Obstetric Update for GPs

GP CME Rotorua, June 2011

Drs Deralie Flower & Ngaire Anderson

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Outline

- Dr Deralie Flower
  - Risk factors in early pregnancy
  - Smoking in pregnancy
- Dr Ngaire Anderson
  - Pre-pregnancy BMI and gestational weight gain
  - Customised fetal growth charts
- Q&A

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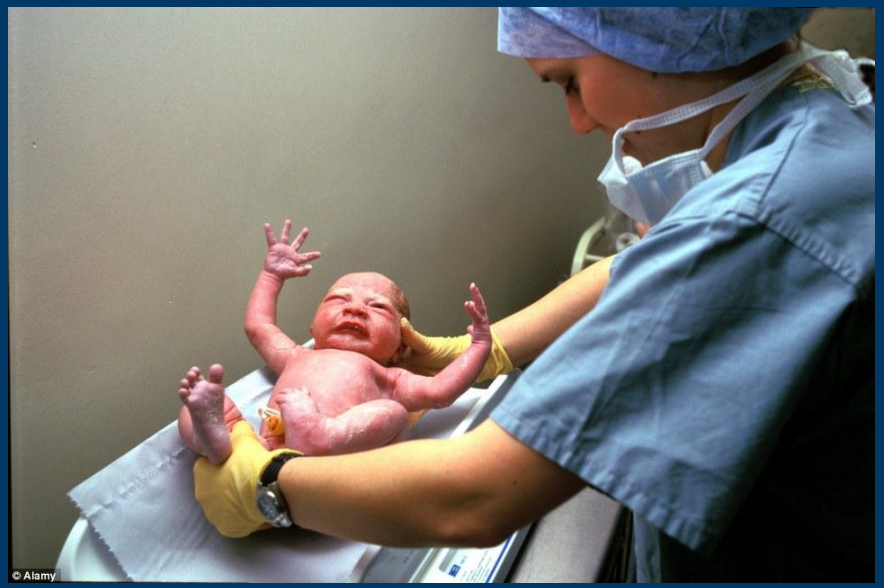

CUSTOMISED FETAL GROWTH CHARTS

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Customised Fetal Growth Charts

- Why is fetal size important?
- What are customised fetal growth charts?
- Why are they useful?
- How do I use them?

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Why is fetal size important?

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Why is fetal size important?

- Consequences of small for gestational age (SGA)

Perinatal Period	Childhood	Adulthood
Preterm birth	CP	Hypertension
Asphyxia	Lower IQ	Heart disease
Stillbirth	Short stature	Diabetes
Hypoglycaemia	↑ BP	CVA
Polycythaemia		
Neonatal Death		

Mother
↑ Ischaemic Heart Disease

Stillbirths
Birmingham 1995-2002

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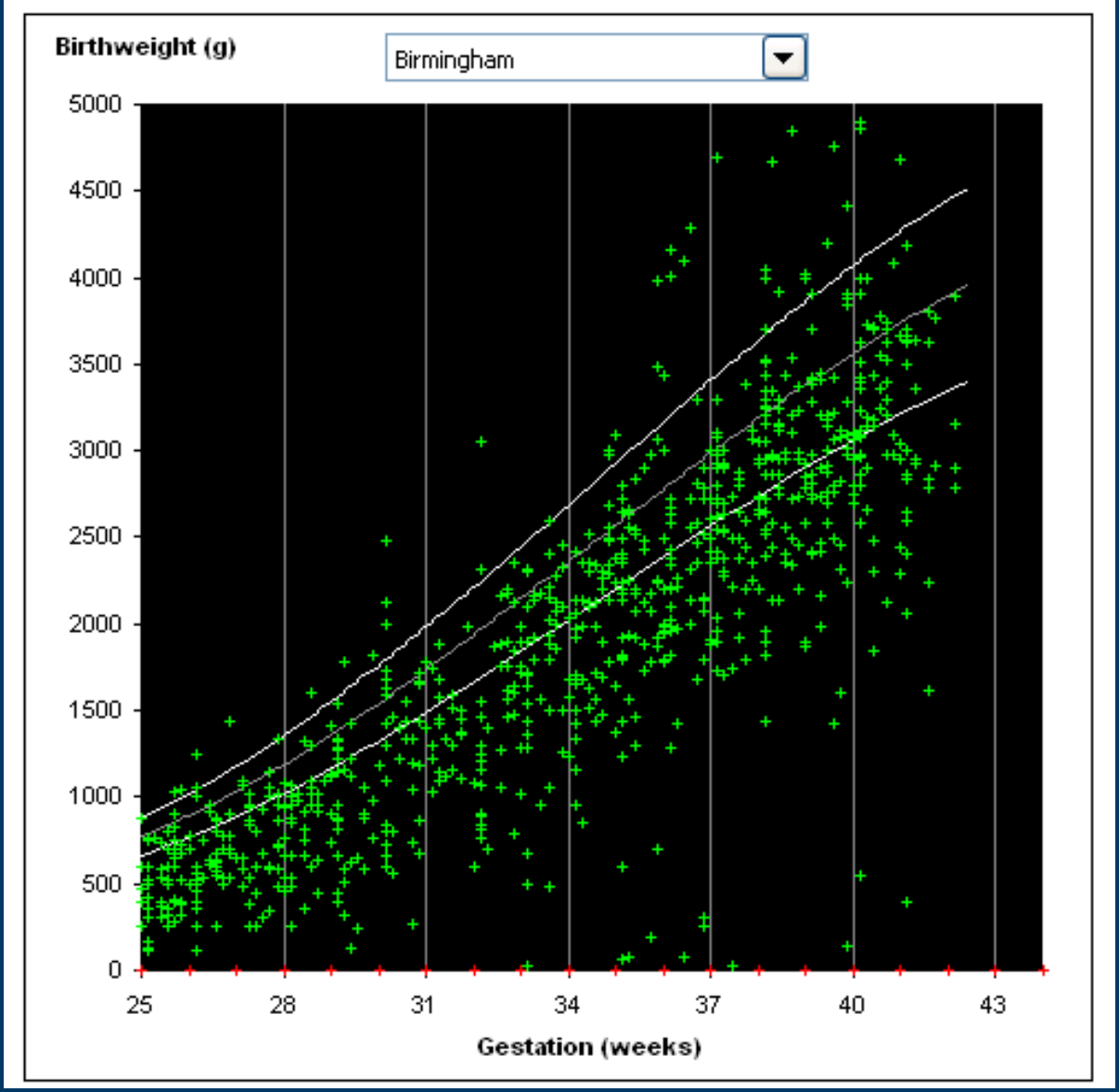

40% - 50% of stillbirths are SGA

As a GP, why do I need to know about fetal size?

- Risk factors for SGA / poor pregnancy outcome are often present at booking
- These risk factors can be modifiable with early intervention
- Women identified as at increased risk can be monitored more closely throughout pregnancy
- If SGA is identified antenatally, risk of adverse perinatal outcomes are reduced four-fold

Lindquist. Ultrasound Obstet Gynecol 2005; 25: 258–264

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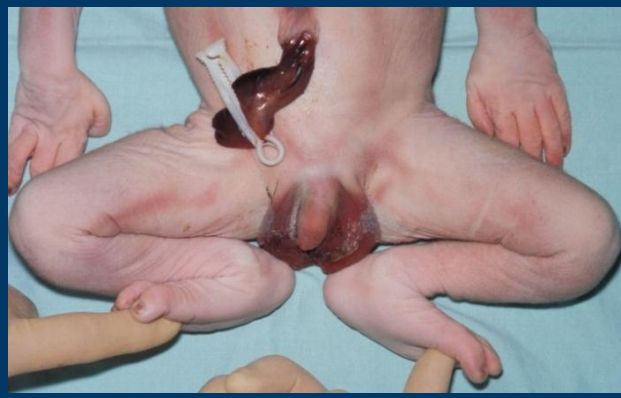
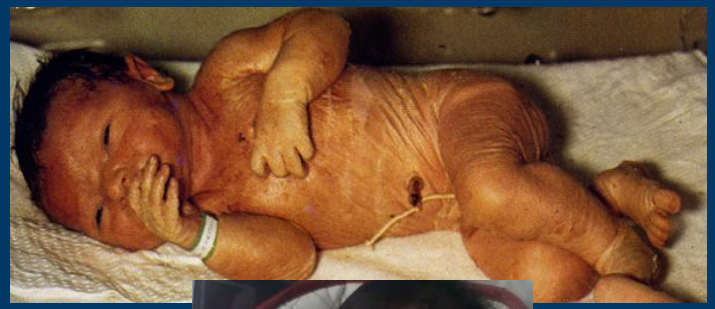
Identification of SGA

- Only 20-40% SGA babies detected before birth!!
- Improved detection before birth & timely delivery decreases perinatal morbidity & mortality
- How can we increase antenatal detection of SGA?



SGA and Fetal growth restriction

- IUGR = failure to reach growth potential
- SGA = birthweight <10th population centile
  - Some growth restricted babies may be missed (20-30%)
  - Some 'constitutionally small' babies that are not growth restricted will be included (20-30%)



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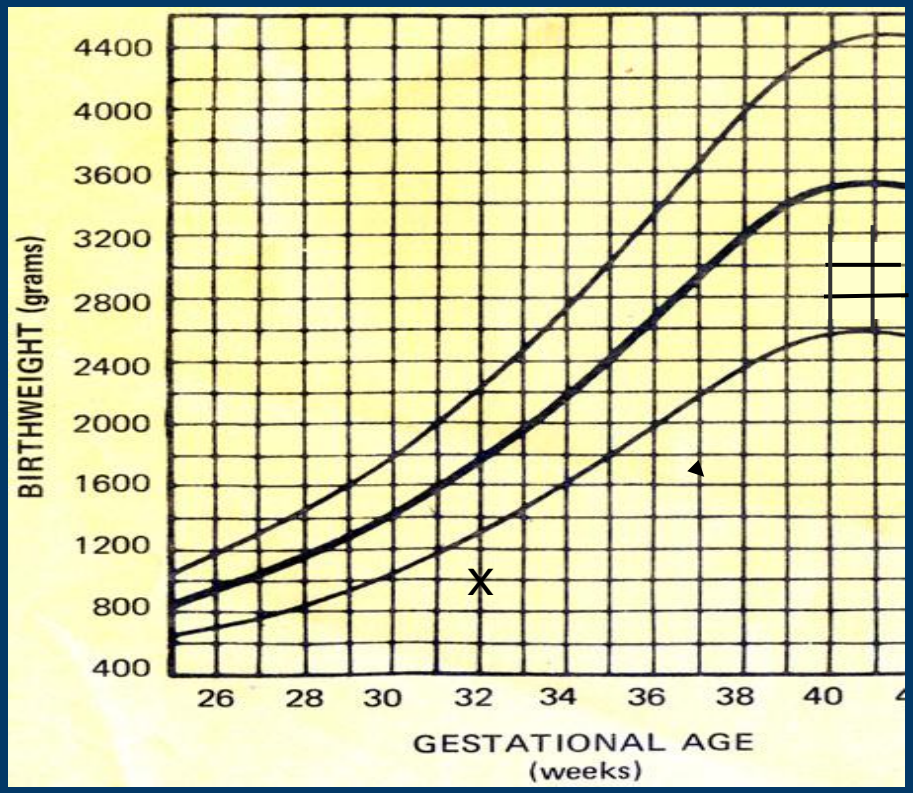
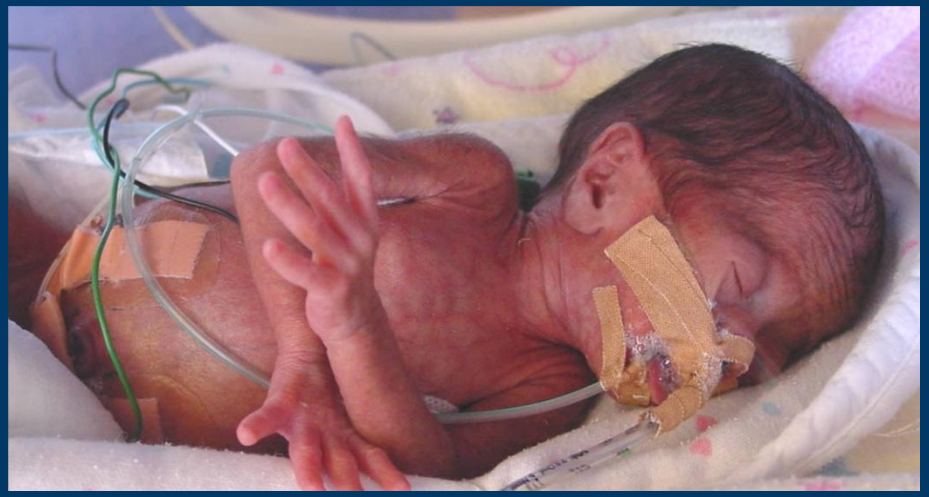
SGA and IUGR





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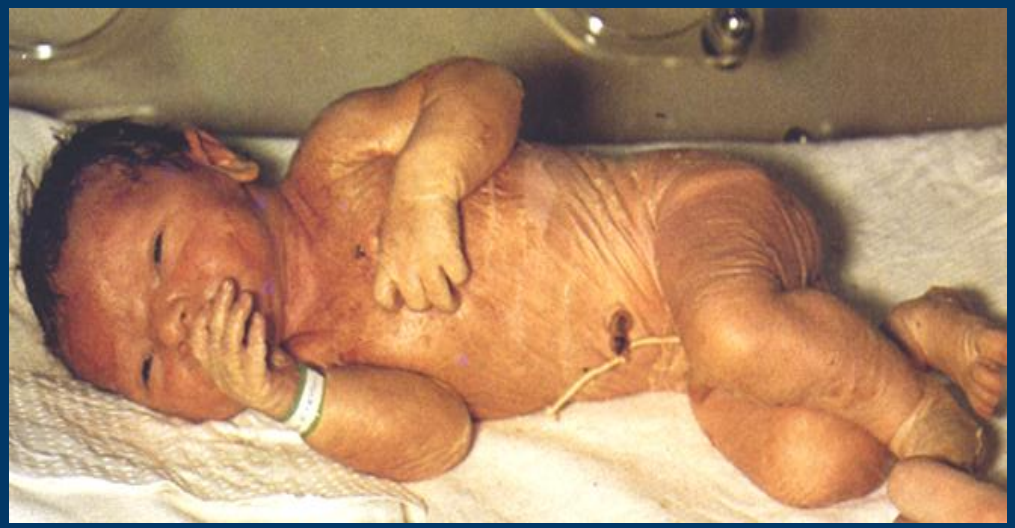
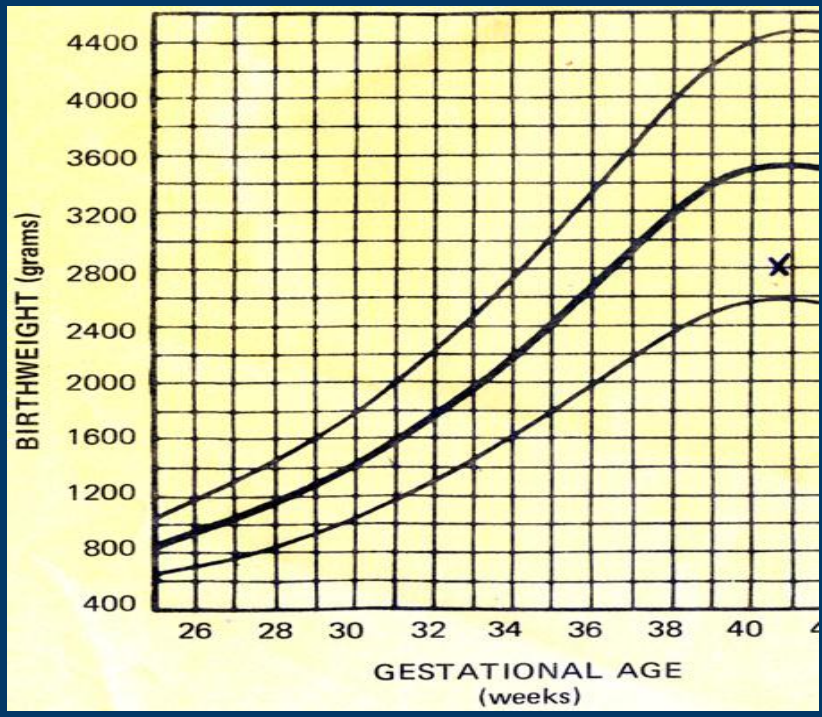
IUGR not SGA





Customised Fetal Growth Charts

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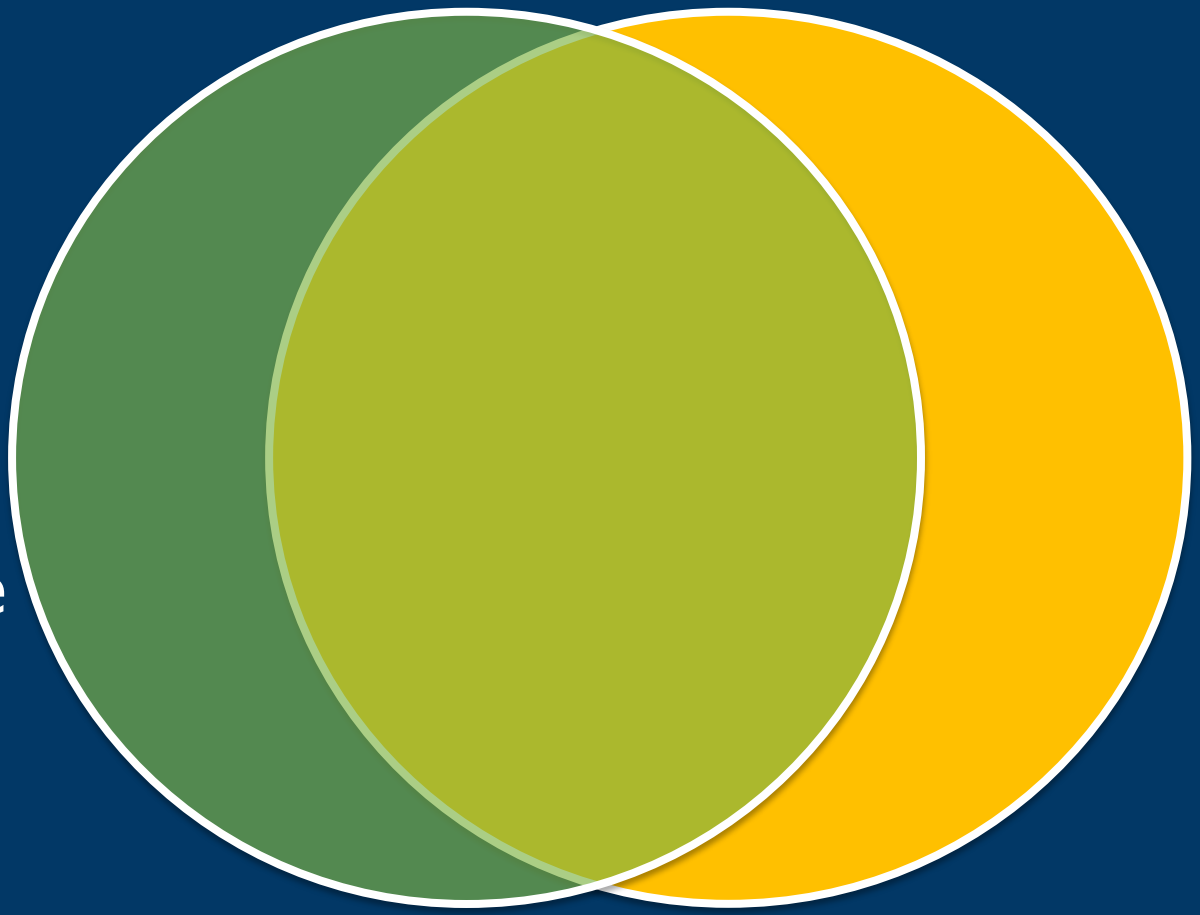
SGA
Birth weight below 10th percentile



IUGR
Fetus unable to achieve it's growth potential

Fetal growth potential

- Optimal weight
- Associated with:
  - Gestation
  - Maternal Ethnicity
  - Maternal height and weight
  - Parity
  - Fetal sex
  - Smoking
  - Diabetes
  - Hypertensive disease

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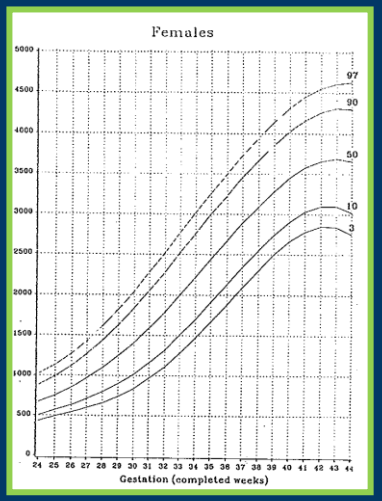
Ethnicity and birthweight in NZ

Proportion of births & mean birthweight : NZ 2004

- European 58% 3.46kg=7lb10oz
- Pacific 9% 3.56kg=7lb14oz
- Asian 8% 3.24kg=7lb2oz
- Maori 18% 3.36kg=7lb7oz



Risk of SGA by population birth-weight centiles

- Asian (Indian) RR 4.4 (95% CI 2.9 - 6.6)
- Pacific Island RR 0.7 (95% CI 0.55 - 0.95)

Thompson J Paediatr Child Health 2001

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Same ethnicity - different sizes

Small European
wt 50kg, ht 155cm
baby centile = 39
not c SGA

3200 g
40 wks
25th Population centile

Big European
wt 100kg, ht 178cm
baby centile = 5
c SGA

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So… how do we know customised centiles are better than population centiles at identifying at-risk infants?

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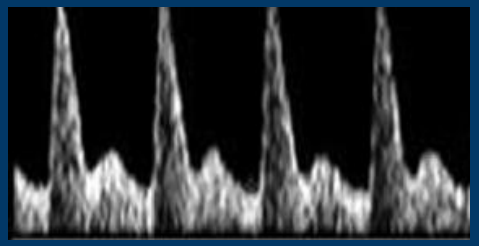
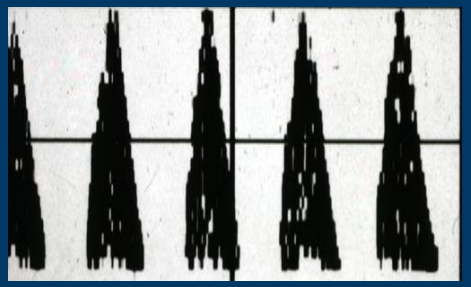
Customised Birthweight Centiles

Customised SGA associated with:

- Abnormal umbilical and uterine artery Doppler studies
- Preeclampsia
- Preterm birth & neonatal unit admission
- Stillbirth and neonatal death
- Used by: PMMRC / NWH





Customised SGA better identifies TRUE fetal growth restriction

McCowan et al BJOG 2005

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GROW (Gestation Related Optimum Weight)

- Developed by J Gardosi et al.
  free download from www.gestation.net
- Produces 'normal' curves for an individualised optimal fetal weight (and fundal height assessment)
- NZ calculator developed from NZ births
- Potentially doubles the antenatal detection of SGA

Gardosi and Francis BJOG 1999, 106:309-17

GROW Chart

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Mother's details

Mother Ref	XYZ1234
Last name	Z
First name	Z
Date of birth	1-Jan-88
Ethnicity	Maori
Parity	3
Height (cm)	160
Booking weight (kg)	88
BMI	34.4 (HIGH)

+

... increase **Size of display** ... decrease

–

Baby details

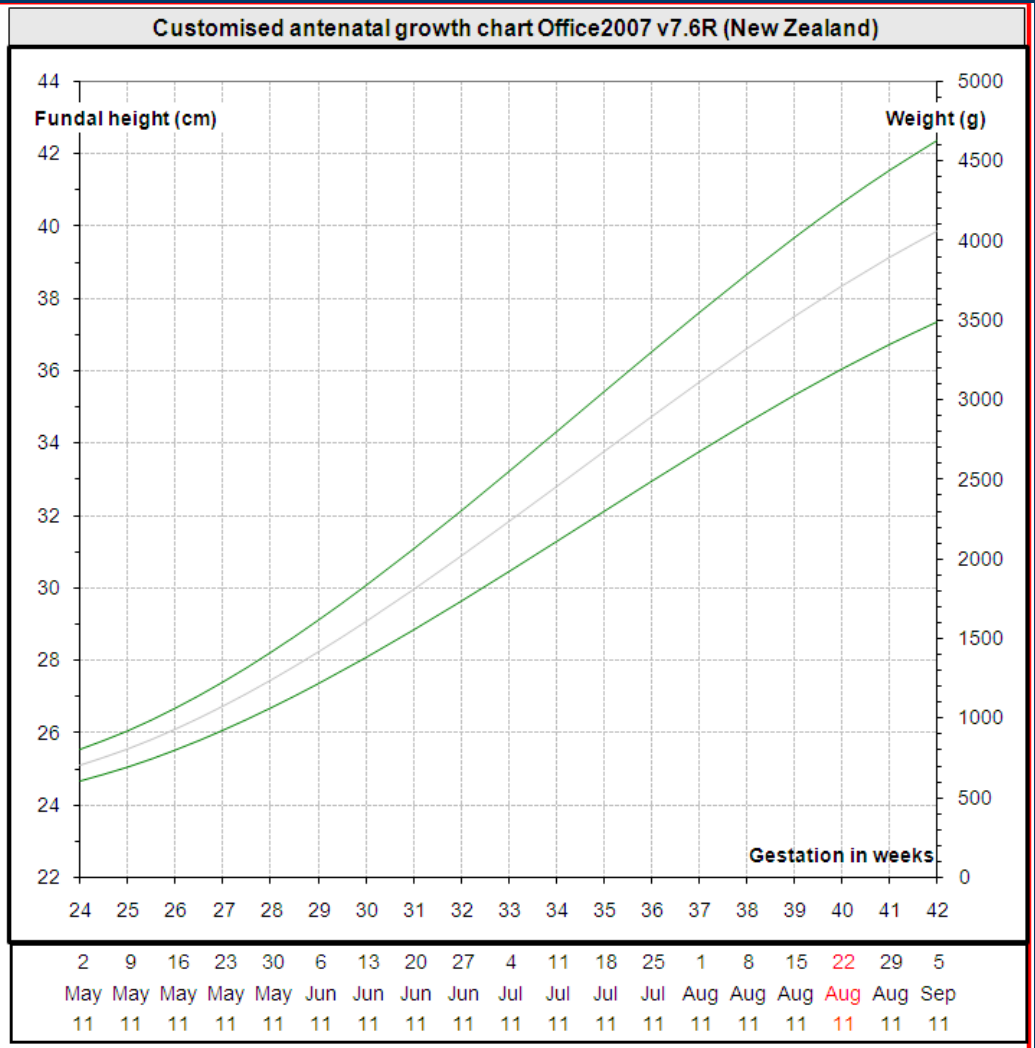
C = customised centile

1. A; 39w 0d; 4000g = C 95; LGA
2. B; 40w 0d; 3100g = C 7; SGA
3. C; 33w 0d; 2300g = C 67; Preterm

Enter EDD (from USS) **Calculate EDD**

EDD 22-Aug-11

Print **About GROW**



GROW07 v 7.6R October 2009 (Expires 30 Oct 11)

Customised Fetal Growth Charts

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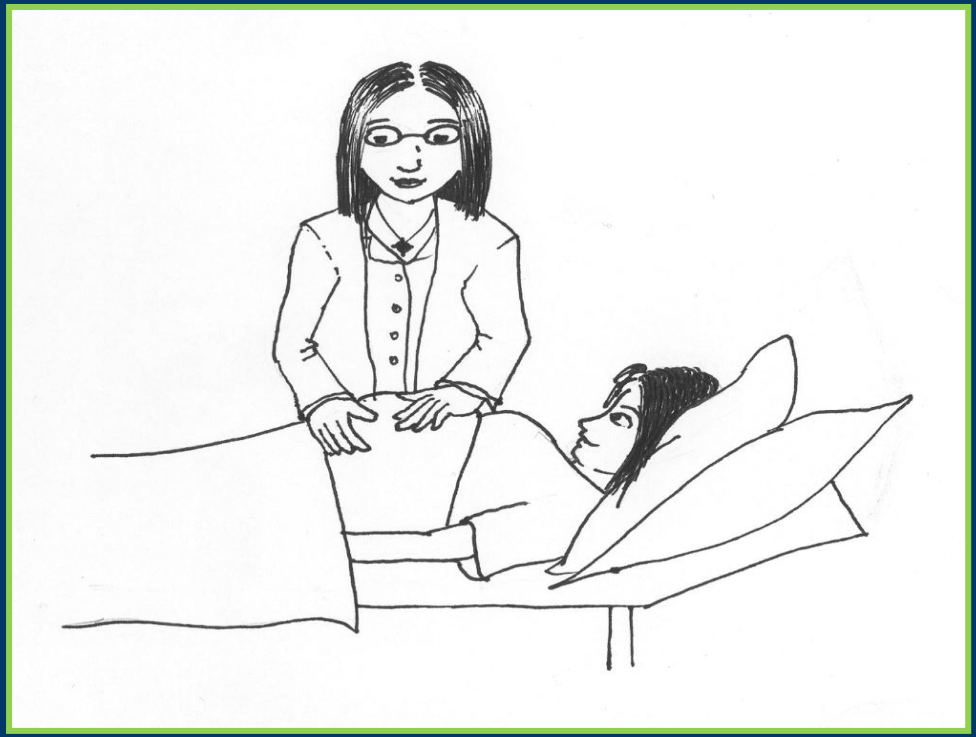
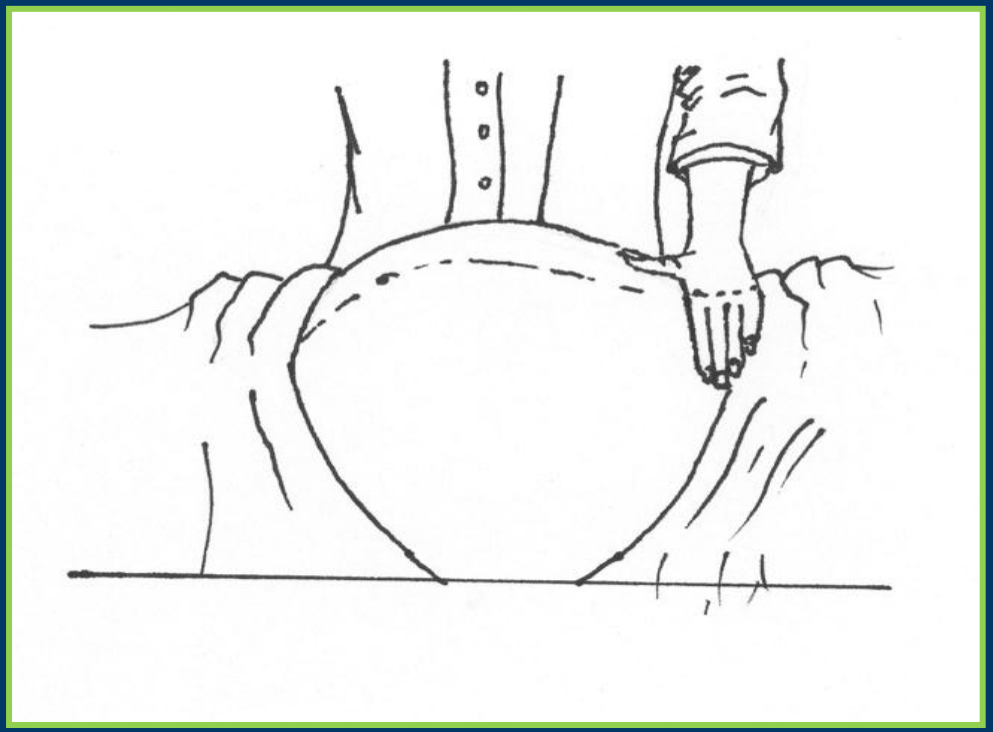
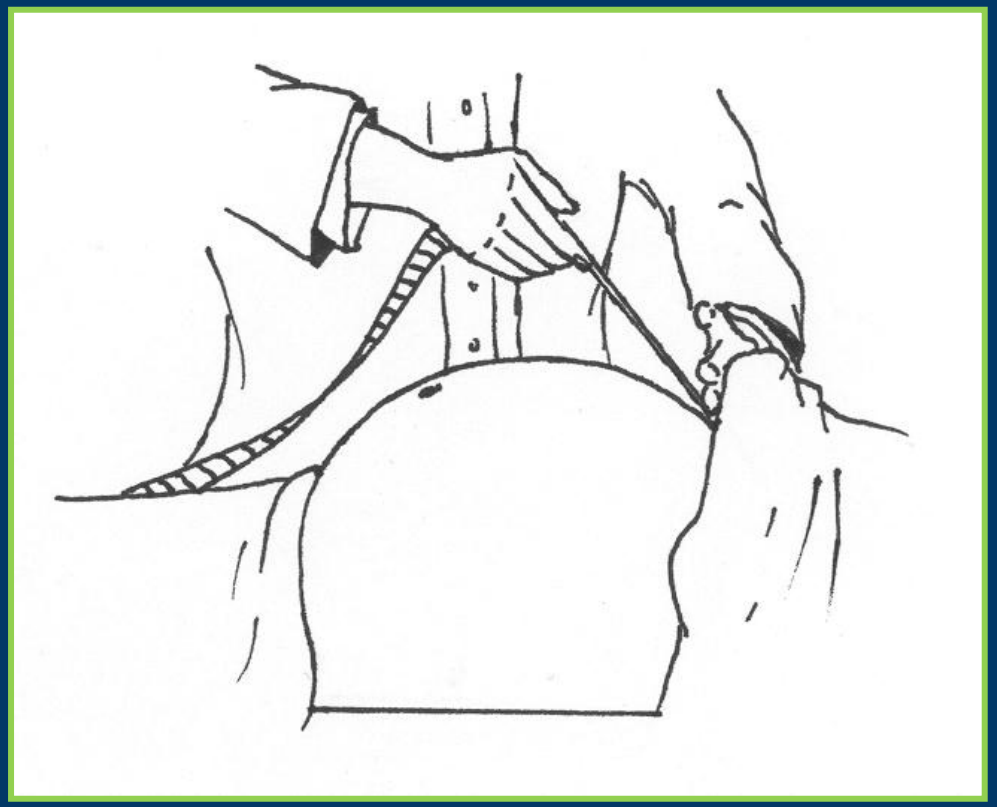
1. Mother semi-recumbent with an empty bladder



2. Palpate to determine the fundus



3. Secure tape with hand at top of fundus



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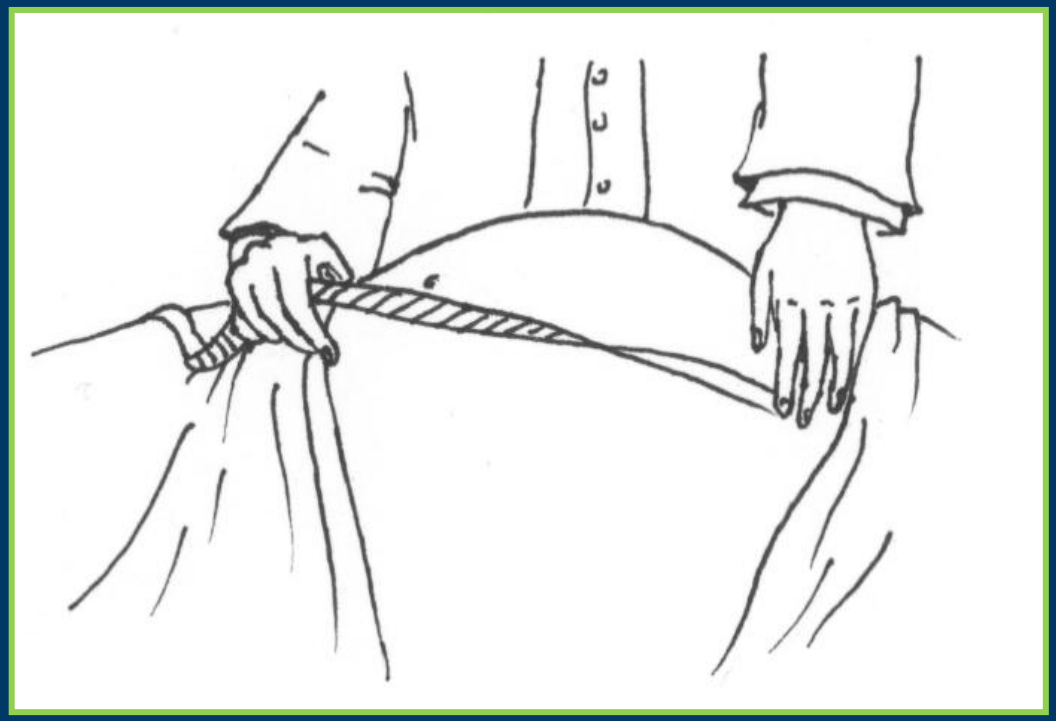
4. Measure along longitudinal axis of the uterus in whole cms



SFH should be performed at 2-4 weekly intervals after 24-28weeks

GROW Chart

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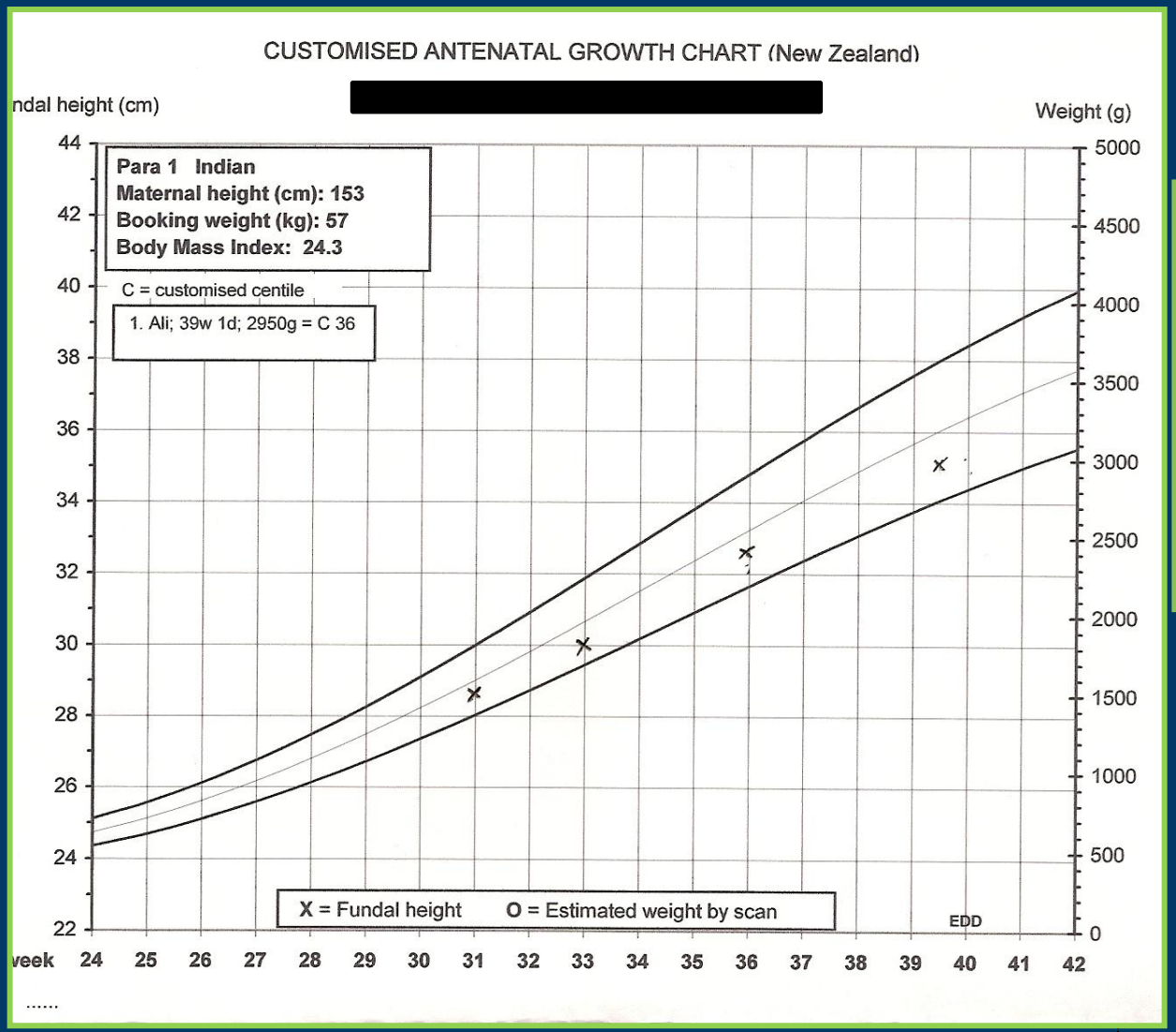

Small Indian woman

BMI-24

Previous baby AGA

36w SFH 33cm

Normal increase in SFH

Growth scan not required

Customised Fetal Growth Charts

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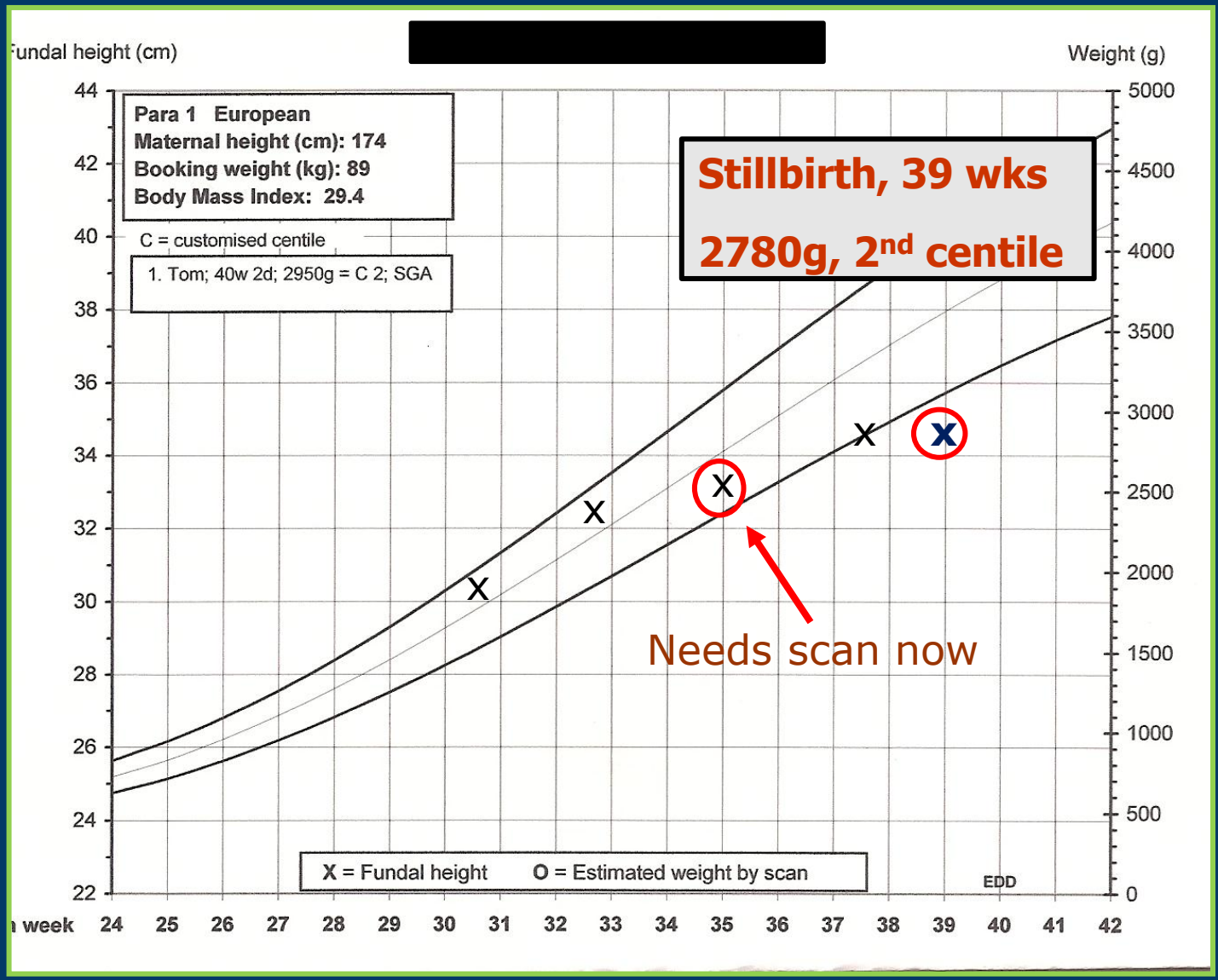

Large European BMI-29

Previous SGA

35w SFH 33cm

Suboptimal increase in SFH

Needs growth scan

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Case Report

- 35 year old, G3P2
- previous babies >4kg born by LSCS
- booked 16 wks
- BMI 48
- Normal GTT
- 3 growth scans:

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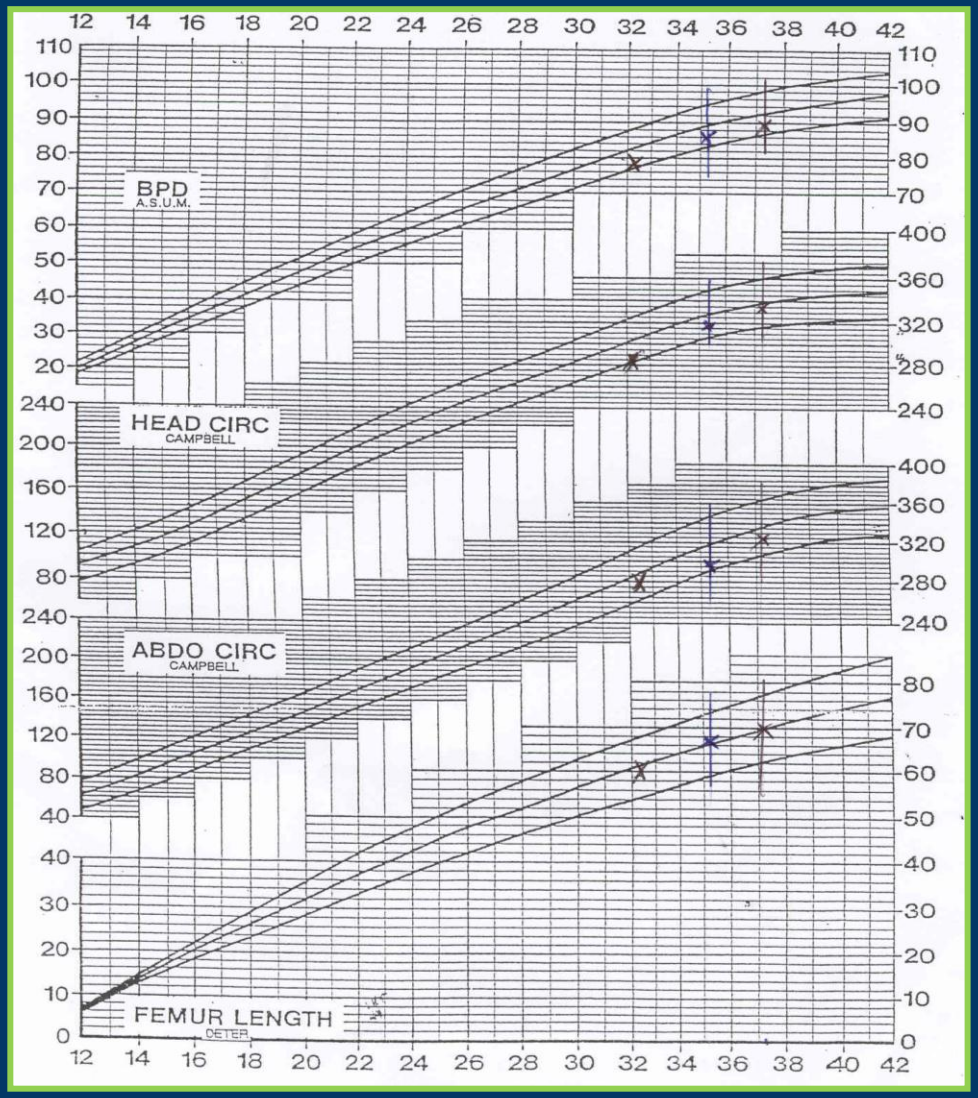
Ultrasound growth chart

Measurements within normal limits



GROW Chart

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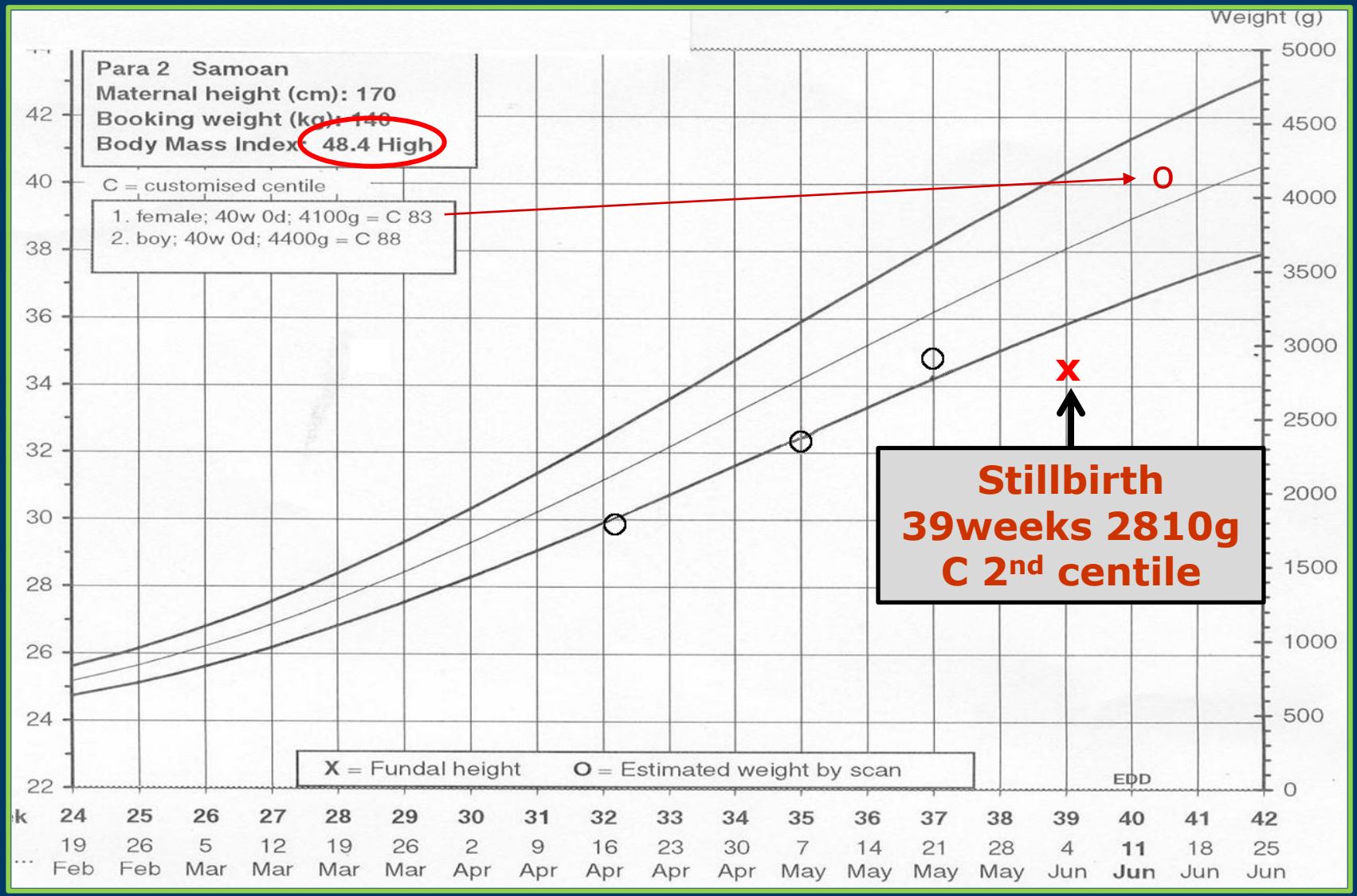

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In summary:

- Free download: www.gestation.net
- Gives an easy summary of important risk factors at booking
  - Identifies those who would benefit from early obstetric review /intervention
- Serial SFH / fetal weight plotting gives a reliable indication of fetal growth compared to optimum
  - Identifies at-risk fetuses

Recommended for all women at booking

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Q&A

Everything you wanted to know but were too busy to ask...