# Fetal Growth Surveillance Guideline

## Guideline information

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Summary of document:
This guideline covers the screening, diagnosing and management of small for gestational age (SGA) and growth restricted fetus (FGR).

Scope:
This guidance is for all health care professionals involved in the care of pregnant women. The guidance uses the term “woman” (pronouns she or her) to describe individuals whose sex assigned at birth was female, whether they identify as female, male or non-binary. It is important to acknowledge it is not only people who identify as women for whom it is necessary to access women’s health and reproductive services. Therefore, this should include people who do not identify themselves as women but who are pregnant or have recently given birth. Obstetric and midwifery services and delivery of care must therefore be appropriate, inclusive and sensitive to the needs of those individuals whose gender identity does not align with the sex that they were assigned at birth.

To be read in conjunction with:
839 - Antenatal Electronic Fetal Monitoring Guideline – opens in new tab

Patient information:

Include links to Patient Information Library

Owning group:
Maternity Guideline, Audit and Research Group 14.8.2025

Executive Director job title:
Chief Operating Officer

Reviews and updates:
1.0 – New Guideline
2.0 - Updated
3.0 – minor amendments - added an exception and made small amendments to align with the reason for the exception. The lay out of the guidance for MCA has been altered to make it clearer

Keywords
Small for gestational Age, Growth Restriction

Glossary of terms
FGR Fetal Growth Restriction
SGA Small for Gestational Age
UA Umbilical Artery
MCA Middle Cerebral Artery
PI Pulse Index
CPR Cerebroplacental Ratio cCTG – Computerised Cardiotocograph
SFH Symphysis Fundal Height
STV Short Term Variability

# Contents

## Fetal Growth Surveillance Exception

Please note the following exception to this guideline that will be supported in Hywel Dda Health Board.

The Hywel Dda University Health Board Fetal Growth Surveillance guideline is supported by the RCOG Investigation and Care of a Small-for-Gestational-Age Fetus and a Growth Restricted Fetus Green Top Guideline No. 31which recommends that Uterine Artery Dopplers should be carried out between 18+0 and 23+6 weeks for women at high risk of fetal growth disorders.

There has been a consensus of agreement amongst the Maternity Working Documentation Control Group/ Maternity Guideline that due to resource issue, where there is no option/provision in HDUHB for the assessment of Uterine artery Dopplers, that all women with previous babies born with birth weight centile less than 10$^{th}$ centile (≤10$^{th}$ centile) and those women who have had a gastric bypass/ sleeve, are to be considered as “High Risk” and serial growth scans are to commence from 28/40 gestation.

## Report Scope

This guideline applies to all clinicians involved in antenatal care.

## Aim

The aim of this document is to:

- Fetal Growth surveillance with screening to detect and appropriately manage small for gestational age babies and growth restricted fetus.

## Objectives

The aim of this document will be achieved by the following objectives:

- Appropriate fetal growth surveillance for all women in pregnancy.
- Screening for risk factors for FGR/SGA.
- Management of FGR and SGA.

## Introduction

An appropriate for gestational age (AGA) fetus is one whose size is within a normal range for its gestational age. This is typically defined as between the 10th and 90th centiles. A fetus is considered SGA when individual biometric measurements or a combination of measurements used to estimate fetal weight fall below set parameters and requires accurate assessment of gestational age.
Commonly, the definition of SGA refers to a fetus with a predicted weight or an AC measurement less than the 10th centile. SGA at birth is commonly diagnosed based on a birthweight below the 10$^{th}$ centile and often birthweight charts are adjusted for the sex of the baby.

FGR implies a pathological restriction of the genetic growth potential. Some, but not all, growth restricted foetuses/infants are SGA. The likelihood of FGR is higher in foetuses that are smaller. Growth restricted foetuses may manifest evidence of fetal compromise (abnormal Doppler studies, reduced liquor volume).

**TABLE 1** Consensus based definitions for early and late fetal growth restriction (FGR) in absence of congenital anomalies[5]

| Early FGR: Gestational age < 32 weeks, in absence of congenital anomalies | Late FGR: Gestational age ≥ 32 weeks, in absence of congenital anomalies |
|---|---|
| AC/EFW < 3rd centile or UA-AEDF | AC/EFW < 3rd centile |
| **Or** | **Or at least two out of three of the following:** |
| AC/EFW <10th centile combined with either: | 1. AC/EFW <10th centile |
| 1. UtA-PI >95th centile and/or | 2. AC/EFW crossing centiles >two quartiles on growth centiles* |
| 2. UA-PI >95th centile | 3. CPR <5th centile or UA-PI >95th centile |

*Growth centiles are non-customised centiles. AC, fetal abdominal circumference; CPR, cerebroplacental ratio; EFW, estimated fetal weight; PI, pulsatility index; UA, umbilical artery; UtA, uterine artery.

# Antenatal Risk Factors

**Risk Factors Identified at booking and plan for fetal growth surveillance (See Appendix 2)**

## Moderate Risk Factors identified at booking

| Moderate Risk factors identified at booking | Plan for fetal growth surveillance |
|---|---|
| • All smokers<br>• Low BMI < 18.5 with eating disorder or bowel disorder causing low BMI.<br>• Cocaine use or drug misuse<br>• Previous Stillbirth with normal birth weight (individual care plan may differ)<br>• Age >40 at booking | Single Symphysis Fundal Height at 28 weeks<br><br>Growth scan 3-4 weekly from 32 weeks until birth |

## High Risk Factors identified at booking

| High Risk factors identified at booking. | Plan for fetal growth surveillance |
|---|---|
| • Previous baby <10th Centile<br>• Previous Still Birth (Birth weight <10th Centile)<br>• Chronic hypertension (See Hypertensive disease in pregnancy guidelines)<br>• Cyanotic heart disease<br>• Diabetes and vascular disease (See Diabetes in Pregnancy Guidelines)<br>• Renal disease | Growth scan 3-4 weekly from 28 weeks until birth |

| | |
|---|---|
| • Anti-phospholipid syndrome or Systemic Lupus Erythematosus<br>• Gastric Bypass/ Gastric Sleeve | |
| Other risk factor:<br>• Congenital uterine anomaly | |

**Other High-risk factors identified at any time in pregnancy**

| High Risk factors identified in Pregnancy. | Plan for fetal growth surveillance |
|---|---|
| • Low serum PAPP-A (<0.415 MoM) in first trimester*<br>• Inhibin A > 2MoM on Quad Test*<br>• AFP > 2 MoM on Quad Test*<br>• EFW or AC <10th centile at time of Anomaly scan<br>• Echogenic fetal bowel<br>• Single Umbilical Artery<br>• Significant bleeding | Growth Scan from 28 weeks<br>4 weekly until birth |

*See Appendix 5.

• When other high risk factors are identified at any time in pregnancy review whether gestation of commencing growth scans requires amending.

**Women Not Suitable for Symphysis Fundal Height (SFH)**

| Not suitable for SFH | Plan or growth surveillance |
|---|---|
| • Women with large or multiple uterine fibroids (singular or as multiple ≥6cm) which lead to clinically significant increase in SFH<br><br>• Maternal BMI ≥ 35. | Growth Scan 4 weekly from 32 weeks until birth |

**Late Bookers / Transfer into Area**

The community midwife must contact the antenatal clinic and request serial scans if risk factors are identified.

**Screening for suspected SGA by routine antenatal symphysis fundal height (SFH) measurement**

- Screening for impaired fetal growth is performed by plotting the SFH onto the GAP GROW chart within the handheld notes.
- A GAP GROW SFH chart is generated at the booking scan /antenatal clinic appointment.
- SFH measurement is to be performed as per guidance on the GAP GROW chart.
- SFH measurement should be offered from 26 weeks every 2-3 weeks for women with **no** risk factors.
- Women with intermediate risk factors require SFH measuring once only at 28 weeks.
- Measuring the SFH the responsibility of all health care professionals caring for the woman and not only the community midwives. The SFH recorded in the antenatal notes (under SFH) must be plotted on the growth chart using **x** and dated and signed. • EFW after growth scan should be plotted on the growth chart using a "● "and dated and signed. This can be completed by any healthcare professional regardless of whether the woman is CLC or MLC.

**Referral criteria when SGA is suspected by plotting fundal height measurements on the GAP GROW SFH chart**

The first time a SFH plots below the 10th centile the clinician is to refer for growth scan (if not already had an ultrasound scan in the previous two weeks). If the scan shows a normal growth, then further assessment should be by SFH.

- Tailing off or static growth on SFH measurements;
  Use https://growthrate2.perinatal.org.uk app (opens in a new tab) to determine whether the growth is normal or not. If growth is confirmed by calculator as "SLOW" refer for growth scan (if not already had a growth scan in the previous two weeks) N.B Please print the page and file in the handheld noted if possible.

**Note: Women who have Moderate Risk factors for SGA and will have one off SFH measurement at 28 weeks and commencing serial growth scans from 32 weeks**: If SFH measurement is less than 10$^{th}$ centile or greater than 97$^{th}$ centile refer for growth scan.

**Suspected large for gestational age**
When a first measurement of SFH above the 97th centile refer to 623 Large for Gestational Age in Non Diabetic Woman Guideline for guidance.

**Plotting SFH that remain below the 10th centile or above the 97th centile**
If despite a normal scan and no evidence of GDM subsequent SFH measurements continues to plot below and parallel to the 10th centile, or above and parallel to the 97th centile, referral for another scan is **not i**ndicated.

**Other indications for scan**
The following conditions are not identified as a risk factor in this guideline and growth surveillance should be arranged/ managed in line with their specific guideline.

- Pregnancy Induced Hypertension
- Pre-eclampsia
- Gestational Diabetes
- Prolonged Preterm Rupture of Membranes
- Multiple Pregnancy

## Normal Ultrasound Measurements

| **Normal Size, Umbilical Doppler and Liquor:** |
|---|
| AC≥ 10th centile and ≤95th centile |
| EFW ≥10th centile and ≤95th centile |
| UA PI doppler ≤95th centile |
| DVP> 2cm and ≤8cm / AFI ≤25cm |

**Pathway for normal scan findings**

- Women with identified risk factors will have serial scans which continue even if normal growth is confirmed.
- Women who have been referred for a growth scan following an antenatal SFH measurement will be discharged back to community care if the scan is normal. Measurements

## Anomaly ultrasound scan measurements < 10th centile at

The fetal Anomaly ultrasound will be performed between 18+0 weeks and 20+6 weeks of pregnancy in line with ASW standards.When measurements of abdominal circumference or the estimated fetal weight is

less than 10th centile refer to the "Pathway for reported fetal measurements less than 10th centile at the fetal anomaly scan Guideline."

## Diagnosis and Management of Small for Gestational Age (SGA) / Fetal Growth Restricted (FGR) in current pregnancy

**Diagnosis of SGA**

| Diagnose SGA if: |
|---|
| EFW or AC <10th centile but >3rd centile with normal Dopplers. |

**Diagnosis of FGR**

| Diagnose FGR if: |
|---|
| EFW or AC <3rd centile |
| EFW or AC < 10th centile **and** abnormal Doppler |
| EFW decreased by over 50 centiles. |

**Criteria for referral to Fetal Medicine Unit as per All Wales Guidelines**

- EFW < 3rd centile for gestational age **at or less than 24 weeks of gestation**.
- Early Onset FGR <32 weeks
- Fetal abdominal circumference (AC) measurement < 3rd centile at routine fetal anomaly scan (FAS)

Women referred to FMU with suspected SGA with EFW is <3rd centile (or AC< 3rd centile at time of anomaly) serology screening for: CMV, Toxoplasmosis, Rubella and Syphilis should be offered up until 32 weeks.

Note: Ductus Venosus (DV) Doppler only performed by Fetal Medicine

**Clinical Management of SGA** • Repeat growth scan in 2 weeks.

- Consider MCA doppler if gestation is ≥32 weeks (See 2.6)
- If cerebroplacental ratio (CPR) is >5th centile plan birth 39-39+6 weeks, unless other features are present e.g. Maternal medical conditions, RFM,
- If CPR is <5th centile confirmed as FGR (as less than 10th centile and CPR abnormal Doppler) and plan birth accordingly (see 2.5.2.).
- Induction of Labour is not contraindicated in SGA pregnancy.

## Clinical Management of FGR

### Early onset FGR (before 32 weeks' gestation)

| Umbilical Artery Doppler in presence of Early FGA | Pathway |
|---|---|
| EDF is positive and PI is normal <95$^{th}$ Centile | Repeat UA Doppler after 1 week, and growth scan in 2 weeks |
| EDF is positive but PI is raised >95$^{th}$ Centile | Repeat UA Doppler scan twice a week with cCTG, and growth scan in 2 weeks and aim for birth 36-36$^{+6}$/40. |
| EDF is absent | Perform daily cCTG until FMU review and if STV is abnormal (see 3.6 table) then expedite the birth by Caesarean. |
| NOTE: Intermittent absent EDF should be treated as raised PI>95$^{th}$ centile | |

### Late onset FGR (≥ 32 weeks)

| Umbilical Artery Doppler in presence of Late FGA | Pathway |
|---|---|
| EDF is positive and PI is normal <95$^{th}$ Centile | Repeat UA Doppler after 1 week, and growth scan in 2 weeks. Aim for birth at 37-37$^{+6}$/40 |
| EDF is positive but PI is raised>95$^{th}$ Centile. | Repeat UA Doppler scan twice a week with cCTG, and growth scan in 2 weeks. Aim for birth at 36-36$^{+6}$/40. |
| EDF is absent | Offer steroids, if appropriate, Offer Caesarean Birth 24 hours after the second dose of steroids. Perform daily cCTG and if STV is abnormal (see 3.6 table) then expedite the Caesarean. |

## Use of Middle Cerebral Doppler to inform Monitoring strategy and frequency in pregnancy

| | |
|---|---|
| **SGA** | In preterm SGA fetus MCA Doppler alone has limited role in timing of birth (RCOG GTG No.31).<br><br>In SGA fetus at ≥32 weeks gestation MCA Doppler may be considered for calculation of Cerebroplacental ratio (CPR) to time birth<br><br>Only offer/request MCA doppler if UA Doppler is normal and may alter the timing of birth.<br>(See appendix 1 for MCA request flow chart) |
| **FGA** | In confirmed FGA fetus use of MCA doppler is **not recommended** (RCOG)<br><br>• Monitoring is undertaken using UA Doppler and cCTG. |

**Computerised CTG (cCTG)**

Computerised CTG is superior to conventional CTG in predicting metabolic academia and early neonatal death. Fetal heart rate (FHR) variation is the most useful predictor of fetal wellbeing in SGA/FGA

Expedite birth if Short Term Variability (STV) becomes abnormal for gestation.

See table below

| Gestation | Abnormal STV on cCTG |
|---|---|
| Between 26+0 and 28 +6 | <2.6 |
| Between 29+0 and 31+6 | <3.0 |
| Between 32 and 33+6 | <3.5 |
| After 34 weeks | <4.5 |

**Timing and Mode of Birth**

| Timing and Mode of Birth | |
|---|---|
| AREDF gestation <32w weeks. | Refer /Transfer to Fetal Medicine unless need for immediate birth i.e. acute hypoxia, abnormal cCTG/STV |
| AREDF gestation >32 weeks | Caesarean Birth is recommended after steroids if appropriate, or earlier if cCTG showing abnormal STV (see 3.6) or bradycardia. |
| Positive EDF but raised PI >95$^{th}$ Centile | Offer birth 36-36$^{+6}$/40 (or after 34 weeks if no growth over 4 weeks)<br>**NOTE:** IOL is an acceptable option, but CTG should be commenced at the onset of contractions. |
| Normal UA Doppler | Offer birth.<br>• FGR at 37-37+6 weeks<br>• SGA at 39 to 39+6 weeks |

## Spontaneous Onset of Labour

Early admission is recommended in women in spontaneous labour with both SGA and FGR fetus in order to instigate continuous fetal heart rate monitoring.

## Induction of Labour

Compared to –for-gestational age fetus, term and near-term SGA and FGA fetus are at increased risk of FHR decelerations in labour, emergency caesarean section for suspected fetal compromise and metabolic acidaemia at birth. This reflects a lower pre-labour pO2 and pH.

## Place of Induction

When FGR with abnormal doppler consider IOL on Enhanced Monitoring Unit. When the doppler is normal, and no other clinical issues identified, the induction may be commenced on the antenatal ward. All women will be moved to labour ward when in labour, or if any concerns regarding fetal wellbeing.

**Induction of Labour in SGA**

- SGA is not a contraindication for pharmacological (e.g. prostaglandin) induction of labour.
- A cCTG should be undertaken prior to start of IOL process and continuous (traditional CTG) fetal heart monitoring should be commenced with onset of contractions/ SROM with transfer to labour ward as appropriate.

**Induction of Labour in FGR**

- When IOL in FGR offering mechanical induction (i.e. Cervical ripening Balloon) is recommended.
- A cCTG should be undertaken prior to insertion of balloon and on removal. Continuous fetal heart monitoring traditional CTG) should be commenced with the onset of contractions/SROM with transfer to CDS as appropriate.

## Women who do not wish Induction of Labour

When women wish to continue with the pregnancy an individualised plan for the continuation of the pregnancy should be made. Offer EFW fortnightly, UA Doppler weekly and cCTG.

## Auditable Standards

- Antenatal Risk assessment for FGR completed appropriately.
- Correct surveillance provided when risk factors identified.
- Appropriate prescribing of aspirin in risk with women at risk of placental dysfunction.
- Appropriate referral when SGA/ FGR suspected on SFH measurement.
- Appropriate management of women suspected on ultrasound to have a baby with SGA/ FGA
- Percentage of babies born <10$^{th}$ centile and >39+6weeks gestation
- Percentage of babies born< 3$^{rd}$ centile and > 37+6 weeks gestation

## References


- The investigation and management of the small-for-gestational-age fetus. Green-top Guideline no 31. 3rd Edition, 2024. Royal College of Obstetricians and Gynaecologists.
- Growth Assessment Protocol Guidance 2.0, June 2024. https://perinatal.org.uk/GAPguidance.pdf
- Antenatal care for uncomplicated pregnancies (NICE CG 62). Feb 2019.
- Preterm Labour and Birth. NICE Guideline NG25. Updated 02 August 2019.

# Appendix 1. Guidance of when it is appropriate to request MCA Dopplers (from 32 weeks gestation).

Guidance of when it is appropriate to request MCA Dopplers (from 32 week's gestation)

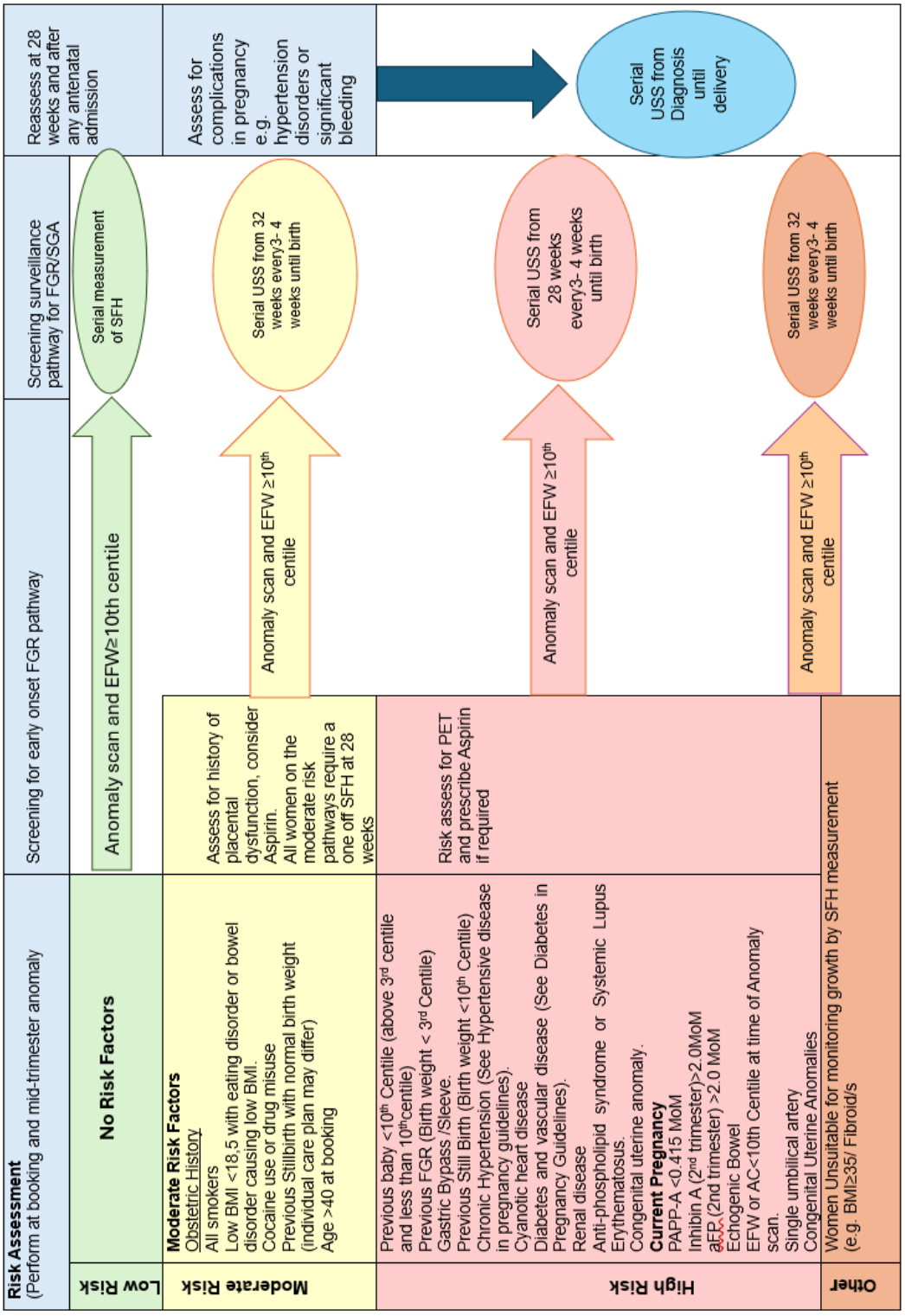
| **Do NOT request MCA doppler If:** |
|---|
| Pregnancy gestation is less than 32 weeks<br>( as UA PI Doppler is more sensitive at <32 weeks) |
| Diagnosis FGR has already been confirmed i.e.:<br>• EFW or AC<3rd centile<br>• EFW or AC<10th centile **and** abnormal Dopplers<br>• EFW decreased by over 50 centiles. |

| **Request MCA after 32 weeks gestation when:** |
|---|
| EFW or AC is <10th centile **and** Fetal Growth Restriction (FGR) not already confirmed. |

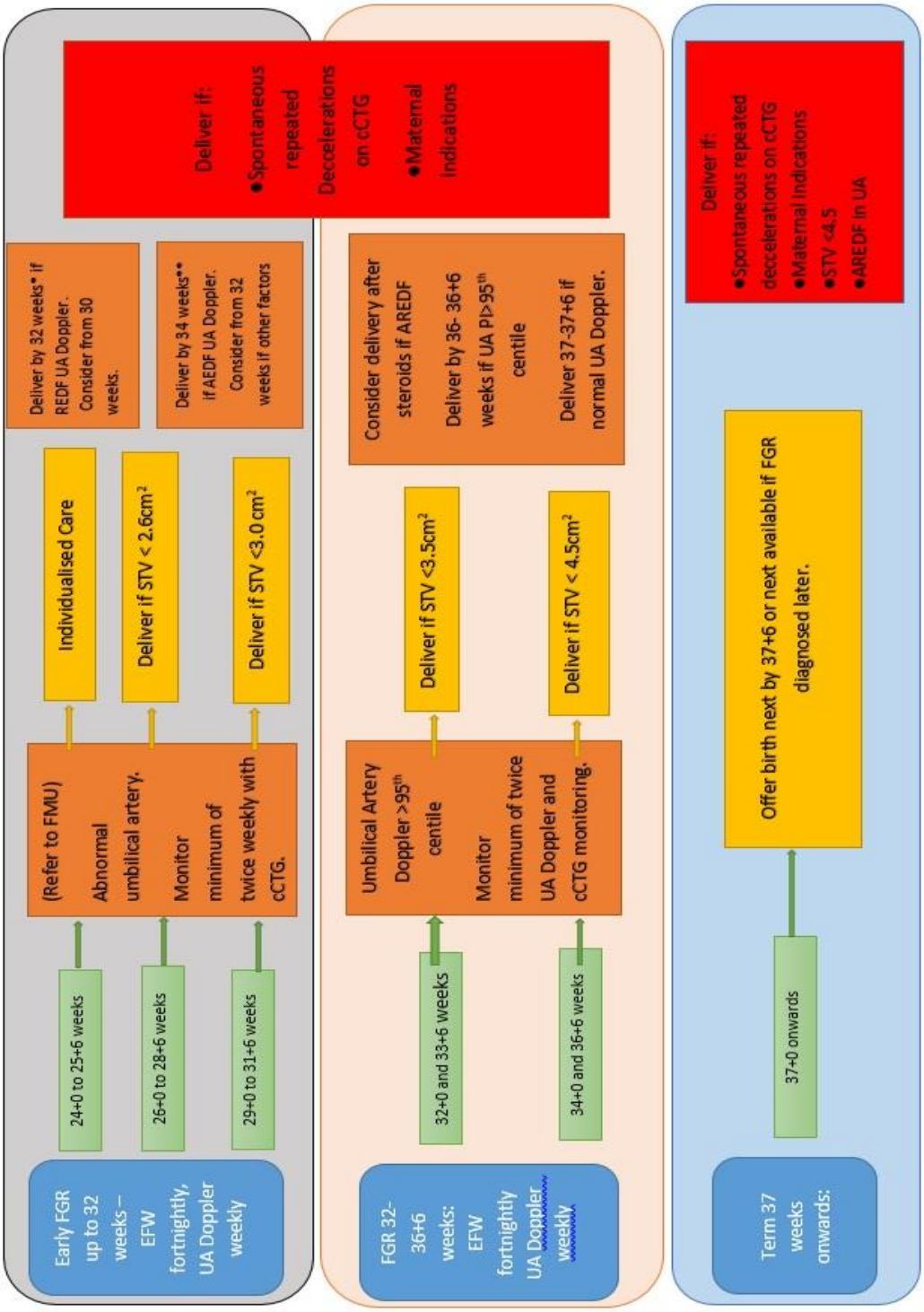
| **To Calculate Cerebroplacental Ratio**: |
|---|
| MCAPI/ UAPI= CPR |

| **CPR results** | **Action** |
|---|---|
| If CPR <5th centile | Diagnose fetal growth restriction (FGR)<br>Follow FGR pathway |
| If CPR ≥ 5th centile | Diagnose small for gestational age (SGA)<br>Follow the SGA pathway |

# Appendix 2 Risk Assessment

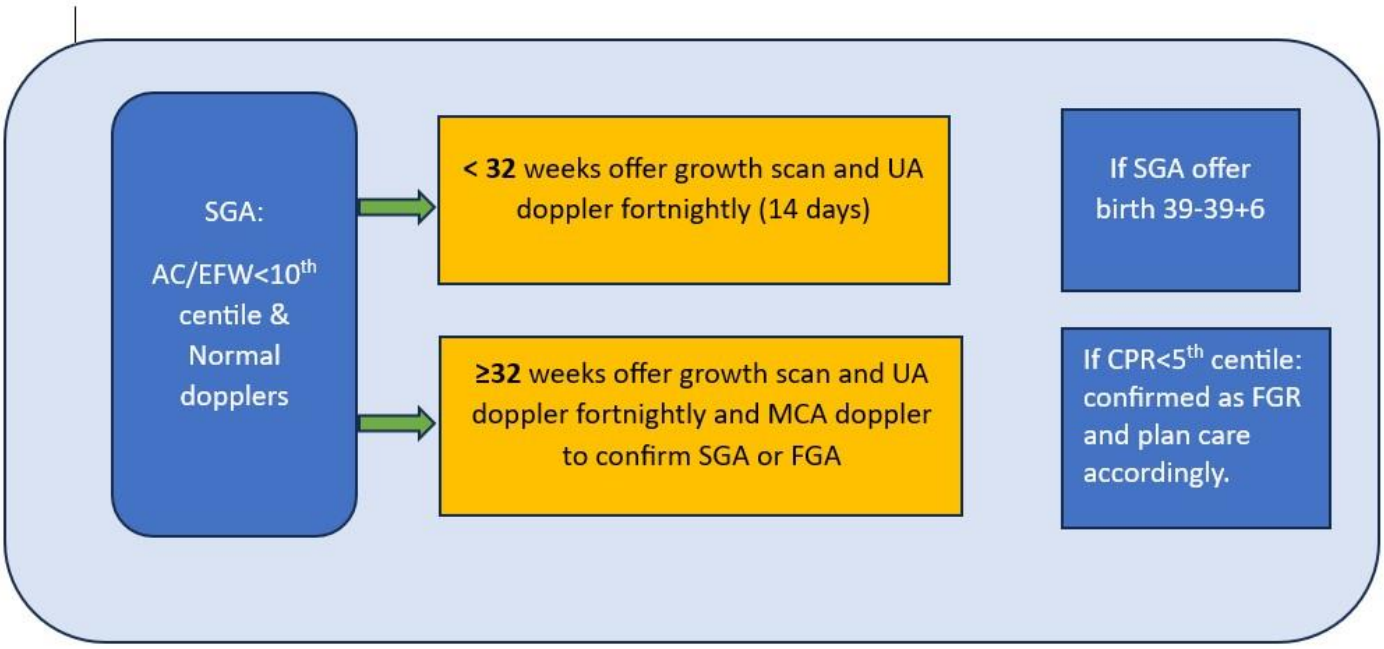


# Appendix 3 Management of Fetal Growth Restriction (FGR)




If offer of birth after 37/40 is declined offer EFW fortnightly, UA dopplers and cCTG twice weekly.

# Appendix 4 Management of Small for Gestational Age (SGA)



## Appendix 5 . The Management of low pregnancy associated plasma protein A(PAPP-A) or raised Alpha-feto protein (AFP) or Inhibin A in the presence of otherwise low chance antenatal screening results

All women should be offered first trimester screening in line with ASW guidance. When it is not possible to obtain a nuchal translucency measurement, or the woman presents after 14 weeks the quadruple (QUAD) blood test will be offered.

Women who accept first and second trimester screening in line with ASW guidance should be informed of the potential opportunity for detecting babies who are at increased risk of developing growth restriction during pregnancy, although women should be informed that this is not always possible.

This pathway only applies to women with an isolated low PAPP-A i.e. whose combined test gives a low risk for trisomy 21, 18 and 13 and in whom the nuchal translucency was normal. If women are high risk for chromosomal aberrations or had a NT > 3.5 mm they should follow established pathways linking with fetal medicine.

If further investigations / screening are normal with a low PAPP-A, raised Inhibin A or AFP MoM, those women should then be offered additional screening for SGA.

Women should also be informed that screening for PAPP-A, Inhibin and Alpha feto-protein in isolation is currently not available in Wales and are biological markers as part of screening combined screening.

Pregnancy associated plasma protein A (PAPP-A) is a placental glycoprotein produced by syncytial trophoblast of the placenta, which cleaves insulin-like growth factor binding protein 4 (IGFBP4) and is a positive regulator of insulin-like growth factors (IGFs), potentially influencing fetal growth and wellbeing.

Inhibin A is a glycoprotein hormone produced by the ovary and placenta. It acts on the pituitary gland to prevent ovulation during pregnancy.

Alpha-feto protein (AFP) is a fetal glycoprotein and produced by the fetal yolk sac and liver.

Studies have tested the hypothesis that low maternal serum levels of PAPP-A in the first trimester are prognostic factors for adverse pregnancy outcomes associated with poor placental function. Raised AFP and Inhibin A MoM are also associated with FGR /SGA.

International Guidelines on “The Investigation and Management of the Small for Gestational Fetus” have recommended that pregnant women with a serum PAPP-A <0.415MoM (<5th centile), raised Inhibin A >2MoM and raised AFP >2MoM receive increased ultrasound surveillance for fetal growth disorders.

Reference: Small-for-Gestational-Age Fetus and a Growth Restricted Fetus, Investigation and Care (Green-top Guideline No. 31) | RCOG

# Appendix 6 - Care Pathways for low PAPP-A, raised Inhibin A or raised Alpha-feto protein (AFP) results in the presence of otherwise low chance antenatal screening results

Women is counselled and accepts first trimester antenatal combined screening or QUAD test.

Antenatal Screening Midwife to review antenatal screening results daily.

Identify any women who have results of:

Low PAPP-A <0.415 MoM,

Raised Inhibin A >2.0 MoM or raised AFP >2.0 MoM result.

Maintain data base with details of women with the above results.

Screening coordinator to contact the woman and inform of the specific result.

**If low PAPP-A offer Aspirin prescription (not indicated for raised Inhibin A or AFP).**

**If currently Midwifery Led Care transfer to obstetric care and offer the next available consultant antenatal clinic appointment to discuss the results, arrange growth scans from 28 weeks onwards and offer aspirin if low PAPP-A.**

At 36 weeks see in ANC for review and, if appropriate, be transferred back to MLC.

**If already Consultant Led Care offer the next available consultant antenatal clinic appointment to discuss the results, arrange growth scans from 28 weeks onwards and offer aspirin if low PAPP-A.**

An information leaflet and a written copy of the results, for filing in the handheld notes, to be provided for the woman.

ANC midwife to access WPAS > 'Maternity View' > Screening'> 'Down Syndrome Screening' > 'Additional Information' & add the PAPP-A or AFP and Inhibin A result.

For Community Midwives/Obstetricians reviewing results at/from the 16 week appointment to check PAPP- A or AFP and Inhibin A result and document in the Antenatal Handheld Record 'Results Record' (pg. 19) under 'Other Tests'.