COMMUNITY GROWTH SCANNING (COGS) PROTOCOL

1. SUMMARY

- Community-based 3rd trimester ultrasound service.
- Programme organised through WMPI/run by community-based and hospital-based midwives.
- Programme covering three maternity units (Birmingham Women's, City, and Heartlands Hospitals) and funded by three Birmingham PCTs (Birmingham East and North, South Birmingham, and Heart of Birmingham).

2. BACKGROUND

Evidence supports the strong association between fetal growth restriction and poorer perinatal outcomes, including an increased risk of perinatal mortality. Maternal and previous obstetric history factors have been identified which increase the risk of IUGR occurring within the current pregnancy.

Routine data collection and focussed audits have shown that about 80% of babies who are at risk because of growth restriction are not recognised as such antenatally with the current level of service. Two main reasons have emerged:

1. Not all staff follow standardised, evidence-based protocols for growth screening according to NICE and RCOG recommendations and agreed regional policy.
2. Current provision of ultrasound services for fetal growth assessment is insufficient, due to endemic shortages of staff, posts or equipment.

3. AIMS

- To identify those pregnancies complicated by intrauterine growth restriction (IUGR)[1] and to organise appropriate follow-up in secondary care (booking maternity unit).
- To determine the impact of the project on the detection of IUGR.
- To determine the impact of the project on associated workload.

[1] Defined as a fetus whose estimated fetal weight (EFW) or birthweight (BW) is <10th centile weight for gestation on a customised growth chart

4. PATHWAY

4.1 COHORT FOR COGS

The cohort of women eligible for CoGs are those who are booked to receive maternity care from the three Birmingham maternity units and are residents within Birmingham PCTs i.e. it will exclude women resident in Solihull PCT and booked at Heartlands and women resident in Birmingham but booked at other maternity units, possibly within the same Trust (e.g. Birmingham PCT residents booked at Solihull Hospital).

The clinical indications for COGS are documented in the flowchart (Appendix 1). These fall into those factors known to be associated with IUGR which can be recognised early in pregnancy and those factors identified in the 3rd trimester (usually in the community).

4.2 REFERRALS FOR COGS APPOINTMENT - SEE APPENDIX 2

Following the identification of risk factor/s for IUGR, the health professional (CMW, hospital midwife, medical staff) will book a COGS appointment via the maternity unit's central COGS booking system. This will usually be a telephone or calendar booking system operated through day assessment unit (DAU).

The referrer will record the time and location of the COGS appointment within the woman's green handheld notes. The referrer will give the mother an information leaflet showing the location of the community unit, transport links, and contact number.

The scanning list will be printed off ahead of each day's scanning. All subsequent scans after the initial COGS appointment would be booked by COGS staff based on the pathway.

4.3 SCAN APPOINTMENTS

4.3.1 Setting

Unit specific para.

4.3.2 COGS staff

The COGS scans will be performed by midwives who have completed the UCE focussed courses in 3rd trimester ultrasound. The qualification includes 5 days of theoretical teaching with 100 hours clinical placement and is at a level equivalent to a Diploma in Medical Ultrasound.

4.3.3 Scan content

Fetal biometry (HC, AC, and FL), estimated fetal weight (EFW) (based on Hadlock[2]), liquor volume (as max pool depth), and umbilical artery Doppler (UAD) waveforms will be routinely performed during each scan. The inclusion of routine UAD is to improve the skills and ability of midwives and in order to provide this information when liaising with hospital DAUs where necessary.

4.3.4 Results

The scan results including biometry will be recorded in woman's green handheld pregnancy notes and the EFW (calculated by ultrasound machine) plotted on the customised growth chart.

No additional communication required for normal findings. Abnormal findings are communicated (see 4.5.1). CMW are free to contact DAU to determine outcomes if necessary.

4.3.5 DNAs

CoGs report DNAs to DAU, DAU inform CMW whose responsibility it is to follow-up.

4.4 EXCLUSIONS FROM COGS

4.4.1 Exclusions: Management in acute setting

Certain risk factors have such a high risk of IUGR or involve specialised care of the mother that these women should continue to have hospital-based scans and regular antenatal review, usually within specialised/multidisciplinary antenatal clinics. The following group of women should be managed within an acute setting:

1. Multiple pregnancy
2. Chronic maternal disease
    - Pre-existing hypertension
    - Pre-gestational or gestational diabetes
    - Renal conditions
    - Autoimmune disease
    - Maternal antiphospholipid syndrome
    - Known thrombophilias
3. Known fetal congenital anomalies
4. BMI ≥ 40 kg/m^2 at booking
5. Late bookers (women booking at 20 weeks or later)

[2] Hadlock FP, Harris RB, Sharman RS, Deter RL, Park SK. Estimation of fetal weight with the use of head, body and femur measurements - a prospective study. *Am J Obstet Gynecol 1985;* **151**:333-337.

6. Accelerated growth on FH measurement

7. Decreased fetal movements

4.4.2 Exclusions: COGS ultrasound not indicated

The following factors are in themselves not considered as indications for routine COGS third trimester ultrasound assessment:

- Previous preterm delivery
- Teenage status
- Low BMI
- Short stature
- Large for gestational age (FH consistently plotted above 90th centile but following slope of the curve in the absence of any other risk factors)

4.4.3 Smoking

Smoking is also a strong and dose dependent factor on birthweight. However because of its high prevalence, many clinicians are reluctant to include it as an indication for serial scans. Nevertheless, it is a flag for other possible risk factors.

Our recently commenced regional data collection will throw further light on the associated risks and dose-response relationships, and we will keep this factor as an indicator for ultrasound scanning under review

4.5 FOLLOW-UP

4.5.1 Abnormal scan findings

An abnormal scan will be regarded as any of the following:

- Single EFW < 10th centile plotted on customised growth chart,
- Serial EFW showing static growth or slow growth (e.g. velocity of growth not following the slope of curve or crossing centile lines),
- Liquor max pool depth (MPD) outside of the normal range (3-10 cm),
- Umbilical artery Doppler waveform showing absent or reversed flow,
- Fetal malpresentation at/after 36 weeks gestation,
- Other abnormal scan findings e.g. suspected fetal anomaly.

4.5.2 Referral following abnormal scan findings

An abnormal scan result will trigger the COGS midwife to refer the woman into the base hospital's DAU for further assessment according to local protocols. A follow-up appointment should be decided upon, based on the scan findings and after discussion with DAU staff. Each maternity unit should issue its own DAU guidance as to when women should attend DAU for a next appointment, however a template is provided given in Appendix 3.

DAU to ensure (unit specific method) CMW are aware of any CoGs abnormal referrals and outcome.

4.6 ROLES AND RESPONSIBILITIES

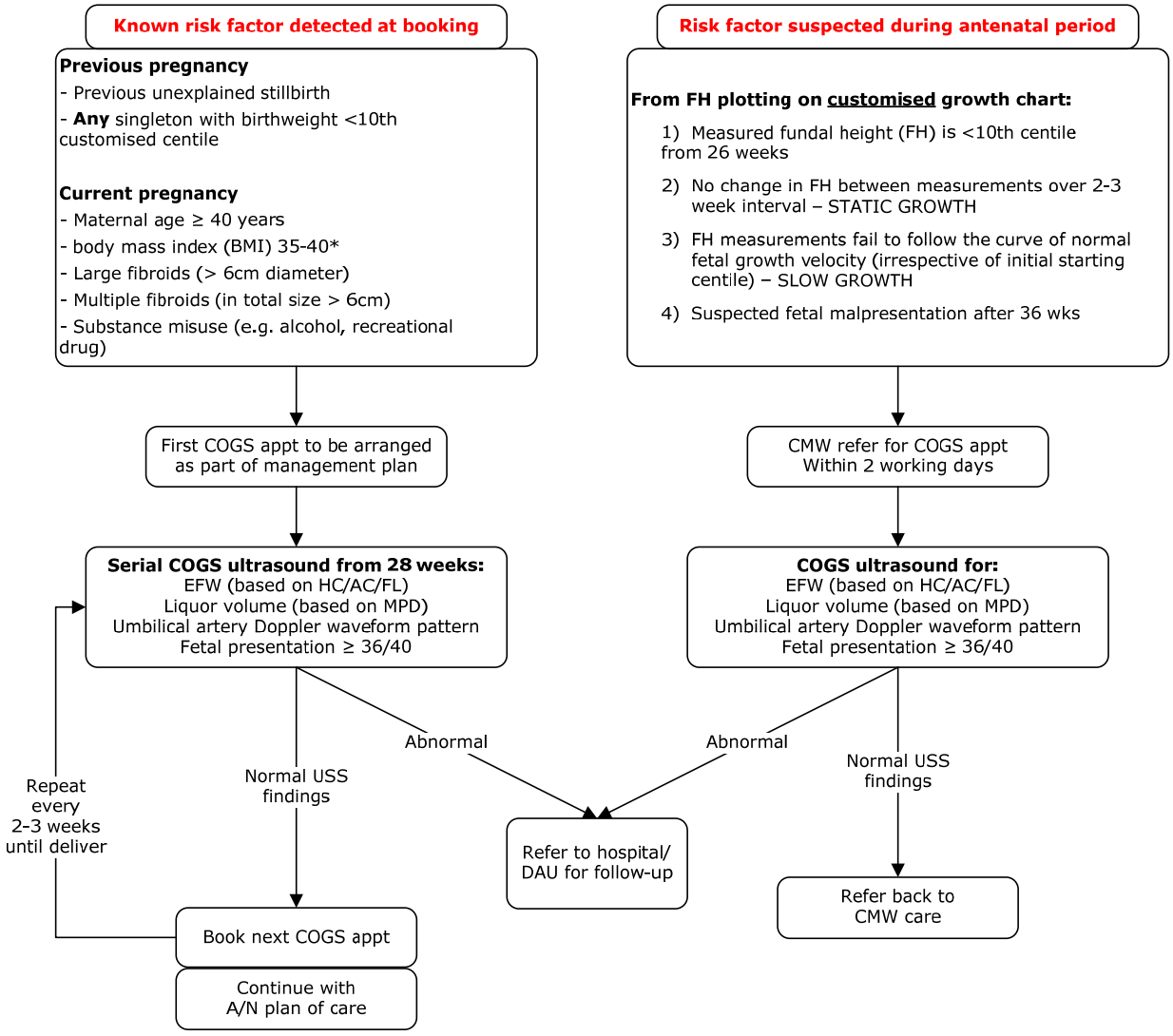
CMW or other referrer	DAU	COGS MW
Contact DAU for COGS appointment Supply maternal/pregnancy details Document COGS appointment within green notes Update management plan to indicate referral to COGS Supply mother with information leaflet Follow-up DNAs once informed by DAU	Arrange & book COGS appointment Confirm COGS appointment details with referrer Initiate audit data collection Generate scanning list Feedback abnormal scans/DNAs to CMW	Undertake COGS scan Document COGS results within pregnancy notes Arrange appropriate follow-up appointment or next COGS appointment Complete audit data collection Daily feedback to DAU (results, referrals, & DNAs)

APPENDIX 1- REFERENCE DOCUMENTS

Document	Date	Summary
CoGS_outline	2009 Feb	Background, resources required and costs, risks and benefits
Ultrasound standards for fetal gr	2009 Jan	Indications for serial ultrasound

APPENDIX 2 - PATHWAY FLOW CHART

Indications & pathway for COGS
for pregnancies at risk of fetal growth restriction (IUGR)



EXCLUSIONS

COGS scanning NOT indicated

previous preterm delivery
teenage status
low BMI
short stature
smoking****
large for dates

For ultrasound and management in maternity unit

multiple pregnancy
chronic maternal disease
known fetal anomalies
*BMI ≥ 40 kg/m^2
late bookers ≥ 20 weeks
accelerated growth
decreased fetal movements

APPENDIX 3 - REFERRAL TIMESCALES AND REVIEW

These should be considered as general guidelines, each unit should have their own protocol.

Example indication	Timescale	Review
EFW <10th centile but normal liquor/UAD/fetal movements	3-5 days	DAU: LV/ UAD scan and review
EFW <10th centile with normal UAD/fetal movements but abnormal liquor	2-3 days	DAU: LV/ UAD scan and review
EFW <10th centile with abnormal UAD or fetal movements (reduced/absent)	Same day	DAU review
normal fetal growth but abnormal LV	< 3 days	DAU or Cons ANC clinic review

APPENDIX 4 - LIST OF ABBREVIATIONS USED

ANC	antenatal clinic
CMW	community midwife
COGS	community growth scanning
DAU	day assessment unit
EFW	estimated fetal weight
IUGR	intrauterine growth retardation
LV	liquor volume
MPD	maximum pool depth
UAD	umbilical artery Doppler