

## Customised Antenatal Growth Chart

Document Type	Guideline
Function(s)	Clinical Practice
Directorate(s)	Women's Health
Departments affected	Maternity
Applicable for which patients, clients or residents?	All maternity women
Applicable for which staff members?	All clinicians in maternity including access holder lead maternity carers (LMCs)
Key words	fundus, gestation, birth weight,
Author – role only	Maternal Fetal Medicine Consultant, Women's Health
Owner (see ownership structure)	Clinical Director Secondary Maternity
Edited by	Clinical Policy Advisor
Date first published	August 2005
Date this version published	November 2015
Review frequency	3 yearly
Unique Identifier	NMP200/SSM/058

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## 1. Purpose of guideline

This guideline establishes the correct procedure for measurement of fundal height within Auckland District Health Board (Auckland DHB) and for use of a customised growth chart to aid interpretation of fundal height and ultrasound estimated fetal weight.

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## 2. Guideline management principles & goals

Each pregnant woman should be provided with a customised growth chart that estimates the expected growth in fundal height and or estimated fetal weight (if a growth scan is done) for her individual pregnancy. Fundal height measurements should be recorded from 26-28 weeks onwards and should not be plotted more frequently than fortnightly.

### **A woman with BMI >35**

The BMI at which fundal height measurement is unreliable is difficult to determine as it depends on distribution of maternal adipose tissue and also maternal height. As a guide, a plan for growth scan(s) is usually recommended with a BMI of >35 (RCOG Guideline 2013, NZMFM SGA Guideline 2014). Estimated fetal weight measurements from growth scans should be plotted on the GROW chart as well as on the population ultrasound charts. Growth scans in a woman with BMI >35 should be performed if clinical assessment is not possible because of body habitus (which is often the case). Suggested timings for ultrasound growth assessment(s) are 30-32 and 36-38 weeks. A scan in late pregnancy is more likely to detect aberrations in growth but serial scans enable growth velocity to be assessed. For further information, see the [NZMFM SGA guideline](#).

### **Fundal height > 90<sup>th</sup> centile**

The primary purpose of a customised antenatal growth chart is to increase antenatal detection of a SGA baby. When SFH is tracking along or above the 90<sup>th</sup> centile, gestational diabetes needs exclusion. A growth scan is not indicated unless there is clinical concern re polyhydramnios or there is a sudden increase in fundal height. In women who do not have gestational diabetes, intervention is not usually recommended at National Women's Health when a baby is suspected to be large for gestational age. Therefore, growth scans and referral are not usually required. See flowchart: Diabetes Screening

### **A woman at high risk of SGA**

A woman at high risk of SGA e.g. previous SGA baby <10th percentile, chronic hypertension, antiphospholipid syndrome, renal disease etc. should continue to have growth scans at regular intervals as before. The frequency of scanning will be individualised according to the previous gestation at delivery and severity of SGA or the nature of the underlying medical condition. Even though customised growth charts

increase detection of SGA babies they still only detect approximately 50 % and ultrasound should remain the gold standard in high-risk situations.

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### 3. Accessing customised antenatal growth charts

It is recommended that all GROW users undergo standardised training in use of the GROW tool and in standardised measurement of fundal height.

At booking interview, **measure** the woman's weight, height, record her ethnicity, LMP and EDD. Also record the weight, gestation at delivery and sex of any previous babies

From within the Auckland DHB network on HealthWare:

When fundal height is measured at an antenatal assessment save the form and the fundal height will automatically be plotted on the GROW chart. The same applies to an estimated fetal weight from a DHB scan

If outside Auckland DHB, the GROW programme can be accessed from:

[www.gestation.net/grow-nz.aspx](http://www.gestation.net/grow-nz.aspx)

- i. Complete the data requested
- ii. The programme will calculate the woman's BMI
- iii. Enter birth weight, infant sex and gestation at delivery for any previous babies and a birth weight centile will be generated for them
- iv. The customised chart will then appear on the screen with a graph of the optimal fundal height and estimated fetal weight measurements for the current pregnancy
- v. Enter the woman's estimated delivery date
- vi. Press print
- vii. Add chart to the woman's clinical record

Note if a previous infant had a birth weight <10<sup>th</sup> centile low dose aspirin (100 mg) should be considered before 16 weeks to reduce the risk of recurrent SGA. Early specialist review should also be planned.

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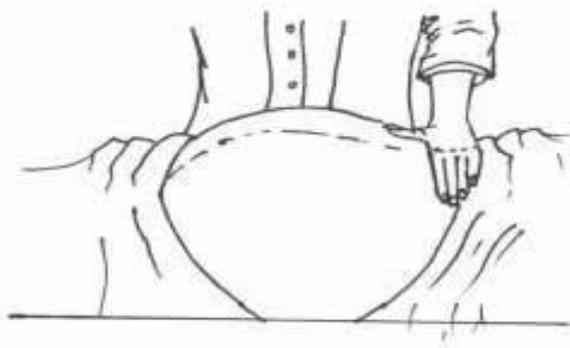
## 4. Fundal height measurement procedure

### 1. Mother semi-recumbent, with bladder empty



- Explain the procedure to the Mother and gain verbal consent
- Wash hands
- Have a non-elastic tape measure to hand
- Ensure the mother is comfortable in a semi-recumbent position, with an empty bladder
- Expose enough of the abdomen to allow a thorough examination

### 2. Palpate to determine fundus

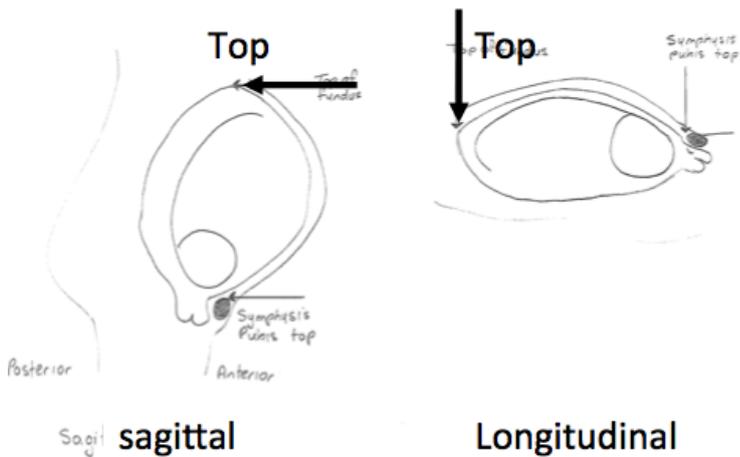


- Ensure the abdomen is soft (not contracting and baby not actively moving)
- Perform abdominal palpation to enable accurate identification of the uterine fundus

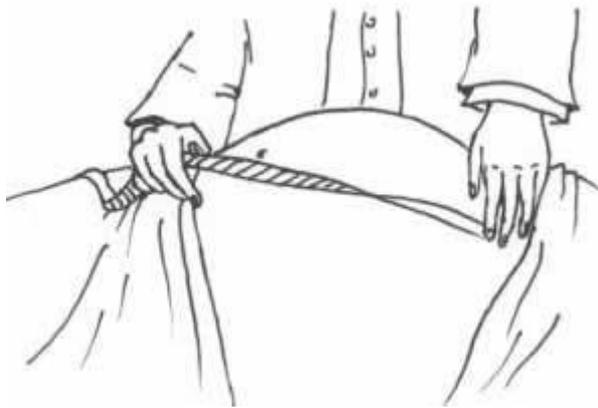
### 3. Secure tape with hand at top of fundus



- Use the tape measure with the centimetres on the underside to reduce bias
- Secure the tape measure at the fundus with one hand



#### 4. Measure along longitudinal axis of uterus



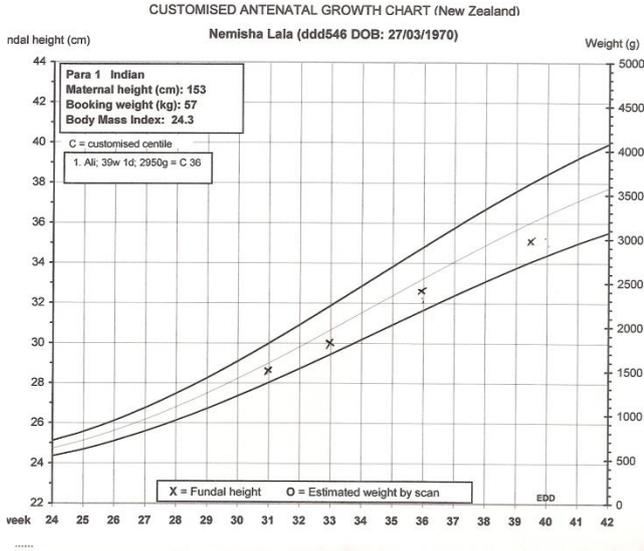
- Measure along the longitudinal axis to the highest point of the uterus, which is not always in the midline
- Measure only once

#### 5. Measure to top of symphysis pubis



- Measure from the top of the fundus to the top of the symphysis pubis
- The tape measure should stay in contact with the skin

## 6. Plot on customised chart, record fundal height in clinical record



Record the measurement in complete centimetres (e.g. 35.5 is plotted as 36 cms) and record in the antenatal record. Within Auckland DHB this value will be plotted automatically on the GROW chart after saving in HealthWare. For those without access to an electronic version of GROW plot the measurement accurately in weeks and days of gestation using a ruler

For a short video to demonstrate standardised fundal height measurement and common pitfalls, click on the following link or copying and pasting into your browser.

<https://www.dropbox.com/s/3wj0mxj6rltj4s2/Standardised%20Fundal%20Height%20Measurement%20v3.mp4?dl=0>

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## 5. Supporting evidence

A UK controlled trial showed an increased detection of small for gestational age (SGA) babies from 29% in the control group to 48% in the group with a customised growth chart (Gardosi 1999). An Australian study reported an increase in detection of SGA, from 25% to 43%, after customised antenatal growth charts were introduced as unit policy (Roex). A recent publication reported reduced stillbirth rates in three regions of the UK, which had a high uptake of training and implementation of GROW (Gardosi BMJ 2013). A reduction in stillbirths associated with fetal growth restriction has been reported in the West-Midlands region of the UK, which has very high utilisation of GROW (Gardosi 2013). Audits performed at National Women's Health show antenatal detection of SGA of 40-60 % with use of GROW.

Anderson NH, Sadler L, Stewart A, **McCowan LE**. Maternal and pathological pregnancy characteristics in customised birthweight centiles and identification of at-risk small-for-gestational-age infants: a retrospective cohort study. BJOG 2012;119(5):589-595. DOI: 10.1111/j.1471-0528.2012.03313.x.

Gardosi J, Francis A. [Controlled trial of fundal height measurement plotted on customised antenatal growth charts](#). B J Obstet Gynaecol 1999; 106:309-17

Gardosi, J., et al., Association between reduced stillbirth rates in England and regional uptake of accreditation training in customised fetal growth assessment. BMJ Open, 2013. 3(12): p. e003942.

Gardosi, J., et al. *Reducing stillbirths in the West Midlands*. 2013; Available from: [http://medweb4.bham.ac.uk/websites/key\\_health\\_data/2011/pdf/KHD%202011-12%20Chapter%204%20Reducing%20Stillbirths.pdf](http://medweb4.bham.ac.uk/websites/key_health_data/2011/pdf/KHD%202011-12%20Chapter%204%20Reducing%20Stillbirths.pdf).

NZMFM 2014, Guideline for the management of suspected small for gestational age singleton pregnancies after 34 weeks' gestation ([www.nzmfh.health.nz](http://www.nzmfh.health.nz) see guidelines)

RCOG, The investigation and management of small-for-gestational-age fetus: Green top guideline No 31, 2013.

Roex A, Nikpoor P, Eerd EV, Dekker G Serial Plotting on customised fundal height charts results in doubling of antenatal detection of small for gestational age fetuses in nulliparous women. Aust NZ J Obstet Gynaecol.2012;52:78-82

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## 6. Associated Auckland DHB documents

- Protocol for IUGR Management in Day Assessment Unit
- [Referral - Maternal Fetal Medicine \(MFM\)](#)
- [Small for Gestational Age \(SGA\) over 34 weeks - Clinical Pathway](#)
- Flowchart: Diabetes Screening

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## 7. Disclaimer

No guideline can cover all variations required for specific circumstances. It is the responsibility of the health care practitioners using this Auckland DHB guideline to adapt it for safe use within their own institution, recognise the need for specialist help, and call for it without delay, when an individual patient falls outside of the boundaries of this guideline.

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## 8. Corrections and amendments

The next scheduled review of this document is as per the document classification table (page 1). However, if the reader notices any errors or believes that the document should be reviewed **before** the scheduled date, they should contact the owner or the [Clinical Policy Advisor](#) without delay.

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