Guideline for fetal growth surveillance, referral and investigations

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Equality Impact Assessment	N/A if clinical guideline or procedure	Date:	
Version	9		
Status	Approved		
Publication date	01/04/2021		
Review date	24/03/2024		
Approval recommended by	Maternity guideline group	Date: 07/01/2021	
recommended by	Women's Business and Governance Meeting	Date: 22/01/2021	
Approved by	CBU 3 Overarching Governance Meeting	Date: 24/03/2021	
Distribution	Barnsley Hospital NHS Foundation Trust – intranet Please note that the intranet version of this document is the only version that is maintained. Any printed copies must therefore be viewed as "uncontrolled" and as such, may not necessarily contain the latest updates and amendments		

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Section Headings

1.0 Introduction

There is strong evidence to suggest that FGR (Fetal Growth Restriction) is the biggest risk factor for stillbirth. 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.

2.0 Objective

To provide guidance for staff on how to undertake a risk assessment, and what surveillance is required, and at what gestation.

3.0 Scope

This guideline applies to all medical, midwifery and sonography staff working within maternity services.

4.0 Main body of the document

This guideline will cover the following:

- Definitions
- Categorisation of women into low, moderate and high risk of FGR.
- · Screening of pregnancies for FGR.
- Management of pregnancies at risk of or confirmed FGR.

4.1 Definitions

Small for gestational age (SGA) current pregnancy

- Normal growth velocity with estimated fetal weight (EFW) or abdominal circumference (AC) > 3rd centile but < 10th centile
- Normal liquor volume and umbilical artery dopplers

FGR - current pregnancy

- EFW or AC < 3rd centile, or
- Slow or no growth on customised chart following growth USS; fetus failing to reach its growth potential, or
- EFW or AC < 10th centile with evidence of placental dysfunction defined as either:

- Abnormal uterine artery Doppler (mean pulsatility index > 95th centile) earlier in pregnancy (20-24 weeks) and/or
- Abnormal umbilical artery Doppler (absent or reversed end diastolic flow or pulsatility index > 95th centile) (> 24 weeks)

SGA - previous pregnancy

• previous birth centile >3rd but < 10th centile

Fetal growth restriction (FGR) - previous pregnancy

- Birthweight < 3rd centile
- Early onset placental dysfunction necessitating delivery < 34 weeks
- Birthweight < 10th centile plus evidence of placental dysfunction as defined above

4.2 Risk assessment at booking appointment

All women will be assessed at booking using appendix 1 and the Medway Risk Assessment tool (Appendix 2) to ascertain risk factors for fetal growth restriction. The woman will be in a low, moderate or high-risk category.

The risk assessment will commence when the community midwife undertakes her booking in Medway, and will be completed by the Midwife/Obstetrician at the Antenatal Clinic appointment, following dating scan.

4.3 Growth Pathway

Low risk

Women who are assessed as being low risk, will have fundal height measurements undertaken by a Community Midwife, at 28, 32, 36 and 40 weeks, as per appendix 1

Any static, slow or accelerated growth will be referred for USS within 72 hours. If an USS cannot be undertaken within this timescale – daily cCTG must be undertaken

To request an USS:

Make the request onto ICE as URGENT

Contact Antenatal Admin on 01226 433985 Monday to Friday 08.30 to 17.00 for an appointment

If out of hours, mark the request as URGENT, stating the patients correct contact number and a scan appointment will be arranged the next working day by the Antenatal Admin Team. The woman will be advised to await a call from the Antenatal admin team.

Intermediate risk

Women who fall into the intermediate risk category, will have serial scans at 32, 36 and 40. In addition, they will have a one off SFH (symphysis fundal height) measurement at 28 weeks, with their Community Midwife.

If this measurement is under the 10th centile, the Community Midwife will refer for an USS, within 72 hours. If the measurement is over 10th centile, this is a normal measurement, and

the first scan will be at 32 weeks. No further SFH measurements are then needed for the remainder of the pregnancy. (appendix 1).

If the EFW on the USS is <10th centile, a review and plan by the obstetrician will be undertaken with the Midwife Sonographer or ANDU.

The only exception to this (as per Appendix 1) is women with a BMI > 40 who will commence serial USS at 28 weeks gestation.

High risk

At 18-20+6 weeks women who fall into the High-risk category will have a Uterine Artery Doppler performed, alongside their fetal anatomy USS. The estimated fetal weight should be calculated at this time. Please see flow chart below.

The uterine artery Doppler will include an assessment of the PI (Pulsatility Index) which will be documented on the report. The sonographer undertaking the PI measurement is responsible for highlighting an abnormal PI value. If the uterine artery Doppler is normal the woman will be managed as per the intermediate category with serial scans from 32 weeks. If the uterine artery Doppler is abnormal, or AC or EFW <10th Centile, the woman will be reviewed by a midwife that day in ANC and a follow up appointment will be arranged with a consultant. The relevant leaflet should be given to the woman.

4.4 Serial Growth scans

Criteria for scanning and review by Midwife Sonographer

Women who smoke and those with a BMI of 35-40 will have their serial USS by a midwife sonographer if available If the service is not available, the scan will be performed by the Sonographer within the Ultrasound Department and reviewed in Antenatal clinic

Review by midwives in ANC or ANDU

Following USS, the midwife in Antenatal Clinic or Antenatal Day Unit will plot the EFW on the customised growth chart. A second midwife will check and confirm the accuracy of the plotting.

If the growth is normal, following a discussion with the Obstetrician and a review of the risk assessment/management plan, the midwife can discuss the findings with the woman. An obstetric review is not required.

Review by Obstetric team in ANC or ANDU

Any accelerated, slow, or static growth; or growth under the 10th centile will be reviewed by an Obstetrician and a clinical review will take place with the woman to discuss the findings and future management.

4.5 Management of suspected SGA/FGR

All women with a known SGA/FGR fetus will:

 Be offered serial growth scans at fortnightly intervals, followed by a review in the named consultant Antenatal Clinic.

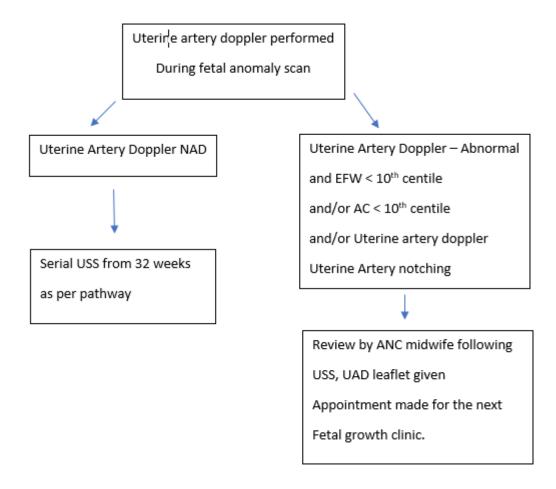
- o If a decision is made to undertake fortnightly scans, any future decision to change the frequency will only be made by a registrar or consultant.
- The decision will not be made based on a sudden increase on one growth scan.
- A minimum of two consecutive growth scans with good growth velocity and EFW above 10th centile will be seen prior to considering a change in scan frequency.
- Have a clear management plan documented within the electronic computer system detailing ongoing management for the remainder of the pregnancy.
 - Any future change in clinical findings, e.g. Reduced Fetal Movements (RFM) or abnormal liquor volume, will prompt a further review and completion of a new management plan where appropriate.
- When attending for liquor volume and Doppler or cCTG assessments with an ongoing management plan be reviewed by a midwife unless there are concerns identified at this appointment e.g. RFM
- Be advised to maintain a low tolerance for changes in fetal movements and self-refer to ANDU or Triage as soon as any changes are noticed.
- Be offered interim assessments between growth scans, based on clinical indication.

4.6 Management of Abnormal Umbilical Artery Doppler

- Any abnormal umbilical artery Doppler requires registrar/consultant review
- Those with abnormal PI values (above the 95th centile) will be offered twice weekly LV (liquor volume) and Doppler. Twice weekly cCTGs will be offered.
- Women with intermittent absent end diastolic flow with other complicating factors (SGA/FGR/Oligohydramnios/RFM) and women with absent or reversed EDF can be offered daily LV and Doppler with daily cCTGs and a referral will be made to the local fetal medicine consultant.
- Women with absent or reversed end diastolic flow on umbilical artery Doppler at less than 32 weeks gestation will be referred to the local fetal growth clinic.
- Women with an abnormal umbilical artery Doppler will be considered for a single course of antenatal corticosteroids.
- Delivery is recommended when there is reversed end diastolic flow between 30 and 32 weeks gestation after steroids, in discussion with the local fetal medicine consultant

Summary of Management following Uterine Artery Doppler at the anatomy scan

Women will be assigned a "positive" screen if they have EFW <10th centile; AC <10th centile; uterine artery PI > 95th centile or uterine artery notching.



4.7 Timing of delivery

Fetuses under the 3rd centile

- Offer early delivery/IOL at 37+0 gestation, but no later than 37+6
- Delivery may be offered prior to 37+0 gestation in women where other concerning factors are present. This decision will be made by the Consultant
- In cases of IOL < 36+0 or LSCS < 39+0, antenatal corticosteroids will be offered

Fetuses between 3rd and 10th centile

A fetus who maintains normal growth velocity between these gestations will often be constitutionally small and therefore not at increased risk of stillbirth.

- If there is normal growth, good fetal movements and normal umbilical artery Doppler, delivery/IOL will be offered at 39+0 gestation unless there are other clinical concerns.
- If there are other concerns, such as reduced fetal movements, slow growth or maternal medical factors there will be an individualised management plan regarding delivery/IOL by a registrar/Consultant.
- In cases of IOL < 36+0 or LSCS < 39+0, antenatal corticosteroids will be offered

5.0 Roles and responsibilities

5.1 Midwives

Undertake SFH measurements when appropriate and refer for USS if required.

Plot EFW on customized growth chart following USS.

5.2 Obstetricians

To provide the best evidence-based care in line with local and National guidance for women and their babies to ensure the most appropriate and safe mode of delivery.

5.3 Sonographers

Undertake USS as required and any associated investigations.

6.0 Associated documents and references

Sheffield Teaching Hospitals NHS Foundation Trust, Jessop Wing Maternity Services Clinical Practice Guideline, Fetal Growth surveillance, referral and investigations, July 2018.

Saving Babies Lives Version Two, A care bundle for reducing perinatal mortality. https://www.england.nhs.uk/wp-content/uploads/2019/03/Saving-Babies-Lives-Care-Bundle-Version-Two-Updated-Final-Version.pdf

RCOG, Small-for-Gestational-Age Fetus, Investigation and Management (Greentop Guideline No 31) https://www.rcog.org.uk/en/guidelines-research-services/guidelines/gtg31/

Perinatal Institute, Growth Assessment Protocol (GAP) Guidance https://www.perinatal.org.uk/GAPquidance.pdf

Doncaster and Bassetlaw Teaching Hospitals NHS Foundation Trust, Fetal Growth Assessment Guideline, approved 9/7/2020

7.0 Training and resources

Training will be delivered as outlined in the Maternity Training Needs Analysis. This is updated on an annual basis.

Appendix 4 will be referred to all by all Midwives and Obstetricians.

8.0 Monitoring and audit

As per CNST/SBLV2 requirements:

- Quarterly audit of the percentage of babies born < 3rd centile > 37+6 weeks gestation
- Monitoring of babies born > 39+6 and < 10th centile to provide an indication of detection rates and management of SGA babies.

9.0 Equality and Diversity

The Trust is committed to an environment that promotes equality and embraces diversity in its performance as an employer and service provider. It will adhere to legal and performance requirements and will mainstream equality, diversity and inclusion principles through its policies, procedures and processes. This guideline should be implemented with due regard to this commitment.

To ensure that the implementation of this guideline does not have an adverse impact in response to the requirements of the Equality Act 2010 this policy has been screened for relevance during the policy development process and a full equality impact assessment is conducted where necessary prior to consultation. The Trust will take remedial action when necessary to address any unexpected or unwarranted disparities and monitor practice to ensure that this policy is fairly implemented.

This guideline can be made available in alternative formats on request including large print, Braille, moon, audio, and different languages. To arrange this please refer to the Trust translation and interpretation policy in the first instance.

The Trust will endeavor to make reasonable adjustments to accommodate any employee/patient with particular equality, diversity and inclusion requirements in implementing this guideline.

This may include accessibility of meeting/appointment venues, providing translation, arranging an interpreter to attend appointments/meetings, extending policy timeframes to enable translation to be undertaken, or assistance with formulating any written statements.

9.1 Recording and Monitoring of Equality & Diversity

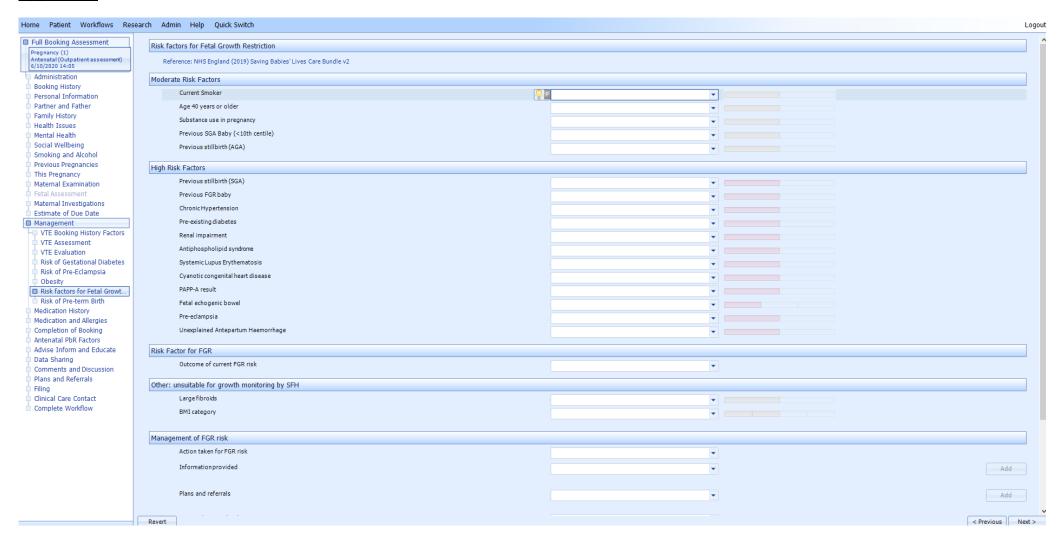
The Trust understands the business case for equality, diversity and inclusion and will make sure that this is translated into practice. Accordingly, all guidelines will be monitored to ensure their effectiveness.

Monitoring information will be collated, analysed and published on an annual basis as part of Equality Delivery System. The monitoring will cover the nine protected characteristics and will meet statutory employment duties under the Equality Act 2010. Where adverse impact is identified through the monitoring process the Trust will investigate and take corrective action to mitigate and prevent any negative impact.

Appendix 1

	Risk assessment	Prevention	Screening for early onset FGR and triage pathway	Screening/surveillance pathway for FGR/SGA	Reassess at 28 weeks and after any antenatal admission
Low Risk	No risk factors identified at booking	Nil	Anomaly scan and EFW > 10 th centile	SFH at each routine antenatal appointment >26 weeks, not more frequently than every 2 weeks	
Moderate Risk	Previous SGA (between 3 rd and 10 th centile on CGC) Previous stillbirth, AGA birthweight Current smoker at booking or at any time in pregnancy Drug misuse Women ≥ 40 years of age at booking Women unsuitable for SFH BMI 35-39.9 at booking Fibroids Women unsuitable for SFH BMI > 40	Review hospital records for history of placental dysfunction in previous pregnancy AND Consider aspirin 150mg at night < 16 weeks as appropriate Review hospital records for history of placental dysfunction in previous pregnancy	Anomaly scan and EFW > 10 th centile Anomaly scan and EFW > 10 th centile Anomaly scan and EFW > 10 th centile	One off SFH at 28 weeks. No further SFH required. Serial USS 32 36 40 wks Serial USS 28 32 36 40 weeks	Assess for complications developing in pregnancy eg hyptertensive disorders or significant bleeding
High Risk	Maternal medical conditions to include Chronic kidney disease, hyptertension, autoimmune disease (SLE, APLS), cyanotic congenital heart disease Obstetric history Previous FGR (under 3 rd centile on CGC) Hyptertensive disease in a previous pregnancy Previous SGA stillbirth Current pregnancy PAPPA <5 th centile Echogenic bowel Significant bleeding EFW < 10 th centile diagnosed at any gestation verage gestational age) SGA (small for gestational age), CGC (customised)	Review hospital records for history of placental dysfunction in previous pregnancy AND Consider aspirin 150mg at night < 16 weeks as appropriate	Following review in ANC after dating scan, the Obstetrician will request on Medway and on the outcome form that a Uterine Artery Doppler at A&P USS Abnormal uterine artery Doppler at A&P USS. Abnormal uterine artery Doppler at A&P USS, EFW or AC under 10 th centile Index properties index) FGR (fetal growth restricts)	Serial USS from 32 weeks every 2-4 weeks until delivery To be reviewed in the next – Growth Clinic	Serial USS from diagnosis until delivery

Appendix 2



Appendix 3

HOW TO UNDERTAKE SFH MEASUREMENTS

Training Video from the Perinatal Institute:-

https://www.youtube.com/embed/nyfUh5zIB1U

Fetal Growth - Fundal Height Measurements



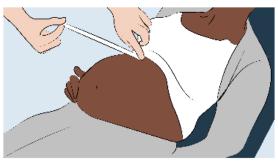
1. Mother semi-recumbent, with bladder empty.

- 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 palnation to enable accur
- 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.





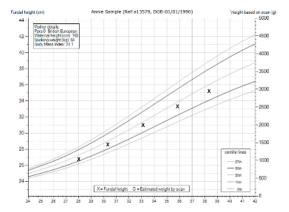
5. Measure along longitudinal axis of uterus, note metric measurement.

Measure along the longitudinal axis without correcting to the

Measure from the top of the fundus to the top of the symphysis pubis

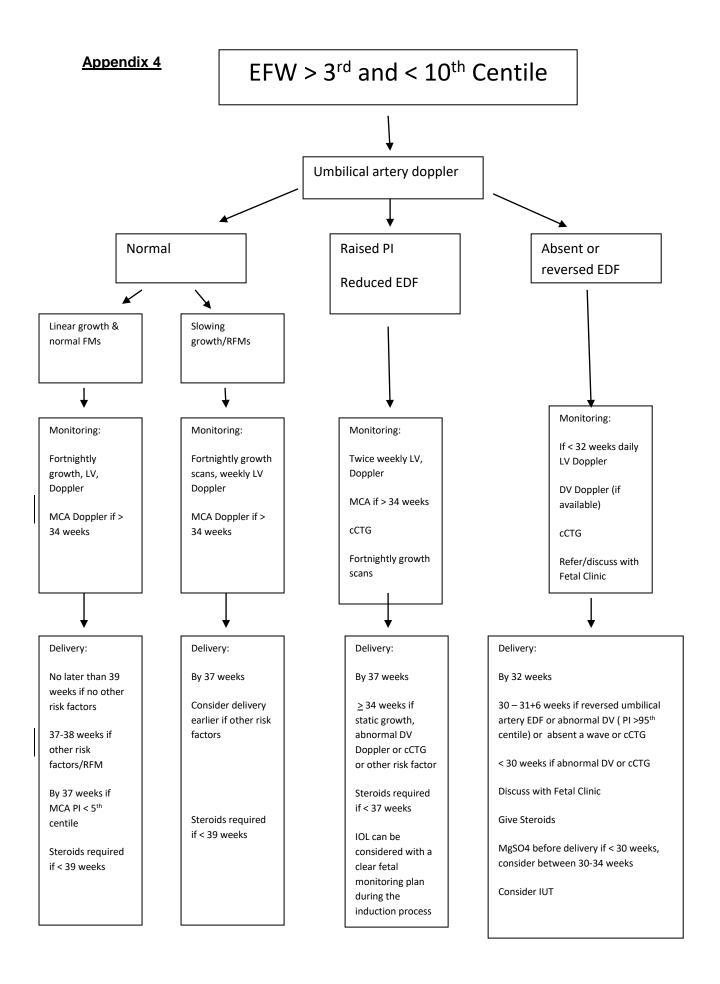
• The tape measure should stay in contact with the skin

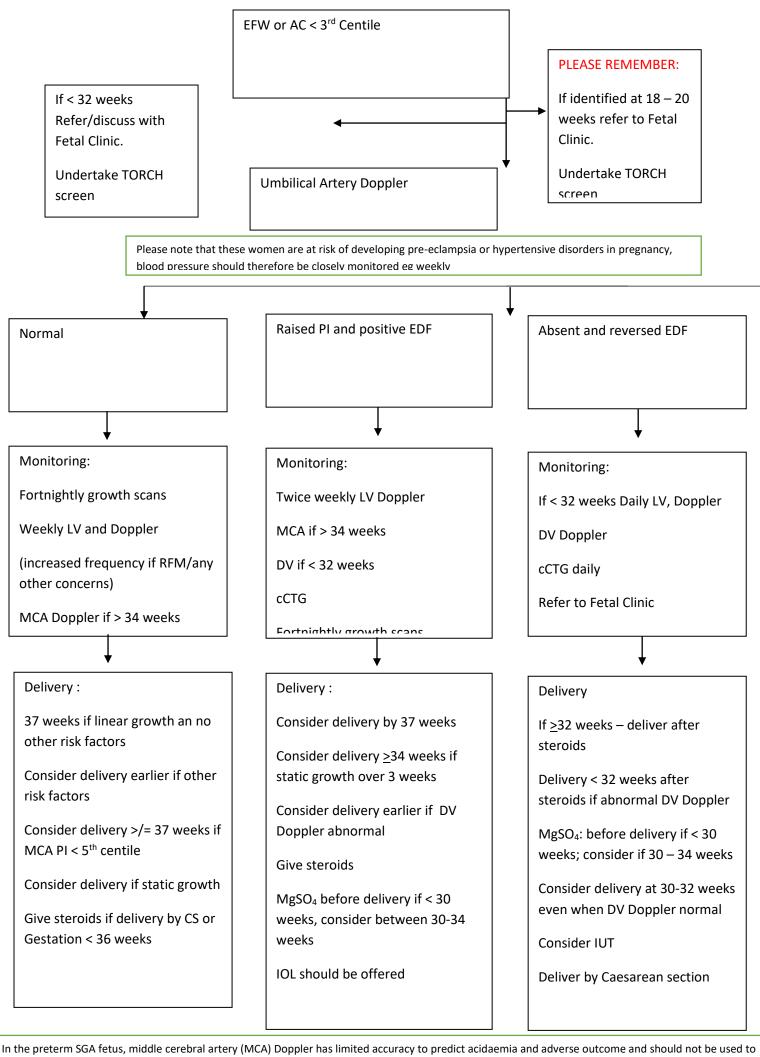
abdominal midline Measure only once



6. Plot on customised chart, record in notes

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





In the preterm SGA fetus, middle cerebral artery (MCA) Doppler has limited accuracy to predict acidaemia and adverse outcome and should not be used to time delivery.

In the term SGA fetus with normal umbilical artery Doppler, an abnormal middle cerebral artery Doppler (PI < 5th centile) has moderate predictive value for acidosis at birth and should be used to time delivery.

Appendix 6 Glossary of terms

USS - Ultrasound Scan

A& P – Anatomy and Physiology

SGA - Small for Gestational Age

FGR – Fetal Growth Restriction

cCTG - Computerised - Cardiotocograph

UAD – Uterine Artery Doppler

RFM – Reduced Fetal Movement

LSCS - Lower Segment Caesarean Section

IOL - Induction of Labour

LV – Liquor Volume

PI – Pulsatility Index

ANC - Antenatal Clinic

ANDU - Antenatal Day Unit

EFW – Estimated Fetal Weight

BMI – Body Mass Index

SFH – Symphysis Fundal Height

Maintain a record of the document history, reviews and key changes made (including versions and dates)

Version	Date	Comments	Author

Review Process Prior to Ratification:

Name of Group/Department/Committee	Date
Reviewed by Maternity Guideline Group	8/12/20 and 07/01/21
Reviewed at Women's Business and Governance meeting	22/01/2021
Approved by CBU 3 Overarching Governance Meeting	24/03/2021
Approved at Trust Clinical Guidelines Group	25/03/2021
Approved at Medicines Management Committee (if document relates to medicines)	N/A

Trust Approved Documents (policies, clinical guidelines and procedures)

Approval Form

Please complete the following information and attach to your document when submitting a policy, clinical guideline or procedure for approval.

Document type (policy, clinical guideline or procedure)	Guideline
Document title	Guideline for fetal growth surveillance, referral and investigations
Document author (Job title and team)	Community and Outpatient Matron Consultant Obstetrician & Labour Ward Lead Lead consultant obstetrician
New or reviewed document	Reviewed
List staff groups/departments consulted with during document development	Senior midwives, consultant obstetricians
Approval recommended by (meeting and dates):	Maternity guideline group Women's business and governance CBU3 Business and governance
Date of next review (maximum 3 years)	24/03/2024
Key words for search criteria on intranet (max 10 words)	Fetal growth, small
Key messages for staff (consider changes from previous versions and any impact on patient safety)	
I confirm that this is the <u>FINAL</u> version of this document	Name: Charlotte Cole Designation: Practice Educator Midwife

FOR COMPLETION BY THE CLINICAL GOVERNANCE TEAM

Approved by (group/committee): CBU3 Business and Governance

Date approved: 24/03/2021

Date Clinical Governance Administrator informed of approval: 25/02/2022

Date uploaded to Trust Approved Documents page: 01/03/2022