Designation of small-for-gestational age according to 7 fetal growth charts in NHS England: population based cohort study of 3.2 million births

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Objectives

- The latest RCOG guidelines for management of SGA and FGR do not specify which growth charts to use.
- We investigated the SGA screen positive rates of fetal weight standards in current use in England.

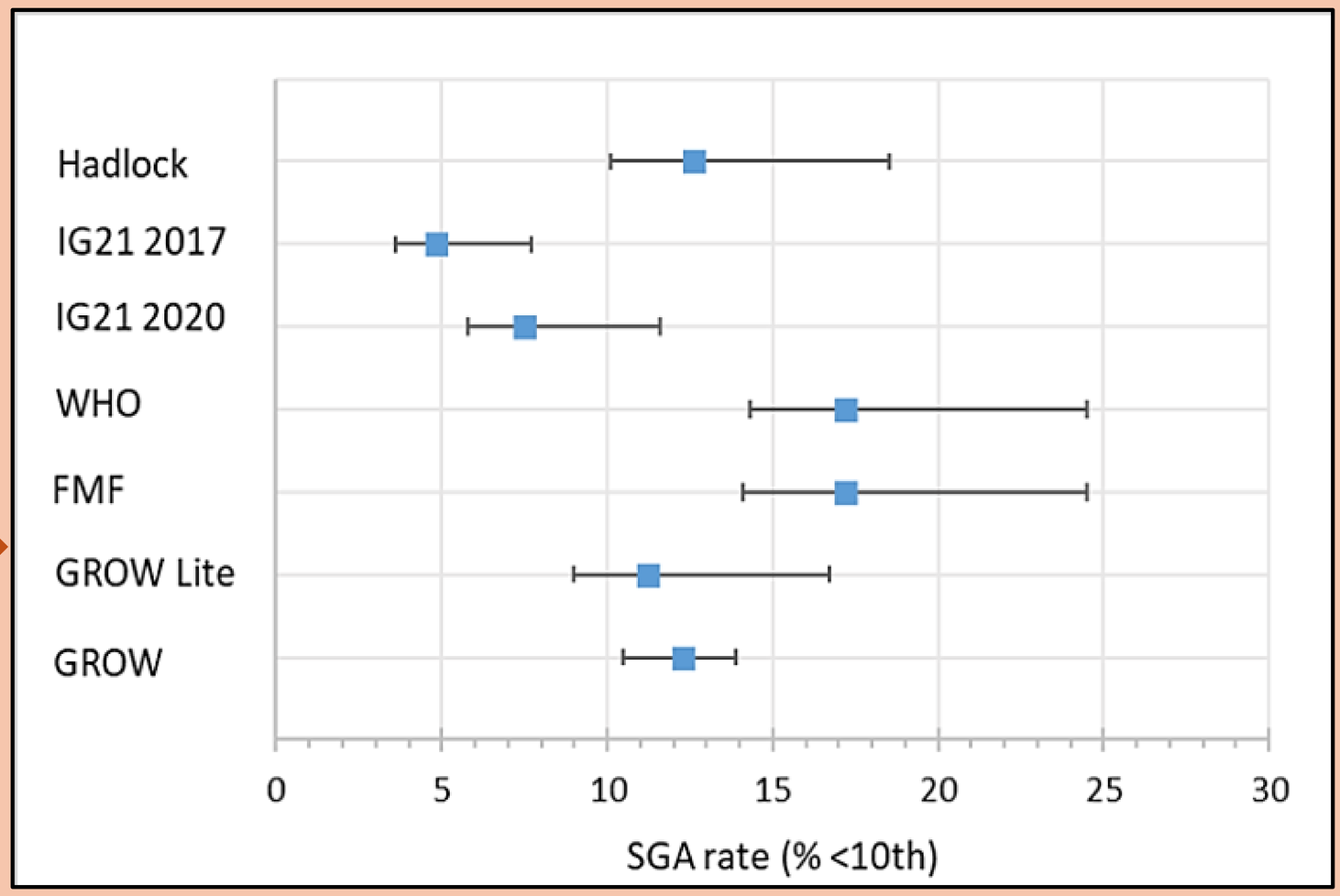
Methods

- Retrospective cohort study of electronic data recorded as part of routine care, for 38 of the 42 NHS Integrated Care Boards (ICBs) in England.
- Rates of SGA (<10 centile) at birth were calculated according to 7 fetal weight standards: Hadlock[1], Intergrowth-21st (IG21; versions 2017[2] and 2020[3]), World Health Organisation[4] (WHO), Fetal Medicine Foundation[5] (FMF), GROW Lite[6] (UK average) and GROW[7] (customised for maternal height, weight, parity and ethnic origin).

Results

- The cohort included **3,201,199** women with singleton pregnancies delivered between 2015 and 2025.
- There was wide variation in maternal characteristics between ICBs, including ethnic origin (English: mean 65.6%, range 19.8-92.2) and BMI (>30: mean 24.8%, range 16.3-29.4).
- The range of centiles across all ICBs was wider for all uncustomised standards and correlated significantly with variations in ethnicity and maternal size.
- The customised GROW standard had an SGA (<10) rate of **13.4%** and the narrowest range across ICBs (**11.6-15.2%**).
- For term births (≥37.0 weeks), average SGA (<10) rates were lowest for IG21(2017) (**4.8%**), highest for WHO and FMF (**17.2%**) and **12.3%** with GROW **(see Figure)**.

Figure Range of SGA rates at term according to different EFW charts



Conclusion

Uncustomised, one size-fits-all, 'universal' fetal weight charts in current NHS use do not reflect the average, distribution and variation of birthweight in our population, and are likely to miss - or excessively designate - fetuses as SGA and at risk due to growth restriction.

References

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