Aneurin Bevan University Health Board

Guideline for the Management of the Small For Gestational Age Fetus (SGA)

N.B. Staff should be discouraged from printing this document. This is to avoid the risk of out of date printed versions of the document. The Intranet should be referred to for the current version of the document.

Status: Issue 5 | Issue date: 10 January 2024
Approved by: Maternity Clinical Effectiveness Forum | Review by date: 10 January 2027
Owner: Maternity Services | Policy Number: ABUHB/F&T/0458

Contents:

Introduction

This document is a clinical guideline designed to support safe and effective practice.

Aims

To provide support for clinical decision-making.

Objectives

The purpose of this guidance is to aid the identification, investigation and management of the SGA fetus. It is based upon the Royal College of Obstetricians and Gynecologists' Green-top Guideline No. 31 of the same title and further references can be obtained from that source.

Scope

This guideline applies to all clinicians working within maternity services.

Roles and Responsibilities

The Maternity management team are responsible to ensure that these guidelines are carried out.
Individual health care providers are responsible for ensuring that they are aware and adherent to up to date guidelines.

Training

Staff are expected to access appropriate training where provided. Training needs will be identified through appraisal and clinical supervision.

Further Information Clinical Documents

RCOG Green-top Guideline No.31 – The Investigation and Management of the Small-for-Gestational-Age Fetus

Saving Babies Lives- Stillbirths and Early Neonatal Deaths- NHSE Care Bundle Element 2, 2016

https://www.gestation.net/GROW_documentation.pdf

RCOG Green-top Guideline No.74 - Antenatal Corticosteroids to reduce neonatal morbidity and mortality.

Morse K., Williams M. and Gardosi J. Fetal growth screening by fundal height measurement. Best Practice & Research Clin Obstet Gynaecol 2009;23;6:809-819

List of Abbreviations

AC	Abdominal Circumference
AEDF	Absent End Diastolic Flow
AFI	Amniotic Fluid Index
ANC	Antenatal Clinic
APH	Antepartum Haemorrhage
APLS	Antiphospholipid Syndrome
AREDF	Absent or Reversed End Diastolic Flow
BMI	Body Mass Index
CFM	Continuous Fetal Monitoring
CMV	Cytomegalovirus
CS	Caesarean Section
CTG	Cardiotocograph
DVP	Deepest Vertical Pool
EDF	End Diastolic Flow
EFW	Estimated Fetal Weight
FGR	Fetal Growth Restriction
GROW	Gestation Related Optimum Weight
HTN	Hypertension
MCA	Middle Cerebral Artery
PI	Pulsatility Index
PIH	Pregnancy Induced Hypertension
REDF	Reversed End Diastolic Flow
RI	Resistance Index
SD	Standard Deviation
SFH	Symphysis Fundal Height
SGA	Small-for-Gestational Age
UA	Umbilical Artery

The Investigation and Management of the Small for Gestational Age Fetus

Introduction

SGA refers to an infant born with a birth weight less than the 10th centile, and corresponds to an EFW or AC of <10th centile. Severe SGA is considered to be an EFW or AC of < 3rd centile.

FGR is not synonymous with SG, as 50-70% of SGA fetuses are constitutionally small with appropriate growth for maternal size and ethnicity. However the likelihood of FGR is higher in SGA infants, and involves a pathological restriction of the genetic growth potential, perhaps leading to fetal compromise.

SGA fetuses are at increased risk of perinatal morbidity and mortality but most adverse outcomes are concentrated to the FGR group. FGR the evidence suggests is the biggest risk factor for stillbirth. Antenatal detection is vital and has been shown to reduce stillbirth risk significantly because it gives the option to consider timely delivery.

Diagnosis of SGA fetuses relies on ultrasound measurement of fetal AC or EFW, and management is directed towards timing of delivery.

Causes

Constitutionally Small	Non-placenta mediated growth restriction	Placenta mediated growth restriction
✓ Normal growth achieved	✓ Structural anomaly ✓ Chromosomal anomaly ✓ Inborn error of metabolism ✓ Fetal infection	✓ Low maternal BMI ✓ Maternal malnutrition ✓ Substance abuse ✓ Severe anaemia ✓ Pre-eclampsia ✓ Autoimmune disease ✓ Thrombophilias ✓ Renal disease ✓ Diabetes ✓ Essential HTN

Prevention

Antiplatelet therapy. Patients to be offered 150mg Aspirin PO to be taken at night between 12 and 36wks. This suggested to help prevented SGA birth in those women at high risk of pre-eclampsia (see separate guideline.) Aspirin should be considered for all patients who have a previous SGA baby at delivery <3rd centile. There is no evidence that Aspirin started after 20wks gestation has any benefit.

Smoking cessation support should be offered to all women who are pregnant & who smoke. **Women who stop smoking by 15 weeks can reduce their risk of a SGA baby back to that of non-smokers.**

Currently vaping is not a confirmed risk factor for SGA (antenatal screening Wales) but is being investigated.

Risk Factors

All women should have a customised GROW chart generated. This should include birth weights of previous babies. All women should be assessed at booking, again at 20 weeks and throughout pregnancy for risk factors for an SGA fetus to identify those requiring increased surveillance.

Moderate risk criteria
Previous SGA between 3rd and 10th centile
Current Smoker >10/day ongoing >15wks
Drug and alcohol misuse
Women >40yrs old at conception
Previous bariatric surgery
Mental Health being seen in YYF PNMH clinic
Recurrent SMALL unexplained APH
Booking BMI >35
x1 late miscarriage >12wks
Fibroid >6cm or multifibroid uterus

High risk criteria
Previous SGA <3rd centile
Previous Stillbirth
Pre-existing HTN
PIH/PET this pregnancy
Maternal Autoimmune conditions (see list)
Drugs (e.g betablockers, chemotherapy agents)
Any renal impairment

Low Papp-A <0.41 MoM
Ongoing hyperemesis >20wks
Unexplained significant APH
IVF donor egg pregnancy
Previous Placental Abruption
Previous Hx of VTE
Current eating disorder
Current Cancer diagnosis
X2 or more moderate criteria

Autoimmune conditions (list not exhaustive)

- Diabetes inc GDM
- APLS
- SLE
- Sjogren's
- Hyperthyroidism (inc treated and now hypothyroid)
- Addison's Disease
- Multiple Sclerosis
- Crohn's
- Ulcerative Colitis
- Coeliacs

Any Woman deemed high risk should be considered for uterine artery dopplers between 18-24wks if available.

Indications for Fetal biometry

The risk assessment criteria should be used at booking for all women on badgernet.
Women with 1 or more risk factors should be referred for serial growth/DVP/doppler scans via the moderate or high risk serial scan pathways.

Multiple pregnancy scans should be booked via main department depending on chorionicity – see multiple pregnancy guideline.

- Women with no known risk factors should have serial assessment (2-3 weekly) of SFH from 26-28 weeks until delivery. SFH measurements should be plotted on the customised GROW chart.

- A single SFH below the 10th centile or serial measurements demonstrating slow or static growth (as per GAP calculator) should be referred for next available urgent ultrasound assessment of

fetal growth/DVP/Doppler, 2 scans 4wks apart. **SEE Low risk pathway in appendix 1 (green)**

Diagnosis

Fetal AC or EFW <10th centile is diagnostic of a SGA fetus.

Diagnosis of Tailing off/static growth should be performed using the GAP calculator

Routine measurement of AC or EFW in the 3rd trimester does not reduce the risk of a SGA neonate nor improve perinatal outcome, hence routine fetal biometry is thus not justified.

Two measurements of AC or EFW should be **at least 2 weeks apart** to minimise false positives.

If the AC or EFW is found to be <10th centile or there is evidence of reduced growth velocity as per GAP calculator, serial assessment of growth and umbilical dopplers should be performed.

CTG, DVP and biophysical profiles are poor at diagnosing a small or growth-restricted fetus. **Umbilical artery doppler** should be used as the primary surveillance tool.

Laravel (perinatal.org.uk) – **G&G calculator link**

Investigations

Referral should be made to the Fetal Medicine clinic for detailed anatomical survey & uterine artery Doppler if severe SGA is identified at 18-20 week anomaly scan (AC/EFW <5th centile), or any baby <30wks gestation and EFW <5th centile.

Karyotyping should be offered in severely SGA fetuses with structural anomalies and in those <23 weeks gestation, particularly if uterine artery Doppler is normal.

Serological screening for CMV and toxoplasmosis should be performed, along with syphilis and malaria in high-risk populations.

Surveillance

Umbilical Artery Doppler is the primary surveillance tool.

Normal dopplers	Repeat every 2 weeks
Abnormal but positive EDF	Twice weekly
Abnormal and absent/reversed EDF	Daily

The importance of monitoring a normal or usual pattern of fetal movements should be discussed: Reduced fetal movements should be managed as per all Wales reduced fetal movements guideline.

Timing of delivery

Women with a SGA fetus of between 24-35 weeks gestation should receive a single course of timely, targeted antenatal steroids where delivery anticipated in the next 7 days.

Women with a SGA fetus requiring delivery by caesarean section between 37-38+6 weeks documentation of discussion risks vs benefits of antenatal corticosteroids taking into account risk of TTN is 5% and disease is usually mild and transient.

If absent or reversed end diastolic flow is detected prior to 32 weeks gestation, ductus venosus dopplers (if available) can be performed, and if abnormal, delivery is indicated provided the fetus is considered viable and steroids have been given unless clinical need indicated immediate delivery.

In all SGA fetuses detected after 32 weeks gestation, delivery should be assessed weekly by Senior Obstetrician and considered between 34- 37 weeks gestation if there is static growth regardless of a normal umbilical artery Doppler.

Consider middle cerebral artery doppler (MCA) after 34 weeks and recommend delivery by 37 weeks if MCA doppler PI <5th centile.

SGA fetuses less than the 3rd centile with normal growth velocity (as per GAP calculator), normal deepest vertical pool, normal MCA doppler and normal umbilical doppler consider delivery from 37wks gestation aim delivery no later than 37+6 (as per SBLv3).

SGA fetuses between 3rd and 10%ile with normal growth velocity, normal deepest vertical pool, normal MCA and UA dopplers consider delivery at 39wks gestation (as per G&G).

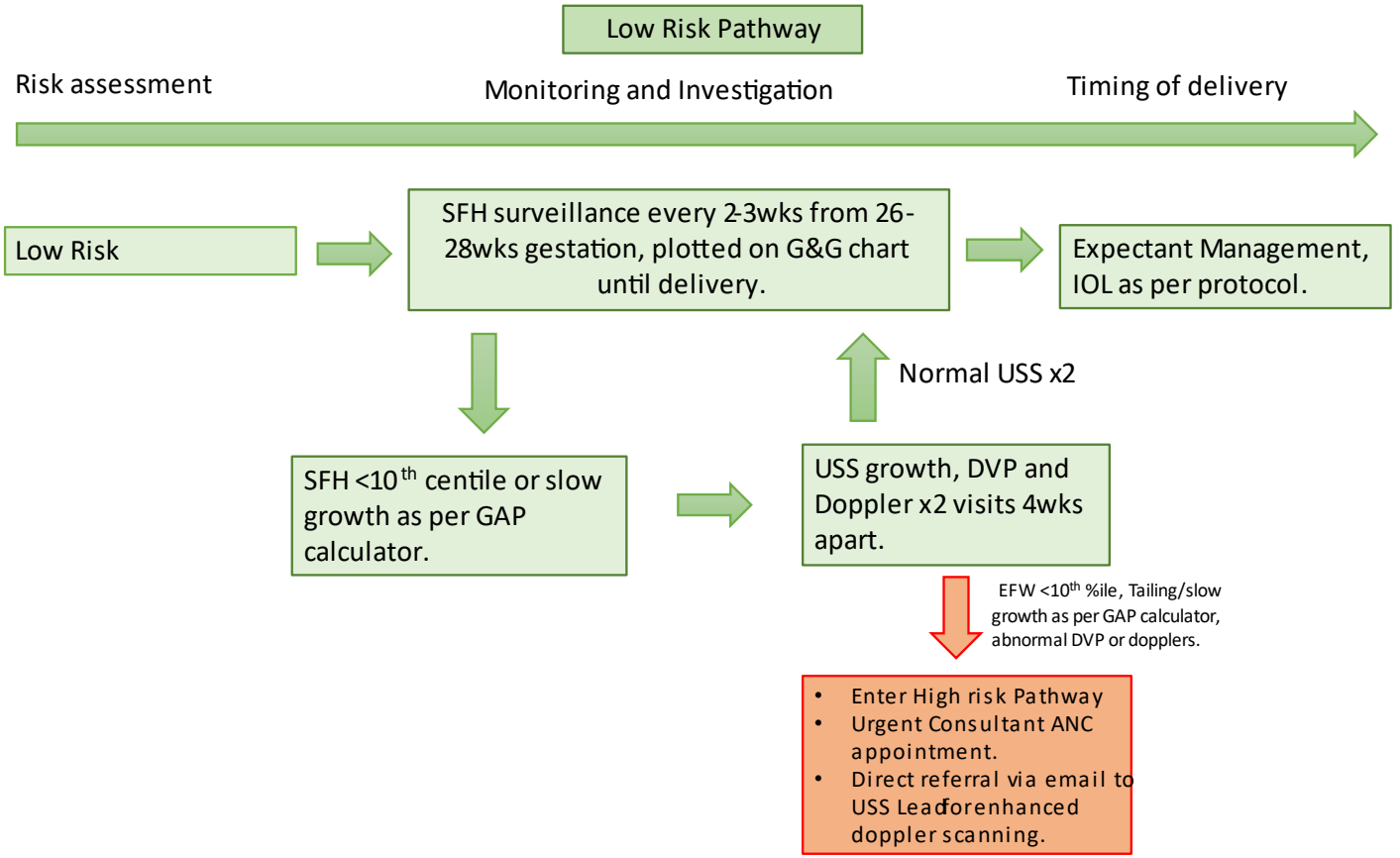
Mode of delivery

Caesarean delivery is indicated for the SGA fetus with AREDF.

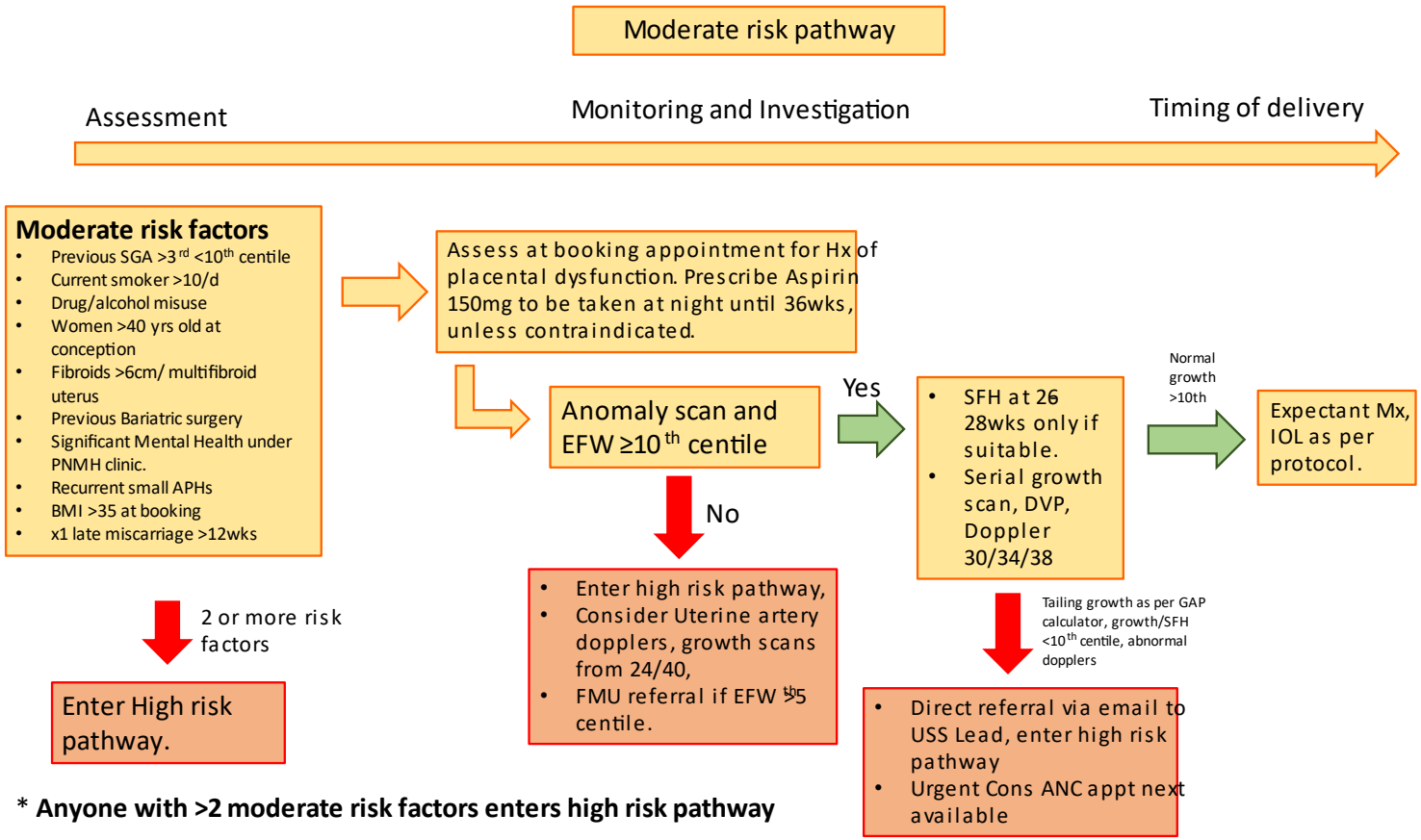
In the SGA fetus with normal umbilical artery Doppler or with abnormal umbilical artery PI but positive end–diastolic flow, induction of labour can be offered but rates of emergency caesarean section are increased (up to 3 times higher than background risk) and continuous fetal heart rate monitoring is recommended from the onset of uterine contractions, therefore transfer to labour at the onset of contractions. Consider mechanical methods as first line for induction of labour.

Following spontaneous labour, early admission for CFM is indicated for the SGA fetus.

Appendix 1 – Risk criteria pathways (adapted from G&G/SBLv3)

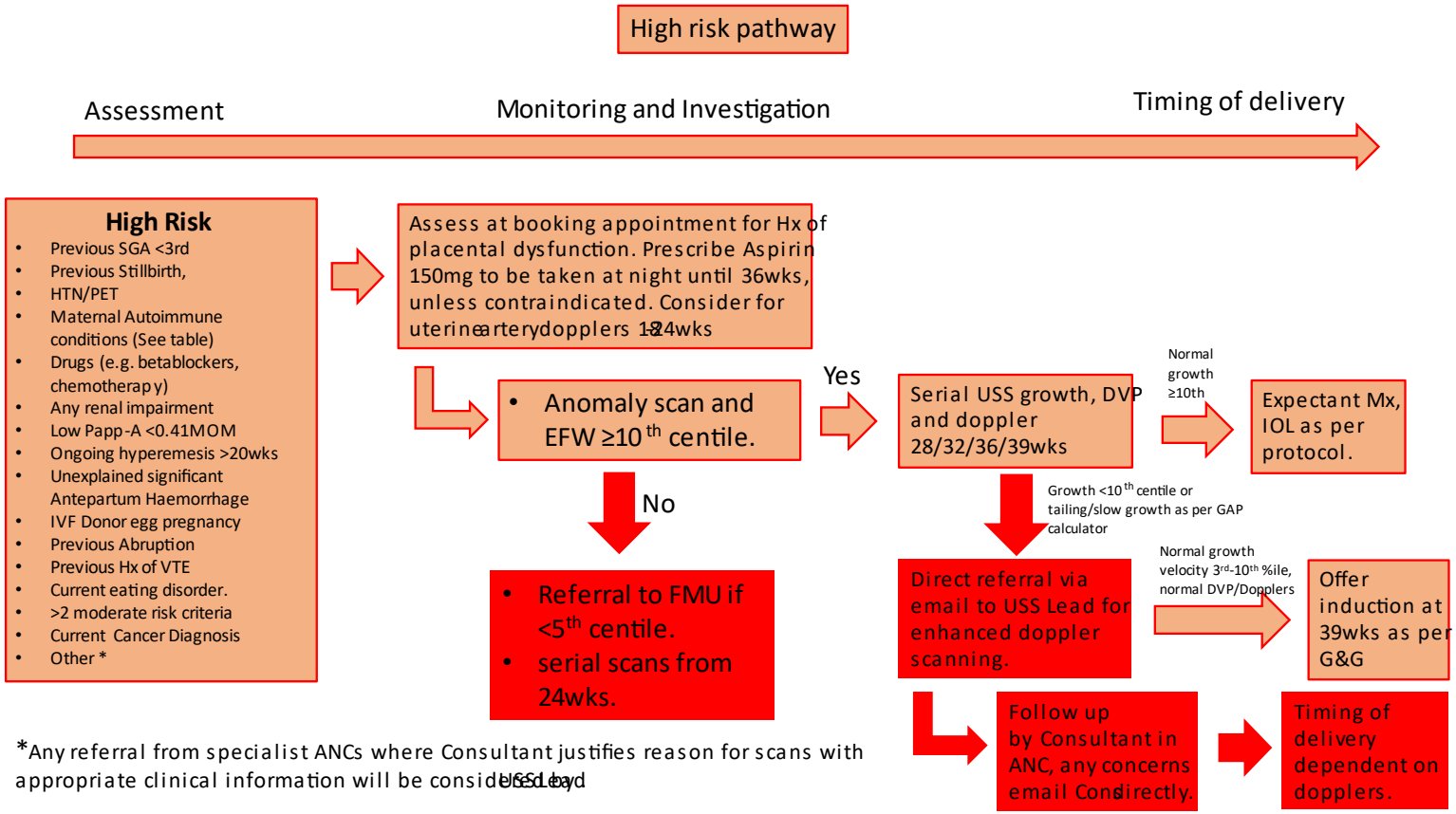


Moderate Risk Criteria pathway



*** Anyone with >2 moderate risk factors enters high risk pathway**

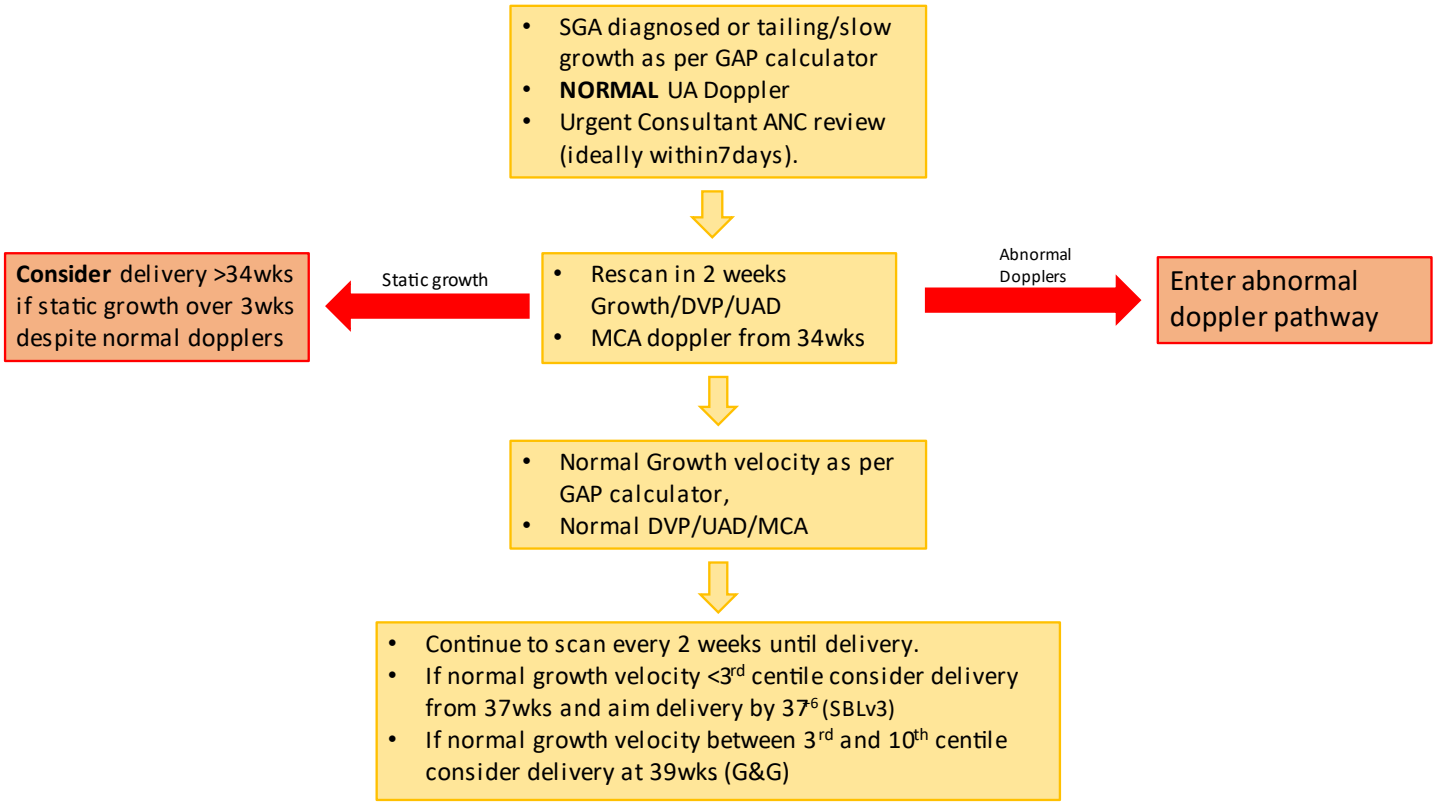
High Risk Criteria Pathway



*Any referral from specialist ANCs where Consultant justifies reason for scans with appropriate clinical information will be considered by USS Lead

Appendix 2 SGA/Tailing growth – normal umbilical dopplers

SGA/tailing with NORMAL Umbilical Artery doppler pathway



Appendix 3 – SGA/Tailing growth with ABNORMAL umbilical dopplers pathway