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Abstracts

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Effect of new electronic chart on fetal growth surveillance and management

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Objective: An important aim of antenatal surveillance is to identify the fetus at risk due to being small for gestational age (SGA). Antenatal detection of babies that are SGA at birth and timely delivery have become important quality indicators in maternity care. The majority of pregnancies in the UK are currently managed with a paper based 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 an electronic update of customised charts (GROW 2.0) which includes functionality for auto plotting of fundal height and estimated fetal weight, assessment of fetal growth rate based on sequential measurements, and alerts to assist clinical decision making.

Design: Prospective observational study.

Method: We analysed routinely recorded data from the first 5 hospitals that had implemented GROW 2.0, with a total of 3001 deliveries in the first full quarter (Q4, 2022). This was compared with the same hospitals' quarter 4 data from the preceding 3 years (2019–21), during which paper charts with manual plotting were used (n = 10,432). All data are captured and displayed locally in the Power-BI audit section of the GROW software. We analysed antenatal detection by scan of birthweight <10 and <3 centile, as well as the proportion of <3rd centile babies that were delivered by 38.0 weeks and <10th centile by 40.0 weeks, being national targets for timely delivery of small babies. Significance in rates was tested using a proportions Z-test.

Results: Detection rates of SGA <10 rose from the 2019–21 baseline of 45.9%–58.2%, representing a 26.8% increase (p < 0.01). Detection rate of SGA <3 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 9.8 to 13.1% (p < 0.01) for SGA <3. The proportion (%) of SGA < 10 babies delivered by 40.0 weeks increased from 72.0 to 76.3% (p = 0.08), and for SGA < 3 babies delivered by 38.0 weeks it increased from 47.3 to 59.6% (p = 0.01).

Conclusion: Early data with the new electronic chart is showing improvements in antenatal detection and timely delivery of babies at risk due to fetal growth restriction. Contributing factors may include better accuracy in plotted measurements, and automated assessment of growth velocity to prompt further investigation if indicated. Increased false positive rates will require improved quality assurance and audit of accuracy of scan estimated fetal weight.