Background

Small for Gestational Age (SGA) is associated with stillbirth, neonatal death and perinatal morbidity. It is important that there is accurate screening for SGA, and fetal surveillance during pregnancy through standardised fundal height measurements of low risk women, and serial scans for high risk women.

Screening for risk factors

Some women will be at increased risk of developing SGA because of risk factors in the current pregnancy, past medical history or past obstetric history. All women should be assessed at booking for risk factors to identify those who need increased surveillance. If risk factors are identified these should be clearly documented in the maternal records and the appropriate SGA pathway initiated (*Appendix 1 and 2*)

Only women who fulfil the **Women requiring additional care in Pregnancy** guideline should be referred to the consultant clinic for a plan of care at 16 weeks. Women who do not fulfil these criteria may be midwifery led but continue to be managed on the appropriate SGA pathway. These women should be seen by a midwife at 16 weeks.

(Example: A woman who has a BMI of 26, who had a pregnancy less than 6 months previously, and who is 36 years old may receive midwife-led care but should still be on the appropriate SGA pathway for 3 minor risk factors ('One scan' pathway). Or a woman who only has smoking as a risk factor may still be midwifery led but on the' Multiple scan' pathway)

SGA Pathways

Single scan pathway (3 or more minor risks)-

- A uterine artery Doppler performed between 20-24 weeks gestation.
    - If the uterine artery Doppler is normal, a scan in the third trimester should be arranged to estimate fetal weight (EFW) and umbilical artery Doppler.
    - If uterine artery Doppler is abnormal transfer to Multiple scan pathway

Multiple scan pathway (1major risk)-

- Plan for serial scans every 3 weeks from 26 -28 weeks.
- Women who require serial ultrasound scanning during pregnancy will ***not*** require plotting of fundal height measurement

Women who are identified as having Low PAPP-A (<0.4MOM) or where fetal echogenic bowel is identified should be commenced on **Multiple scan pathway**

If an issue is identified on scan then these women should be seen by the obstetric team following scan either in antenatal clinic or MDCU.

If no issues are identified and scan is normal then the woman may be discharged home and asked to attend her routine antenatal clinic appointment.

Women who have smoking as a risk factor should also be referred to the stop smoking services and provided with information about the risks associated with continuing to smoke during pregnancy. Please refer to smoking in pregnancy guideline.

Customised Growth Charts

Customised growth charts must be used to plot both fundal height measurements obtained during clinical examination and estimated fetal weight (EFW) following an ultrasound examination. They are customised to each individual taking into account the height, weight, ethnicity, parity of the woman. If a woman has previously had children then their birth weights should be entered to identify previous problems with growth, but this does not affect the centiles produced for the current pregnancy.

Each woman must have a customised growth chart printed following her dating scan and secured in her hand held pregnancy notes. The estimated date of delivery, which is calculated from the dating scan rather than LMP, should be entered into the software. The chart will show the 10^{th}, $50^{th}$and 90^{th} centile lines, (5^{th} and 95^{th} centiles can be printed as an option if required for fetal medicine purposes). There is a box in the top left hand corner where her height, weight, ethnicity and parity are shown. A customised centile will be calculated for all previous children; if they were small for gestational age (SGA) or large for gestational age (LGA) this will also be highlighted. Mother's name, reference number, chart ID and date of birth will appear above the chart.

The charts can be generated at any time during pregnancy. The software can be accessed in Antenatal Clinic, Preston and Chorley Birth Centres and Delivery Suite.

Measuring Fundal Height

Not all pregnancies are suitable for primary surveillance by fundal height measurement, and require ultrasound biometry instead. This should be performed every 2-3 weeks from 26-28 weeks in order to accurately monitor the growth of the baby. If a woman is having serial scans, the height of the fundus should **not** be measured and recorded. In most instances, these pregnancies fall into the following categories:

a. Fundal height measurement unsuitable/inaccurate e.g. large fibroids, high maternal BMI(over 35), multiple pregnancy

b. Pregnancy considered high risk requiring serial ultrasound e.g. Pre-existing diabetes or on SGA multiple scan pathway

Women who are recognised as low risk should have serial fundal height measurements undertaken as a primary screening test for fetal wellbeing. Some women who are classed as having high risk pregnancies may also be monitored with fundal height measurements providing there are no indicators for serial scans. Fundal height measurement should commence from 26- 28 weeks gestation.

The fundal height measurement should be performed with the mother in a semi- recumbent position, with an empty bladder and the uterus relaxed and non- contracting. It is recommended that the clinician uses both hands to perform an abdominal palpation, identifies the highest point of the uterine fundus then leaves one hand on the fundus. A paper tape-measure, starting at zero, is placed on the uterine fundus – at the highest point (which may or may not be in the midline). The tape measure should then be drawn down to the top of the symphysis pubis (in the midline) and the number read in whole centimetres. To reduce the possibility of bias, the tape measure should be used with the cm side hidden, and the measurement should be taken once only. The result should be recorded in centimetres on the customised growth chart and the value plotted using a cross. The method for measuring FH is explained below the customised growth chart to support standardised practice.

Referral to Ultrasound

Indications for a growth scan are:

- First fundal height)measurement (preferably between 26-28 weeks) below 10^{th} centile
- Slow or Static growth: no increase in sequential measurements (if a growth scan has not been performed in the preceding 3 weeks)
- Excessive growth: sudden increase above 90^{th} centile (if a growth scan has not been performed in the preceding 3 weeks)

Note: a first measurement above the 90th centile is **NOT** an indication for a growth scan. A scan would however be indicated if there was clinical suspicion of polyhydramnios or there was excessive growth on subsequent measurements (not following any centile).

Where there are concerns regarding growth between scans, women should be referred to a Consultant Obstetric clinic for review.

Requests for a growth scan should be made directly to the ultrasound department who will give an appointment as soon as possible (ideally within 72 hours). Arrangements for follow-up by the referrer should be made assuming the scan is normal. If there are concerns regarding the scan, the Sonographer will make the urgent referral to a consultant obstetrician.

Referrals following a growth scan

These referrals should be made by the sonographer once the growth scan has been completed and the EFW plotted on the customised growth chart (with a circle).

If the EFW plots between the 10th and 90th centile and is following the centile curve, and the liquor volume is normal, the woman should be asked to attend her next antenatal appointment as planned (this should already have been confirmed with the woman by the referring carer).

If the EFW does not plot within the 10th and 90th centile or is not following a centile curve, or there are concerns regarding the liquor volume or umbilical artery Doppler, then the following referrals should be made:

1. **EFW above 90th centile (or significantly increased growth velocity)**
    - For obstetric review and book GTT within 1 week

2. **EFW below 10th centile or reduced growth velocity (if growth between the 10th and 90th centile but not following any centile curve), normal liquor volume, normal umbilical artery Doppler**
    - For obstetric review and repeat scan in 2 weeks

3. **EFW below 10th centile or reduced growth velocity (if growth between the 10th and 90th centile but not following any centile curve), with oligohydramnios and/or abnormal umbilical artery Doppler and/or abnormal middle cerebral artery Doppler:**
    - For *immediate* obstetric review.

If SGA is detected please refer to the Management of SGA guideline

Following birth

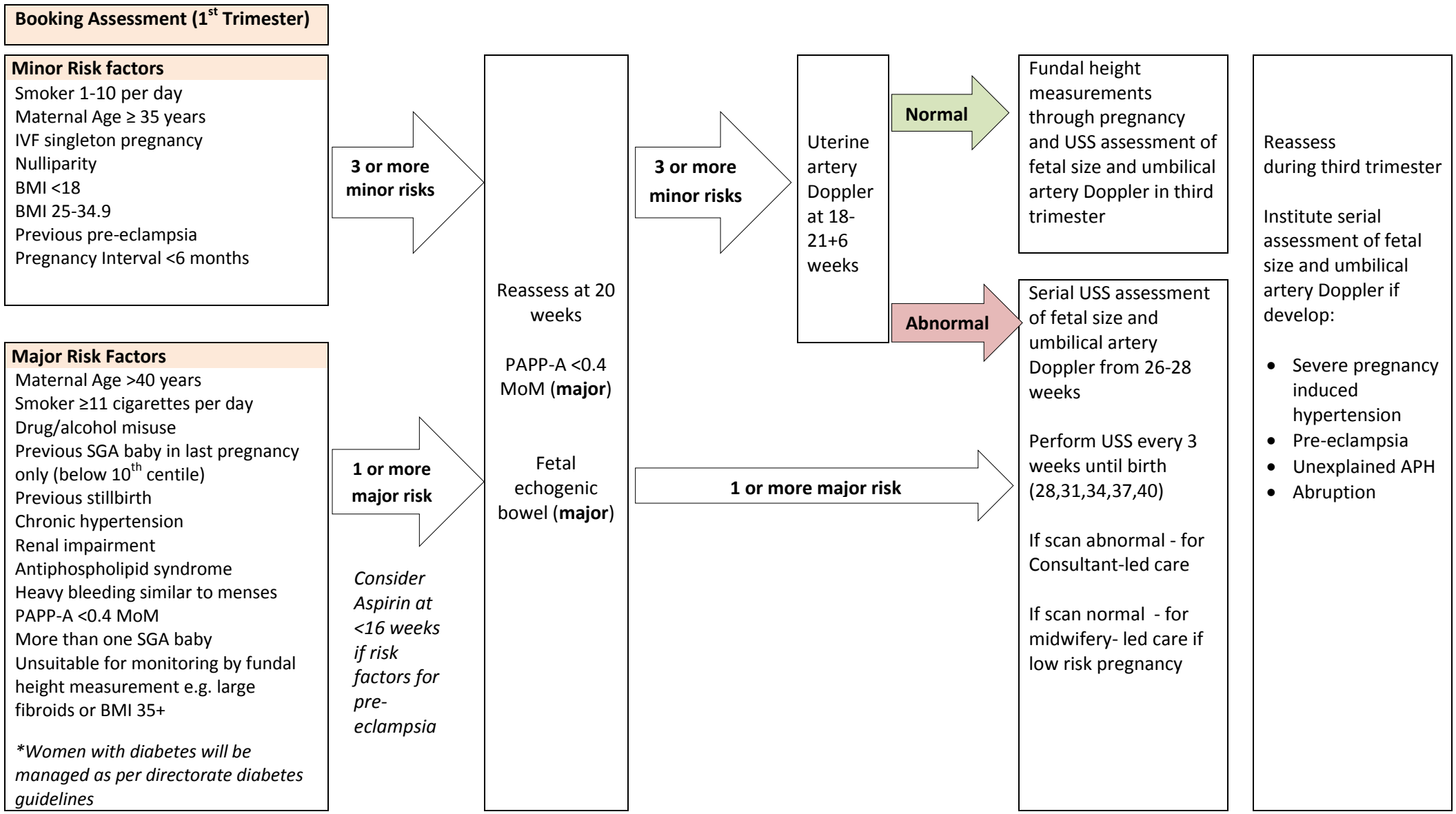
Calculate birth weight centile using centile calculator software by inputting the chart unique identification number which can be found in the bottom left hand side of the customised growth chart. Document the individualised birth weight centile in the maternal birth records.

- If below the 10th centile the form should be printed and an addressograph label attached. The form should be sent to the Specialist Midwife for Public Health so that the records can be audited.
- Babies should be managed as per *Newborn Guidelines* Immediate care of the newborn

References

- NHS England (2015) *Saving Babies Lives: care bundle for reducing stillbirth and early neonatal death*. London. DOH
- Perinatal Institute (2015) *Assessment of. Birmingham*. Perinatal Institute
- RCOG(2014) *The investigation and management of Small for Gestational Age fetus.* London. Royal College of Obstetricians and Gynaecologists.

Appendix 1 – Screening algorithm



Appendix 2 - Antenatal assessment of risk of Small for Gestational Age (SGA)

If risk identified please forward to scan department

Addressograph

Smoker, 1-10 per day	☐
Maternal age ≥ 35 years	☐
BMI <18	☐
BMI 25-34.9	☐
Nulliparity	☐
IVF singleton pregnancy	☐
Pregnancy interval < 6 months	☐
Previous pre-eclampsia	☐

3 or more risk factors

↓

Commence on **Single Scan Pathway**

Maternal age >40 years	☐
Smoker ≥11 cigarettes per day	☐
Drug/alcohol misuse	☐
Previous SGA baby in last pregnancy only (below 10th centile at birth)	☐
Previous stillbirth	☐
Chronic hypertension	☐
Renal impairment	☐
Antiphospholipid syndrome	☐
Heavy bleeding similar to menses	☐
Unsuitable for monitoring by fundal height measurements e.g. large fibroids or BMI 35+	☐
PAPP-A <0.4 MoM	☐
Fetal echogenic bowel	☐
More than one SGA baby	☐

1 or more risk factors

↓

Commence on **Multiple Scan Pathway**

SGA Pathway

SINGLE SCAN PATHWAY	☐
MULTIPLE SCAN PATHWAY	☐

Date of assessment:

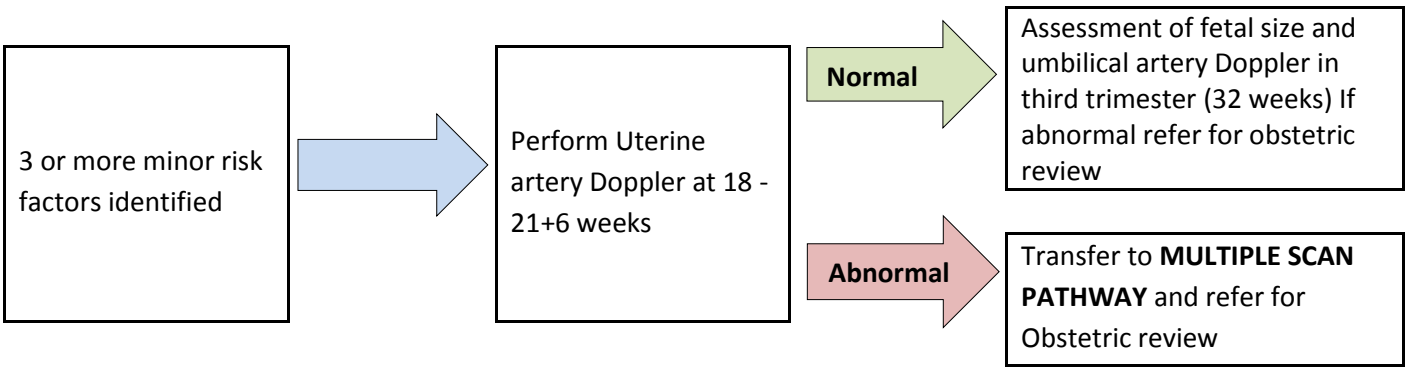
Name of assessor:

Name of consultant obstetrician:

Reasons for transferring to the **MULTIPLE SCAN PATHWAY** during pregnancy:

PAPPA <0.4MoM	☐	Unexplained APH	☐
Fetal echogenic bowel	☐	Abruption	☐
Severe pregnancy induced hypertension	☐	Pre-eclampsia	☐
Abnormal uterine artery Doppler at 20-24 weeks			☐

SINGLE SCAN PATHWAY



MULTIPLE SCAN PATHWAY