

ACCURACY OF ULTRASOUND IN ESTIMATION OF CUSTOMISED BIRTH WEIGHT IN A PUBLIC HOSPITAL SERVICE

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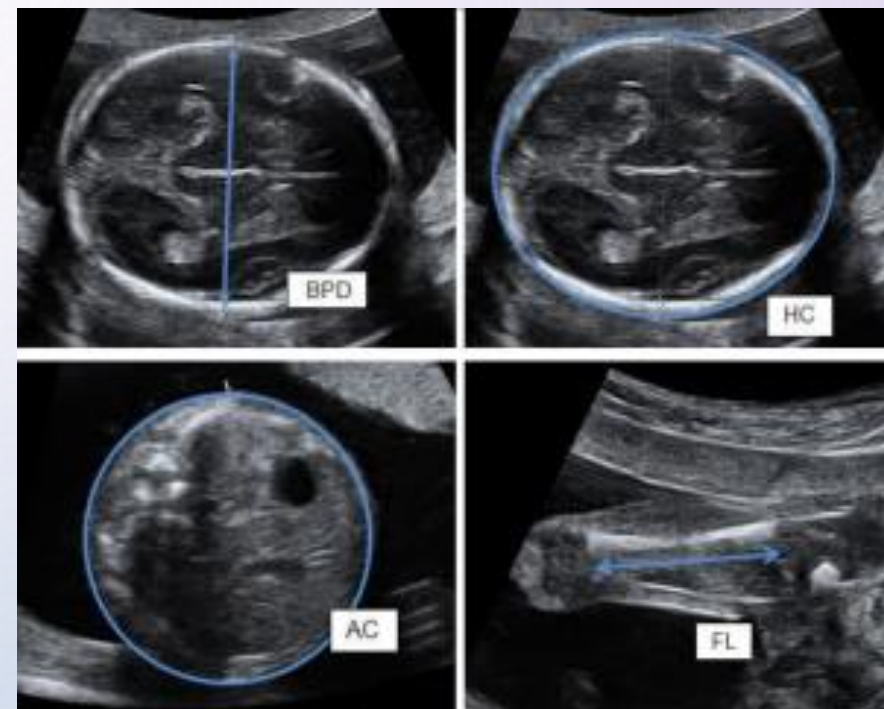
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INTRODUCTION

ROUTINE USE OF ULTRASOUND ANTENATALLY TO ESTIMATE FETAL WEIGHT

SGA BABIES KNOWN TO BE LESS ACCURATE BUT HIGHEST RISK AND NEED MORE MONITORING

USING CUSTOMISED CENTILES AND GROW CHARTS PROVIDES A MORE ACCURATE ESTIMATE



AIMS

1. ASSESS THE ACCURACY OF EFW
2. ASSESS THE ACCURACY OF BIRTH WEIGHT CENTILE CATEGORISATION

POPULATION

- SINGLETON PREGNANCIES OVER 20 WEEKS GESTATION BIRTHED AT NWH WITHIN 7 DAYS OF A GROWTH SCAN, BETWEEN JANUARY 2018 AND DECEMBER 2020
- EXCLUDED FETAL DEMISE AT SCAN AND MAJOR FETAL ANOMALIES AFFECTING THE BIOMETRY MEASUREMENTS
- $2063 - 2 = 2061$ BABIES

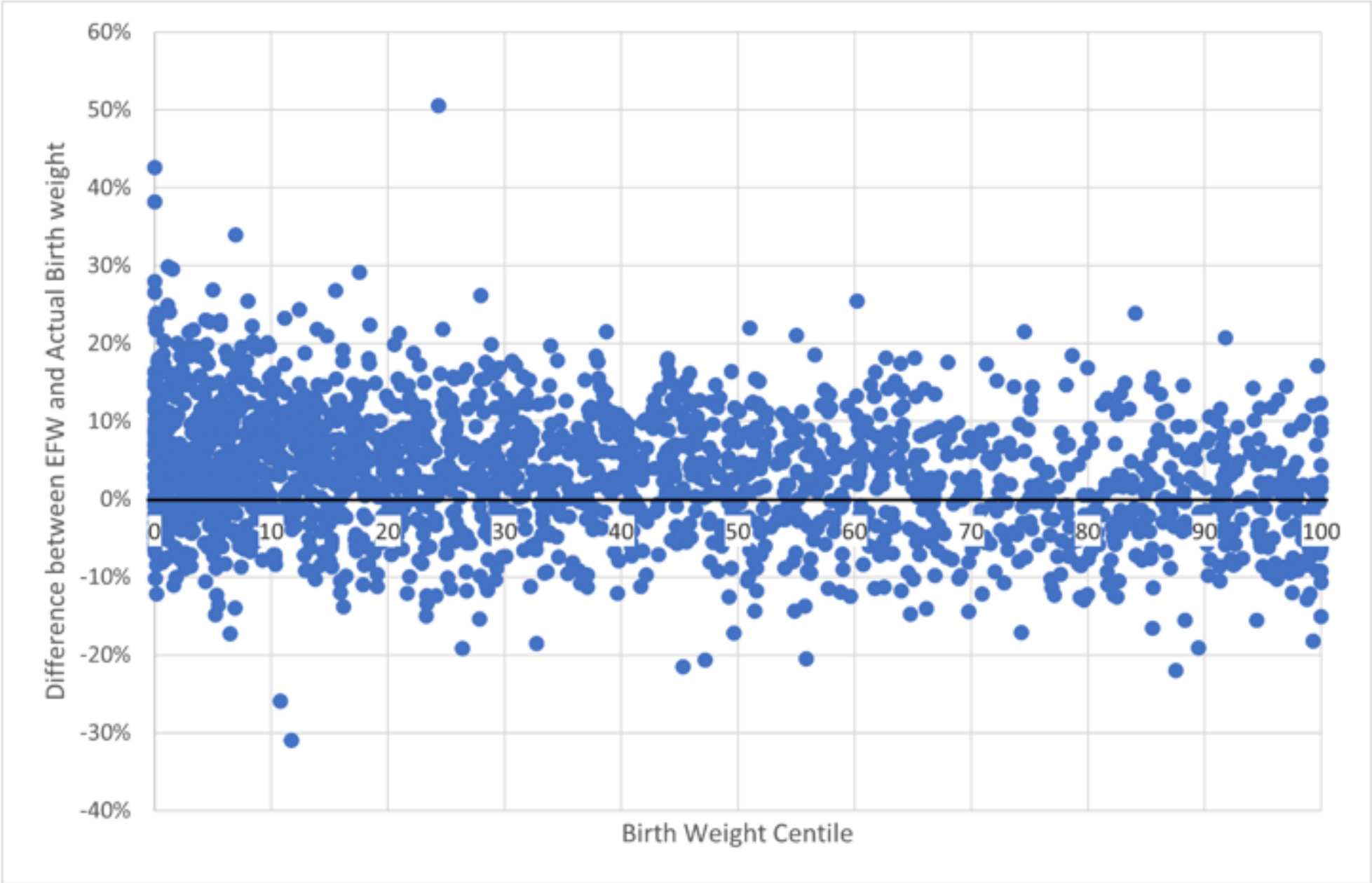
METHODS

- COMPARED ESTIMATED WEIGHT TO BIRTH WEIGHT
 - $\leq 15\%$ DIFFERENCE CONSIDERED ACCURATE
- COMPARED PREDICTED CENTILE CATEGORY TO BIRTH CENTILE CATEGORY
- SGA ($< 10^{\text{TH}}$ %), AGA (10^{TH} TO 90^{TH} %), AND LGA ($> 90^{\text{TH}}$ %)
 - SEVERE SGA ($< 3^{\text{RD}}$ %), LESS SEVERE SGA (3^{RD} TO 9^{TH} %)

Table 3: Variance (%) (absolute and real) of estimated fetal weight on ultrasound from actual birth weight

	Total	SGA <10%	AGA	LGA
	N=2061	N=524	N=1373	N=164
	n (% N)	n (% N)	n (% N)	n (% N)
Absolute differences				
≤ 15% of actual birth weight	1902 (92)	455 (87)	1287 (93)	160 (98)
>15% of actual birth weight	159 (8)	69 (13)	86 (6)	4 (2)

Figure 1: Accuracy of estimated fetal weight according to customised birth weight centile



PREDICTION OF BIRTH CATEGORY

Table 5: Estimated		Severe	Less Severe	
		SGA <3 %	SGA 3-9th %	LGA
		n (% N)	n (% N)	n (% N)
Predicted Category	SGA	Severe SGA		0
	AGA	<3 %	106 (46)	18 (6)
	LGA	Less Severe		30 (18)
	Total N (%)	SGA 3-9th %	84 (36)	58 (20)
				134 (82)
				164 (8)

PREDICTION OF BIRTH CATEGORY

Table 6: Test characteristics of ultrasound estimates of customised actual birth weight centile categories

	Sensitivity	Specificity	PPV
SGA <10th %	51%	97%	87%
AGA	83%	58%	80%
LGA >90th %	82%	90%	42%

CONCLUSION

- OVERALL 92% OF EFW ACCURATE
- ACCURACY NOT AFFECTED BY INCREASING MATERNAL BMI
- REDUCED ACCURACY IN SGA, BUT BABIES PREDICTED TO BE SGA ARE HIGHLY LIKELY TO TRULY BE SGA
- NEARLY HALF OF SGA BABIES WERE NOT DETECTED
 - THE MAJORITY OF THESE HAD BEEN ESTIMATED TO BE BETWEEN THE 10TH TO 15TH CENTILE (63%)

LOOKING TO THE FUTURE

- TECHNICAL FACTORS NOT ANALYSED
 - FETAL POSITION, LIQUOR VOLUME
- ALTERNATIVE FORMULAS MAY BE MORE ACCURATE
- SCANNING WHILST BLINDED TO THE EXPECTED FINDINGS?



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