Lothian NHS Board

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Date: 20/08/2026
Our Ref: 11444
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Dear

FREEDOM OF INFORMATION – PREGNANCY LOSS AND BEREAVEMENT

I write in response to your request for information in relation to pregnancy loss and bereavement

Question 1: NHS Lothian policies, procedures etc on (a) small gestational age fetuses, (b) reduced fetal movements and (c) bereavement guidance for stillbirth

Answer: Please find attached NHS Lothian guidance –
1a. Small-for-Gestational-Age detection and management: including indications for growth scans (singleton pregnancies) - current version in effect from 12 November 2024.
1b. Reduced Fetal Movement - current version in effect from 9 September 2024.
1c. Intrauterine Fetal Death (Fetal loss from 13 weeks) – current version in effect from 2 May 2015.

Question 2: Details on Royal Infirmary of Edinburgh bereavement suite within the maternity ward.

Answer: NHS Lothian offers two dedicated family rooms for bereavement care at the Royal Infirmary. Room 9 in the Labour Ward and Room 18 in Ward 119 are designed to give privacy and comfort to families experiencing a loss. The rooms were decorated and furnished in partnership with Simba. The rooms include a private bathroom, tea and coffee making facilities, a bed for the birthing parent and partner, use of cold/cuddle cots for the baby following birth, and normal visiting rules are not applied to families using these rooms. We aim to offer bereavement rooms to all families experiencing a loss, and for families to be able to use these rooms for as long as they need to spend time with their baby.

I hope the information provided helps with your request.

If you are unhappy with our response to your request, you do have the right to request us to review it. Your request should be made within 40 working days of receipt of this letter, and we will reply within 20 working days of receipt. If our decision is unchanged following a review and you remain dissatisfied with this, you then have the right to make a formal complaint to the Scottish Information Commissioner within 6 months of receipt of our review response. You can do this by using the Scottish Information Commissioner's Office online appeals service at https://www.foi.scot/appeal. If

you remain dissatisfied with the Commissioner's response you then have the option to appeal to the Court of Session on a point of law.

If you require a review of our decision to be carried out, please write to the reviewer at the address at the top of this letter. The review will be undertaken by a Reviewer who was not involved in the original decision-making process.

FOI responses (subject to redaction of personal information) may appear on NHS Lothian's Freedom of Information website at: https://org.nhslothian.scot/FOI

Yours sincerely

ALISON MACDONALD
Executive Director of Nursing Midwifery and AHPs
Cc: Chief Executive

Intrauterine Fetal Death (Fetal loss from 13weeks)
Maternity Services Lothian
Guidelines

INTRODUCTION: Stillbirth is defined as 'a baby delivered with no signs of life known to have died after 24 completed weeks of pregnancy'. Intrauterine fetal death refers to babies with no signs of life in utero. The RCOG have recommended the use of low dose misoprostol for induction of labour in patients with intrauterine fetal death.

AIM: Optimise management of couples experiencing stillbirth and intrauterine fetal death at each stage of the patient journey. This encompasses diagnosis of intrauterine death, induction of labour and delivery, investigation of loss and the final act of care. This guideline applies to all losses from 13 weeks.

G**UIDELINES:**

1. IMMEDIATE MANAGEMENT

2. INDUCTION OF LABOUR USING MISOPROSTOL

3. INVESTIGATIONS INCLUDING POST-MORTEM AND PLACENTAL PATHOLOGY

IMMEDIATE MANAGEMENT

If intrauterine death is suspected the diagnosis should be confirmed promptly by ultrasound examination by two operators (basic scanning sufficient). If the woman presents during the night when sonographers are not available then the on call consultant or a radiologist must be called to verify the findings. It is unacceptable to wait for the ultrasound department to open at 9.00am.

At presentation:

1. Confirmation of IUD
2. Check maternal observations: full MEWS
3. Baseline blood investigations- FBC, Clotting, Group &save, Kleihauer (if Rhesus negative), CRP, urea and electrolytes, liver function tests.

In a rhesus negative patient over 20 weeks, 1500 units of Anti D immunoglobulin should be given at the time of diagnosis of intrauterine death. Give 500 units if less than 20 weeks. Further Kleihauer should be sent and further 1500 units of anti-D to be given at time of delivery. Yet more Anti-D may be required depending on results. In each case 500 IU may be enough if Kleihauer immediately available but overdose is safer than under dosage.

- The duty senior ST should see the woman. If the ST is not available then the consultant should be summoned. The woman's own consultant should be notified as soon as reasonably possible.

- Delivery will usually be vaginal, however there are some cases where caesarean section may be indicated. Any patient with a previous Caesarean section must be discussed with the consultant obstetrician.

- Preparation for induction of labour will be offered immediately by oral administration of mifepristone 200 mg.

- If the patient is physically well, admission to labour ward for induction of labour should be arranged for 24 to 48 hours after mifepristone administration.The consultant obstetrician should confirm the plan. Understandably many women are reluctant to accept the perceived delay until delivery but the benefits of improved efficacy of misoprostol after mifepristone should be be emphasized.

- Mifepristone should be administered even if it is planned to proceed directly to induction of labour. Ideally at least 12 hours should elapse between mifepristone administration and misoprostol

- If the woman has contractions then she must have a vaginal assessment prior to leaving the hospital.

- If there is suspected sepsis, coagulation disorder,or pre-eclampsia, admit to labour ward immediately. If death has or is suspected to have occurred more than four weeks previously, coagulopathy may occur and must be investigated. Clotting problems may also result from more recent intra-uterine death particularly in relation to large antepartum haemorrhage.

- Inform General Practitioner and community midwife.

INDUCTION OF LABOUR USING REDUCED DOSE MISOPROSTOL

Woman (and partner) should be fully counselled about procedure and the use of misoprostol.

- Unlicensed use of misoprostol
- Procedure for administration
- Possible side effects

All medicines should be prescribed by the obstetrician and recorded on the drug kardex.

Misoprostol is given vaginally unless exceptional circumstances make the oral route preferable. Women should be advised that vaginal misoprostol is as effective as oral therapy but associated with fewer side effects. Misoprostol dosage depends on the period of gestation.[2] A pill cutter will be available on the ward as the only available dose is 200micrograms.

Gestation	Dose and route	Dose interval	Max. no. of doses
13+0- 17+6 weeks	Misoprostol 200micrograms PV	6hourly	X4
18+0- 26+6 weeks	Misoprostol 100micrograms PV	6hourly	X4
27+0- 43 weeks	Misoprostol 50micrograms PV	4hourly	X6
Previous CS all gestations	Misoprostol 50micrograms PV	4hourly	X6

If this course is unsuccessful, there should be a break of 12 hours after the last dose, following which a second course may be administered starting with misoprostol 100 micrograms for 26 weeks or less or 50 micrograms for 27 weeks or more.

If two courses are unsuccessful, discuss further management with a consultant. Normally IV oxytocin drip will be prescribed (according to labour suite protocol).

Expected side effects:

- Mifepristone- malaise, faintness, headache, nausea, vomiting, vaginal bleeding, uterine cramps,dizziness skin rashes rarely occur.
- Misoprostol: Pyrexia, diarrhea, flatulence, nausea, vomiting, vaginal bleeding, headaches. Rash may occur. Hypotension may rarely occur with doses more than 800 micrograms

Contraindications:

- Mifepristone: any allergy to mifepristone, chronic adrenal failure, long-term corticosteroid therapy, haemorrhagic disorders and treatment with anticoagulants, severe asthma uncontrolled by therapy

Misoprostol: Known allergy to prostaglandins or misoprostol

- Cautions :
    - Patients with cardiovascular disease (mifepristone and misoprostol)
    - Heavy smokers (>20/day) >35 years old
    - Asthmatics and patients with COAD (mifepristone)
    - Renal or hepatic failure, malnutrition (mifipristone)
    - Check BNF for drug interations

Suppression of lactation should be offered to all patients with intrauterine deaths beyond 20 weeks of gestation. This should be prescribed as cabergoline 1mg orally within 24 hours of delivery.

Further management in labour

- FBC, G&S, coagulation screen and venflon to be sited on admission
- Full MEWS 2 hourly
- Uterine activity and vaginal bleeding to be recorded
- Record of any side effects

INVESTIGATIONS INCLUDING POST-MORTEM AND PLACENTAL PATHOLOGY

It is important to establish the cause of all perinatal deaths including stillbirths. The nature and the extent of the investigations will vary with individual circumstances.

Autopsy by an experienced perinatal pathologist is invaluable. A senior obstetrician or ST6/7 must seek consent from the patient for autopsy. It must be recognized that this is a difficult decision for some parents to make and the matter must be raised with sensitivity. A small number of couples will have religious objections and it is wrong to pressurize them, however a limited examination may be acceptable to parents instead. The placenta should always be sent to the pathology department for histological, bacteriological studies and chromosomal studies in some cases.

Recommended investigations following intrauterine fetal death after 13 weeks

In all cases, the following tests should be performed at presentation or as close to diagnosis as possible to detect any signs of pre-eclampsia, sepsis or coagulations disorders that would warrant any immediate medical attention.

- Full blood count
- Coagulation screen
- Group and screen
- Kleihauer Test
- U+Es, LFTs, CRP

Further investigations to be done include both maternal and fetal tests. These are usually offered after delivery The details are given over leaf. Please note that maternal blood investigations can be ordered from TRAK as a set named “perinatal loss”.

INVESTIGATIONS AFTER PERINATAL LOSS

INVESTIGATION	LOOKS FOR	INDICATION	SAMPLE
Autopsy & placental pathology	Fetal Anomalies and placental pathology	All deaths	Fetus for post-mortem and placenta for pathology
Maternal Blood			
HbA1C and fasting blood glucose	Abnormal glucose homeostasis	All deaths	Red and yellow tube to biochemistry
Kleihauer test (after delivery)	Fetomaternal haemorrhage	All deaths	Blue BTS tube
Lupus anticoagulant and hereditary thrombophilia screen	Antiphospholipid Syndrome and clotting disorders	All deaths	2 green tubes, 1 brown and a red tube to haematology dept, perform in working hours
Anticardiolipin antibodies	Antiphospholipid syndrome	All deaths	Brown tube to immunology
Group and antibody screen	Isoimmunisation	All deaths	Blue BTS tube
Virology screen TORCH and parvovirus B19	Infection	All deaths	White tube to microbiology
LFTS, bile acids, urate	Cholestasis, pre-eclampsia	All deaths	Brown tube to biochemistry
Thyroid function tests	Hyper and hypothyroidism	All deaths	Brown tube to biochemistry
Blood cultures	Listeria	All deaths	2 Culture bottles to microbiology
Cytogenetic analysis (WGH)	Abnormal karyotype	Fetuses with congenital malformation or dysmorphism, fetuses with no obvious cause for death	Fetal blood - cord or cardiac Piece of placenta MUST BE SENT EARLY IF TO BE ANALYSED. ***
Placental swab Swab to microbiology	Intrauterine infection	Suspected chorioamnionitis	Swab to microbiology
Blood	Malaria and tropical infections	Travel to endemic areas	Red tube to microbiology if malaria suspected. Check with micro depending on suspected infection
Anti-Ro and Anti-La antibodies (ENA screen)	Fetal heart block	Test if hydrops suspected antenatally or at delivery	Brown tube to immunology

Total of: 2 red, 1 yellow, 4 brown, 2 green, 2 blue tubes and blood culture. (excludes malaria, and ENA screen) and low vaginal swab

Placenta for cytogenetic analysis***

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- **If placental biopsy is sent for cytogenetic analysis, please indicate this on the histology form and send it as fresh a sample (unfixed, NOT IN FORMALIN) as possible. Please check with pathology lab as pathologists would like to send this themselves (otherwise this can be misunderstood as missing placental tissue)**

If clinical signs of chorioamnionitis (abdominal pain, fever, tachycardia, prolonged SRM, purulent or offensive liquor) SEE SEPSIS GUIDELINE

The results from all the investigations will be disussed with the patient and partner as an outpatient after allowing approximately 3 months. This must be clearly explained to the couple prior to discharge

4. ASSOCIATED DOCUMENTS: RCOG/ NICE/ PMI

Stillbirth checklist (<24, >24 weeks)- SJH and RIE
Bereavement patient information
Sepsis
Final Act of Care

5. REFERENCES:

1. Late intrauterine fetal death and stillbirth. RCOG Guideline No 55
2. Misoprostol for intrauterine fetal death. R.Gomez Ponce de Leon, D.Wing, C.Fiala. International Journal of Obstetrics and Gynaecology (2007) 99 S190-193

6. AUTHOR/S:

Author 1: Dr. Nithiya Palaniappan

Author 2: Dr. Karen Edgar

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Author 5: Lothian Guideline Group

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Reduced Fetal Movement

Maternity Services Lothian Guidelines

1. INTRODUCTION:

Key Information

- Stillbirth rate in Scotland was 3.8 per 1000 total births in 2021 NRS
- RFM is associated with an increased risk of stillbirth (odds ratio 2.37-14.1) (Norman J, 2018)
- The majority of women attending with RFM will go on to have an uncomplicated pregnancy
- 30-55% of women who have a stillbirth experience RFM in the preceding week (Norman J, 2018)
- Repeated episodes of RFM after 28 weeks are more likely to be associated with growth restriction, fetal compromise, and stillbirth (Scala C, 2015)
- AFFIRM results – no decrease in stillbirth. There was a reduction in SGA babies delivered after 40 weeks. But also showed an increase in c/s and IOL (Norman J, 2018)

What is RFM?

- There is **no formal definition of decreased fetal movement** – the ***woman's perception of decreased fetal movements*** is the most helpful definition of decreased fetal movement. An arbitrary reference range for movements is not recommended.

What influences women's perceptions of fetal movements?

- Women perceive most movements when lying down
- Sedating drugs may have a transient effect
- There may be a reduction in movements with cigarette smoking
- Fetal presentation has no effect on perception of movement
- Fetal position may influence maternal perception (e.g. fetal spine anterior)

PLACENTAL SITE DOES NOT INFLUENCE PERCEPTION OF MOVEMENTS- women should never be advised that having an anterior placenta reduces movement perceived.

2. AIM:

To reduce the risk of stillbirth by

- Increasing pregnant women's awareness of the need to report early when they perceive RFM.
- Providing a management plan for identification and delivery of the "at risk" fetus in women with reduced fetal movements.

3. GUIDELINE

Information about RFM

1. Discuss the importance of fetal movements with all women by 24 weeks, and again if they present with RFM.

2. Advice should include the information in Box 1

3. Women should be signposted to information on RFM in Ready Steady Baby, and the videos and leaflets available through Tommys - Fetal Movements and Tommys Leaflet

4. Check her understanding using talk back, and document in woman's records that this has taken place.

Box 1

Discussion about fetal movements should include

Each baby will have their own pattern of movements that you should get to know. From 16-24 weeks babies move more and more up until 32 weeks then stay roughly the same until you give birth. It is NOT TRUE that babies move less towards the end of pregnancy. You should CONTINUE to feel your baby move right up to the time you go into labour and whilst you are in labour too.

If you think your baby's movements have slowed down or stopped, contact your midwife or maternity unit immediately (it is staffed 24 hrs, 7 days a week). You must NOT WAIT until the next day to seek advice if you are worried about your baby's movements

Do not use any hand-held monitors, Dopplers or phone apps to check your baby's heartbeat. Even if you detect a heartbeat, this does not mean your baby is well.

Telephone advice for decreased fetal movements

1. If the woman is < 22+0 weeks then advise her to contact her CMW if there are no additional clinical concerns.
2. If the woman is 22+0 to 25+6 weeks then advise her to attend for same day assessment, with community midwife if possible, or triage.
3. If the woman is ≥26+0 then advise her to attend triage for review

Assessment of all women who present with RFM

1. Perform maternal observations including full MEWS and Urinalysis, and measure symphysio-fundal height if >24 weeks.
2. Assess risk factors for fetal growth restriction and stillbirth (see box 2)
3. Review previous imaging and growth charts (if performed)

Box 2

Risk Factors for Fetal Growth Restriction

(NB This list is not exhaustive, please consider the whole history and refer to Lothian SGA guidelines)

Maternal history:

- Maternal age>40yrs
- Large fibroids (>6cm)
- Chronic hypertension
- Chronic kidney disease
- Uterine anomaly
- Substance misuse including alcohol
- Pre-existing Diabetes (Type 1 and Type 2)
- BMI>40 or previous bariatric surgery
- Newly diagnosed or uncontrolled hyperthyroidism
- SLE/Connective Tissue Disease/ Antiphospholipid syndrome
- Eating disorder
- Maternal Cardiac Disease
- Cystic fibrosis
- Sickle cell disease (not trait)
- Epilepsy on antiepileptic drugs (AEDs)
- Recurrent miscarriage (i.e. no live children following consecutive miscarriages)
- Asthma requiring current use of oral steroids or recent hospital admission

Previous Pregnancy:

- Previous SGA (<10th centile at delivery)
- Previous stillbirth

Current Pregnancy:

- Smoker with CO level 5ppm or more
- Late bookers (at or after 21 weeks gestation)
- PAPP-A <0.4MoM on 1st trimester screen (or hCG >4 or AFP>2.5MoM on 2nd T screening)
- Positive Uterine Artery Dopplers (mean PI >95th centile) at 22-24 weeks
- SGA <10th centile, Echogenic bowel or femur length <5th centile on FA (20 week) scan
- Symphysio-fundal height <10th centile or static or falling SFH
- Recurrent Antepartum Haemorrhage (2 bleeds >20 wk)
- Pre-eclampsia/PIH

Definitions

Single episode of reduced fetal movement (RFM) is a first episode of reduced movements.
Recurrent RFM is defined as two or more episodes within 21 days (after 26 weeks gestation).
Persistent RFM is defined as lasting for more than 24 hours.

Management of RFM (depends on gestation)

22+0-25+6 weeks

Confirm fetal viability by auscultation. Perform fetal anomaly scan if not already completed. If risk factors for fetal growth restriction (FGR) present (Box 2) arrange serial growth USS as per Lothian SGA guideline). If NEVER felt movements by 24weeks, discuss with Fetal Medicine team.

There is no evidence to recommend the routine use of CTG surveillance or ultrasound in this group and this should be discouraged

26+0 – 38+6: Single episode

1. Perform CTG within 2 hours of presentation.
2. CTG between 26 and 28 weeks may require senior review to aid interpretation and make a plan
3. If CTG abnormal – involve senior obstetrician in management plan
4. If CTG normal – assess for risk factors for FGR (see box 2 above)
5. If no FGR risk factor identified and reassured, discharge back to routine care
6. If any FGR risk factor identified, perform growth ultrasound (+/- umbilical artery Doppler) next working day
    a. If AC>10th centile, growth trajectory normal, discharge back to routine care
    b. If abnormal ultrasound result, review by senior obstetrician as per Lothian SGA guideline
7. If fetal movements have not returned to normal following completion of assessment, then proceed to recurrent reduced fetal movement pathway

26+0 – 38+6: Recurrent Reduced Fetal Movement

1. Perform CTG within 2 hours of presentation
2. CTG between 26 and 28 weeks may require senior review to aid interpretation and plan
3. If CTG abnormal – involve senior obstetrician in management plan
4. If CTG normal – organise growth ultrasound scan next working day (if not performed within last 21 days)
    a. If AC>10th centile, growth trajectory normal and fetal movements felt during assessment, discharge back to routine care
    b. If abnormal ultrasound result, review by senior obstetrician as per Lothian SGA guideline
5. If had normal growth ultrasound scan within 21 days, book next growth scan for ~21 days from previous USS
    a. If further reassurance required, consider twice weekly CTG monitoring until repeat ultrasound scan or until movements return to normal
    b. If AC >10th centile with normal growth velocity, return to routine care with no increased monitoring. This is the new normal pattern of movements for this pregnancy.

≥39+0 weeks: Single episode or recurrent

1. Perform CTG within 2 hours

2. If CTG abnormal, arrange birth with input from senior obstetrician to determine mode and Immediate escalation to expedite birth
3. Discuss and offer IOL within 48 hours with all women presenting with first or recurrent episodes of RFM after 38+6 weeks
4. If declines IOL, review risk factors for FGR (see box 2).
    a. If the CTG is normal, movements felt during assessment, no risk factors for FGR and woman declines IOL, then discharge to routine care.
    b. If risk factors for FGR present (including recurrent RFM), recent ultrasound assessment normal and woman declines IOL, then arrange 2xweek CTG until either fetal movements return to normal or birth is planned

Quick Reference Sheet for Reduced Fetal Movement (RFM)

At Presentation:

- Take history/identify risk factors for FGR (box 2)
- Maternal observations
- Measure SFH and plot on growth chart (if≥24 weeks and not measured for 2 weeks)

22 – 25+6 weeks

- Auscultate with Doppler for 1 min
- Perform anomaly scan if not already complete
- If risk factors for FGR, ensure serial growth scans arranged as per Lothian SGA guideline
- If all well, reassure and resume normal AN care

- If NEVER felt FMs by 24weeks discuss with Fetal Medicine team

26+0 – 38+6 weeks

- Perform CTG – if abnormal refer to senior Obstetrician

1st Episode of RFM

- CTG normal AND no risk factors for FGR (Box 2) – reassure and discharge
- Risk factors for FGR – arrange ultrasound scan*
  AC >10th centile and normal growth trajectory – reassure and discharge

Recurrent Episode of RFM

- Arrange ultrasound scan*
- If AC >10th centile and normal growth trajectory on repeat USS, this is the new pattern of fetal movements for this pregnancy. No further increased monitoring is required. Discharge back to routine care. **
- If further reassurance required, consider twice weekly CTG until next growth scan or movements return to normal

Abnormal ultrasound

- Review by senior Obstetrician as per Lothian SGA guideline

39+ weeks

- Perform CTG – if abnormal refer to senior Obstetrician

- Offer cervical assessment
- Discuss IOL#

IOL Declined

- No risk factors for FGR and movements felt during assessment – discharge to routine care
- Risk factors for FGR present or recurrent episode of RFM (US growth normal) – 2xweek CTG until either fetal movements return to normal or IOL accepted

* Ultrasound Scan

- Arrange next working day
- For fetal biometry, liquor volume +/- umbilical artery Doppler
- Ensure 20 week ultrasound plotted as a comparison

Induction of Labour

- Discuss with all women presenting with RFM after 38+6 weeks
- Offer IOL if recurrent RFM after 38+6 weeks
- If IOL accepted, organise within 48hrs
- If delay in IOL >48hrs, consider increased monitoring until IOL can be arranged
- If vaginal delivery inappropriate, refer to senior obstetrician for delivery planning

** Repeat Attendees

If multiple attendances with RFM and woman not reassured by monitoring/ultrasound scans, consider referral to locality consultant for individualised plan

4. REFERENCES

RCOG GTG No. 57, 2011: Reduced Fetal Movement

5. AUTHORS

Kirsty Dundas
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1. INTRODUCTION:

Small for gestational age

Babies that have biometry (abdominal circumference (AC), head circumference (HC), femur length (FL)) or estimated fetal weight (EFW) in the smallest 10 percent of the expected range for their gestation are termed small for gestational age (SGA). These babies have increased incidence of stillbirth, complications in labour (eg intrapartum hypoxia), neonatal problems, and poorer adult health.

The definition in Lothian for SGA is abdominal circumference or estimated fetal weight less than 10th centile.

Fetal growth restriction

Small for gestational age babies may be constitutionally small or may be affected by fetal growth restriction (FGR). FGR is the term used for fetuses that have not achieved their growth potential because of placental dysfunction. Not all fetuses that have FGR are SGA, some babies may still be within normal gestational weight ranges (appropriate for gestational age: AGA) but experience growth restriction. FGR is further subdivided into early (<32 weeks) and late (>32 weeks) by the gestation at diagnosis. All babies affected by FGR are at higher risk of poor outcomes than normally grown or constitutionally small SGA babies. The risk of fetal death for each week of gestation is the highest at birthweights of <3rd percentile. These babies have a 3 times greater risk of intrauterine death than those with weights between the 3rd the 5th percentiles and 4 to 7 times greater than those with weights between the 5th and 10th percentiles.[i]

Multiple definitions of FGR exist, in an attempt to exclude constitutionally small but normal babies while still capturing AGA babies with faltering growth. The most detailed is the recent Delphi consensus criteria agreed by international experts in fetal growth.[ii]

Early FGR (<32 weeks)	**Late FGR (>32 weeks)**
AC or EFW <3rd centile **OR** UA-AEDF	AC or EFW <3rd centile
AC or EFW <10th centile **AND** UtA PI>95th OR UAPI >95th	At least 2 of: - AC or EFW <10th centile - AC or EFW falling >50 percentiles - CPR <5th - UA-PI >95th

Screening and diagnosis of SGA/FGR

In the antenatal period, screening for SGA and FGR is based on clinical assessment through symphysis fundal height [SFH] measurement. Diagnosis of SGA and FGR is by ultrasound.

Detection of SGA and FGR is difficult - the aim is to detect and monitor these babies and deliver them at a time that minimises risk. Decisions to deliver may be complex (particularly at early gestations) and should be made by a consultant obstetrician, in conjunction with fetal medicine and neonatology as appropriate.

This guideline does not apply to babies with antenatally identified congenital anomalies, who

will have an individualised plan of care and be managed within the fetal medicine service.

2. AIM:

To provide guidance on

A. screening for SGA through SFH measurement
B. identifying women at risk of SGA who may require additional ultrasound screening for SGA
C. screening for SGA through additional growth scans
D. surveillance of babies with SGA
E. indications for delivery of babies with confirmed SGA
F. audit and surveillance of SGA diagnosis and management in Lothian

Glossary

AC: abdominal circumference
HC: head circumference
FL: femur length
ACS: antenatal corticosteroids
AGA: appropriate for gestational age
AREDF: absent or reversed end diastolic flow
cCTG: computerized CTG
CEFM: continuous electronic fetal monitoring
CPR: cerebroplacental ratio
CRP: C reactive protein
CS: caesarean section
DAU: day assessment unit
DV: ductus venosus
DVP: deepest vertical pocket
EDF: end diastolic flow
SFH: symphysiofundal height
EFW: estimated fetal weight
FA: fetal anomaly
FGR: fetal growth restriction
IOL: induction of labour
LGA: large for gestational age
MCA: middle cerebral artery
NNU: neonatal unit
OOH: out of hours
OTA: obstetric triage area
PET: pre-eclampsia
PIH: pregnancy induced hypertension
PLGF: placental growth factor
SGA: small for gestational age
STV: short term variability
UAPI: umbilical artery pulsatility index
UARI: umbilical artery resistance index
UtAPI: uterine artery pulsatility index

3. Summary guidelines

1. Gestation should be checked using the date estimated at booking scan performed at 11.0-13.6 weeks and recorded in TRAK.

2. Risk factors for SGA should be assessed at booking and the screening pathway for SGA filled out and recorded in woman's record (see appendix 1). Ultrasounds for women identified as unsuitable for screening by SFH or at moderate or high risk of SGA should be requested at the fetal anomaly scan review visit.

3. Symphysio-fundal height measurement (SFH) should be measured at each antenatal attendance (including triage and day assessment) after 24 weeks, but not more often than every 2 weeks, and recorded on SFH charts in handheld records.

4. If pregnancy complications associated with altered fetal growth arise (eg clinical concern about SFH measurements, recurrent APH, reduced fetal movements) then referral for departmental growth scan should be made within 3 days.

5. Women referred for growth scans should have measurement of abdominal circumference (AC) and head circumference (HC) plotted on growth charts and estimated fetal weight (EFW) calculated using HC, AC and femur length. AC and HC from fetal anomaly (20 week) scan must also be plotted and comparison should be made to these.

6. Women at very high risk of FGR (see appendix 2) should be referred to fetal medicine for assessment at 20-22 weeks and individualised management planning. This may include further monitoring through the RIE Small Baby clinic.

7. PLGF/SFlt-1 testing may be performed when SGA or FGR is diagnosed on ultrasound scan as part of the maternal assessment for pre-eclampsia. The test should be used to rule in or rule out pre-eclampsia as per the NHS Lothian protocol for PLGF/SFlt1 testing.

8. Women with SGA/FGR diagnosed on a surveillance scan and women diagnosed with PIH/PET <34 weeks with a plan for expectant management should be referred to the small baby research clinic team or fetal medicine for an ongoing surveillance plan.

9. Growth scans are less accurate after 38 weeks gestation. Where clinical concerns arise after 40 weeks, a growth scan or ultrasound assessment of liquor volume and umbilical artery doppler may be undertaken where the treating clinician believes that the examination will meaningfully inform clinical decision making.

10. For babies with suspected SGA/FGR the decision to deliver should in all cases consider the whole clinical picture. Where there is significant concern about maternal co-morbid pre-eclampsia, persistently reduced fetal movement, recurrent APH or coincident maternal diabetes delivery may be indicated even in the absence of the trigger criteria described in the table below.

11. For babies with suspected SGA, normal liquor and umbilical and middle cerebral artery Dopplers and no additional concerns about maternal or fetal wellbeing scheduled delivery should be offered between 39 and 40 weeks gestation.

12. For babies with suspected FGR (AC or EFW <3rd centile) or with suspected SGA and associated oligohydramnios, raised UAPI >95th centile or MCA or cerebroplacental ratio (CPR) <5th centile, delivery should be offered between 37 and 38 weeks gestation.

A. Screening for SGA using symphysiofundal height measurement

Both abdominal palpation and symphysio-fundal height measurement (SFH) have limited accuracy to predict an SGA fetus. However, routine ultrasound scans for growth in the third trimester have not been shown to improve outcome in low-risk pregnancies. Therefore, measurement of SFH is used as a screening test in routine care.

Symphysio-fundal height measurement:

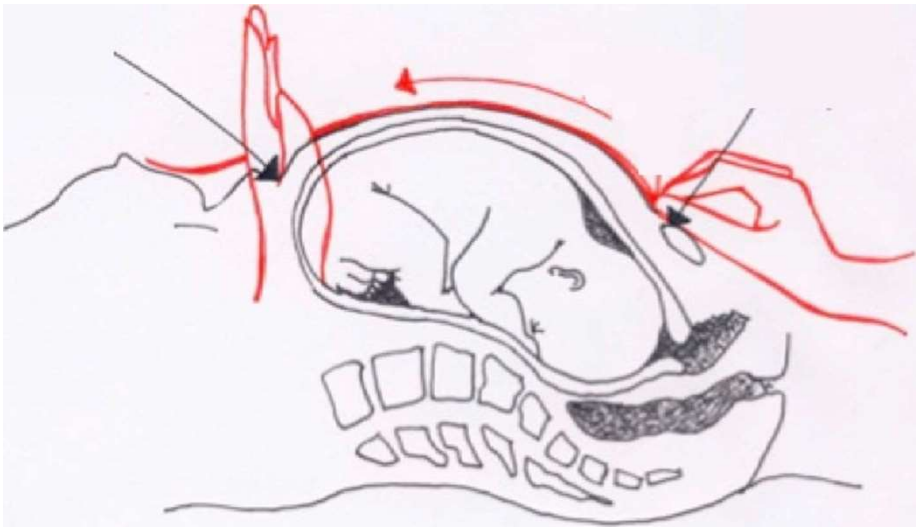
All women should have the SFH measured at each antenatal visit from 24 weeks gestation onwards. Women with high BMI, multiple fibroids or multiple pregnancy are unsuitable for SFH surveillance and should have monitoring via ultrasound.

The SFH measurement should be plotted on the SFH chart in the handheld notes.

- There is some evidence that plotting serial measurements on an SFH chart improves the detection of the SGA fetus.
- If the SFH measurement is less than the 10th centile on the SFH chart or there is static growth (in cm) or a reduction in growth velocity (crossing >40 centiles), then a growth scan should be requested if the woman has not had one in the last 2 weeks.
- The scan should be performed within 2-3 working days of the request. If the request is in the context of current reduced fetal movements (second presentation or other risk factors) then the scan should usually be performed within 24 hours if possible

Measuring and Plotting Symphysio-Fundal Height (SFH)[iii]

1. Explain the procedure to the mother, gain verbal consent, wash hands.
2. The expectant mother should be in a semi-recumbent position (45 degree angle) on a firm surface, with an empty bladder and expose enough of the abdomen to allow thorough two-handed palpation.
3. Use a non-elastic tape measure. Turn the tape measure over so no numbers are visible during the measurement.
4. With the palm of the other hand on the abdomen, pass the tape from the fundus of the uterus along the longitudinal axis of the uterus (not correcting to the midline) to the top of the symphysis pubis - the fixed point and more easily identified landmark.
5. Measure once only, and plot immediately on the chart for the right gestation (weeks and days) to the nearest half centimeter.
6. SFH measurements should not occur more frequently than every two weeks.



How to interpret results

You **do not** need to allow for descent of the head. The curves do not flatten towards term; uncompromised babies should continue growing until delivery.

Symphysio-fundal height **at or above** 10th centile	Routine antenatal care with continued SFH monitoring
SFH **increased** since last measurement*	
Symphysio-fundal height **<10th** centile	**Directly refer for ultrasound scan (should be performed within 3 working days in main department)**
Static or falling SFH in cm (ie 32 cm and then 30 or 32 cm) or dropped >40 centiles	

*Accelerated growth trajectory is **not** an indication for growth scan referral. If there are clinical concerns about excessive growth, discuss with named consultant (email discussion is appropriate).

SFH <10th centile before 28 weeks

Women are generally assessed at 22 and 28 weeks by community midwife (CMW). Occasionally symphysial fundal height (SFH) is measured in between. SGA guidance suggests ultrasound growth measurements are required if SFH <10th centile at gestations from 24+0 weeks.

It should be remembered that absolute SFH < 24wks is more indicative of maternal BMI than fetal size and should NOT routinely be plotted.

SFH <10th centile or static or falling at term

Where new concern about SFH is identified >38 weeks a growth scan may be indicated. Patients should be referred to DAU for assessment and consideration of the full medical picture.

B. Identifying women at risk of SGA who may require additional ultrasound screening for SGA

Formal risk assessment should be made by the community midwife by 16-20 weeks and growth scans requested. If there is a concern or maternal condition which is not included below or in the risk assessment table, please contact the patient's named consultant for an individual management plan.

30 and 36 weeks	28, 32, 36 weeks	Refer to Fetal Med (including Small Baby Clinic) for plan
Unsuitable for monitoring by SFH - Large fibroids (at least 1 >6cm) - BMI >40	High risk factors for SGA*	Very high risk for SGA* (Fetal Med)
Moderate risk factors for SGA*		Pre-eclampsia or PIH <34 weeks gestation (Small Baby Clinic)

*See Appendix 1 for full list

Unscheduled growth scans when pregnancy complications occur

Where women develop pregnancy complications that could be associated with altered fetal growth prior to 40 weeks, a departmental growth scan should be performed within 3 days. These include (but are not exclusively limited to):

- Abnormal SFH measurements as described above
- As soon as possible at the time of diagnosis of pre-eclampsia or PIH
- Reduced fetal movements (after 28 weeks gestation)

When this scan demonstrates fetal biometry appropriate for gestational age with normal liquor volume and umbilical artery dDoppler, it can be repeated in 2-3 weeks time.

If the biometry, liquor or Dopplers are not normal, the patient should be referred to DAU for consultant review within 24 hours as above.

Where there are additional clinical concerns (eg further PV bleeding, ongoing RFM, symptomatic or untreated hypertensive disorders) medical review may be necessary even where the scan findings are normal. This should primarily be arranged through DAU, with triage referral reserved for acute clinical concerns out of hours. These patients may be suitable for review in locality clinics rather than in DAU/OTA.

Where clinical concerns arise after 40 weeks, a growth scan or ultrasound assessment of liquor volume, umbilical artery and middle cerebral artery doppler may be undertaken where the treating clinician decides that the examination will meaningfully inform clinical decision making.

C. Screening for SGA through additional ultrasound ("growth") scans

Protocol for third trimester growth scans undertaken for one of the above criteria

- Confirm dating of the pregnancy by reviewing previous scans
- Biometry at an interval of less than 2 weeks should not be done
- Women referred for growth ultrasound should have measurement of abdominal circumference (AC) and head circumference (HC) plotted on growth charts and placed in the notes.
- EFW should be calculated according to the Hadlock formula (HC/AC/FL) and centile according to Intergrowth charts reported. (Appendix)
- AC and HC should be plotted from fetal anomaly (20 week USS) and comparison should be made to these.
- Liquor volume (LV) should also be documented (normal/abnormal) Deepest Vertical Pool (DVP) should be recorded for abnormal results. Low = <2cm, High = >8cm.
- Umbilical artery pulsatility index should be measured at all growth scans 24-32 weeks, and where biometry, growth velocity or liquor volume are abnormal after 32 weeks.
- MCA PI should be measured where there is suspected SGA/ FGR with normal umbilical artery doppler > 32wks.

Management after third trimester screening 'growth' scans according to findings - it is expected that community midwife will co-ordinate management of normal results				
	Biometry	**Liquor Volume**	**Doppler**	**Management**
Normal	Appropriate for gestational age and normal growth velocity	Normal (DVP >2cm)	Normal UAPI	Routine antenatal care and screening growth USS as per protocol Can repeat growth scan in main department after 2-3 weeks if ongoing concern, up to 40 weeks.
Normal	Reduction in growth velocity – fall of 20-40 centiles.	Normal liquor volume	Normal UAPI	Repeat growth scan in 2-3 weeks in main department
Abnormal - these scan findings would usually be actioned by the operating sonographer in the first instance				
SGA with normal LV and Doppler	AC /EFW<10th centile or reduced growth velocity (>40 centiles from previous scan)	Normal (DVP >2cm) or increased	Normal UAPI	<37 weeks: Refer small baby clinic/fetal med for review within 2 weeks >37 weeks: Refer DAU within 48 hours
Oligohydramnios with or without SGA and normal Dopplers	AC/EFW <10th centile or reduced growth velocity (>40 centiles from previous scan) **OR** Appropriate for gestational age. Normal growth velocity	Reduced (DVP <2cm)	Normal UAPI	Refer OTA for assessment ?ROM and CTG. *From OTA:* <37 weeks and no other concerns - follow up in small baby clinic/fetal med within 1 week >37 weeks or additional concerns: Refer SR/consultant
SGA with abnormal Doppler	AC <10th centile or reduced growth velocity (>40 centiles from previous scan)	Normal or reduced (DVP <2cm)	Abnormal UAPI and/or absent or reversed EDF	Refer DAU - may be suitable for follow up in small baby clinic/fetal med at discretion of consultant or SR

DAU assessment after abnormal scan result:

DAU team: Review antenatal notes and history, check fetal movements, temperature, pulse, blood pressure and urine dip. Where hypertension exists and PET bloods have not been checked within 48 hours, repeat blood tests. When >28 weeks perform a CTG and make note of the short-term variability (STV) where available.

PLGF/SFlt-1 testing may be performed when SGA or FGR is diagnosed on ultrasound scan as part of the maternal assessment for pre-eclampsia. The test should be used to rule in or rule out pre-eclampsia as per the NHS Lothian protocol for PLGF/SFlt1 testing. Testing should be offered the same day as the scan - if clinically well the woman may go home and await results. If normal, standard SGA follow up should occur.

Interpreting PlGF results:

Before 37+0 weeks:
If abnormal, the patient should be referred to DAU for assessment within 48 hours (red result) or 1 week (amber result). PLGF results should not be used to make decisions about timing of delivery prior to 37 weeks.

After 37+0 weeks:
Confirmed SGA on scan (EFW/AC 3rd-10th centile) and an **abnormal** PLGF/SFlt-1 ratio is consistent with a diagnosis of FGR and delivery should be offered from 37 weeks' gestation.

With EFW/AC 3-10th centile on scan, normal umbilical and middle cerebral artery Dopplers and normal fetal movement, a **normal** PLGF/sFLt-1 result is consistent with a diagnosis of SGA and delivery can be offered at 39-40 weeks if no other indication for delivery arises.

Discuss all results and management plan with Tier 3 Obstetrics consultant . Outcomes may include fetal medicine review, small baby clinic referral or delivery planning.

D. Surveillance of babies with SGA

Where delivery is not planned imminently, surveillance of babies with diagnosed SGA/FGR will be co-ordinated via the small baby clinic, managed by fetal medicine. (Appendix 4) Where possible, the patient will be seen at each appointment by the same clinician to optimise counselling and continuity of care.

The usual schedule of surveillance is outlined below, but may be individualised to the patient at the discretion of the managing consultant. In particular not every doppler measurement will be required at every scan.

When SGA/FGR and/or Echogenic bowel and/or femur length <5th centile is diagnosed at the anomaly scan (20-22 weeks), the first referral should be to fetal medicine for detailed anatomical assessment and consideration of invasive testing.

Further surveillance may then be arranged through fetal medicine or the small baby clinic as appropriate.

	Ultrasound	**Clinical assessment**
SGA (3-10th centile) with normal Dopplers		
24-32 weeks	Biometry, UAPI, (+/- DV) and LV fortnightly	Blood pressure and urine dip fortnightly
32-38 weeks	Biometry, UAPI, LV (+/- MCA) fortnightly	Blood pressure and urine dip weekly
SGA <3rd centile with normal Dopplers		
24-32 weeks	Biometry, UAPI, (+/- DV) and LV fortnightly	Blood pressure and urine dip fortnightly
32-38 weeks	Biometry fortnightly UAPI, LV (+/- MCA) weekly	Blood pressure and urine dip weekly
SGA <10th centile with abnormal UA Doppler		
24-32 weeks	Biometry fortnightly UAPI, DV and LV twice weekly	cCTG (where available) three times a week Blood pressure and urine dip twice weekly
32-38 weeks	Customised monitoring until delivery	

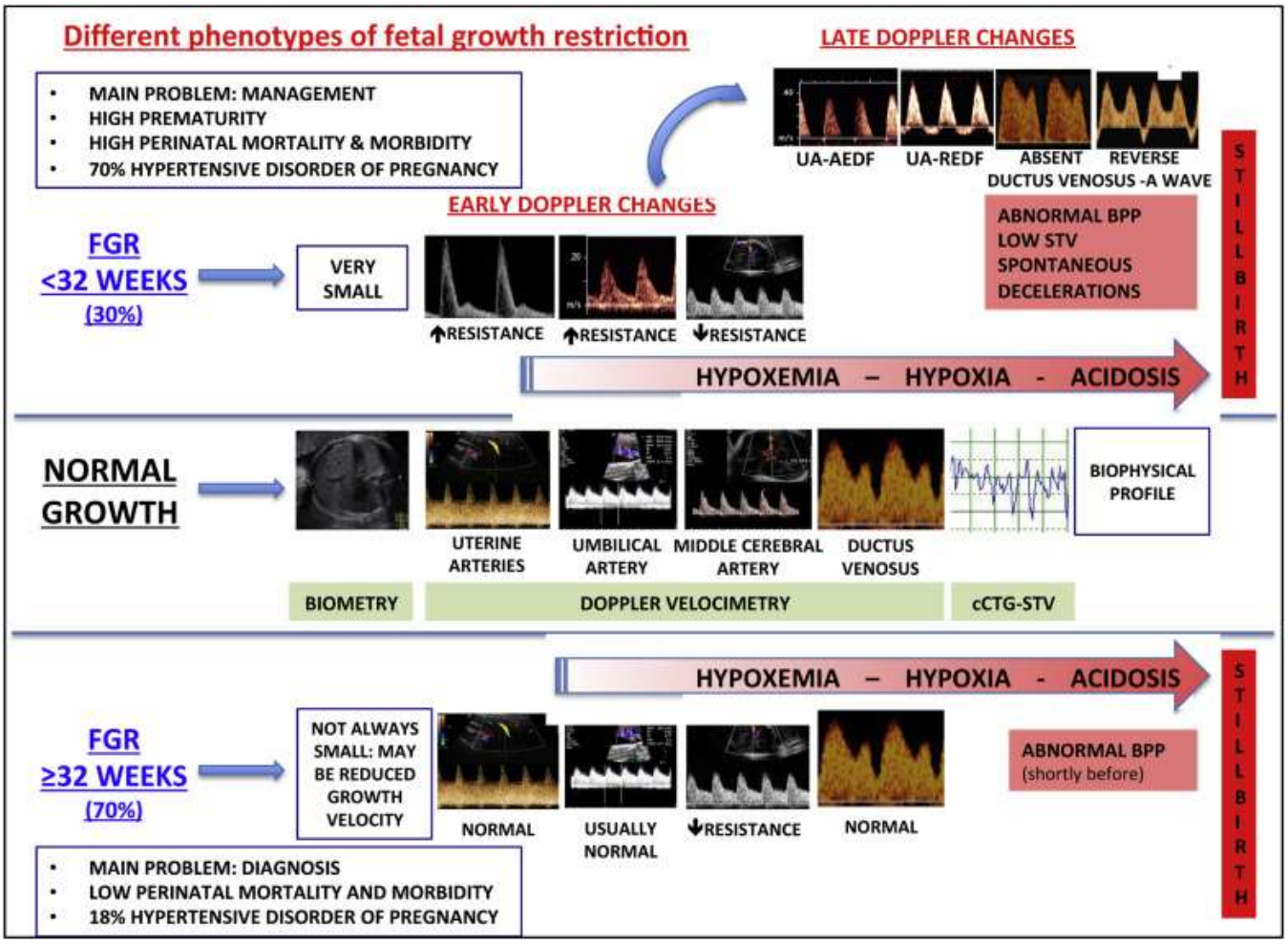


Figure 1 Lees AJOG 2022

E. Indications for and management of delivery of babies with confirmed SGA

Decisions to deliver may be complex (particularly at early gestations) and should be made by a consultant obstetrician, in conjunction with fetal medicine and neonatology as appropriate.

Decision to deliver should in all cases consider the whole clinical picture. Where there is significant concern about maternal co-morbid pre-eclampsia, persistently reduced fetal movement, recurrent APH or coincident maternal diabetes delivery may be indicated even in the absence of the trigger criteria described in the table below.

At **any gestation** repetitive unprovoked decelerations on an antenatal CTG in the context of known SGA/FGR should prompt consideration of delivery.

When preterm delivery is planned, MgSO4 and antenatal corticosteroids should be offered in line with existing NHS Lothian guidelines and early discussion with the neonatal team is recommended.

Gestation (weeks)	Ultrasound triggers for delivery	cCTG triggers for delivery
26-28	DV a-wave absent or reversed	STV <2.6ms
29-30	DV a-wave absent or reversed	STV <3.0ms
30-32+0	DV a-wave absent or reversed **OR** UA reversed EDF	STV <3.0ms
32-34+0	UA AREDF	STV <3.5ms
34-37	UA AREDF	STV <4.5ms
37	UA PI >95th centile	STV <4.5ms
38-39	MCA <5th centile	STV <4.5ms

For babies with suspected SGA, normal liquor and Dopplers and no additional concerns about maternal or fetal wellbeing scheduled delivery should be offered between 39 and 40 weeks gestation.

For babies with FGR (AC/EFW <3rd centile, oligohydramnios, abnormal UAPI or MCA/CPR <5th centile) scheduled delivery should be offered between 37-38 weeks.

The mode of delivery should be discussed with the patient by a senior obstetrician taking into account the clinical assessment of fetal wellbeing, her past obstetric history and preferences for delivery. For babies with reassuring liquor volume and dopplers and a normal fetal growth trajectory, induction of labour and planned vaginal delivery is appropriate. Delivery on labour ward with CEFM is recommended.

In general, vaginal delivery should be avoided where significant concerns about placental dysfunction exist (ie. abnormal umbilical doppler, EFW<3rd centile, severe oligohydramnios). Where the patient's preference is to attempt vaginal delivery in these circumstances, counselling must include the increased risk of operative delivery for suspected intrapartum fetal compromise.

Where the indication for delivery is suspected FGR the placenta should be sent for histological examination.

F. Audit and surveillance of SGA diagnosis and management in Lothian

The incidence, detection and management of SGA babies will be audited in Lothian in line with the Saving Babies Lives Care Bundle recommendations implemented in NHS England.

A monthly report from TRAK will identify:

- Babies with birthweight <3rd centile
- Babies with birthweight <10th centile
- Babies born >40 weeks with birthweight <10th centile
- Babies born >38 weeks with birthweight <3rd centile

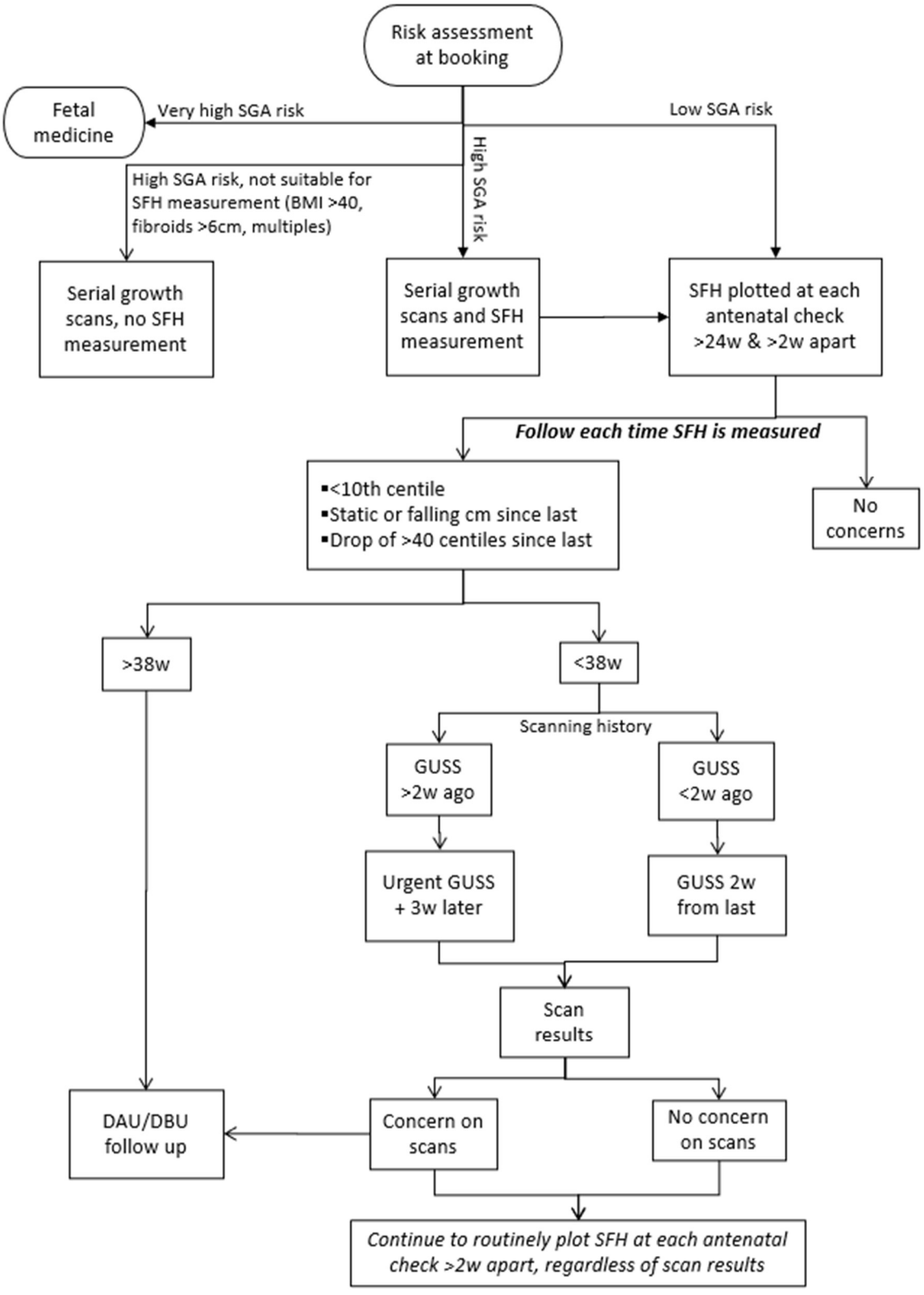
This report will be analysed by the small baby clinic team, who will report back to the QI leads in order to set and monitor local standards on a quarterly basis.

An annual audit will conduct a notes review of a sample of SGA babies born in Lothian to identify.

- How many had a growth scan conducted within 6 weeks of delivery.
- Of those with a third trimester growth scan, how many were correctly identified as SGA
- Of those identified as SGA how many were delivered in accordance with this guideline
- Mode of delivery
- Incidence of perinatal mortality

Appendix 1

SGA Guideline Flowchart for Community Midwives



Version 0.7 November 2024

Appendix 2 SGA risk assessment in handheld notes

Patient Name:	DOB: / /	CHI number:

NHS Lothian

Maternity Service Risk Assessment and Screening Pathway - Small for Gestational Age (SGA)

1. Complete and file in handheld record at booking assessment
2. Update pathway and request any required ultrasound scans at the time of Fetal Anomaly (FA) scan review
3. State the scan indication on the Scan Request Form as listed below (N.B. scans for any indication not listed; or deviating from the suggested scanning schedule will need to be discussed with the Ultrasound department at the RIE or SJH)
4. Assess the fetal growth trajectory of plotted measurements from FA scan and growth scans on the chart overleaf

Risk Factors	Tick	SGA Screening Pathway	Request (initials)	Review of Results
Large fibroids, 1 or more over 6cm	☐	**2 growth ultrasounds at (30 and 36 weeks gestation)**		Midwife led
Maternal age over 40yrs	☐			
Smoker with CO level 5ppm or more	☐			
Late bookers (at or after 21 weeks gestation)	☐			
PAPP-A less than 0.4MoM on 1st trimester screen (or hCG more than 4 or AFP more than 2.5MoM on 2nd trimester screen)	☐			
Recurrent miscarriage clinic patient immediately prior to this pregnancy (i.e. no live children after 3 miscarriages)	☐			
Recurrent bleeding (similar to menses, not spotting)	☐			
Previous SGA (less than 10th centile at delivery)	☐			
Asthma requiring current use of oral steroids or recent hospital admission	☐	**2 growth ultrasounds at (30 and 36 weeks gestation)**		Midwife led (with AN care input from named consultant)
Chronic hypertension	☐			
Chronic kidney disease (CKD)	☐			
Uterine anomaly	☐			
Substance misuse including alcohol	☐			Midwife led (with AN care named consultant/PREPARE team)
BMI more than 40 or previous bariatric surgery	☐			Metabolic Antenatal Clinic Team
Newly diagnosed or uncontrolled hyperthyroidism	☐	**3 growth ultrasounds at 28/32/36 weeks gestation**		Midwife led (with AN care input from named consultant)
Previous stillbirth (not associated with Fetal Growth Restriction [FGR]	☐			
SLE/Connective Tissue Disease	☐			
Eating disorder	☐			
Maternal Cardiac Disease	☐			Cardiac Antenatal Clinic Team
Cystic fibrosis	☐			Cystic fibrosis Team
Pre-existing Diabetes – Type 1 and 2	☐			Diabetic Clinic Team
Positive Uterine Artery Doppler's (bilateral notching or mean Pulsatiity Index (PI) more than 95th centile)	☐	**Refer to Fetal Medicine Team for personalised growth assessment schedule**		Fetal Medicine Team
SGA (AC less than 10th centile) and/or Echogenic bowel and/or femur length less than 5th centile on FA scan *(sonographer to refer)*	☐			
Sickle cell disease (not sickle cell trait)	☐			
Severe early onset FGR in a previous pregnancy (delivery before 34 weeks for SGA and/or less than 3rd centile at delivery)	☐			
Previous stillbirth (Birthweight less than 10th centile for gestation or pathology suggests placental insufficiency)	☐			
Antiphospholipid syndrome	☐			
None of the above	☐			Routine Fetal Anomaly Scan

For all pregnancies (with the exception of a BMI over 40 and large fibroids) measure SFH and plot overleaf at each antenatal attendance.

If any of the following are present:
SFH is less than 10th centile static or falling
Recurrent APH (2x bleeds post 20 weeks)
Pre- Eclampsia/ PIH
Reduced fetal movements

Actions:
Arrange for a growth scan (within 3 working days) and review results on the day of scan
> If more than 20 centile drop from FAS, contact DAU for follow up
> If normal growth, arrange a follow up scan for 3 weeks' time

Note of any actions taken:

Appendix 3 Risk factors for SGA

Moderate RISK for SGA

Maternal age>40yrs
Smoker with CO level 5ppm or more
Substance misuse including alcohol.
Previous SGA (<10th centile for birthweight *-see appendix 6 for 10th centile birthweight)*
Chronic hypertension
Chronic kidney disease
Recurrent bleeding (not spotting)
PAPP-A<0.4 MoM on first trimester screen (or hCG >4 or AFP>2.5 MoM on second trimester screen)
Recurrent miscarriage clinic patient immediately prior to this pregnancy (i.e. no live children after miscarriages)
Late bookers (at or after 21 weeks gestation)
Asthma requiring current use of oral steroids or recent hospital admission.
Uterine anomaly
Previous bariatric surgery/ BMI 40
Epilepsy on antiepileptic drugs (AED)

High RISK for SGA

Newly diagnosed or uncontrolled hyperthyroidism
Previous stillbirth (not associated with Fetal Growth Restriction [FGR] see also below)
SLE/Connective Tissue Disease
Eating disorder
Maternal Cardiac Disease (under Maternal Cardiology clinic)
Cystic fibrosis
Diabetes -Type 1&2

VERY HIGH RISK for SGA/FGR.

SGA (<10th centile) on FA scan (after fetal medicine assessment)

Previous stillbirth with FGR as the likely cause of stillbirth (<10th centile for gestation or pathology suggests placental insufficiency)

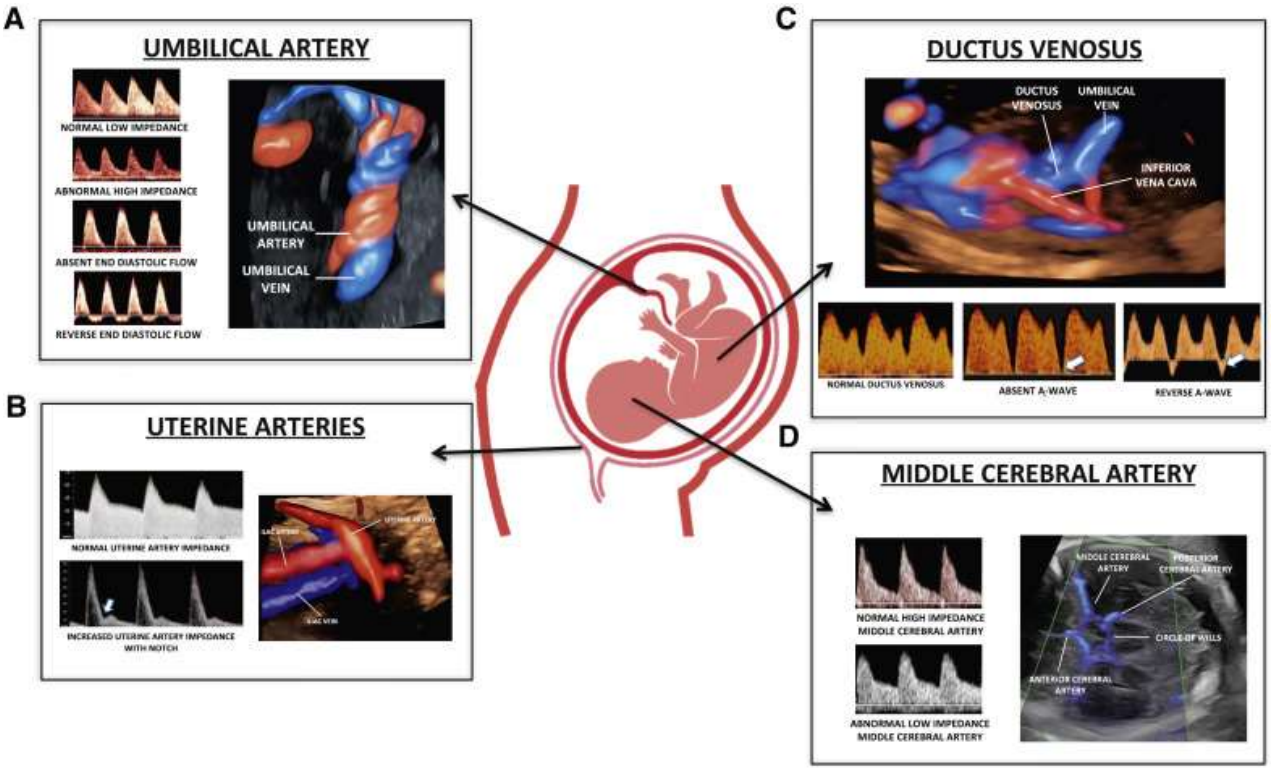
Severe early onset FGR in a previous pregnancy (delivery before 34 weeks for growth restriction and/or SGA <3rd centile at delivery)

Antiphospholipid syndrome

Positive Uterine Artery Dopplers (bilateral notching or mean PI >95th centile)

Sickle cell disease (NOT sickle cell trait)

Appendix 4 Doppler assessment in fetal growth restriction



Appendix 5 Small baby research clinic

The Small Baby Research Clinic (SBRC) is run within NHS Lothian by the University of Edinburgh Pregnancy Research Team (EPRT). The clinic provides midwifery and fetal medicine review for patients with suspected SGA/FGR babies. These patients may be invited to participate in ongoing EPRT research into pregnancy health and perinatal risk prevention but are not required to join any research studies in order to benefit from the clinic.

Population: patients with evidence of placental dysfunction >22 weeks gestation with a current plan for expectant management.

Service: Ultrasound, cCTG and clinical (midwifery and obstetric) assessment and longitudinal follow up from a multidisciplinary team with experience in the management of FGR and hypertension.

Referral criteria:

- **Suspected SGA/FGR identified on departmental growth scan as per SGA guideline.**
- **New diagnosis of pregnancy induced hypertension or pre-eclampsia <34 weeks with a plan for expectant management.**

Referral process

Patients may be identified for referral via DAU/OTA, community midwife or sonographers. Referrals are handled by the fetal medicine and research midwives and patients may be seen in fetal medicine when SBRC slots are fully booked.

The referral form is attached as Appendix 5 and available on the S drive: *Reproductive Health > Fetal Med Admin > Referrals > SBRC referral*. The form should be completed and emailed to the fetal medicine and research midwives who will schedule the SBRC appointment and telephone the patient to confirm time and date. Alternatively, a hard copy may be completed and handed in to the fetal medicine office directly during working hours.

SCAN ME

What to tell the patient:

They have been referred to a specialist antenatal clinic where they will have a scan, a midwifery assessment and a consultant discussion. They can find out more about the clinic on our website by scanning the QR code. We will confirm the time of the appointment with them by phone or letter prior to the clinic date.

If you or they have any questions about the clinic, including appointment queries, please contact: 0131 242 2480 (Research Midwives).

Resource:

Consultant time, Midwife time

Waiting space, Counselling space, Phlebotomy facilities

Computerised CTG, Blood pressure, pulse and urine testing, PLGF testing (research only)

Additional service benefits:

Increased consultant presence/availability for DAU

Consistent management of SGA/FGR with continuity of obstetric and midwifery care for high-risk pregnancies

Designated team leading on audit and QI of SGA pathway in Lothian.

Training opportunities (eg senior trainees undertaking high risk antenatal care or fetal medicine ATSMs, junior trainees undertaking basic and intermediate obstetric ultrasound training and midwives working in DAU)

Appendix 6 Small Baby Research Clinic Referral Form

Demographics (or attach label)

Patient's name:	
CHI:	

Clinical details

EDD:	
Gestation:	
Parity:	

Reason for referral
Please select all that apply.

NB: if you have identified a fall in growth velocity of 20-40 centiles on a third trimester growth scan with normal liquor, normal UAPI and no other concerning features please arrange another growth scan in 2 weeks.

Current pregnancy: Should be seen 2 weeks after last growth scan	
Suspected SGA identified on ultrasound (AC or EFW <10th centile or drop of >40 centiles in AC) with normal umbilical Doppler PI (<95th centile) and liquor volume	☐

Current pregnancy: Should be seen within 1 week	
New diagnosis of PIH or pre-eclampsia <34 weeks with a plan for expectant management	☐
SGA with concerning features if reviewed by fetal medicine consultant/SR, and determined suitable for Small Baby Clinic Research Clinic f/u	☐

Relevant history (eg reason for growth scan, birthweight of prior babies):
Please confirm: normal fetal movements, no abdominal pain, PV bleeding or discharge. If any of these concerns are present, please refer to DAU.

Referral details

Referring clinician:	
Contact telephone no:	
Date of referral:	

Please send completed form to fetal.medicine@nhslothian.scot.nhs.uk and researchmidwives@nhslothian.scot.nhs.uk or hand into fetal medicine office

Appendix 7 How to refer to SBRC poster (for clinical areas)

The Small Baby Research Clinic (SBRC) is run within NHS Lothian, at present by the University of Edinburgh Pregnancy Research Team (EPRT). The clinic runs on a Wednesday afternoon at RIE in the antenatal clinic corridor and provides midwifery and fetal medicine review for patients with suspected SGA/FGR babies. These patients may be invited to participate in ongoing EPRT research into pregnancy health but are not required to join any research studies in order to benefit from the clinic.

Population: patients with evidence of placental dysfunction >22 weeks gestation with a current plan for expectant management.

Service: Ultrasound, cCTG and clinical (midwifery and obstetric) assessment and longitudinal follow up from a multidisciplinary team with experience in the management of FGR and hypertension.

Referral criteria:

- **Suspected SGA/FGR identified on departmental growth scan.**
- **New diagnosis of pregnancy induced hypertension or pre-eclampsia <34 weeks with a plan for expectant management.**

How do I refer to SBRC?
The referral form is available on the S drive:
Reproductive Health > Fetal Med Admin > Referrals > SBRC referral
Complete the form and email to fetal medicine (fetal.medicine@nhslothian.scot.nhs.uk and researchmidwives@nhslothian.scot.nhs.uk)

Who should I refer to SBRC?

Current pregnancy: Should be seen 2 weeks after last growth scan
Suspected SGA identified on growth scan (AC or EFW <10th centile or drop of >40 centiles in AC or EFW) with normal umbilical Doppler and liquor volume

Current pregnancy: Should be seen within 1 week
New diagnosis of PIH or pre-eclampsia <34 weeks with a plan for expectant management
SGA with concerning features (ie oligo or abnormal UARI) should be reviewed by fetal medicine consultant/SST, and agreed suitable for SBRC f/u

What should I tell the patient?

SCAN ME

They have been referred to a specialist antenatal clinic where they will have a scan, a midwifery assessment and a consultant discussion. They can find out more about the clinic on our website by scanning this QR code. We will confirm the time of the appointment with them by phone or letter prior to the clinic date.

If you or they have any questions about the clinic, including appointment queries, please contact: 0131 242 2480 (Research Midwives).

Appendix 8 Intergrowth Estimated Fetal Weight centiles (for identifying SGA/FGR on ultrasound assessment in this pregnancy)

International Newborn Size Standards

UNIVERSITY OF OXFORD

Birthweight (kg) Boys

INTERGROWTH-21st

Gestational age (weeks+days)	Centiles						
	3rd	5th	10th	50th	90th	95th	97th
33+0	1.18	1.28	1.43	1.95	2.52	2.70	2.82
33+1	1.22	1.32	1.47	1.99	2.56	2.74	2.86
33+2	1.26	1.36	1.51	2.03	2.60	2.77	2.90
33+3	1.30	1.40	1.55	2.07	2.64	2.81	2.93
33+4	1.34	1.44	1.59	2.11	2.67	2.85	2.97
33+5	1.38	1.48	1.63	2.15	2.71	2.89	3.01
33+6	1.42	1.52	1.67	2.18	2.75	2.93	3.05
34+0	1.45	1.55	1.71	2.22	2.79	2.96	3.08
34+1	1.49	1.59	1.74	2.26	2.82	3.00	3.12
34+2	1.53	1.63	1.78	2.29	2.86	3.03	3.15
34+3	1.56	1.66	1.82	2.33	2.89	3.07	3.19
34+4	1.60	1.70	1.85	2.36	2.93	3.10	3.22
34+5	1.63	1.73	1.89	2.40	2.96	3.14	3.26
34+6	1.67	1.77	1.92	2.43	3.00	3.17	3.29
35+0	1.70	1.80	1.95	2.47	3.03	3.20	3.32
35+1	1.74	1.84	1.99	2.50	3.06	3.24	3.36
35+2	1.77	1.87	2.02	2.53	3.09	3.27	3.39
35+3	1.80	1.90	2.05	2.56	3.13	3.30	3.42
35+4	1.83	1.94	2.09	2.60	3.16	3.33	3.45
35+5	1.87	1.97	2.12	2.63	3.19	3.36	3.48
35+6	1.90	2.00	2.15	2.66	3.22	3.39	3.51
36+0	1.93	2.03	2.18	2.69	3.25	3.42	3.54
36+1	1.96	2.06	2.21	2.72	3.28	3.45	3.57
36+2	1.99	2.09	2.24	2.75	3.31	3.48	3.60
36+3	2.02	2.12	2.27	2.78	3.34	3.51	3.63
36+4	2.05	2.15	2.30	2.81	3.37	3.54	3.66
36+5	2.08	2.18	2.33	2.84	3.39	3.57	3.69
36+6	2.11	2.21	2.36	2.86	3.42	3.60	3.72
37+0	2.13	2.24	2.38	2.89	3.45	3.62	3.74
37+1	2.16	2.26	2.41	2.92	3.48	3.65	3.77
37+2	2.19	2.29	2.44	2.95	3.50	3.68	3.80
37+3	2.22	2.32	2.47	2.97	3.53	3.70	3.82
37+4	2.24	2.34	2.49	3.00	3.55	3.73	3.85
37+5	2.27	2.37	2.52	3.02	3.58	3.75	3.87
37+6	2.29	2.39	2.54	3.05	3.61	3.78	3.90

Villar et al. *Lancet* 2014;384:857-68

International Newborn Size Standards

Birthweight (kg) Boys

Gestational age (weeks+days)	Centiles						
	3rd	5th	10th	50th	90th	95th	97th
38+0	2.32	2.42	2.57	3.07	3.63	3.80	3.92
38+1	2.34	2.44	2.59	3.10	3.65	3.83	3.95
38+2	2.37	2.47	2.62	3.12	3.68	3.85	3.97
38+3	2.39	2.49	2.64	3.15	3.70	3.87	3.99
38+4	2.42	2.52	2.67	3.17	3.72	3.90	4.02
38+5	2.44	2.54	2.69	3.19	3.75	3.92	4.04
38+6	2.46	2.56	2.71	3.22	3.77	3.94	4.06
39+0	2.49	2.59	2.73	3.24	3.79	3.96	4.08
39+1	2.51	2.61	2.76	3.26	3.81	3.99	4.10
39+2	2.53	2.63	2.78	3.28	3.83	4.01	4.12
39+3	2.55	2.65	2.80	3.30	3.86	4.03	4.15
39+4	2.57	2.67	2.82	3.32	3.88	4.05	4.17
39+5	2.59	2.69	2.84	3.34	3.90	4.07	4.19
39+6	2.61	2.71	2.86	3.36	3.92	4.09	4.21
40+0	2.63	2.73	2.88	3.38	3.94	4.11	4.22
40+1	2.65	2.75	2.90	3.40	3.95	4.13	4.24
40+2	2.67	2.77	2.92	3.42	3.97	4.15	4.26
40+3	2.69	2.79	2.94	3.44	3.99	4.16	4.28
40+4	2.71	2.81	2.96	3.46	4.01	4.18	4.30
40+5	2.73	2.83	2.98	3.48	4.03	4.20	4.32
40+6	2.75	2.85	2.99	3.49	4.04	4.22	4.33
41+0	2.76	2.86	3.01	3.51	4.06	4.23	4.35
41+1	2.78	2.88	3.03	3.53	4.08	4.25	4.37
41+2	2.80	2.90	3.05	3.55	4.09	4.27	4.38
41+3	2.82	2.91	3.06	3.56	4.11	4.28	4.40
41+4	2.83	2.93	3.08	3.58	4.13	4.30	4.42
41+5	2.85	2.95	3.09	3.59	4.14	4.31	4.43
41+6	2.86	2.96	3.11	3.61	4.16	4.33	4.45
42+0	2.88	2.98	3.12	3.62	4.17	4.34	4.46
42+1	2.89	2.99	3.14	3.64	4.19	4.36	4.47
42+2	2.91	3.01	3.15	3.65	4.20	4.37	4.49
42+3	2.92	3.02	3.17	3.67	4.21	4.39	4.50
42+4	2.94	3.04	3.18	3.68	4.23	4.40	4.52
42+5	2.95	3.05	3.20	3.69	4.24	4.41	4.53
42+6	2.96	3.06	3.21	3.71	4.25	4.43	4.54

Villar et al. *Lancet* 2014;384:857-68

International Newborn Size Standards

Birthweight (kg)
Girls

Gestational age (weeks+days)	Centiles						
	3rd	5th	10th	50th	90th	95th	97th
33+0	1.20	1.29	1.41	1.86	2.35	2.51	2.61
33+1	1.24	1.33	1.45	1.90	2.40	2.55	2.66
33+2	1.28	1.37	1.49	1.94	2.44	2.59	2.70
33+3	1.32	1.40	1.53	1.98	2.48	2.63	2.74
33+4	1.36	1.44	1.57	2.02	2.52	2.67	2.78
33+5	1.39	1.48	1.61	2.06	2.56	2.72	2.82
33+6	1.43	1.52	1.65	2.09	2.60	2.75	2.86
34+0	1.47	1.55	1.68	2.13	2.64	2.79	2.90
34+1	1.50	1.59	1.72	2.17	2.67	2.83	2.94
34+2	1.54	1.62	1.75	2.20	2.71	2.87	2.98
34+3	1.57	1.66	1.79	2.24	2.75	2.91	3.01
34+4	1.61	1.69	1.82	2.28	2.79	2.94	3.05
34+5	1.64	1.73	1.86	2.31	2.82	2.98	3.09
34+6	1.67	1.76	1.89	2.35	2.86	3.02	3.12
35+0	1.71	1.79	1.92	2.38	2.89	3.05	3.16
35+1	1.74	1.83	1.96	2.41	2.93	3.09	3.19
35+2	1.77	1.86	1.99	2.45	2.96	3.12	3.23
35+3	1.80	1.89	2.02	2.48	2.99	3.15	3.26
35+4	1.83	1.92	2.05	2.51	3.03	3.19	3.30
35+5	1.86	1.95	2.08	2.54	3.06	3.22	3.33
35+6	1.89	1.98	2.11	2.57	3.09	3.25	3.36
36+0	1.92	2.01	2.14	2.60	3.12	3.28	3.39
36+1	1.95	2.04	2.17	2.63	3.15	3.31	3.42
36+2	1.98	2.07	2.20	2.66	3.18	3.34	3.45
36+3	2.00	2.09	2.23	2.69	3.21	3.37	3.48
36+4	2.03	2.12	2.25	2.72	3.24	3.40	3.51
36+5	2.06	2.15	2.28	2.75	3.27	3.43	3.54
36+6	2.08	2.17	2.31	2.77	3.30	3.46	3.57
37+0	2.11	2.20	2.33	2.80	3.32	3.49	3.60
37+1	2.14	2.23	2.36	2.83	3.35	3.52	3.63
37+2	2.16	2.25	2.38	2.85	3.38	3.54	3.65
37+3	2.18	2.27	2.41	2.88	3.40	3.57	3.68
37+4	2.21	2.30	2.43	2.90	3.43	3.60	3.71
37+5	2.23	2.32	2.46	2.93	3.46	3.62	3.73
37+6	2.25	2.35	2.48	2.95	3.48	3.65	3.76

Villar et al. *Lancet* 2014;384:857-68

International Newborn Size Standards

Birthweight (kg)
Girls

Gestational age (weeks+days)	Centiles						
	3rd	5th	10th	50th	90th	95th	97th
38+0	2.28	2.37	2.50	2.97	3.51	3.67	3.78
38+1	2.30	2.39	2.53	3.00	3.53	3.69	3.81
38+2	2.32	2.41	2.55	3.02	3.55	3.72	3.83
38+3	2.34	2.43	2.57	3.04	3.58	3.74	3.85
38+4	2.36	2.45	2.59	3.06	3.60	3.76	3.88
38+5	2.38	2.47	2.61	3.09	3.62	3.79	3.90
38+6	2.40	2.50	2.63	3.11	3.64	3.81	3.92
39+0	2.42	2.51	2.65	3.13	3.66	3.83	3.94
39+1	2.44	2.53	2.67	3.15	3.68	3.85	3.96
39+2	2.46	2.55	2.69	3.17	3.70	3.87	3.99
39+3	2.48	2.57	2.71	3.19	3.72	3.89	4.01
39+4	2.50	2.59	2.73	3.21	3.74	3.91	4.03
39+5	2.51	2.61	2.74	3.22	3.76	3.93	4.04
39+6	2.53	2.62	2.76	3.24	3.78	3.95	4.06
40+0	2.55	2.64	2.78	3.26	3.80	3.97	4.08
40+1	2.56	2.66	2.80	3.28	3.82	3.99	4.10
40+2	2.58	2.67	2.81	3.29	3.84	4.00	4.12
40+3	2.60	2.69	2.83	3.31	3.85	4.02	4.14
40+4	2.61	2.70	2.84	3.33	3.87	4.04	4.15
40+5	2.63	2.72	2.86	3.34	3.89	4.05	4.17
40+6	2.64	2.73	2.87	3.36	3.90	4.07	4.19
41+0	2.65	2.75	2.89	3.37	3.92	4.09	4.20
41+1	2.67	2.76	2.90	3.39	3.93	4.10	4.22
41+2	2.68	2.77	2.91	3.40	3.95	4.12	4.23
41+3	2.69	2.79	2.93	3.41	3.96	4.13	4.25
41+4	2.71	2.80	2.94	3.43	3.97	4.15	4.26
41+5	2.72	2.81	2.95	3.44	3.99	4.16	4.27
41+6	2.73	2.82	2.96	3.45	4.00	4.17	4.29
42+0	2.74	2.84	2.98	3.46	4.01	4.19	4.30
42+1	2.75	2.85	2.99	3.48	4.03	4.20	4.31
42+2	2.76	2.86	3.00	3.49	4.04	4.21	4.33
42+3	2.77	2.87	3.01	3.50	4.05	4.22	4.34
42+4	2.78	2.88	3.02	3.51	4.06	4.23	4.35
42+5	2.79	2.89	3.03	3.52	4.07	4.24	4.36
42+6	2.80	2.90	3.04	3.53	4.08	4.26	4.37

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Appendix 9. Birthweight centiles (for determining if previous children were SGA at birth)

Gestation	Girls (10th)	Girls (3rd)	Boys (10th)	Boys (3rd)
23-23+6	425g	350g	475g	400g
24-24+5	500g	400g	550g	475g
25-25+5	575g	475g	625g	550g
26-26+6	650g	525g	700g	600g
2?-2r6	725g	600g	775g	675g
28-28+6	800g	675g	875g	750g
29-29+5	900g	750g	975g	825g
30-30+5	1000g	850g	1075g	925g
31-31+5	1150g	950g	1200g	1025g
32-32+5	1300g	1075g	1350g	1150g

[i] Lees AJOG 2022
[ii] Gordijn 2016 UOG
[iii] Belizan J, Villar J et al. Diagnosis of intrauterine growth retardation by a simple clinical method: Measurement of uterine height. Am J Obstet Gynecol 1978 131:6: 643-64