sculpture from the  
Stoneage**

*Gargarino Venus*

# Obesity, pregnancy and the future

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- **Increasing prevalence of obesity in pregnant populations leading to:**
    - Marked increase in pregnancy complications/adverse outcomes
    - Subsequent development of metabolic/cardiovascular disease in women
    - Poor outcomes for babies and infants
    - Concern for future health of children
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# Maternal/Obstetric risks

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- Diabetes at least 10% in morbidly obese
  - marked increase with maternal weight and family history
- Labour progression
  - average 1.7hours longer to get 6cm dilatation
- Caesarean section risk
  - Obesity risk 2.4 times with no diabetes
  - 50% rate of CS if Class 2 or 3 obesity
- Higher rate of postpartum anaemia

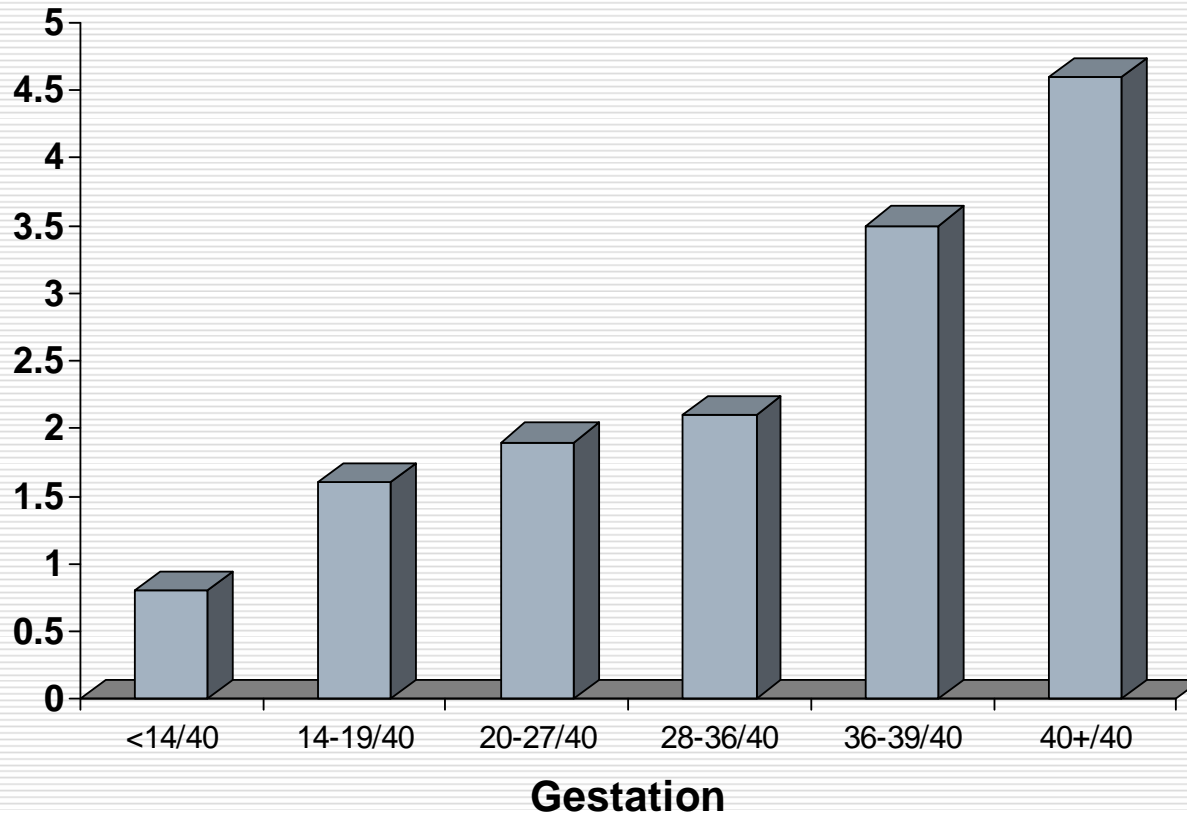
# Other medical risks

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- **Postnatal infections/wound breakdown**
  - **Venous thrombosis**
  - **Respiratory infection**
  - **Cardiac disease**
    - secondary to obesity, hypertension
    - undiagnosed due to obesity
  - **Possible association with anxiety/depression**
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# Relative risks of pregnancy loss

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■ Relative risk of pregnancy loss - Obese vs non obese

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# Other fetal/neonatal risks

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- **Neural tube defects**
    - 2-3 fold increase, more if no folate
    - Increase in cleft palate
  - **Premature delivery**
    - 60% increase in obese women
  - **Large for gestational age**
    - 60% increase with obesity alone
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# A window into the future

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## ➤ ***Mother***

- Obesity predicts metabolic syndrome
- GDM predicts type 2 diabetes
- Preeclampsia predicts coronary artery disease

**Obese pregnant women = women with major medical disease in 10 years**

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# What about the baby?

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## **Predictors of childhood obesity**

- Maternal obesity = 4 fold risk
- Growth restriction crossing centiles
- Macrosomia – in-utero programming
- High early weight gain

Obesity at age 6 gives a 50% risk of obesity in teenage/adult years.

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# Optimal Weight Gain in Pregnancy

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- Institute of Medicine guidelines (1990) for women with BMI > 30 - gain at least 15lb (6.5kg). Concern to reduce SGA rates.
    - Do not distinguish between different levels of obesity
  - 2003 update – 46% women gain > than recommended weight gain.
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# Swedish data base

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## ***Cedegren MI. Obstet Gynecol 2007; 110:759-64***

- Outcomes for each level of weight gain in each class of obesity.
    - Obesity rates rose with maternal age, multiparity.
    - Accept a rate of 2.5% SGA for optimal outcome.
    - Look for weight gain that has “normalised” the complication rate.
  
  - **Rate of BMI>25 was 33%. Obesity in 10.7%**
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# Optimal weight gain - Cedergren

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<b><i>BMI</i></b>	<b><i>Opt. Wt Gn (lb)</i></b>	<b><i>Opt Wt Gn (kg)</i></b>	<b><i>Current IOM guidelines</i></b>
< 20	9-22	4-10	28-40lb
20-24.9	5-22	2-10	25-35lb
25-29.9	<20	<9	15-25lb
>30	<13	<6	>15lb

# Missouri database

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- Kiel et al. Obstet Gynecol 2007;110:745 51
- Large database 1999 2001
- Confirmed adverse outcome rates

<b><i>Pregnancy outcomes</i></b>	<b><i>Obese I BMI 30-34.9</i></b>	<b><i>Obese II BMI 35-39.9</i></b>	<b><i>Obese III BMI &gt;40</i></b>
Preeclampsia	7%	8%	10%
LSCS	28%	34%	41%
SGA infant	7%	7%	6%
LGA infant	13%	16%	18%



# Overall conclusions

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## ➤ **We should be**

- Advising our obese women to restrict weight gain in pregnancy
  - The morbidly obese woman should be encouraged to gain no weight or even lose a little
  - Other benefits – reduce diabetes, educate family, reduce fetal programming effects
  - We need the resources to achieve this
    - Dieticians
    - Exercise programmes
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# Thyroid function in early pregnancy

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- **Bhcg acts as TSH like molecule**
  - **Many women have suppressed TSH and normal/high T4 in 1<sup>st</sup> trimester**
  - **A raised TSH is very abnormal**
    - Associated with adverse neurological outcomes for babies
    - Institute thyroxine replacement and monitor – aim T4 in upper half of normal range.
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# The bigger picture

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- **Escalating rates of obesity at a younger age**
    - Focus on family eating patterns
    - Amount of food as well as type
  - **Low energy expenditure**
  - **Epidemic of glucose intolerance and type 2 diabetes**
    - Major medical complications at young age
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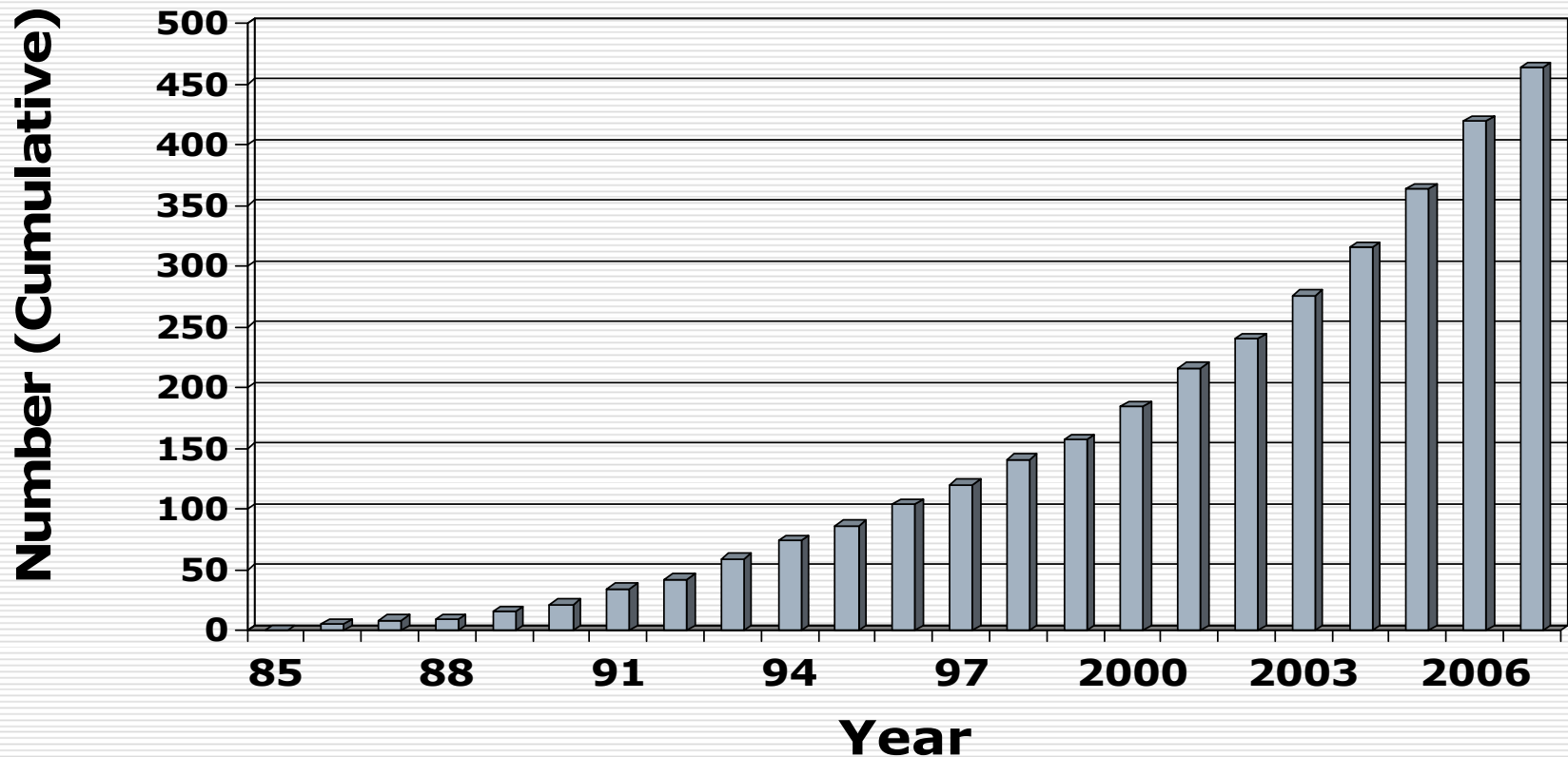
# HIV screening

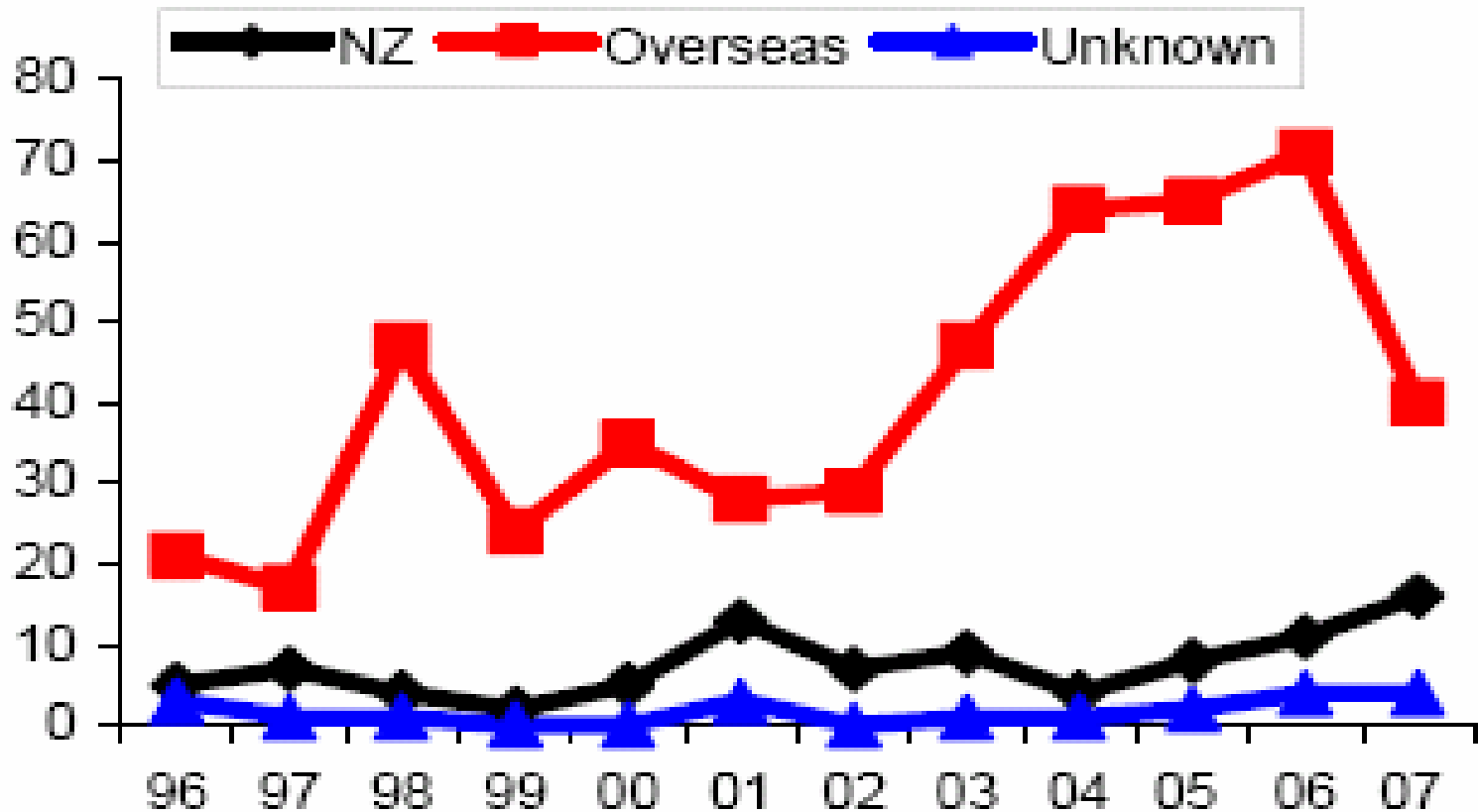
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- **Coming to a town near you!!!!**
  - **Routine offer of HIV screening to all women in early pregnancy (including women requesting termination).**
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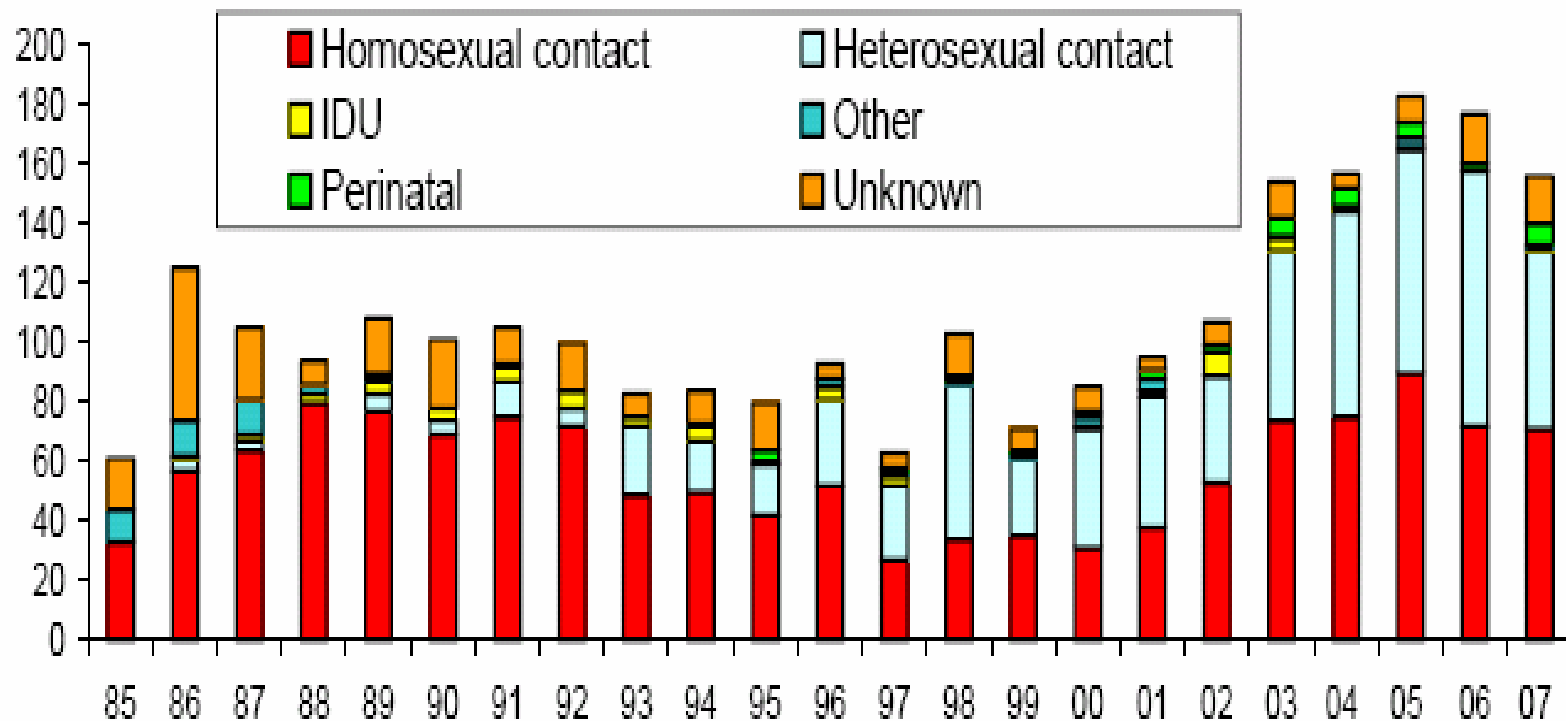
# HIV in women in NZ - cumulative

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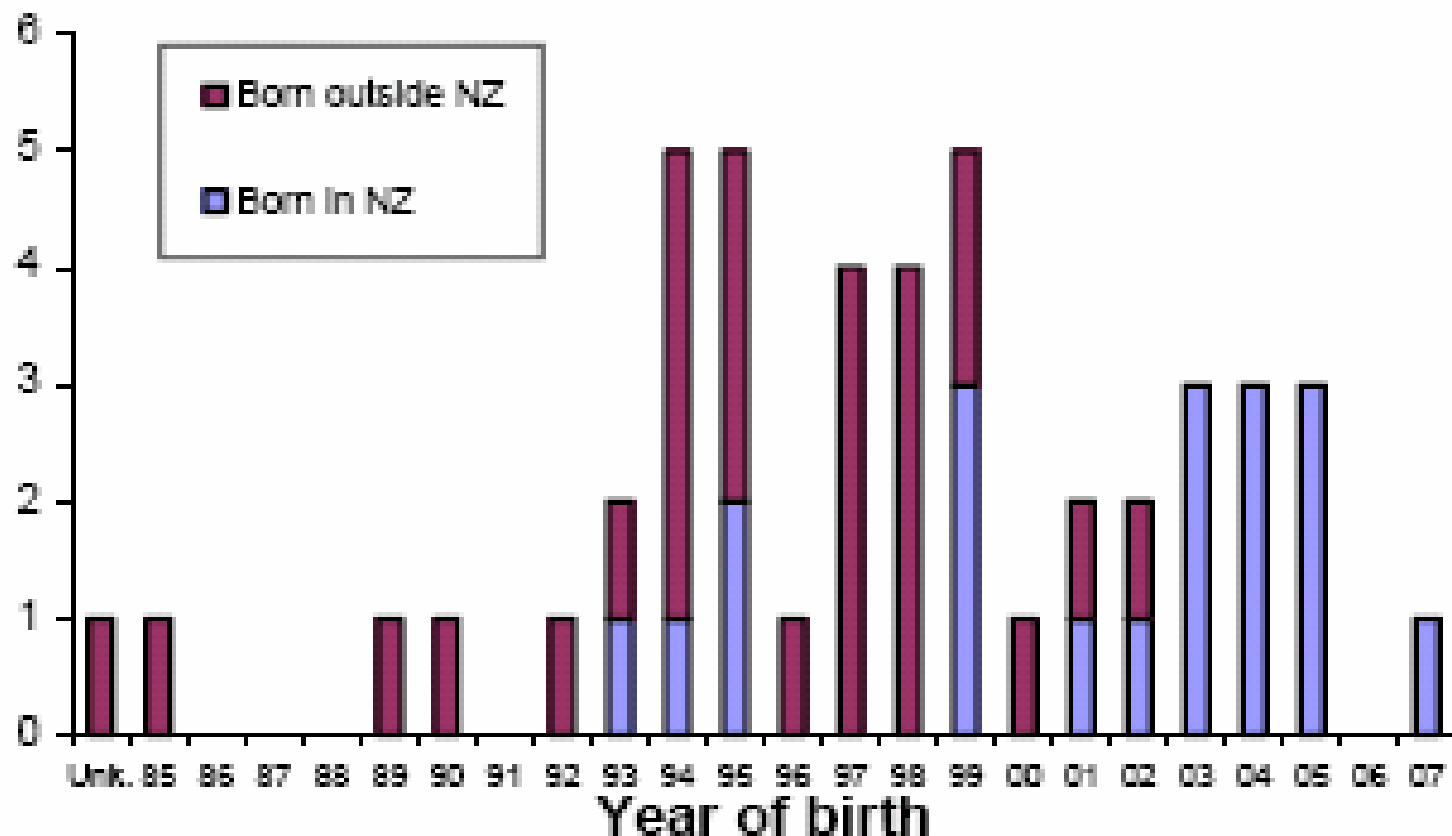


**Figure 3 Place of infection of those infected through heterosexual contact, diagnosed by antibody test, by year of diagnosis**



**Figure 1** Number of people diagnosed with HIV in New Zealand through antibody testing by year of diagnosis\* and means of infection. (\* Infection might have occurred some time before diagnosis.)

<sup>1</sup> Viral load testing has been available in New Zealand since 1996. Only the trends in those diagnosed through antibody testing have been analysed as this has been available for the whole period.



**Figure 4** Number of children diagnosed with mother to child transmission in New Zealand, by year of birth

# Preventing perinatal transmission

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- No interventions - transmission **20-30%**
  - With intervention - transmission **<1%**
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# Screening

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- Interventions only successful if HIV positive women are identified.
  - Routine offer of test most successful.
  - Barriers to testing need to be overcome in each population.
  - Rapid tests in labour now available, but need caution in interpretation and interventions.
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# Post partum follow-up

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Pregnancy is a stress test for life!!!!

- Especially evident in women with chronic medical disorders.

Adverse pregnancy outcomes, in previously normal women, reflect increased health risks for the future.

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# Increased risk of CVD in women with hypertension in pregnancy.

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- Norwegian database – 13year median followup.
    - Preeclamptic women who delivered preterm (<37/40) had 8x risk of death from CVD and 5x risk of death from stroke.
  - Scottish database – 15-19year followup
    - Women with babies born < 2500g had 11x risk of death from IHD.
  - Recurrent preeclampsia – 25% chance of chronic hypertension.
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# Recommendations

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- Women with a history of pregnancy affected by IUGR or preeclampsia should have cardiovascular risk factor assessment at least every 2 years – as they remain at high lifetime risk of vascular disease.
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# Gestational Diabetes

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- GDM reflects a degree of pre-existing insulin resistance or limited pancreatic beta-cell function.
  - Women with GDM have a 20-60% chance of developing type 2 diabetes over the next 5-10 years
    - Unless they lose weight!!!!
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# Ongoing diabetes screening

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- Check that women have had their 6/52 glucose tolerance test (20% of our GDMs have type 2 diabetes at early review).
  - All women with GDM screened for diabetes every 2 years subsequently. Advise re exercise and diet.
  - Next pregnancy – screen at booking.
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# Summary

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- Early pregnancy screening for medical disorders can allow for interventions and management to improve pregnancy outcomes.
  - Postpartum follow-up of women with adverse pregnancy outcomes may reduce ongoing medical risks.
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