Management of the Small for Gestational Age Fetus Guideline

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Brief Summary of Document:	Management of the small for gestational age fetus
Scope	

To be read in conjunction with:	

Owning group	Obstetric Written Documentation Review Group

Reviews and updates		
Version no:	Summary of Amendments:	Date Approved:
1	New Guideline	14.9.2017

Glossary of terms

AC	abdominal circumference
AREDV	absent/reversed endiastolic velocities
DV	ductus venosus
EDV	end-diastolic velocities
EFW	estimated fetal weight
FGR	fetal growth restriction
MCA	middle cerebral artery
PI	pulsatility index
RI	resistance index
SD	standard deviation
SFH	symphysis-fundal height
STV	short term variation
UA	umbilical artery

Keywords	Intrauterine fetal death and stillbirth

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1. INTRODUCTION

Small–for–gestational age (SGA) refers to an infant born with a birth weight less than the 10th centile.

The use of centiles customised for maternal characteristics (maternal height, weight, parity and ethnic group) as well as gestational age at delivery and infant sex, identifies small babies at higher risk of morbidity and mortality.

SGA birth is defined as an estimated fetal weight (EFW) or abdominal circumference (AC) less than the 10th centile and severe SGA as an EFW or AC less than the 3rd centile. The likelihood of FGR (fetal growth restriction) is higher in severe SGA infants. Growth restriction implies a pathological restriction of the genetic growth potential. As a result, growth restricted fetuses may manifest evidence of fetal compromise (abnormal Doppler studies, reduced liquor volume).

Low birth weight (LBW) refers to an infant with a birth weight < 2500 g.

Small fetuses are divided into

- normal (constitutionally) small,
- non–placenta mediated growth restriction.eg.
    - structural or chromosomal anomaly,
    - inborn errors of metabolism
    - fetal infection, and
    - placenta mediated growth restriction.

Maternal factors can affect placental transfer of nutrients:

- low pre–pregnancy weight,
- under nutrition,
- substance abuse or severe anaemia.

Medical conditions can affect placental implantation and vasculature and hence transfer:

- preeclampsia,
- autoimmune disease,
- thrombophilias,
- renal disease,
- diabetes and
- essential hypertension.

As a group, structurally normal SGA fetuses are at increased risk of perinatal mortality and morbidity but most adverse outcomes are concentrated in the growth restricted group.

All women should be assessed at booking for risk factors for a SGA fetus/neonate to identify those who require increased surveillance.

Women who have a **major risk factor** should be referred for serial ultrasound measurement of fetal size and assessment of wellbeing with umbilical artery Doppler from 26–28 weeks of pregnancy .

2. DIAGNOSIS

Diagnosis of a SGA fetus usually relies on ultrasound measurement of fetal abdominal circumference or estimation of fetal weight.

3. SYMPHYSIS FUNDAL HEIGHT (SFH) MANAGEMENT

Serial measurement of symphysis fundal height (SFH) is recommended at each antenatal appointment from 24 weeks of pregnancy as this improves prediction of a SGA neonate.

SFH should be plotted on a customised chart rather than a population–based chart as this may improve prediction of a SGA neonate**.**

Women with a single SFH which plots below the 10th centile or serial measurements which demonstrate slow or static growth by crossing centiles should be referred for ultrasound measurement of fetal size.

4. WOMEN IN WHOM MEASUREMENT OF SFH IS INACCURATE

For example

- BMI > 35,
- large fibroids,
- hydramnios
-

Should be referred for serial assessment of fetal size using ultrasound.

SFH should be measured from the fundus (variable point) to the symphysis pubis (fixed point) with the cm values hidden from the examiner. Measurements should be plotted on a customised centile chart.

Women with a single SFH which plots below the 10th centile or serial measurements which demonstrate slow or static growth (i.e. they cross centiles in a downward direction) should be referred for further investigation (Appendix 2).

5. INTERVENTIONS TO BE CONSIDERED IN THE PREVENTION OF SGA FETUSES/NEONATES.

- In women at high risk of preeclampsia antiplatelet agents should be commenced at, or before, 16 weeks of pregnancy.
- Interventions to promote smoking cessation may prevent SGA – the health benefits of smoking cessation indicate that these interventions should be offered to all pregnant women who smoke.
- Women with a SGA fetus between 24+0 and 35+6 weeks of gestation where delivery is being considered should receive a single course of antenatal corticosteroids.

Local Variation

Antenatal care should be managed in units with appropriate neonatal support

6. OPTIMAL METHOD AND FREQUENCY OF FETAL SURVEILLANCE IN SGA

- In a high–risk population, the use of umbilical artery Doppler has been shown to reduce perinatal morbidity and mortality. Umbilical artery Doppler should be the primary surveillance tool in the SGA fetus.
- When umbilical artery Doppler flow indices are normal it is reasonable to repeat surveillance every 14 days.
- More frequent Doppler surveillance may be appropriate in severe SGA.
- When umbilical artery Doppler flow indices are abnormal (pulsatility or resistance index > +2 SDs above mean for gestational age) and delivery is not indicated repeat surveillance twice weekly in fetuses with end–diastolic velocities present and daily in fetuses with absent/reversed end–diastolic frequencies.
- CTG **should not** be used as the only form of surveillance in SGA fetuses. Interpretation of the CTG should be based on short term fetal heart rate variation from computerised analysis.
- Ultrasound assessment of amniotic fluid volume should not be used as the only form of surveillance in SGA fetuses. Interpretation of amniotic fluid volume should be based on single deepest vertical pocket. (RCOG Green-top guideline no.31 evidence A)
- Doppler should be used for surveillance in the preterm SGA fetus with abnormal umbilical artery Doppler and used to time delivery**.**

7. THE OPTIMAL GESTATION TO DELIVER THE SGA FETUS

In the preterm SGA fetus with umbilical artery AREDV detected prior to 32 weeks of gestation, delivery is recommended when DV Doppler becomes abnormal or UV pulsations appear, provided the fetus is considered viable and after completion of steroids.

Even when Ductus venosus is normal, delivery is recommended by 32 weeks of gestation and should be considered between 30–32 weeks of gestation.

If MCA Doppler is abnormal, delivery should be recommended no later than 37 weeks of gestation.

In the SGA fetus detected after 32 weeks of gestation with an abnormal umbilical artery Doppler, delivery no later than 37 weeks of gestation is recommended.

In the SGA fetus detected after 32 weeks of gestation with normal umbilical artery Doppler, a consultant should be involved in determining the timing and mode of birth. Delivery should be offered at 37 weeks of gestation.

8. HOW THE SGA FETUS SHOULD BE DELIVERED

- In the SGA fetus with umbilical artery AREDV delivery by caesarean section is recommended.
- In the SGA fetus with normal umbilical artery Doppler or with abnormal umbilical artery PI but end–diastolic velocities present, induction of labour can be offered but rates of emergency caesarean section are increased and continuous fetal heart rate monitoring is recommended from the onset of uterine contractions.

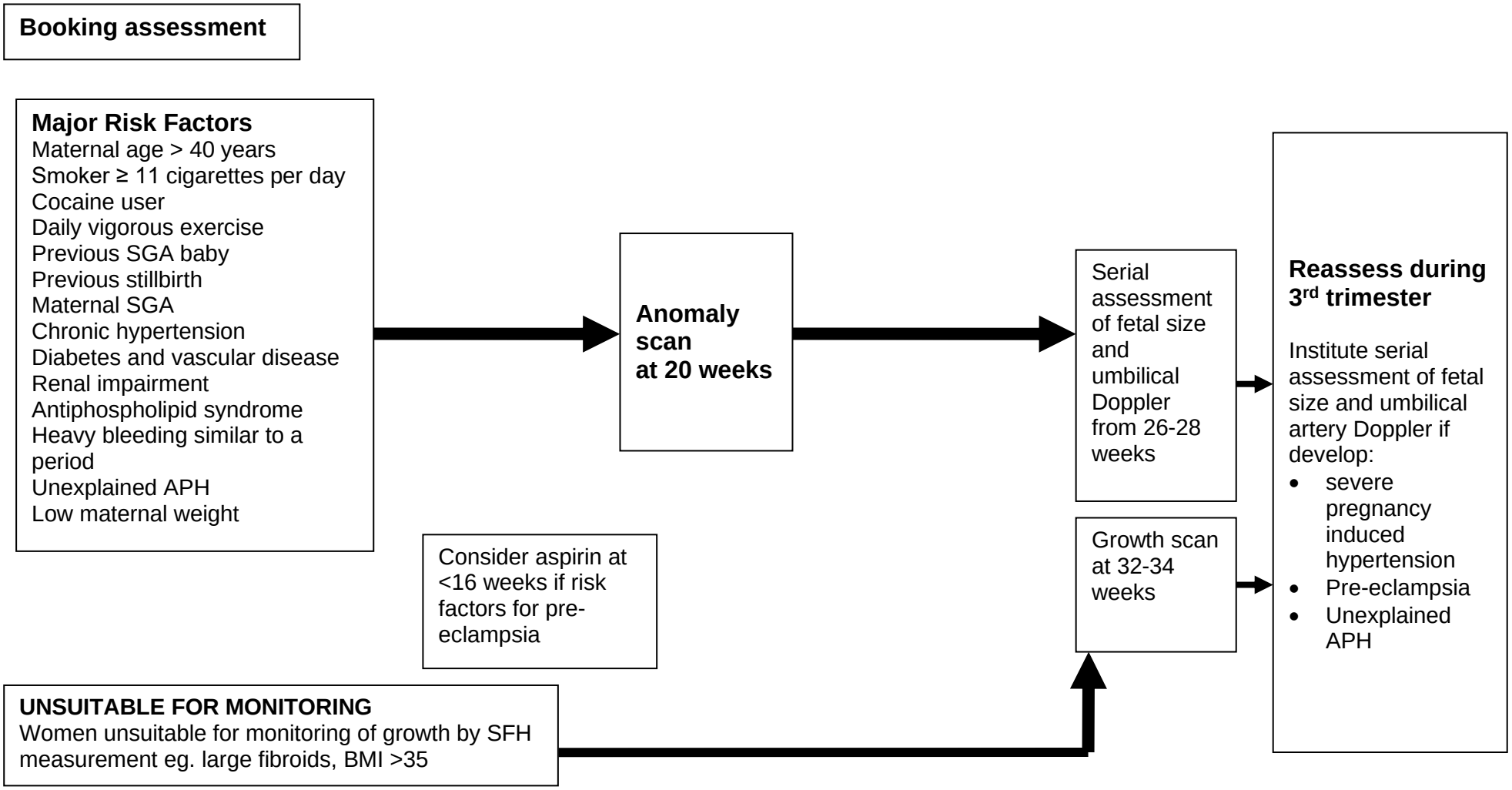
Early admission is recommended in women in spontaneous labour with a SGA fetus in order to instigate continuous fetal heart rate monitoring.

9. REFERENCES

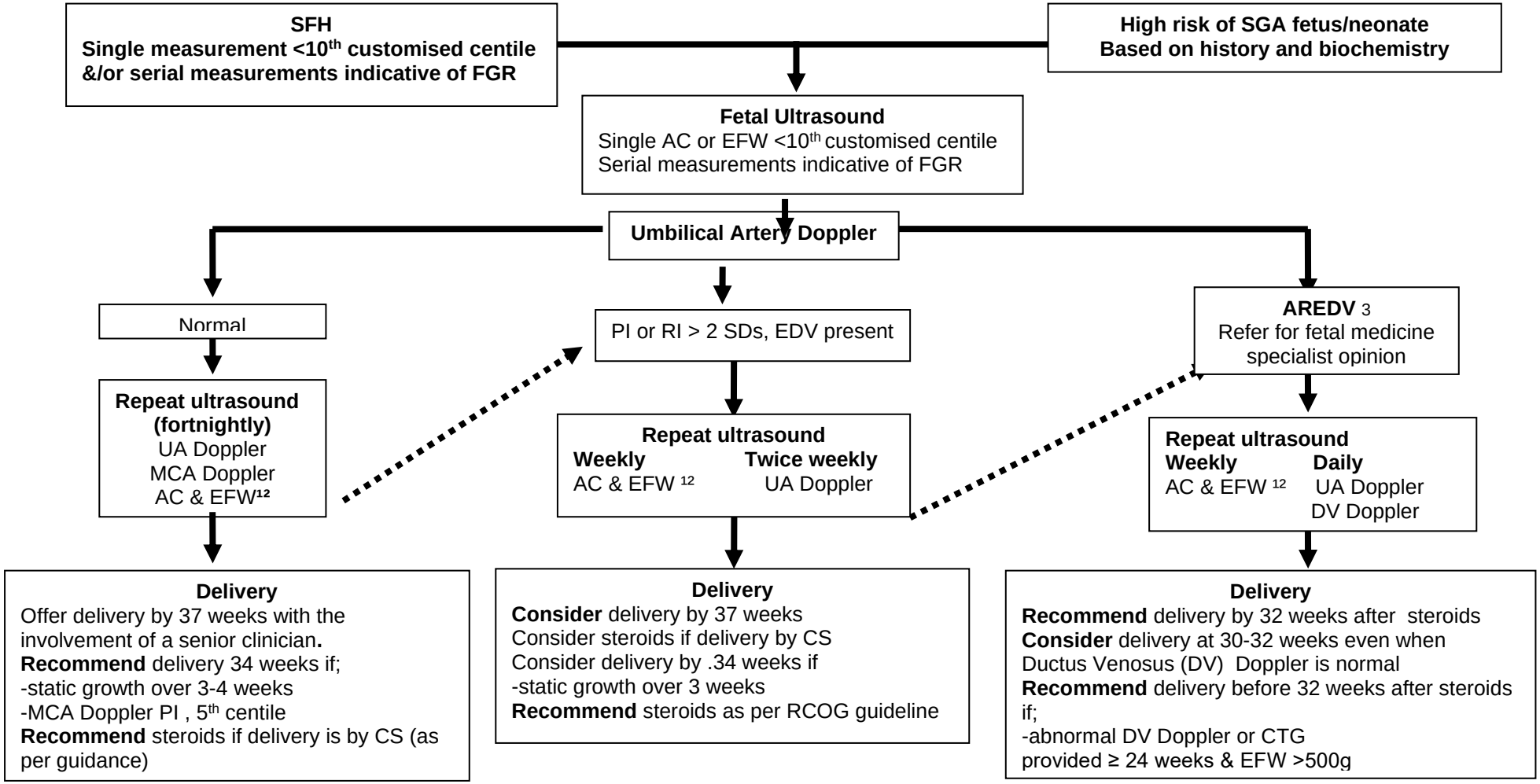
Green–top Guideline No. 31 2nd Edition | February 2013: The Investigation and Management of the Small–for–Gestational–Age Fetus

NICE March 2008**:** Antenatal care routine care for the healthy pregnant woman
National Collaborating Centre for Women's and Children's Health

10. APPENDIX 1: Screening for Small- for – Gestational- Age (SGA) fetus



11. APPENDIX 2: The Management of the Small-for-Gestational-Age (SGA) fetus



[1] weekly measurement of fetal size is valuable in predicting birthweight and determining size-for-gestational age.
[2] If two AC/EFW measurements are used to estimate growth, they should be at least 3 weeks apart

3 AREDV absent/reversed endiastolic velocities