Effect of INTERGROWTH-21st charts on stillbirth rates in England: retrospective cohort study

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Objectives

- Antenatal identification of SGA indicates risk of FGR and is an important strategy for stillbirth prevention.
- The 8 NHS Trusts in North-East North Cumbria (NENC) moved in April 2024 from GROW to INTERGROWTH charts.
- We investigated the effect that this switch had on screen positive rates of SGA and incidence of stillbirth.

Methods

- SGA (<10th centile) screen positive rates were obtained from published Maternity Service Monthly Statistics[1] for 3-month periods before and after the chart change-over.
- NENC stillbirth rates for 2024 were compared with
  - stillbirth rates for 2023 in the same 8 units
  - 8 pre-selected, birthrate-matched NHS Trusts in England that used GROW charts over the same 2-year period.
- All stillbirth rates were based on published ONS data [2,3]

Results (1)

- The average SGA screen positive rate in NENC dropped by 49%, from 9.7% to 4.9%, with change from GROW to INTERGROWTH charts (see Figure 1).
- Stillbirth rates (per 1000) in this network increased from 3.15 in 2023 to 4.16 in 2024 ($p<0.05$), a 31.9% increase.

Results (2)

- In the matched control group, the stillbirth rate reduced slightly from 3.36 to 3.09 (-8.1%; $p=0.46$), similar to the slight decline in England (see Figure 2).
- The NENC's stillbirth rate (3.15) was similar to that of matched hospitals (3.36) in 2023 (-6.3%, $p=0.65$) but rose to 4.16 in 2024, 34.5% higher than in the control (3.09; $p<0.05$)

Figure 1 SGA screen +ve rates for NENC and controls, pre- vs post switch to IG21 charts

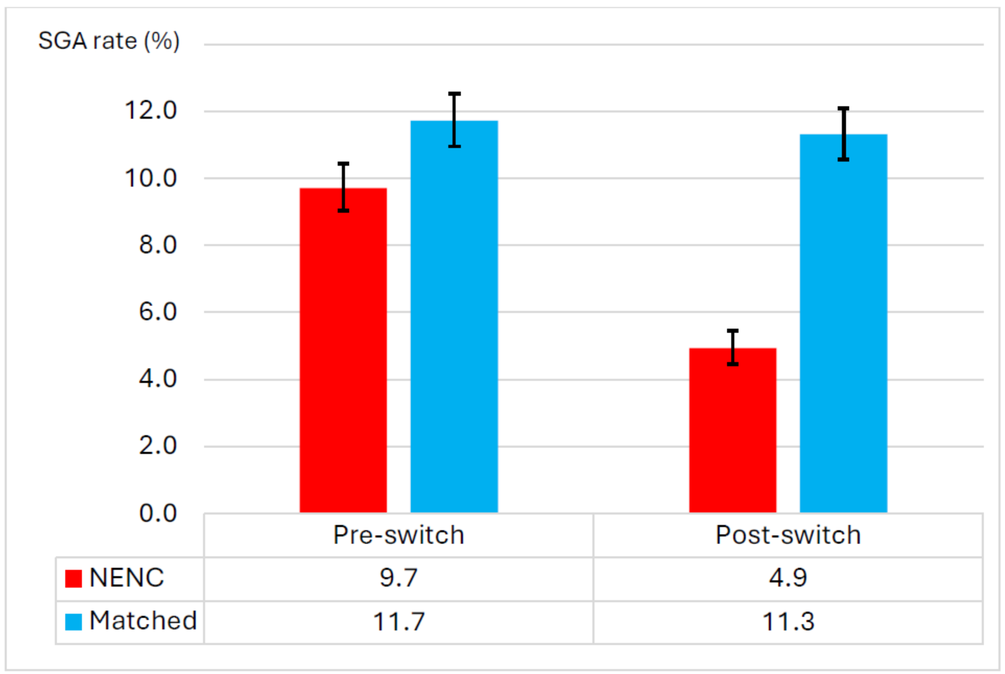
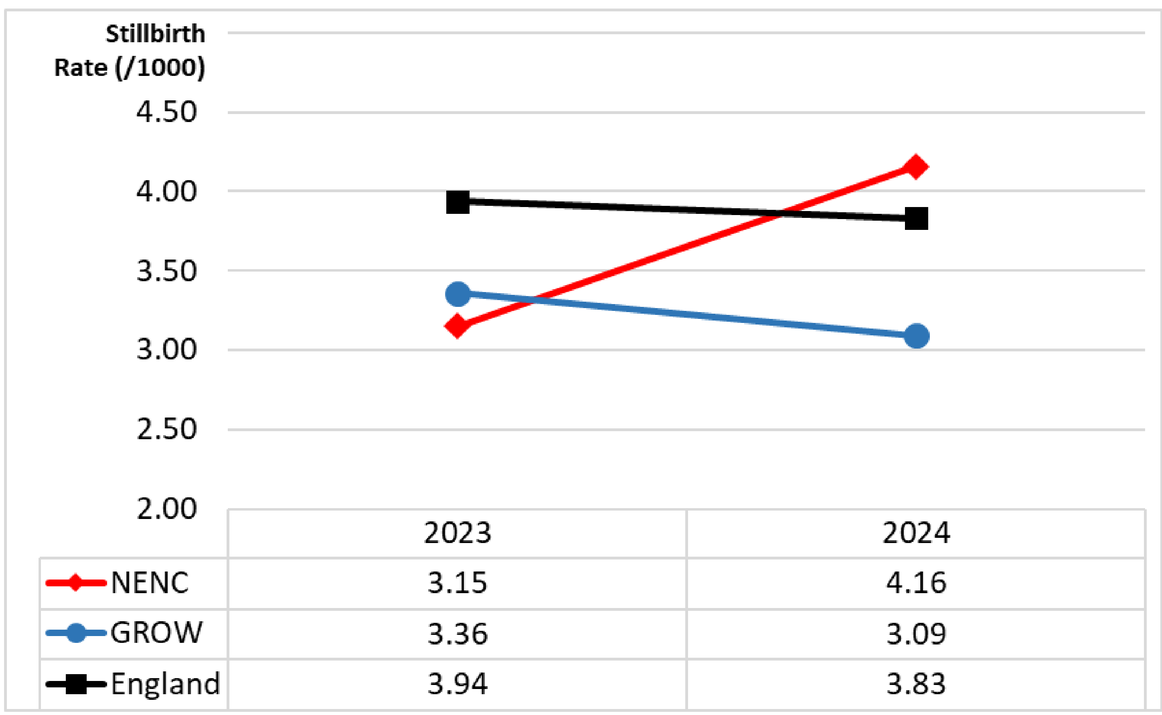


Figure 2 Stillbirth rates in NENC matched GROW hospitals and ONS stillbirth rates, 2023 and 2024



Conclusion

- INTERGROWTH fetal weight charts miss babies at risk of fetal growth restriction [4]. This is likely due to a near-halving of SGA screen positive rates by IG21 compared to GROW[5] and consistent with previous prediction based on NHS data [6].
- Their use can result in an increased rate of stillbirth and therefore cannot be recommended for growth surveillance in maternity populations where their antenatal application results in a low SGA screen positive rate.

References

1. NHS Digital. Maternity Services Monthly Statistics. 2024. https://digital.nhs.uk/data-andinformation/publications/statistical/maternity-services-monthly-statistics

2. Office for National Statistics. Live and still births by select NHS Trusts in England 2023 and 2024. https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/adhocs/3075liveandstillbirthsbyselectnhstrustsinengland2023and2024

3. Office of National Statistics. Births in England and Wales 2024. October 2025. https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/bulletins/birthsummarytablesenglandandwales/2024refreshedpopulations

4. Merricks A, Hugh O, Gardosi J. Effect of INTERGROWTH-21st charts on identification of small-for-gestational age fetuses. Lancet Obstet Gynaecol Women's Health *(in press)*. https://doi.org/10.2139/ssrn.5622033

5. GROW - Gestation Related Optimal Weight - fetal and neonatal charts Perinatal Institute . https://perinatal.org.uk/FetalGrowth/Tools/

6. Hugh O, Butler E, Ellson H, Mytton J, Gardosi J. Small-for-gestational age according to INTERGROWTH fetal weight standard misses most pregnancies at risk of stillbirth identified by GROW. Ultrasound Obstet Gynecol 2025 https://doi.org/10.1002/uog.29214