

**Vitamin D status of pregnant women with obesity in the United Kingdom and its association with pregnancy outcomes: a secondary analysis of the UPBEAT study**

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**Online supplementary material**

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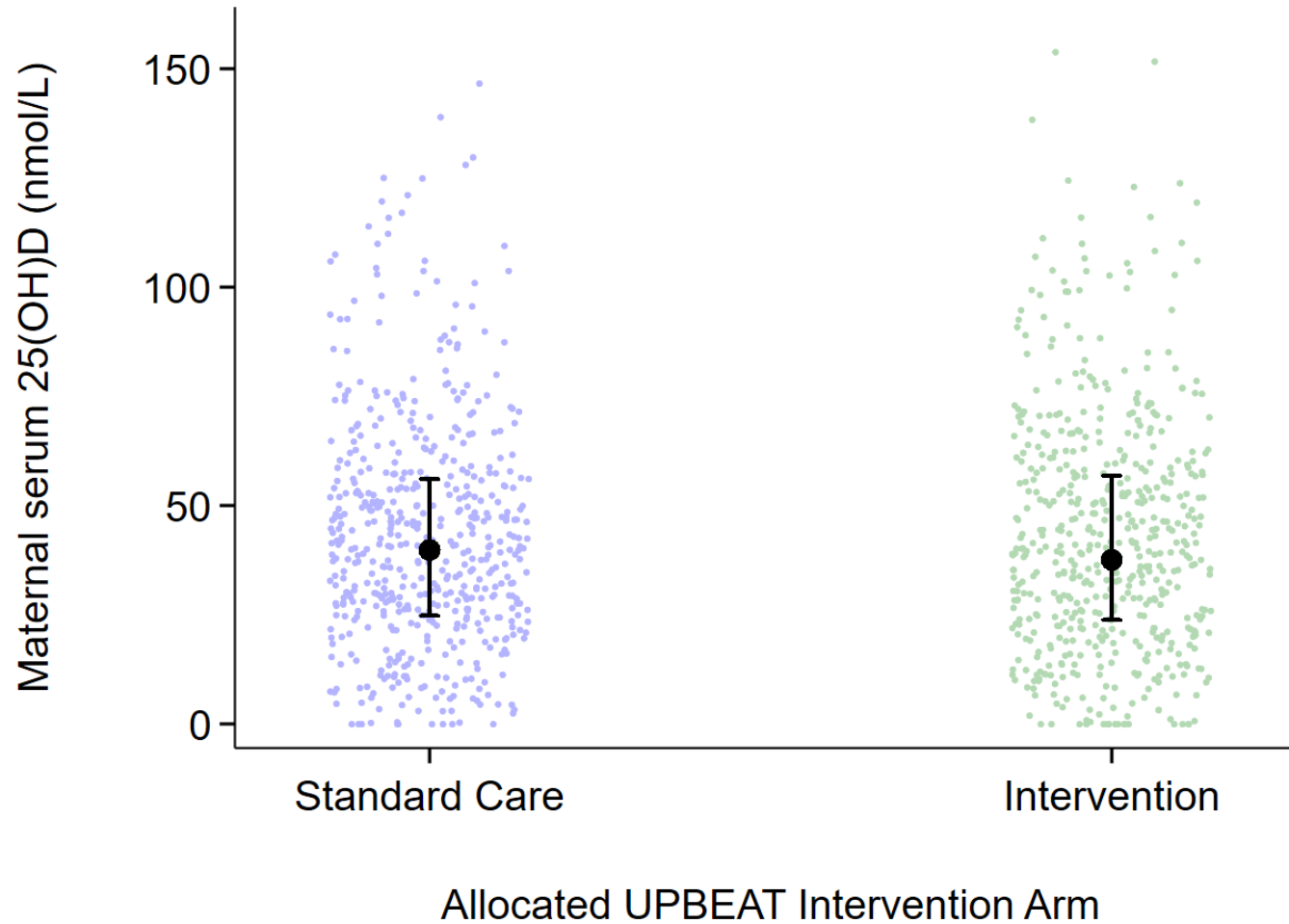
**Supplemental Table 1:** Occurrence of selected perinatal outcomes by categories of maternal vitamin D status in the second trimester, stratified by ethnicity<sup>1</sup>.

	N (%) <sup>2</sup>	Unadjusted model		Adjusted model <sup>3</sup>		N (%) <sup>2</sup>	Unadjusted model		Adjusted model <sup>3</sup>	
		OR (95% CI)	P	OR (95% CI)	P		OR (95% CI)	P	OR (95% CI)	P
<b>GDM</b>										
25(OH)D ≥50nmol/L	58/256 (23)	Reference		Reference		8/21 (38)	Reference		Reference	
25(OH)D >25 - <50nmol/L	72/255 (28)	1.34 (0.90 to 2.00)	0.15	1.34 (0.88 to 2.02)	0.17	32/94 (34)	0.84 (0.32 to 2.23)	0.73	0.64 (0.21 to 1.91)	0.43
25(OH)D <25nmol/L	37/121 (31)	1.50 (0.93 to 2.44)	0.10	1.52 (0.91 to 2.53)	0.11	26/72 (36)	0.92 (0.34 to 2.51)	0.87	0.61 (0.19 to 1.93)	0.40
<b>Pre-eclampsia</b>										
25(OH)D ≥50nmol/L	21/292 (7.2)	Reference		Reference		0/29 (0)	Reference		Reference	
25(OH)D >25 - <50nmol/L	17/277 (6.2)	0.84 (0.44 to 1.64)	0.62	0.76 (0.38 to 1.51)	0.44	9/104 (8.7)	--		--	
25(OH)D <25nmol/L	8/139 (5.8)	0.79 (0.34 to 1.83)	0.58	0.76 (0.32 to 1.81)	0.53	4/84 (4.8)	--		--	
<b>Preterm birth</b>										
25(OH)D ≥50nmol/L	20/297 (6.7)	Reference		Reference		3/29 (10)	Reference		Reference	
25(OH)D >25 - <50nmol/L	11/280 (3.9)	0.57 (0.27 to 1.20)	0.14	0.52 (0.24 to 1.12)	0.10	11/105 (10)	1.01 (0.26 to 3.91)	0.98	1.03 (0.26 to 4.14)	0.97
25(OH)D <25nmol/L	11/143 (7.7)	1.15 (0.54 to 2.48)	0.71	0.94 (0.42 to 2.12)	0.89	8/84 (9.5)	0.91 (0.23 to 3.70)	0.90	0.85 (0.19 to 3.71)	0.82
<b>SGA</b>										
25(OH)D ≥50nmol/L	30/297 (10)	Reference		Reference		1/29 (3.5)	Reference		Reference	
25(OH)D >25 - <50nmol/L	32/280 (11)	1.15 (0.68 to 1.95)	0.61	1.09 (0.63 to 1.86)	0.76	14/105 (13)	--		--	
25(OH)D <25nmol/L	23/143 (16)	1.71 (0.95 to 3.06)	0.07	1.64 (0.90 to 3.01)	0.11	10/84 (12)	--		--	
<b>LGA</b>										
25(OH)D ≥50nmol/L	28/297 (9.4)	Reference		Reference		3/29 (10)	Reference		Reference	
25(OH)D >25 - <50nmol/L	25/280 (8.9)	0.94 (0.53 to 1.66)	0.84	0.91 (0.51 to 1.63)	0.75	7/105 (6.7)	0.62 (0.15 to 2.56)	0.51	0.41 (0.09 to 1.90)	0.25
25(OH)D <25nmol/L	11/143 (7.7)	0.39 (0.69 to 1.66)	0.55	0.37 (0.64 to 1.68)	0.54	12/84 (14)	1.44 (0.38 to 5.53)	0.59	1.07 (0.24 to 4.75)	0.93

<sup>1</sup>OR represents the probability of occurrence of the event in each category of vitamin D status compared to 25(OH)D ≥50nmol/L. 25(OH)D, 25-hydroxyvitamin D; GDM, gestational diabetes mellitus; LGA, large for gestational age; OR, odds ratio; SGA, small for gestational age. Empty cells indicate occurrence of outcome too low to generate meaningful effect estimates.

<sup>2</sup>Represents total number and percentage of women with outcome of interest.

<sup>3</sup>Adjusted for: season of blood sampling, BMI, maternal age, assigned UPBEAT intervention arm, gestational age at blood sampling and educational attainment (university degree obtained or not).



**Supplemental Figure 1:** Maternal serum 25(OH)D concentration at first study visit in the UPBEAT trial, by intervention arm. Black circle represents the median 25(OH)D value, and whiskers show the 25<sup>th</sup> and 75<sup>th</sup> percentile. Difference between the intervention and standard care arm was not significant ( $P=0.49$  by Wilcoxon rank sum test;  $n=546$  and  $n=543$  in the intervention and standard care arms, respectively). 25(OH)D; 25-hydroxyvitamin D.