BIRMINGHAM
COMMUNITY GROWTH SCANNING PROJECT (CoGS)
Interim Evaluation - April 2011 Update

SUMMARY

This is an updated interim analysis of data from the CoGS project available to date, including additional information from women who have delivered between September 2010 and January 2011. Comparison was made with a similar time period before commencement of the project (September 2009 and January 2010).

Key points:

1. Six midwives were trained as sonographers; 5 community clinics were established; protocols were agreed.
2. Two of the 3 units (BWH and City) were able to implement the project according to the agreed protocol. The third (BHH) have agreed to make necessary changes and intend to proceed with full implementation. This evaluation includes only data from the 2 units who were able to adhere to the CoGS protocol.
3. Ultrasound activity was steadily rising in both units, and has reached, by January 2011, 75% at BWH and 70% at City Hospital (Figs 1&2).
4. Analysis was undertaken using a single proportion/null hypothesis test where the pre-CoGS data was taken as the baseline, as well as a two proportion test without baseline. The results showed that
   - the diagnosis of IUGR recognised and recorded in the antenatal notes increased from the baseline of 11.8% in 2009/10 to 26.1% in 2010/11 (1 proportion test: $p<0.001$; 2 proportion test: $p<0.001$);
   - antenatal detection of IUGR on the basis of a record of IUGR in the notes *or* a record of a low estimated fetal weight also increased, from 27.1 % to 33.5% (1 proportion test: $p<0.01$; 2 proportion test: $p=0.05$);
   - these increases were mainly due to more serial scans being ordered and undertaken in pregnancies at increased risk of IUGR.

It is evident that such a project demands profound changes in everyday practice concerning fetal growth surveillance, a central issue in antenatal care. Despite the relatively recent introduction of the new protocol, these preliminary results are already demonstrating significant improvements in IUGR detection.

1. BACKGROUND

The Community Growth Scanning Project was commissioned by Birmingham PCTs in 2009/10 to enhance fetal growth scanning services in three Birmingham maternity units. Its need arose because of the low antenatal detection rates in Birmingham of fetal growth restriction, one of the main causes of perinatal mortality. Thus the principal purpose of the project was to improve the antenatal detection of fetal growth restriction. (For further background information, see www.pi.nhs.uk/cogs).

The project engaged trained midwives to staff special clinics to undertake third trimester scans for referred mothers according to an agreed, evidence based protocol.

This report is an update of a preliminary report requested by Birmingham PCTs to inform consideration whether the project should continue to be funded in the next financial year.

2. PROCESS

Commencement of the service in the three Birmingham units was deferred until staff were trained, clinics were set up, ultrasound equipment was available, and appropriate protocols were in place.

Six midwives were trained through a bespoke third trimester ultrasound course developed at Birmingham City University. Courses were successfully completed in May 2010. Clinics were established at:

- Birmingham Heartlands Hospital (BHH): Richmond/Iridium, Oakleaf Medical Centre; start date 7 June 2010.
- City Hospital: Ladywood Sure Start, Aston Pride, Rookery Road Children's Centre; start date 19 July 2010.
- Birmingham Women's Hospital (BWH): Day Assessment Clinic - start date 2 August 2010.

The protocol was agreed by a multidisciplinary steering group with representation from each unit, including the following consultants as clinical leads: Dr Ellen Knox (BWH), Dr Neil Shah (City) and Dr Shalini Patni (BHH). In addition, regular meetings were held together with commissioners within provider units.

NB: BHH was not able to implement the agreed protocol until late 2010 and the service has been below capacity and delivering only on 75% of the contracted hours during this period. Hence it was excluded from this analysis.

3. ACTIVITY

The time to commencement varied across sites and depended in part on units' ability to backfill midwife sonographers.

Figure 1. COGS Activity - City Hospital

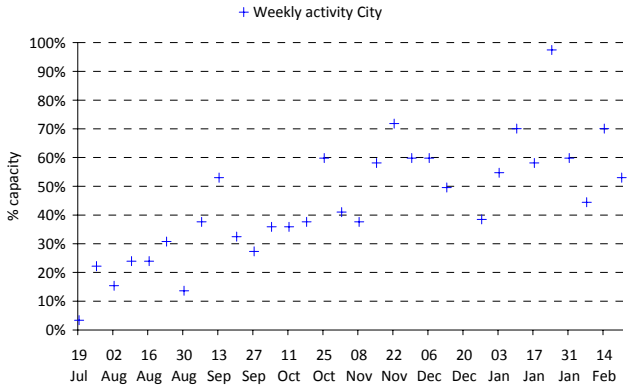
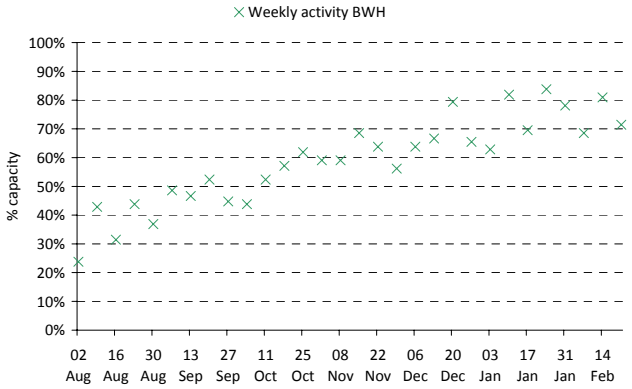


Figure 2. COGS Activity – Birmingham Women's Hospital



The graphs show the CoGS activity (appointments booked as % of appointments available). This shows a current rate (month of January) of 70% and 75% at City and BWH, respectively, with steady increase in both units.

4. DETECTION OF INTRAUTERINE GROWTH RESTRICTION (IUGR)

Data for this analysis were obtained by data clerks using the Perinatal Episode Electronic Record (PEER) system.

Table 1 – IUGR and antenatal diagnosis in births pre- and post introduction of CoGS
(excluding high risk pregnancies incl. multiple pregnancies, fetal anomaly, maternal disease, late bookers).

	Births	IUGR at birth		Record of IUGR diagnosis in antenatal notes		Record of IUGR Dx in notes or low scan estimate fetal weight	
Cohort	Total	n	%	n	%	n	%
Sep 09 - Jan 10 (pre COGS)	2,972	398	13.4%	47	11.8%	108	27.1%
Sep 10 - Jan 11 (post COGS)	2,998	406	13.5%	106	26.1%	136	33.5%
			one proportion/null hypothesis test		P<0.001		P<0.01
			two proportions test		P<0.001		p=0.05

The table shows that there was a substantial improvement in recording in the notes of a diagnosis of IUGR in pregnancies with an IUGR baby, from 11.8% in 2009/10 to 26.1% in 2010/11. This represents a significant increase in awareness for the mother and her clinical care providers when the baby was at risk. The improvement was evident in both participating units, but for comparison with baseline, data were amalgamated to avoid error due to small numbers. Using the wider definition of IUGR detection, i.e. with *any* recording of a low ultrasound scan-estimated fetal weight, showed also an increase, from 27.1 to 33.5%. This improvement reached significance levels of p<0.01 if the 2009/10 data was used as baseline and p=0.05 with the two proportions test.

This enhanced performance was associated with an increased number of serial scans afforded for high risk mothers through CoGS. In cases where the pregnancy underwent serial scanning, the chance of antenatal detection of babies with IUGR was much higher, around 50%.

5. COMMENT

These preliminary findings are already able to demonstrate clear advantages of the new fetal growth surveillance protocol and have resulted in increased antenatal detection of pregnancies at risk because of fetal growth restriction. Additional benefits include local access to care, improved continuity of carer, and enhanced health impact particularly within vulnerable populations.

Apart from such direct benefits, the programme is also able to relieve pressure due to introduction of the National Screening Programme's mandated nuchal scanning in early pregnancy.

Continued funding will ensure that this valuable resource is fully utilised, so that it can achieve its full potential for reducing perinatal and infant mortality, one of the main goals of the NHS Outcomes Framework 2011/12 (Domain 1).