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Title:	**Fundal Height Measurement (FHM) guideline**	
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Southern Health and Social Care Trust

Fundal Height Measurement (FHM)- Guideline

1. Background:

One of the most important aspects of maternity care is antenatal fetal surveillance. Should this be failed Detection of Intrauterine Growth Restriction (IUGR) is a common problem associated with suboptimal care (Wright et al, 2006; Confidential Enquiry into Stillbirths and Deaths in Infancy, 2001). While IUGR is associated with poor perinatal outcomes there is a need for early detection of babies who are not growing appropriately. There is evidence that plotting serial fundal height measurements on individually customised growth charts can significantly improve detection of babies that are growing inappropriately (Gardosi and Francis, 1999). A standardised method of measurement allows appropriate clinical decisions to be made, therefore promoting best practice. Fundal height assessment is an inexpensive method of screening for fetal growth restriction. Fundal height measurement needs to be part of a comprehensive care pathway which includes serial assessment, referral for ultrasound scan and additional investigations by Doppler as required.

This guideline is relevant to all healthcare professionals involved in the care of pregnant women including Midwives, General Practitioners, Obstetricians and Sonographers. This guideline **does not** seek to cover management of pregnancy once IUGR has been diagnosed. This is covered in detail in the RCOG guideline 31 (2013)

2. **Aim:**
   - To establish the correct procedure for measurement of fundal height within the Southern Health and Social Care Trust and how to correctly use a customised growth chart to aid recognition of fetal growth restriction.

3. **Objectives:**
   - To promote standardisation of fundal height measurement across all disciplines.
   - To acknowledge when and how to measure fundal height using a standardised technique
   - To ensure consistent assessment of fundal height measurement
   - To facilitate early detection of deviation from the normal fetal growth curve when using a customised growth chart
   - To ensure that serial fundal height measurements are plotted correctly on customised growth charts
   - To ensure that there is identification of all infants born below the 10th customised centile at birth and appropriate management initiated postnatal.

4. **Chart Production:**
   - **All women will have a customised growth chart compiled. If women require serial USS only plot the USS measurement. These women do not require FHM when reviewed by the midwife in the community setting.**
   - Each woman will have a customised growth chart printed following her dating scan and secured in her hand held pregnancy notes. The EDD entered into the software will be the one calculated by the dating ultrasound scan. The chart will show the 10th, 50th and 90th centile lines, (5th and 95th centiles can be

printed as an option if required). There is a box in the top left hand corner where her height, weight, ethnicity and parity are shown. A customised centile will be calculated for all previous children; if they were small for gestational age (SGA) or large for gestational age (LGA) this will also be highlighted. Mother's name, reference number, chart ID and date of birth will appear above the chart.

- **At booking the Expected Date of Confinement (EDC) is only to be changed if there is a difference of 5 days or more. While the customised growth chart is generated at booking assessment this should be revised if necessary once the woman has received her 20 week anomaly scan. The EDC should only be changed if there is a difference by 10 days or more AT ANOMALY SCAN and the customised growth chart changed to reflect the revised dates.**

5. **Who to measure**

Not all pregnancies are suitable for primary surveillance by fundal height measurement, and require ultrasound biometry instead. In most instances, these pregnancies fall into the following categories:-

- Fundal height measurement unsuitable/inaccurate e.g. large fibroids, high maternal BMI >35, multiple pregnancy, transverse lie from 36 weeks gestation.
- Pregnancy considered high risk requiring serial ultrasound e.g. Pre-existing diabetes
- Women who are recognised as low risk and suitable for midwifery led care should have serial fundal height measurements undertaken as a primary screening test for fetal wellbeing. These should commence from 26- 28 weeks gestation
- Fundal height measurement are appropriate for woman presenting with breech presentation as the lie remains longitudinal and referral for ultrasound scan (USS) is only required if the FHM shows static, slowing or excessive growth. The Trust also recommends that all low risk (Midwifery-led care) women presenting with a breech presentation at 36 weeks must be referred for USS.
- It is necessary to complete a HART form prior to referral for USS

Recommendations for fundal height measurement

Contrary to the common reference to 'symphysio-fundal height', the measurement should start from the variable point, the fundus, while both hands are available for palpation. From there, the tape is run along the longitudinal axis of the uterus to the top of the symphysis – a fixed point, and the more easily identified landmark. The tape measure should be reversed to avoid the centimetre scale influencing the examiner (Morse et al, 2009).

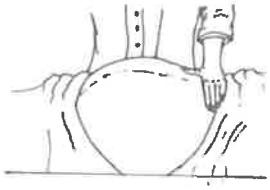
- Non-elastic tape measure, trained midwife/doctor
- Measurement / plotting on customised chart from 26 - 28 weeks
- Follow up measurements at every antenatal visit

1. Fetal Growth - Fundal Height Measurements- Procedure: (see enclosed diagrams)

Figure 1: Mother semi-recumbent, with bladder empty

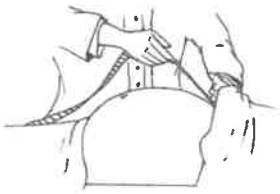
- Explain the procedure to the mother and gain verbal consent
- Wash hands
- Have a non-elastic tape measure to hand
- Ensure the mother is comfortable in a semi-recumbent position, with an empty bladder
- Expose enough of the abdomen to allow a thorough examination

Figure 2: Palpate to determine fundus with both hands

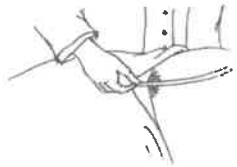
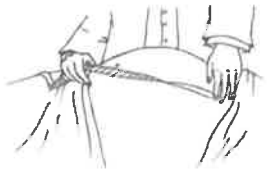


- Ensure the abdomen is soft (not contracting)
- Perform abdominal palpation to enable accurate identification of the uterine fundus.

Figure 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

Figure 4: Measure to top of symphysis pubis.	**Fig 5: Measure along the long axis of uterus, note metric measurement**	**6: Plot on customised growth chart and record in maternity records**
		
• Measure from the top of the fundus to the top of the symphysis pubis • The tape measure should stay in contact with the skin • Where there may be an overlap of adipose tissue, measure over this. **Do not** lift the overlap	• Measure along the longitudinal axis without correcting to the abdominal midline- keeping the tape flat at all times. • Measure only once	Record the metric measurement and plot it on the growth chart. The fundal height growth curve on a customised chart is not a predictor of birth weight, but an indicator of when to refer for further investigations. Both fundal height and estimated fetal weight (EFW) can be plotted on the same chart using the opposing axes. • Plot **X** on the chart for fundal height and **O** for EFW to distinguish clearly the two separate curves, which mirror each other when growth is appropriate. • Due to the individuality of the growth curves on each chart measurements will vary at any given gestation for all women it is therefore necessary to record the fundal height measurement in the grid underneath the grow chart to enable checking that the measurement has been plotted in the correct place.

- **<u>Referral for Ultrasound</u>**

Indications for a growth scan are:

- First FHM measurement below 10th centile (preferably between 26-28 weeks)
- Static growth: where the measurement is identical in two measurements separated by two weeks.
- Slow growth: curve linking up plots crossing centiles in a downward direction (from higher to lower centile). It is likely that the pattern will have emerged over 3 or 4 measurements.
- Excessive growth: curve linking up plots crossing centiles in an upward direction. The FHM is known to have considerable variability, often being above the 90th centile on the customised charts in the 24-30wk range. It is therefore recommended that a first measurement above the 90th centile line does **not** need referral for scan but is repeated and is only assessed by USS if the plot increases steeply (which might occur with polyhydramnios).
- Women in whom measurement of FH is inaccurate (for example: BMI > 35, large fibroids, hydramnios) should be referred for serial assessment of fetal size using ultrasound (RCOG Green-top Guideline No. 31)

Where growth problems are suspected from FHM, referral for a growth scan and appropriate further investigations to assess fetal wellbeing should be undertaken as soon as possible **and best practice is within at most 72 hours**. Where a woman is being followed up at a growth clinic the midwife does not need to complete a growth chart as the woman will be receiving serial scans at the consultant led clinics. Only ultrasound measurements need to be plotted.

Requests for a growth scan: (Please refer to guidelines for community midwives referral process for Midwifery Led Care (CAH)

When fetal growth is less than 10th centile and plotted growth is falling through the centiles:

- Refer to DOU within 72hrs (Monday, Wednesday and Friday in CAH)
- Refer to ANC for next available A/N appointment within 72hrs.
- If small for gestational age is confirmed, HART for Consultant Led Clinics. Give the woman the RCOGs leaflet on reduced fetal movement and document the findings in her maternity hand held records.

Where fundal height measurement is above 90th centile on 2 occassions or significantly increased growth velocity;

- Refer to the DOU. A detailed growth scan will be completed within 72hrs.
- A repeat scan will be organised by DOU to ensure appropriate growth in 3 weeks
- If scan indicates estimated fetal weight as greater than 4.5kgs/or plotting above 90th centile, a GTT will be organised by DOU. HART for consultant led care.
- If fetus assessed to be growing appropriately, the woman will be returned for MLC (2 weeks)
- A GTT is only required when the estimated weight is greater than the 90th centile or of increased AFI.

Document in MHHR or Antenatal risk factors 'Predicted estimated fetal weight greater than 90th centile'.

Remember a GTT can be repeated if the baby is consistently growing above the 90th centile.

Where women require referral to DHH, the midwife should make direct contact with the ***maternity outpatient department*** who will give an appointment as soon as possible. If a midwife feels there is a need for a woman to be referred for an urgent USS she may be referred to the Maternity Admission and Assessment room.

NB: community midwives **should have the ability to refer directly** to the maternity outpatient department .

Follow up: if ultrasound assessment is

- **Normal**: revert to serial fundal height measurement (midwifery-led care) (When referred back to midwifery led care, the midwife should continue to follow the fundal height measurement on the customised growth chart, (that is the previous X measurement) not the ultrasound scan measurement)

- **Abnormal**: refer for urgent obstetric review

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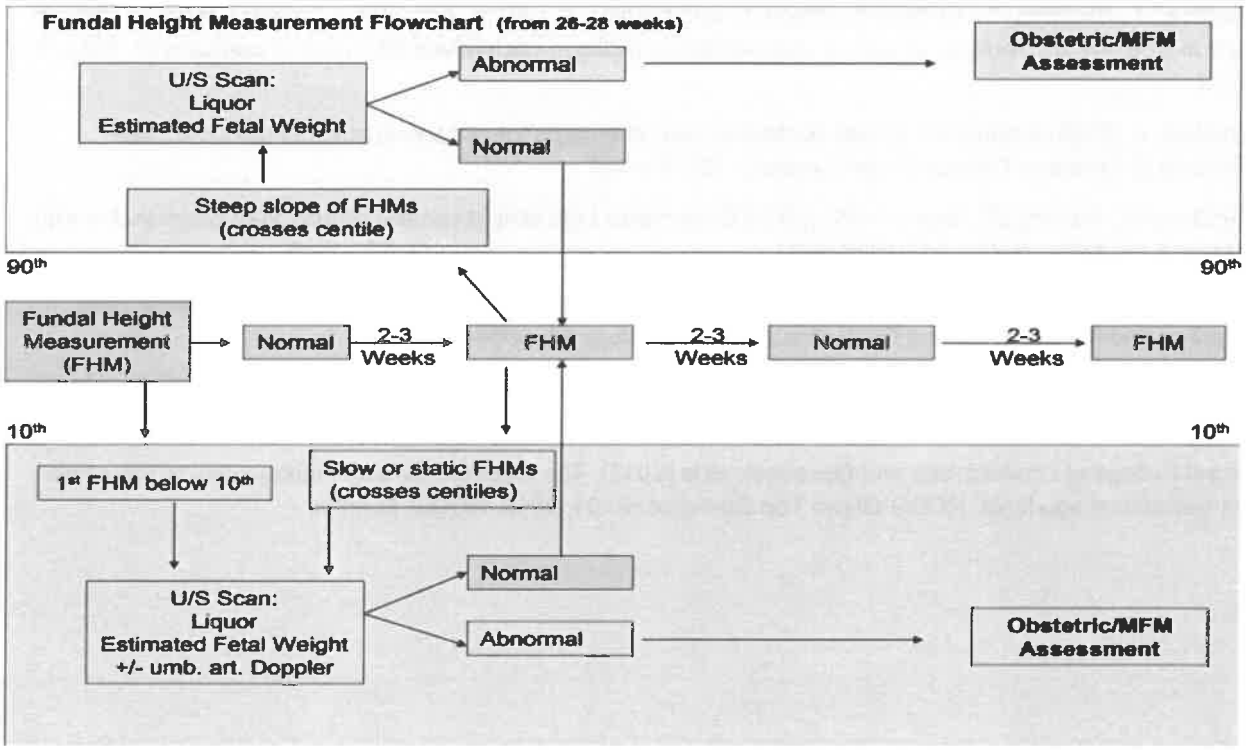

Appendix 1 Ref: Morse - Best Practice

Guidelines for community midwives referral process for Midwifery Led Care (CAH)

When fetal growth is less than 10th centile or plotted growth is falling through the centiles	**Where fundal height measurement is above 90th centile on 2 occasions. Or significantly increased growth velocity.**
• Refer to DOU for assessment within 72 hours. • If Small for gestational age is confirmed. HART for consultant led clinics. • If patient is having serial scans for IUGR assessment, there is **no requirement** to plot on customised growth chart symphysio fundal height measurement as these women will be Hospital Care only. • Give patient RCOGs leaflet on reduced fetal movement Document findings in patient's notes **DOU** **Direct T/N 028 38360520** **Ext 60289**	• Refer to the DOU. A detailed growth scan will be completed within 72 hours • A repeat scan will be organised by DOU to ensure appropriate growth in 3 weeks. • If scan indicates estimated fetal weight as greater than **4.5kgs** / or **plotting above 90th centile.** A GTT will be organised by DOU – HART for consultant led care. • If fetus assessed to be growing appropriately, the woman will be returned for MLC (2 weeks). • **A GTT** is only required when the **estimated weight is greater than the 90th centile or if increased AFI.** Document in MHHR on Antenatal risk factors **"Predicted estimated fetal weight greater than 90th centile"** • Remember a GTT can be repeated if the baby is consistently growing above the 90th centile.