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Abstracts

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Reduction of stillbirths supported by electronic assessment of fetal growth velocity

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Objective: A new electronic version of customised growth charts (GROW 2.0) has been rolled out in the UK GAP program. The application features auto-plotting of measurements, calculation of growth velocity, and prompts for clinical risk assessment and review. Preliminary assessment of first adopters showed improved antenatal detection of SGA and closer adherence to national guidelines [1]. We now wanted to assess the effect of implementation on stillbirth rates.

Design: Retrospective cohort study

Method: We undertook a longitudinal analysis of routinely collected, anonymised data in the 44 NHS Trusts that had implemented the GROW 2.0 electronic application in 2024, and compared it with data from the same Trusts between 2020 and 2022, when the analogue version (GROW 1.5) with printed charts were in use. Primary outcome was stillbirth from 24 weeks with rates presented per thousand and compared with proportions Z test. SGA (< 10^{th}) was determined by customised centiles in both cohorts. Growth velocity based on serial ultrasound estimated fetal weight had been assessed visually in the GROW 1.5 cohort, while with GROW 2.0, it is calculated electronically using the Projected Optimal Weight Range (POWR) method [2], with prompts for clinical review.

Results: The study cohort included 460,101 births including 1868 stillbirths (4.06) during the 2020–22 baseline period with GROW 1.5 charts, and 154,279 births including 485 stillbirths (3.14) in 2024 following implementation of the GROW 2.0 software. This represented a 23% reduction (RR: 0.77, CI 0.70 – 0.86) in stillbirth rate. SGA rates were similar in both cohorts (13.3 and 13.1%), SGA detection rates increased from 40.0 to 43.6% ($p < 0.01$), and false positive rates decreased from 6.0% to 5.1%. Following introduction of GROW 2.0, stillbirth rates amongst SGA pregnancies reduced from 12.0 to 11.0 and, if SGA was recognised antenatally, from 8.8 to 6.3. GROW 2.0 identified 17.0% of pregnancies with slow growth, most of which (71%) were not SGA, were delivered on average a week earlier, and had a stillbirth rate of 1.61 - about half of the overall GROW 2.0 cohort. The effect of identification of slow growth was most evident on term stillbirths, which reduced from 1.86 to 1.04 (RR 0.56, CI 0.47–0.66) over the period of the study.

Conclusion: Electronic growth chart functionality with auto plotting of measurements, assessment of growth velocity and prompts for clinical review assists with clinical awareness and decision making. Recognition of slow growth is an important contributing factor to stillbirth prevention.

1. https://bit.ly/RCOG_Congress2023_EP0046

2. https://doi.org/10.1002/uog.24860