

Effect of new electronic chart on fetal growth surveillance and management

Poster
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Objective

Most pregnancies in the UK are currently managed with a printed customised growth chart (GROW 1.5), on which fundal height and estimated fetal weight measurements are plotted manually.

We evaluated the effect of introduction of the recently introduced electronic upgrade (GROW 2.0) which includes functionalities for:

- Auto-plotting of fundal height and estimated fetal weight
- Display of fetal growth rate (Fig 1)
- Prompts for regular review and risk assessment

Methods

- The cohorts were based on routinely recorded data from the first 5 hospitals that implemented GROW 2.0, with a total of n=3001 deliveries in the first quarter of its use (Q4, 2022).
- This was compared with the same 5 hospitals' Q4 data from the preceding 3 years (2019-21), during which paper charts with manual plotting were used (n=10,432).
- We used data which is routinely analysed by PowerBI in local GROW 1.5 and 2.0 applications and allows local clinicians to monitor their own performance.
- Analysis included antenatal detection rates of SGA <3 and <10 centile, and their time of delivery according to national targets.

Fig 1 GROW 2.0 electronic chart displaying slow growth



Fig 2 Sample PowerBI table to audit detection of SGA birthweight

Sample Trust - Expected Births: 2000
SGA/FGR Referral and Detection Rates

Centile: 10th 3rd

		Trust / Hospital				National GAP Average				Top Ten GAP Average			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Completed Records [1]	N	465	490	468	438	-	-	-	-	-	-	-	-
	%	93.0	98.0	93.6	87.6	-	-	-	-	-	-	-	-
SGA at birth [2]	n	54	80	59	41	-	-	-	-	-	-	-	-
	%	11.6	16.3	12.6	9.4	14.4	13.7	13.7	14.0	13.8	12.5	12.9	13.5
Antenatal referral for SGA [3a]	n	25	40	28	21	-	-	-	-	-	-	-	-
	%	46.3	50.0	47.5	51.2	40.6	40.5	41.2	40.8	51.1	52.1	53.9	49.4
False positive antenatal referral for SGA [3b]	n	125	131	129	108	-	-	-	-	-	-	-	-
	%	30.4	32.0	31.5	27.2	13.6	13.8	13.2	13.3	19.3	16.7	16.5	15.3
Antenatal detection for SGA [4a]	n	37	40	41	32	-	-	-	-	-	-	-	-
	%	68.5	50.0	69.5	78.0	41.7	40.6	42.8	42.6	63.1	56.8	59.2	61.5
False positive antenatal detection for SGA [4b]	n	44	45	53	45	-	-	-	-	-	-	-	-
	%	10.7	11.0	13.0	11.3	6.5	6.5	6.2	6.5	10.5	10.1	9.1	9.0

Numbers in brackets refer to definitions below

Results

- Detection rate of SGA <10 centile rose from the 2019-21 baseline of 45.9 to 58.2%, representing a 26.8% increase (p<0.01).
- Detection rate of SGA <3 centile increased by 11.4% from 66.5 to 74.3% (p=0.09).
- False positive rates increased from 7.2 to 8.6% (p=0.02) for SGA<10, and from 9.8 to 13.1% (P<0.01) for SGA <3.
- Proportion of SGA <10 babies delivered by 40.0 weeks rose from 72.0 to 76.3% (p=0.08), and SGA <3 babies delivered by 38.0 weeks from 47.3 to 59.6% (p=0.01).

Conclusions

- Early results with the new electronic chart are showing improvements in antenatal detection and timely delivery of babies at risk due to fetal growth restriction.
- Contributing factors may include auto-plotted measurements, automated display of fetal growth velocity and prompts for regular risk assessment.
- Increased false positive rates will require audit and improved quality assurance of accuracy of scan estimated fetal weight.