

# Customised twin specific vs singleton growth charts and SGA associated stillbirth risk

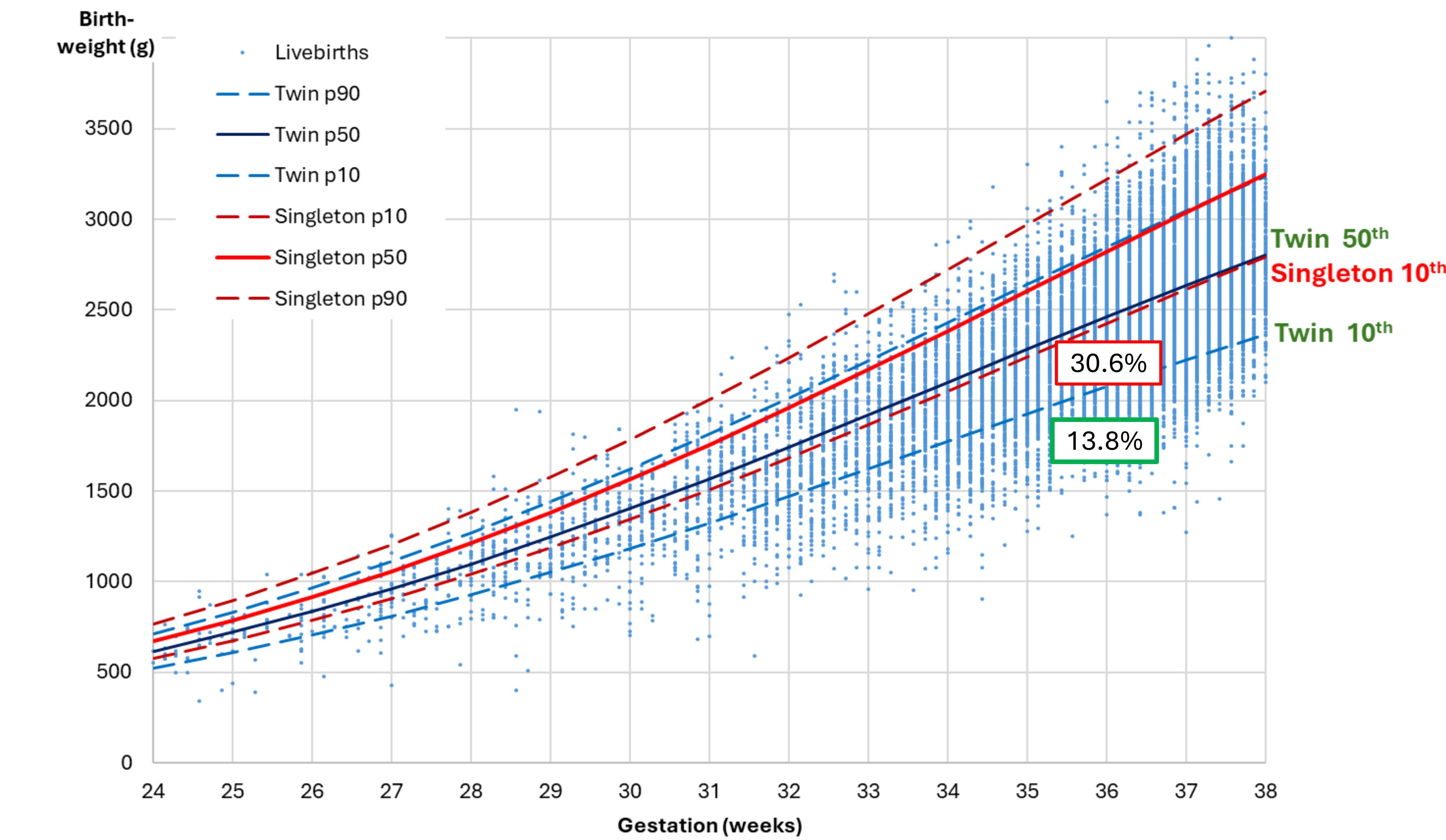
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## Objectives

- Twin fetuses are born earlier and have slower growth than singletons. It is uncertain as to what degree this is pathological or a physiological adaptation.
- We set out to develop a customised chart for twin pregnancy and compare it with the corresponding singleton chart in their ability to assess stillbirth risk.

## Methods

- The cohort consisted of 8,457 twin pregnancies (16,914 twins) recorded routinely in UK hospitals in the GAP program and contained stillbirth data. A subset of 3174 twins had also neonatal outcomes.
- To derive customised coefficients, we excluded stillbirths and preterm deliveries (<34 weeks).
- We performed a mixed-effects linear regression analysis to derive coefficients for maternal height, weight, parity and ethnic origin to help determine pregnancy specific optimal weight at 37 weeks.
- We compared the new customised standard for twins (GROW-T) with that for singletons (GROW-S) by calculating rate of SGA (<10th centile) and associated risk of stillbirth (SB) as well as indicators of neonatal outcome, using generalised estimating equations.



## Results(1)

- The same maternal physiological characteristics affect the twin weight standard as the singleton standard.
- 13.8% of twins were SGA according to GROW-T, while an additional 30.6% (= 44.4% in total) were SGA by GROW-S (Figure 1).
- All cases designated SGA had a higher risk of stillbirth, but the association was stronger with GROW-T (RR 7.2) than GROW-S (RR 2.8)

**Table 1 Perinatal Outcomes for babies SGA according to Twin specific vs Singleton only standards (N= 16,914)**

	SGA by twin standard	SGA by singleton only
All births – SGA, n (%)	2337 (13.8)	5170 (30.6)
Stillbirth, OR (CI)	<b>7.2</b> (4.8 - 10.8)	0.6 (0.4 - 1.1)
Newborn – SGA, n (%)	389 (12.3)	962 (30.3)
Apgar <7 at 5, OR (CI)	<b>1.8</b> (1.2 - 2.6)	0.8 (0.6 - 1.1)
NICU admission, OR (CI)	<b>1.3</b> (1.0 - 1.6)	0.9 (0.8 - 1.1)
Neonatal death, OR (CI)	<b>5.4</b> (1.3 - 23.5)	0.5 (0.1 - 4.2)

*SGA, small for gestational age; OR, odd's ratio; CI, 95% confidence interval; NICU, neonatal intensive care unit. Neonatal cohort: 3174 twins*

## Conclusion

- Use of a singleton standard for twins results in a 3x higher SGA rate, without detecting additional cases at increased risk of stillbirth or adverse neonatal outcome.
- The results suggest that use of a twin specific chart is safe in recognising SGA associated stillbirth risk, and likely to result in fewer unnecessary investigations, interventions and maternal anxiety.