SMALL FOR GESTATIONAL AGE FETUS - CLINICAL
GUIDELINE FOR INVESTIGATION AND MANAGEMENT

1. Aim/Purpose of this Guideline
1.1. To identify and optimally manage small and growth restricted fetuses.

2. The Guidance
2.1. Introduction
Small-for-gestational-age (SGA) fetuses may be constitutionally small, growing to their normal genetic growth potential, or fetal growth restriction (FGR) may occur as a consequence of pathology. The morbidity in the antenatal period and in extra uterine life depends upon the underlying cause. This may be placenta-mediated growth restriction, fetal structural, chromosomal and infective abnormalities or may be secondary to maternal factors. 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 Gynaecologists’ Green-top Guideline No. 31 of the same title and further references can be obtained from that source.

2.2. Identification of the SGA Fetus
2.2.1. Risk factors for SGA at ‘booking’ and during pregnancy
- Women with a major risk factor should be referred via Maxims to the RCHT Ultrasound Department for serial ultrasound measurement of fetal size and assessment of wellbeing with Doppler measurement of umbilical artery Pulsatility Index (UA PI) and documentation of absence or reversal of end diastolic flow (AREDF). An abnormal UA PI is >95th centile of the mean for gestational age (Viewpoint database definition).
- Risk factors may be present at booking or they may develop during pregnancy
- Most risk factors require referral to the Obstetric clinic and scans must be booked at that visit. However, several risk factors (in the absence of other obstetric issues) do not need to be referred and the scans should be booked by the community midwife (Refer to Section 6).

<table>
<thead>
<tr>
<th>Booking Risk Factors requiring referral to Obstetric clinic</th>
<th>Risk Factors developing during this Pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstetrician to book scans on Maxims</td>
<td>Obstetrician to book scans on Maxims</td>
</tr>
<tr>
<td>Maternal Age &gt;40</td>
<td>Low PAPP-A</td>
</tr>
<tr>
<td>BMI &gt;40</td>
<td>Echogenic bowel</td>
</tr>
<tr>
<td>Drug misuse</td>
<td>Pre-eclampsia</td>
</tr>
<tr>
<td>Previous SGA baby (&lt;10th centile)</td>
<td>Severe PIH</td>
</tr>
</tbody>
</table>
Previous stillbirth
Chronic hypertension
Diabetes
Renal impairment
Antiphospholipid syndrome

Abruption or unexplained APH
Gestational diabetes
Large fibroids

Booking Risk Factors not requiring referral to Obstetric clinic
- Midwife to book scans on Maxims

Do not routinely refer women for growth scans if they do not have any risk factors

BMI 35-40
Smoker >5/day

2.3. Fundal height examination
- A customised growth chart will be generated at the time of the dating scan and placed in the hand held maternity notes (filed immediately after the antenatal clinic notes). Previous birth weight data will be obtained to enable birth weight centiles to be recorded on the chart. These should be reviewed in determining risk factors for SGA in the current pregnancy.
- The fundal height measurement should be measured in cm and plotted (X) on the customised growth chart in the handheld notes from 25 weeks (Primips) or 28 weeks (Multips)
  - **EXCEPT** for women who are having serial scans throughout pregnancy (Refer to Sections 1 and 4). These women **should not** have fundal height measurement.
- Fundal height measurements should be performed at no more frequent intervals than two weekly. In low risk women, the NICE appointment schedule should be followed.
- A single measurement below the 10th centile on the customised growth chart or serial measurements that demonstrate significant slowing or static growth should be referred to the Fetal Medicine Unit on 01872 252682 for ultrasound assessment of fetal size and wellbeing
- If the requested growth scan is normal, (i.e. estimated fetal weight (EFW) is above the 10th centile when plotted (O) by the ultrasonographer on the customised growth chart), no further scans will be arranged
- If subsequent routine fundal height measurements show normal velocity (even if still below 10th centile) no further scans are needed. Women should be sent back for re-scan (via the Fetal Medicine Unit) only if there is static growth by fundal height or significantly reduced growth velocity
- Measurements above the 90th centile on the customised growth chart do not require a growth scan unless polyhydramnios is suspected
2.4. Ultrasound Identification of the SGA Fetus

- Routine third trimester ultrasound in the low risk population does not reduce the incidence of an SGA neonate or improve outcome and is not justified.
- When a scan is indicated based upon risk factors or fundal height measurement, the EFW should be plotted (Ø) by the ultrasonographer on the customised growth chart and a measurement below the 10th centile should be used to diagnose an SGA fetus. AC alone (using the Viewpoint centile) should not be used to diagnose SGA because customised values for AC are not available on the customised growth chart.
- If EFW is above 10th centile but there has been a slowing of growth compared to a previous growth scan by one or more measurements (but not by comparing with the routine anomaly scan), refer back to the area Obstetric clinic. A diagnosis of FGR should only be considered when the scan interval is three or more weeks. Assessing growth velocity on scans at more frequent intervals will lead to high false-positive rates.

2.5. Frequency of Serial Ultrasound Assessment

- The routine schedule of scans is 28, 32, 36 and 40 weeks.
- When a woman has risk factors that will lead to recommendation of delivery by the EDD, do not request a 40 week scan. This scan should be booked in late pregnancy if elective delivery is declined.
- Scan frequency may be increased to two or three weekly or start at 26 weeks at senior obstetric discretion if the risk of FGR is considered to be extremely high. Remember that static growth alone on ultrasound is not considered to be significant at an interval of less than three weeks.

2.6. Responsibility for Booking Scans

- Most women with a major risk factor for SGA will be assessed in the Obstetric clinic or be seen by an experienced obstetrician when a major risk factor develops. All scans should be booked on Maxims by the Obstetrician at the time the decision for scans is made.
- For women with a BMI 35-40 or smoker >5/day and no other issues requiring medical input, referral to the Obstetric clinic is not required and serial scans (28, 32, 36 and 40 weeks) should be booked on Maxims by the Community Midwife at the time of identification of the risk factor.

2.7. Investigation and Surveillance of the SGA Fetus

- If severe SGA is identified at the routine 18-20 week scan, referral to the Fetal Medicine Unit should be made. A detailed anatomical survey, fetal and maternal Doppler studies, karyotyping, and maternal serology for Cytomegalovirus (CMV) and toxoplasmosis should be considered.
- Once SGA has been identified (or impaired growth velocity suggestive of FGR), on-going care should be instigated according to the UA PI or observation of AREDF in the umbilical artery:

2.7.1. Normal UA PI
- **Main Ultrasound Department** scanning: *fortnightly* EFW and UA PI. Middle cerebral artery Doppler (MCA PI) should be performed after 32 weeks’ gestation. Women should be referred urgently to the Fetal Medicine Unit for advice if the ultrasonographer has any concerns about acute fetal wellbeing. The on call Obstetric team should be consulted if no Fetal Medicine personnel are available.

2.7.2. UA PI >95th centile with EDF present or MCA PI <5th centile
- **Fetal Medicine Unit** scanning: *weekly* EFW with *twice weekly* UA PI

2.7.3. AREDF
- **Fetal Medicine Unit** scanning: daily UA PI and ductus venosus Doppler; weekly EFW. *Daily* computerised continuous cardiotocography (CTG) is indicated if ductus venosus measurement is unavailable or results are inconsistent.

2.8. Time and Mode of Delivery in SGA / FGR

2.8.1. Normal UA PI
- Consider delivery >34 weeks if static growth over 3 weeks
- Recommend delivery at 37 weeks if MCA PI <5th centile
- Otherwise discuss delivery from 37 weeks. The Royal College of Obstetricians and Gynaecologists’ (RCOG) guidance is that is ‘reasonable’ for a senior clinician to ‘offer’ delivery but no substantiating evidence is cited (Refer to Appendix 3 for guidance on information for women and partners).
- Commence MCA Doppler assessment weekly if expectant management after 37 weeks is chosen
- Induction of labour (IOL) can be recommended but CTG monitoring should commence at the onset of regular painful uterine contractions

2.8.2. UA PI >95th centile with EDF present
- Consider delivery after 34 weeks if static growth over 3 weeks
- Recommend delivery at 37 weeks
- IOL can be considered but CTG monitoring on Delivery Suite should commence at the onset of uterine contractions. Rates of Emergency Caesarean Section are increased.
- Recommend steroids if delivery is by elective Caesarean Section before 39 weeks

2.8.3. AREDF
- Recommend delivery before 32 weeks if abnormal ductus venosus Doppler or CTG as long as >24 weeks and EFW >500g
- Otherwise, recommend delivery at 32 weeks
- Deliver by Caesarean Section after steroids unless fetus acutely compromised
- Consultant Fetal Medicine and Neonatal staff should liaise closely to optimise and individualise timing and place of delivery and early neonatal care. Consider transfer to a level three neonatal unit.
- At the extremes of viability (based upon gestation, EFW or fetal condition), frank sensitive discussions should be had with parents. Expectant management and subsequent intrauterine death may be more appropriate than inevitable early neonatal death after classical Caesarean Section.
3. Monitoring compliance and effectiveness

<table>
<thead>
<tr>
<th>Element to be monitored</th>
<th>Small for Gestational Age Fetus – Clinical Guideline for Investigation and Management.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>Maternity Risk Manager</td>
</tr>
</tbody>
</table>
| Tool                    | • Did all the women receive a formal assessment of their risk of delivering a SGA neonate at booking?  
                          | • Have serial measurements of Fundal Height (FH) been measured in cms at each visit from 25-28 weeks and plotted on the customized growth chart in the woman’s handheld notes?  
                          | • If a single measurement was below the shaded normal range or serial measurements that demonstrated slow or static growth was the woman referred for ultrasound assessment of fetal size?  
                          | • If a growth scan is normal but subsequent FH measurements suggest a further slowing, discrepancy or drop off in growth was a repeat ultrasound assessment requested?  
                          | • Have all women with a major risk factor for SGA been assessed in the Obstetric clinic or seen by an experienced obstetrician and offered serial ultrasound measurement of fetal size and assessment of wellbeing with umbilical artery Doppler?  
                          | • Have all women with a SGA fetus where delivery is considered between 24+0 and 35+6 weeks of gestation received a single course of antenatal corticosteroids? |
| Frequency               | • This will be added to the rolling audit programme and will be audited within the lifetime of this guideline. |
| Reporting arrangements  | • Maternity Risk Management Forum or Clinical Audit Forum  
                          | • During the process of the audit, if compliance is below 75% or other deficiencies identified, this will be highlighted at the next Maternity Risk Management meeting and an action plan agreed. |
| Acting on recommendations and Lead(s) | • Any deficiencies identified on the annual report will be discussed at the Maternity Risk Management Forum or Clinical Audit Forum and an action plan developed.  
                          | • Action leads will be identified and a time frame for the action to be completed by  
                          | • The action plan will be monitored by the Maternity Risk Manager |
| Change in practice and lessons to be shared | • A lead member of the forum will be identified to take each change forward where appropriate  
                          | • Risk Management Newsletter |
4. **Equality and Diversity**

4.8. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement.

4.9. *Equality Impact Assessment*

The Initial Equality Impact Assessment Screening Form is at Appendix 2.
# Appendix 1. Governance Information

<table>
<thead>
<tr>
<th>Document Title</th>
<th>SMALL FOR GESTATIONAL AGE – CLINICAL GUIDELINE FOR INVESTIGATION AND MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Issued/Approved:</td>
<td>18th September 2015</td>
</tr>
<tr>
<td>Date Valid From:</td>
<td>30th September 2015</td>
</tr>
<tr>
<td>Date Valid To:</td>
<td>30th September 2018</td>
</tr>
<tr>
<td>Directorate / Department responsible (author/owner):</td>
<td>Obs &amp; Gynae Directorate</td>
</tr>
</tbody>
</table>
| Contact details: | Rob Holmes  
Obs & Gynae Directorate |
| Brief summary of contents | This guideline offers guidance to Midwives, Ultrasonographers and Obstetricians on how to identify and optimally manage small and growth restricted fetuses. |
| Suggested Keywords: | Small, gestational, age, risk factors, SGA, ultrasound, Fetal Medicine, growth, restricted, GAP, customised, charts |
| Target Audience | RCHT PCH CFT KCCG |
| Executive Director responsible for Policy: | Medical Director |
| Date revised: | 18th September 2015 |
| This document replaces (exact title of previous version): | Small For Gestational Age Fetus – Clinical Guideline For Investigation and Management |
| Approval route (names of committees)/consultation: | Maternity Guidelines Group  
Obs & Gynae Directorate  
Divisional Board for noting |
| Divisional Manager confirming approval processes | Head of Midwifery |
| Name and Post Title of additional signatories | Not required |
| Signature of Executive Director giving approval | {Original Copy Signed} |
| Publication Location (refer to Policy on Policies – Approvals and Ratification): | Internet & Intranet  
Intranet Only |
| Document Library Folder/Sub Folder | Clinical/Midwifery and Obstetrics |
Related Documents:

- Saving Babies Lives - Stillbirths and Early Neonatal Deaths- NHSE Care Bundle Element 2, Draft 2015

Training Need Identified?
Growth Assessment Programme (GAP) Training for Midwives and Obstetricians

Version Control Table

<table>
<thead>
<tr>
<th>Date</th>
<th>Version No</th>
<th>Summary of Changes</th>
<th>Changes Made by (Name and Job Title)</th>
</tr>
</thead>
<tbody>
<tr>
<td>28th February 2015</td>
<td>V1.0</td>
<td>Initial Issue</td>
<td>Rob Holmes Consultant Obstetrician</td>
</tr>
<tr>
<td>18th September 2015</td>
<td>V1.2</td>
<td>Information added on customised growth charts, method of measuring fundal height &amp; responsibilities for booking USS. Removed: list of minor risk factors, frequency of USS.</td>
<td>Rob Holmes Consultant Obstetrician</td>
</tr>
</tbody>
</table>

All or part of this document can be released under the Freedom of Information Act 2000

This document is to be retained for 10 years from the date of expiry.

This document is only valid on the day of printing

Controlled Document
This document has been created following the Royal Cornwall Hospitals NHS Trust Policy on Document Production. It should not be altered in any way without the express permission of the author or their Line Manager.
### Appendix 2. Initial Equality Impact Assessment Form

**Name of the strategy / policy / proposal / service function to be assessed (hereafter referred to as policy)**: SMALL FOR GESTATIONAL AGE FETUS – CLINICAL GUIDELINE FOR INVESTIGATION AND MANAGEMENT

<table>
<thead>
<tr>
<th>Directorate and service area:</th>
<th>Is this a new or existing Policy?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obs &amp; Gynae Directorate</td>
<td>Existing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of individual completing assessment:</th>
<th>Telephone:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elizabeth Anderson</td>
<td>01872 252879</td>
</tr>
</tbody>
</table>

1. **Policy Aim***
   - **Who is the strategy / policy / proposal / service function aimed at?**
   - This guideline offers guidance to Midwives, Ultrasonographers and Obstetricians on how to identify and optimally manage small and growth restricted fetuses

2. **Policy Objectives***
   - To ensure that all women at risk of having a small for gestational age baby are identified and correctly managed throughout their pregnancy.

3. **Policy – intended Outcomes***
   - To ensure that women at risk of having a small for gestational age baby receive optimum care as per evidence based practice

4. **How will you measure the outcome?**
   - Compliance Monitoring Tool.

5. **Who is intended to benefit from the policy?**
   - All pregnant women.

6a)  **Is consultation required with the workforce, equality groups, local interest groups etc. around this policy?**
   - No

   b)  **If yes, have these groups been consulted?**
   - N/A

   c)  **Please list any groups who have been consulted about this procedure.**
   - N/A

### 7. The Impact

Please complete the following table.

<table>
<thead>
<tr>
<th>Equality Strands:</th>
<th>Yes</th>
<th>No</th>
<th>Rationale for Assessment / Existing Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>X</td>
<td></td>
<td>All Pregnant Women</td>
</tr>
<tr>
<td>Sex (male, female, trans-gender / gender reassignment)</td>
<td>X</td>
<td>All Pregnant Women</td>
<td></td>
</tr>
<tr>
<td>Race / Ethnic communities / groups</td>
<td>X</td>
<td>All Pregnant Women</td>
<td></td>
</tr>
<tr>
<td>Disability - learning disability, physical disability, sensory impairment and mental health problems</td>
<td>X</td>
<td>All Pregnant Women</td>
<td></td>
</tr>
<tr>
<td>Religion / other beliefs</td>
<td>X</td>
<td>All Pregnant Women</td>
<td></td>
</tr>
<tr>
<td>Marriage and civil partnership</td>
<td>X</td>
<td>All Pregnant Women</td>
<td></td>
</tr>
<tr>
<td>Pregnancy and maternity</td>
<td>X</td>
<td>All Pregnant Women</td>
<td></td>
</tr>
<tr>
<td>Sexual Orientation, Bisexual, Gay, heterosexual, Lesbian</td>
<td>X</td>
<td>All Pregnant Women</td>
<td></td>
</tr>
</tbody>
</table>

You will need to continue to a full Equality Impact Assessment if the following have been highlighted:
- You have ticked “Yes” in any column above and
- No consultation or evidence of there being consultation - this excludes any policies which have been identified as not requiring consultation. or
- Major service redesign or development

8. Please indicate if a full equality analysis is recommended.  

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

9. If you are not recommending a Full Impact assessment please explain why.

N/A

Signature of policy developer / lead manager / director
Rob Holmes  
Date of completion and submission 18th September 2015

Names and signatures of members carrying out the Screening Assessment
1. Elizabeth Anderson  
2. 

Keep one copy and send a copy to the Human Rights, Equality and Inclusion Lead, c/o Royal Cornwall Hospitals NHS Trust, Human Resources Department, Knowledge Spa, Truro, Cornwall, TR1 3HD

A summary of the results will be published on the Trust’s web site.

Signed: Elizabeth Anderson  
Date: 18th September 2015
Appendix 3:
Notes on discrepancies between this guidance and RCOG Guideline 31

1. Risk factors

Several major risk factors are hard to ascertain, quantify or define and they are therefore omitted. The major factors excluded are maternal or paternal SGA, vigorous exercise, threatened miscarriage with heavy bleeding (‘like menses’) and low maternal weight gain. BMI above 35 is uprated to a major risk factor because serial scans will need to be requested (fundal height measurement is invalid). Stratifying care on the basis of identification of three minor risk factors has not been adopted because the RCOG guideline recognises that there is no evidence to validate this approach. This is supported by NHS England, in association with the Perinatal Institute, in a draft document\textsuperscript{2} that streamlines risk assessment, removing the minor risk factors and the use of uterine artery screening. The RCH guideline defines smoking >5/day as a risk factor (rather than >10/day) because smoking is no longer captured as a minor risk factor and reported numbers of cigarettes are often fewer than reality.

2. Timing and frequency of serial scans

RCOG guidance is for high risk women to be offered serial ultrasound from 26-28 weeks. Contrary to regular citation that scans should be three weekly, this is not specified in the guideline. The RCH guideline recommends four weekly scans from 28 weeks based upon RCOG guidance for monthly scans in dichorionic twin and diabetic pregnancies, both of which have significant risk for FGR. The guidance recognises that the gestation to start scans and their number and frequency should be individualised if risks are considered to be extremely high.

3. Timing of delivery in normal UA PI SGA

RCOG guidance that women with an SGA fetus with normal UA should be offered delivery at 37 weeks has not been altered in the RCH guideline but discussion should take place with an appreciation of the supporting reference number 187 (BMJ Induction versus expectant monitoring for intrauterine growth restriction at term: randomised equivalence trial), a study that used 38 weeks as the gestation for the induction arm. It states that:

\textit{‘In conclusion, we found equivalent fetal and maternal outcomes for induction (at 38 weeks) and expectant monitoring in women with suspected intrauterine growth restriction at term, indicating that both approaches are acceptable. In practice, however, obstetricians and patients will let factors other than growth restriction guide decision making at delivery. It is reasonable for patients who are keen on non-intervention to choose expectant management with intensive maternal and fetal monitoring because, as far as we can tell, this approach is safe for the baby. However, it is more rational to choose induction to prevent possible neonatal morbidity and stillbirth on the grounds that we showed no increase in operative and instrumental delivery rates. However, our study was underpowered to show differences in late pregnancy loss’}.

Observational data has identified a reduction in stillbirth rates in regions of the UK that have adopted the GAP programme run by the Perinatal Institute. This recommends a policy of delivery after 37 weeks when customised EFW is below 10\textsuperscript{th} centile in the absence of any other ultrasound markers of FGR.
The following information may be shared with women to assist in their decision making:

Ultrasound scan measurements of your baby suggest that his or her size is in the lowest 10% of expected size for this stage of pregnancy. In other words, one out of every ten babies is similar (or smaller) in size to yours and nine out of ten babies are larger. This finding is not a cause for alarm because the ultrasound scan shows that the placenta (afterbirth) is working normally and that the baby is healthy. This suggests that your baby is ‘normal small’, growing completely normally according to the genetics that he or she inherited at the very start of the pregnancy. These babies usually cope with labour as well as larger babies.

We recommend that the baby's growth and function of the placenta are checked by scan every two weeks. If any scan shows a problem, your baby may need to be scanned more frequently or birth may be recommended. If each scan demonstrates that your baby is well, we will scan you until you approach 37 weeks.

The Royal College of Obstetricians and Gynaecologists (RCOG, the national organisation that advises doctors who specialise in pregnancy care) recommends that inducing labour after 37 weeks of pregnancy should be offered. A recent large research study from Holland compared induction of labour (at 38 weeks) with waiting for natural labour for these small babies and showed no difference in the outcome for the babies; they were equally healthy whether labour was induced or not. So why do RCOG suggest that induction should be offered? Stillbirth after 37 weeks is thankfully very rare but in the group of babies where no cause is found for their death (all tests including checks on the placenta are normal), a greater number than expected by chance alone are small (bottom 10% of the baby population). This suggests that any small baby has a VERY SMALL increase in risk at the end of pregnancy. This sad outcome is too rare for the study from Holland to have shown a benefit from inducing labour.

Although inducing labour in this situation is a medical intervention, it is straightforward in most cases and it does not appear to increase the risk of problems in labour. The chance of needing a Caesarean Section or a forceps/ventouse delivery is not increased by the induction. You need to weigh up the possible small safety benefit for your baby of induction of labour against a desire to ‘wait for nature’ in your otherwise normal pregnancy. The doctor and midwife will discuss these issues with you and help you come to a decision that is right for you and your baby. There is no hurry to make a decision; your baby is perfectly healthy by all the tests that we have available to us. If you choose to wait for natural labour, we will recommend a weekly scan after 37 weeks to keep a close eye on your baby, ensuring that he or she remains well.