

Fetal Growth Assessment Guideline

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Authors Division:	Obstetrics		
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Guideline to be followed by (target staff): Midwives and Obstetricians providing antenatal care			
To be read in conjunction with the following documents:			
<ul style="list-style-type: none"> • Saving Babies' Lives Version Two: A care bundle for reducing perinatal mortality(July 2019) • Antenatal Care Pathway Guideline • Fetal Monitoring Guideline • Multiprofessional Handover of Care Guideline • Obesity in pregnancy Guideline • RCOG Green-Top Guideline: 31. The Investigation and Management of the Small-for-Gestational-Age fetus • GAP care pathway v2 (November 2019) 			
Are there any eCARE implications? No			
CQC Fundamental standards:			
Regulation 9 – person centered care			
Regulation 10 – dignity and respect			
Regulation 11 – Need for consent			
Regulation 12 – Safe care and treatment			
Regulation 13 – Safeguarding service users from abuse and improper treatment			

Disclaimer

Since every patient's history is different, and even the most exhaustive sources of information cannot cover every possible eventuality, you should be aware that all information is provided in this document on the basis that the healthcare professionals responsible for patient care will retain full and sole responsibility for decisions relating to patient care; the document is intended to supplement, not substitute for, the expertise and judgment of physicians, pharmacists or other healthcare professionals and should not be taken as an indication of suitability of a particular treatment for a particular individual.

The ultimate responsibility for the use of the guideline, dosage of drugs and correct following of instructions as well as the interpretation of the published material lies solely with you as the medical practitioner.

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Guideline Statement

This guideline uses a standardised risk assessment tool and care pathway for the management of low, moderate and high risk women in relation to fetal growth assessment. It has been developed in conjunction with Saving babies lives version 2 and the Perinatal Institute's Gap Care Pathway version 2.

The purpose of the guideline is to support provision of care using;

- Standardised method for serial fundal height measurement across all disciplines
- Use of an enhanced surveillance system for higher risk women
- Facilitating early detection from the normal growth curve when using a customised growth chart leading to appropriate intervention following identification.

Executive Summary

The Saving Babies' Lives Care Bundle (O'Connor, 2016; NHS England 2019a) is designed to tackle stillbirth and neonatal death. Version 2 of the care bundle (NHS England 2019b) brings together five elements of care that are widely recognised as evidence based and best practice;

1. Reducing smoking in pregnancy
2. Risk assessment and surveillance for fetal growth restriction
3. Raising awareness of reduced fetal movements
4. Effective fetal monitoring during labour
5. Reducing preterm birth

Definitions

SGA: Small for gestational age. This is defined as a weight (fetal or at birth) measurement below the 10th centile on the customised growth chart but with normal growth velocity

FGR: Fetal Growth Restriction. The term used for babies that have slow or no growth. This is defined as a growth trajectory which is less or slower than the curve/growth velocity indicated by the **10th centile (for fundal height measurement) or 3rd centile (for EFW by USS)** lines of the customised growth chart over the same gestational age interval

Abbreviation List

AC	Abdominal circumference
ADAU	Antenatal Day Assessment Unit
AGA	Adequate for gestational age
ANC	Antenatal Clinic
CLC	Consultant Led Care
CTG	Cardiotocograph

EFW	Estimated Fetal Weight
FGR	Fetal Growth Restriction
LGA	Large for Gestational Age
MKUH	Milton Keynes University Hospital
MLC	Midwifery Led Care
NICE	National Institute for Health and Care Excellence
OGTT	Oral glucose tolerance test
RCOG	Royal College of Obstetricians and Gynaecologists
SBL	Saving Babies Lives
SFH	Serial Fundal Height
SGA	Small for Gestational Age
USS	Ultrasound Scan

This guideline aims to address **Element 2: Risk assessment and surveillance for fetal growth restriction**

“The previous version SBL element 2 has made a measurable difference to antenatal detection of small for gestational age (SGA) babies across England. It is however possible that by seeking to capture all babies at risk, interventions may have increased in women who are only marginally at increased risk of FGR related stillbirth. This updated element seeks to address this possible increase by focussing more attention on pregnancies at highest risk of FGR, including assessing women at booking to determine if a prescription of aspirin is appropriate. The importance of proper training of staff who carry out symphysis fundal height (SFH) measurements, publication of detection rates and review of missed cases remain significant features of this element.” Widdows K., Roberts SA., Camacho EM., Heazell AEP. (2018). *Evaluating the implementation of Saving Babies' Lives care bundle in NHS Trusts in England: stillbirth rates, service outcomes and costs*. Manchester: Maternal and Fetal Health Research Centre, University of Manchester

Women should be assessed at booking and a pathway commenced according to the risk factors identified, this should be reviewed throughout pregnancy.

Assessment of fetal growth is an integral element of antenatal care. Fetal growth restriction (FGR) is associated with stillbirth, neonatal death and perinatal morbidity and FGR remains a focus in the most recent MBBRACE report (Draper et al., 2019).

RCOG (2013) suggest the only way to manage growth restriction is early delivery of the baby; therefore, antenatal detection of growth restricted babies is vital and has been shown to reduce stillbirth risk significantly because it gives the option to consider timely delivery of the baby at risk.

“An epidemiological analysis based on the comprehensive West Midlands database has underlined the impact that fetal growth restriction has on stillbirth rates, and the significant reduction which can be achieved through antenatal detection of pregnancies at risk.”
 (perinatal.org.uk/fetalgrowth)

1.0 Roles and Responsibilities:

It is the responsibility of all Obstetricians and Midwives working within Milton Keynes NHS Trust to adhere to this guideline.

2.0 Implementation and dissemination of document

This document will be placed on the Trust's central database (Guidelines and Patient Information System) which can be accessed via the Trust's Intranet.

3.0 Processes and procedures

3.1 Procedure

Using the SBLv2 Care Bundle (O'Connor, 2016; NHS England, 2019b), midwives should undertake an initial risk assessment at booking (**appendix 1**) or at the point of which a woman transfers her maternity care to MKUH.

This risk assessment provides midwives with a screening tool to help identify the level of risk for FGR and initiate referral for Consultant led care (if indicated).

At booking, women should be assessed for history of placental dysfunction and consider aspirin 150mg at night <16 weeks as appropriate.

Every subsequent encounter with the woman provides an opportunity to identify changes in risk status and refer when indicated.

All women should have a customised growth chart generated at the 20 week anomaly scan, if a woman is found not to have a chart; follow appendix 2 - Guidance for the non-generation of Customised Growth Charts

- For **Low Risk** pregnancies: standardised serial measurement of fundal height (SFH) plotted on customised growth charts is the recommended method of surveillance

- SFH measurements should be performed from 26-28 weeks gestation and plotted using an **X** on the customised growth chart.
- SFH should be performed at each routine appointment **and** if the woman has an inpatient/ADAU or ANC encounter but not more frequently than 2 weeks
- When women are admitted in labour, fundal height measurement is not required.

Continuity of care provider further improves the accuracy of fetal growth surveillance. An accurate and consistent standardised method of measurement allows appropriate clinical decisions to be made therefore promoting best practice.

- For pregnancies that are unsuitable for SFH or those of moderate or high **Risk** for FGR, Gap care pathway, RCOG and SBL Care Bundle recommends serial ultrasound assessment of fetal growth and umbilical artery Doppler.
- **These women are unsuitable for monitoring of growth by SFH measurement**

Women with “moderate” and “high risk” factors should have serial scans in accordance with the protocol outlined in the SBL 2 “Algorithm for using uterine artery Doppler as a risk assessment tool for early onset FGR” (please see appendix 4).

Moderate risk factors:

Women at moderate risk of FGR **do not** require uterine artery Doppler assessment but are still at risk of later onset FGR so require serial ultrasound assessment of fetal growth in the third trimester

At MKUH, women with moderate risk factors should be managed as below (see appendix 4):

Risk assessment (Perform at booking and mid-trimester anomaly scan)	Prevention	Risk assessment for early onset FGR and triage to pathway	Detection/surveillance pathway for FGR/SGA
Previous SGA	Assess for history of placental dysfunction and consider aspirin 150mg at night <16 weeks as appropriate	Anomaly scan AC and EFW ≥10th centile	Serial USS from 32 weeks every 4 weeks until delivery
Previous stillbirth (AGA birthweight)			
Current smoker			
Drug misuse			
Age ≥40 years at booking			

High risk factors:

Uterine artery Doppler can be used in the second trimester (20 – 24 weeks) to further determine the risk of placental dysfunction and therefore risk of hypertensive disorders or early onset FGR for women at high risk.

For women with a normal uterine artery Doppler pulsatility index (mean ≤95th centile), the risk of these disorders is low and thus serial scanning for fetal biometry can be commenced in the third trimester.

At MKUH, sonographers do not perform uterine artery dopplers yet and training is underway. Until the training is complete, High risk women must have serial scans from 28 weeks until delivery.

Women with high risk factors should be managed as below (see appendix 4):

Risk assessment (Perform at booking and mid-trimester anomaly scan)	Prevention	Risk assessment for early onset FGR and triage to pathway	Detection/surveillance pathway for FGR/SGA
Chronic kidney disease	Assess for history of placental dysfunction and consider Aspirin 150mg at night <16/40 as appropriate (75mg for IDDM, PET/chronic hypertension, autoimmune disease and previous SGA due to placental pathology)	Arrange uterine artery Doppler 20-24 weeks	<p><u>Normal uterine artery Doppler:</u></p> <p>Serial USS from 32 weeks every 2-4 weeks until delivery</p> <p><u>Abnormal uterine artery Doppler and EFW ≥10th centile:</u></p> <p>Serial USS from 28 weeks every 2-4 weeks until delivery</p> <p><u>Abnormal uterine artery Doppler and AC or EFW <10th centile</u></p> <p>Refer to fetal medicine</p>
Hypertension			
Autoimmune disease (SLE, APLS)			
Cyanotic congenital heart disease			
Previous FGR			
PAPPA <5 th centile			
Echogenic bowel			
Significant PV bleeding			
Previous SGA stillbirth			
EFW <10 th centile in current pregnancy			
Hypertensive disease in a previous pregnancy			

Women unsuitable for monitoring of growth by SFH

Risk assessment (Perform at booking and mid-trimester anomaly scan)	Risk assessment for early onset FGR and triage to pathway	Detection/surveillance pathway for FGR/SGA
BMI ≥35	Anomaly scan and EFW ≥10th centile	Serial USS from 32 weeks every 4 weeks until delivery
Fibroids		

Timely referral to consultant led care will initiate an individualised plan of care. This will guide all healthcare professionals as to the appropriate, ongoing method of fetal surveillance.

- To ensure a consistent approach, women requiring EFW surveillance should have this clearly marked at the top of the customised growth chart and documented within e-care
- Low risk women who present with risk factors in pregnancy should be referred to Consultant led care. This should be indicated on the customised growth chart at the point of a change in fetal surveillance method.

Reassess at 28 weeks and after any antenatal admission. Assess for complications developing in pregnancy, e.g. hypertensive disorders or significant bleeding. When new complications develop, arrange serial USS from detection of complications until delivery

3.2 Plotting of EFW on GROW chart

- Use the gestational age from the Growth scan and predicted EFW. The weight from charts will need to be rounded up or down using general mathematical principles i.e. 3426 g to be plotted as 3450
- A set square should be used to ensure plot is in the correct place on the GROW chart
- The estimated fetal weight should be calculated and plotted (using an O) on the customised GROW chart by the Sonographer
- The plot should be initialled by the Sonographer with the date on the horizontal axis

3.3 Method for measuring SFH; See appendix 3

SFH must be plotted with an **X** on the customised growth chart

3.4 Recommendations

Referrals to Ultrasound for Low risk women having SFH measurements;

- When there is an indication for a growth scan the Midwife/Doctor will refer directly to the USS department.
- The ultrasound Department will give an appointment within 72 hours.
- Arrangements for follow up by the referrer should be made prior to the Scan.

Indications for a growth and liquor volume scan are:

- First fundal height measurement plots below the 10th centile line on the customised growth chart.
- Excessive Growth: If, based on consecutive measurements, there is concern about excessive growth because of the sharpness of the curve a fetal growth and Liquor volume scan should be requested.
- A first measurement above the 90th centile line does not need referral for scan for query LGA, unless there are other clinical concerns, e.g. polyhydramnios.
- Slow or Static Growth: If, based on consecutive measurements, growth is static (flat), or slow (growth trajectory which is less (slower) than the slope of the curve/growth velocity indicated by the 10th centile line on the customised chart over the same gestational age interval).

3.5 Follow up:

It is the responsibility of the person performing the scan to plot the obtained EFW from the scan on the customised GROW chart. This will identify a deviation from the norm and ensure timely escalation and review.

Normal EFW₁; Refer back to community Midwife for continuation of SFH

Abnormal EFW; Sonographer to refer woman to ADAU for a CTG and Obstetric review that day.

If she does not wish to attend ADAU, Ultrasound reception staff to copy the GROW chart and send to ADAU so that an appointment can be made.

Other USS findings not within range;

- LGA babies; >90th centile –. Direct to ANC for a consultant appointment and OGTT within 1 week
- Polyhydramnios – Direct to ANC for a consultant appointment (AFI >30 – GTT and referral to fetal medicine AFI <30 GTT and ref to consultant within 4 days.

Upon review the Doctor should review the EFW plotting and subsequent management plan; this **must** be documented within e-care and printed for the handheld pregnancy records.

Antenatal admission / attendance:

All women calling with concerns should be appropriately assessed using the telephone triage sheet to identify those classed as high risk of FGR. These women must be invited for assessment and have an admission CTG on attendance to ADAU, Antenatal Ward or Labour Ward and Obstetric review (see Fetal Monitoring Guideline).

Intrapartum Care:

High risk women – review indication for serial growth scans;

- **BMI ≥ 35 :** If serial growth scans show normal growth velocity and there are no other indications to use continuous electronic fetal monitoring in labour (unless risks change during labour), continuous fetal monitoring is not required for raised BMI.
- **Smoker:** If serial growth scans show normal growth velocity and there are no other indications to use continuous electronic fetal monitoring in labour (unless risks change during labour), continuous fetal monitoring is not required for smokers.
- All other high-risk women will require an Obstetric review as soon as possible and clear management plan for intrapartum care documented within the woman's healthcare record (on e-care).

Low risk women – Offer routine intermittent auscultation unless risk changes during labour

For further guidance on fetal monitoring in labour please refer to the Fetal Monitoring Guideline on the intranet.

Postnatal Surveillance:

The Midwife will calculate birth weight centile using the GROW centile calculator software (This software can be accessed on all Maternity computers). This is designed to audit our identification of FGR and assist in auditing early detection and management of FGR in the antenatal period

- Babies below the 10th centile require 4 hourly observations for 24hrs post-delivery.
- Babies below the 2nd centile require an additional care pathway – please refer to the Hypoglycaemia in the newborn guideline.

4.0 Statement of evidence/references:

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5.0 Governance

5.1 Document review history

Version number	Review date	Reviewed by	Changes made
5	11/01/2021	Miss F Nizami	Alignment of guideline with SBL2 algorithm for risk assessment for early onset fetal growth restriction
4	07/2020	Georgena Leroux	Guideline review and implementation of SBL 2 and Gap care pathway 2019
3	05/2016	Kirsty Hart	Implement new national recommendations
2	07/2012	Georgena Leroux	Revision and update
1	03/2009	Mary Plummer	New practice - to originate document

5.2 Consultation History

Stakeholders Name	Area of Expertise	Date Sent	Date Received	Comments	Endorsed Yes/No
Michelle Fynes	O&G Consultant	14/05/2020	15/05/2020	No amendments suggested	N/A
Julie Cooper	Head of Midwifery	14/05/2020	17/05/2020	Incorporated	Yes

Rebecca Daniels	Consultant Midwife	14/05/2020	14/05/2020	Incorporated	Yes
Jessica Matson	Community Midwife	14/05/2020	14/05/2020	Incorporated	Yes

5.3 Audit and monitoring

This Guideline outlines the process for document development will be monitored on an ongoing basis. The centralisation of the process for development of documents will enable the Trust to audit more effectively. The centralisation in recording documents onto a Quality Management database will ensure the process is robust.

Audit/Monitoring Criteria	Tool	Audit Lead	Frequency of Audit	Responsible Committee/Board
a) Standardised risk assessment completed for all women and fetal growth surveillance as appropriate b) Fundal height measurement recorded and plotted on customised growth chart c) Appropriate action is taken when deviation from norm	Audit	Community Matron	Annual	Audit meeting Labour ward forum

5.4 Equality Impact Assessment

As part of its development, this Guideline and its impact on equality has been reviewed. The purpose of the assessment is to minimise and if possible remove any disproportionate impact on the grounds of race, gender, disability, age, sexual orientation, religion or belief, pregnancy and maternity, gender reassignment or marriage and civil partnership. No detriment was identified. Equality Impact assessments will show any future actions required to overcome any identified barriers or discriminatory practice.

Equality Impact Assessment			
Division	Women's and Children's Health	Department	Obstetrics
Person completing the EqIA	Georgena Leroux	Contact No.	86582
Others involved:		Date of assessment:	05/2020
Existing policy/service	Yes	New policy/service	No
Will patients, carers, the public or staff be affected by the policy/service?		Yes	
If staff, how many/which groups will be affected?		All midwives and doctors working in the maternity department	
Protected characteristic	Any impact?	Comments	
Age	NO	Positive impact as the policy aims to recognise diversity, promote inclusion and fair treatment for patients and staff	
Disability	NO		
Gender reassignment	NO		
Marriage and civil partnership	NO		
Pregnancy and maternity	NO		
Race	NO		
Religion or belief	NO		
Sex	NO		
Sexual orientation	NO		
What consultation method(s) have you carried out?			
<i>Circulation via email. Discussion at guidelines meeting.</i>			
How are the changes/amendments to the policies/services communicated?			
<i>Circulation via email. Discussion at guidelines meeting and CIG.</i>			
What future actions need to be taken to overcome any barriers or discrimination?			
What?	Who will lead this?	Date of completion	Resources needed
Review date of EqIA	03/02/2024		

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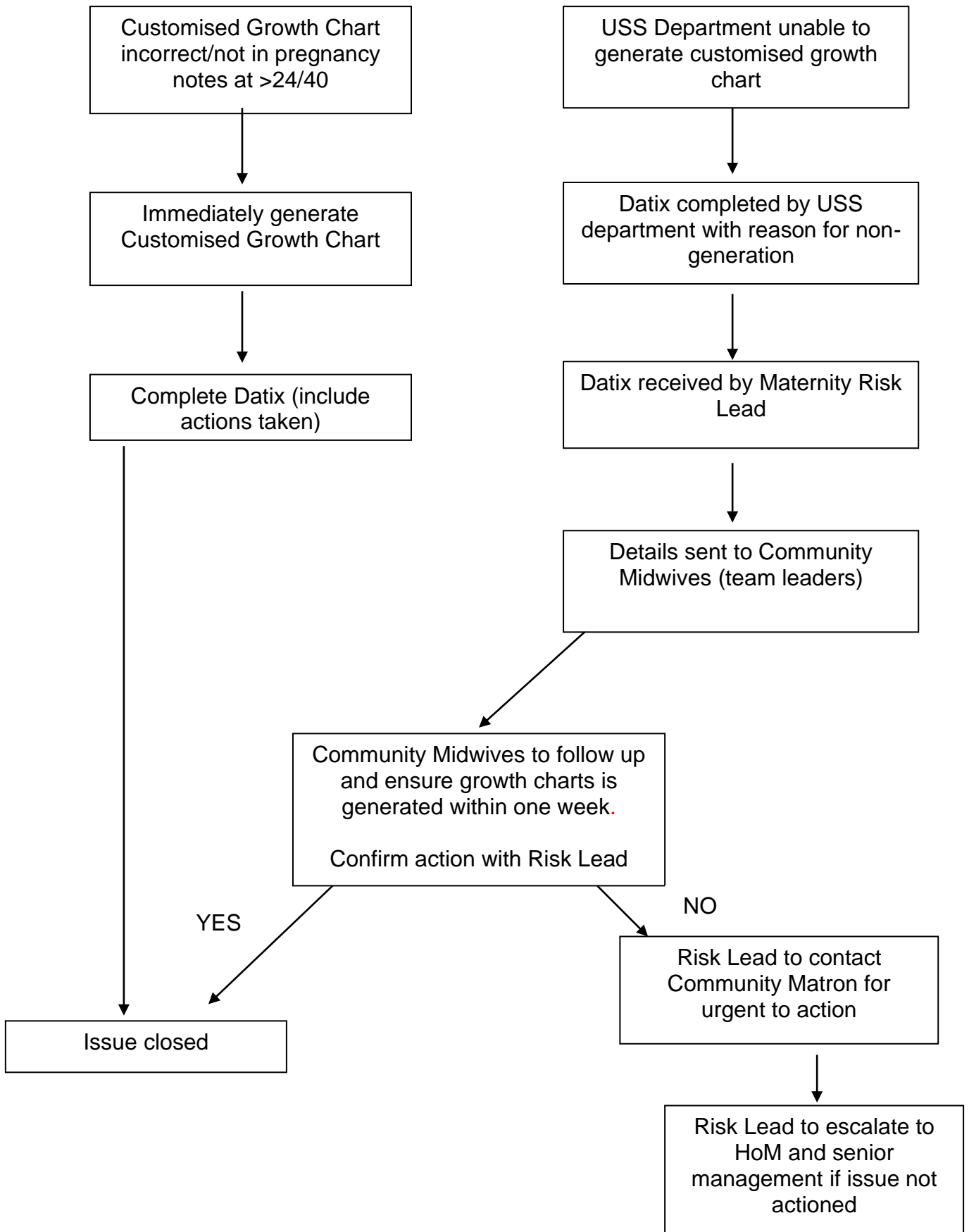
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Appendix 1: Booking Risk Assessment



Antenatal Booking
Risk Assessment For

Appendix 2: Guidance for the non-generation of Customised Growth Charts



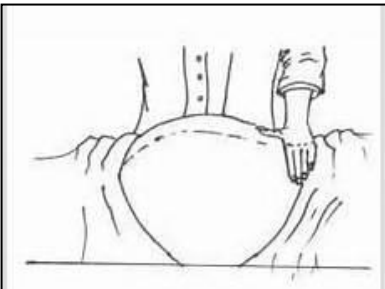
Appendix 3: Fundal Height Measurement

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 with two hands



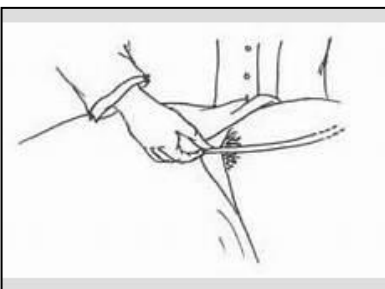
- Ensure the abdomen is soft (not contracting)
- Perform abdominal palpation to enable accurate identification of the uterine fundus

3. Secure tape with hand at top of fundus



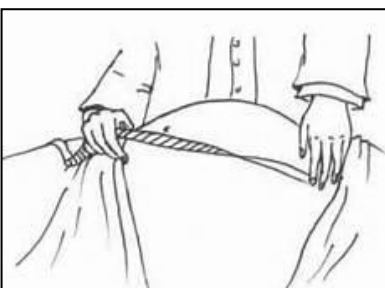
- Use the tape measure with the centimetres on the underside to reduce bias
- Secure the tape measure at the fundus with one hand

4. Measure to top of symphysis pubis.



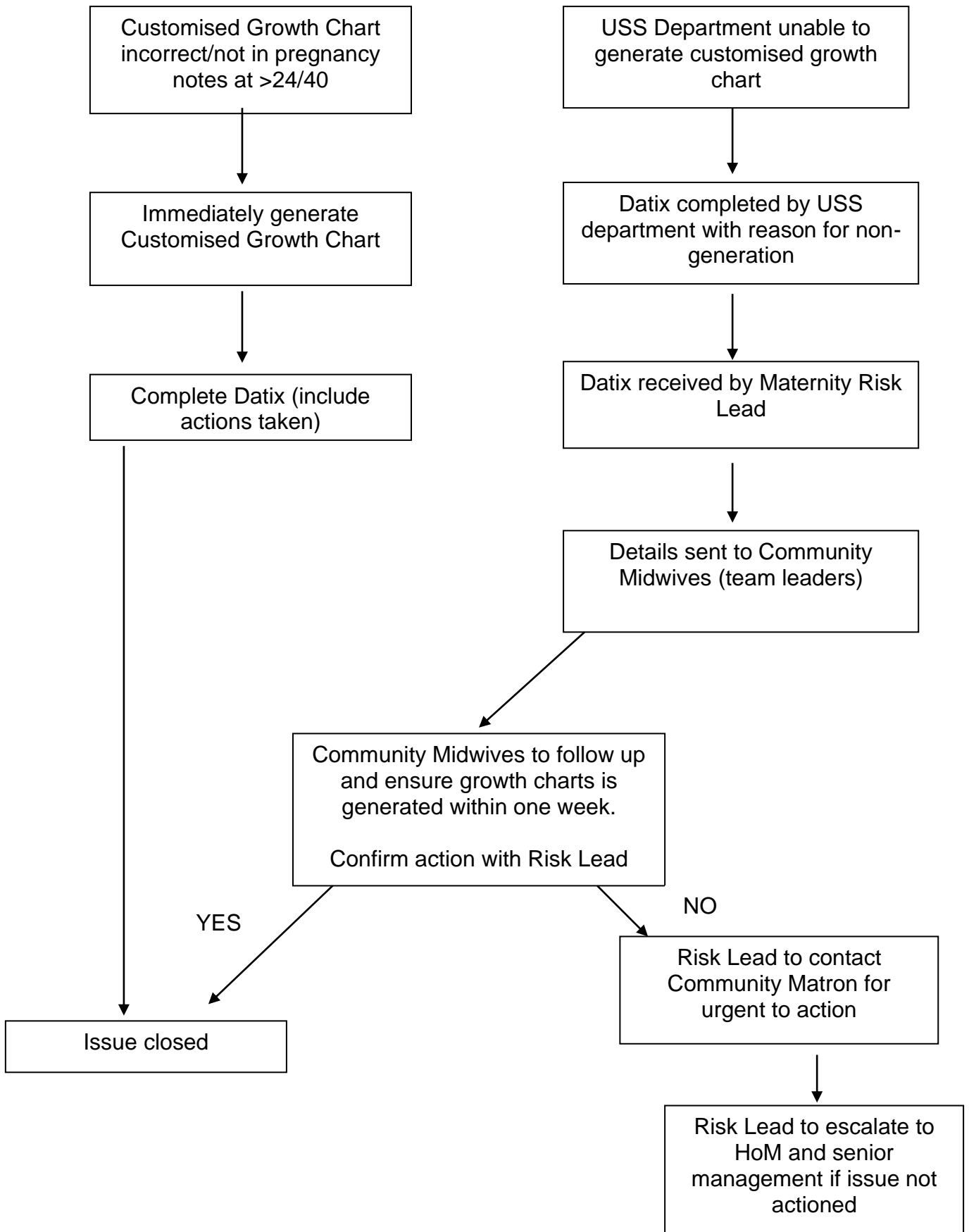
- Measure from the top of the fundus to the top of the symphysis pubis
- The tape measure should stay in contact with the skin

5. Measure along longitudinal axis of uterus, note metric measurement.



- Measure along the longitudinal axis without correcting to the abdominal midline
- Measure only once

Record the metric measurement and plot it on the customised growth chart.



Appendix 4: Algorithm for using uterine artery Doppler as a risk assessment tool for early-onset FGR

