

SUPPLEMENTARY MATERIAL

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648 Table S1. Association between adverse birth outcomes and BMI (continuous) among women with
 649 live singleton births in the overall cohort

	N (%) N = 2921	Unadjusted Models		Adjusted Models	
		OR (95% CI)	p-value	aOR (95% CI)	p-value
Delivery GA (weeks)					
Term (≥ 37)	2208 (75.6)	1.00		1.00	
Spontaneous PTD (>37)	293 (10.0)	0.98 (0.96, 0.99)	0.047	0.98 (0.95, 1.00)	0.111
PI-PTD (>37)	188 (6.4)	1.02 (1.00, 1.04)	0.021	1.03 (1.00, 1.06)	0.083
Birth weight (g)					
Normal (2500-4000)	2362 (80.8)	1.00		1.00	
Low (<2500)	381 (13.2)	0.98 (0.96, 0.99)	0.002	0.97 (0.95, 0.99)	0.004
High (>4000)	125 (4.3)	1.04 (1.02, 1.06)	<0.001	1.05 (1.03, 1.07)	<0.001
Size for GA (centile)					
Appropriate (10-90 th)	1949 (66.7)	1.00		1.00	
Small ($<10^{\text{th}}$)	362 (12.4)	0.97 (0.95, 0.98)	<0.001	0.96 (0.94, 0.98)	<0.001
Large ($>90^{\text{th}}$)	378 (13.0)	1.04 (1.02, 1.05)	<0.001	1.03 (1.02, 1.05)	<0.001
Pregnancy outcome					
Livebirth	2814 (96.3)	1.00		1.00	
Stillbirth/Miscarriage ($\geq 28 / < 28$ weeks)	91 (3.1)	1.00 (0.97, 1.03)	0.996	0.99 (0.95, 1.03)	0.632

650 OR - odds ratio, GA - gestational age, PTD - preterm delivery
 651 Preterm model adjusted for maternal age, HIV status, haemoglobin, parity, previous PTD
 652 Birth weight, size for GA and birth outcome models adjusted for maternal age, HIV status, haemoglobin and parity. Missing data,
 653 n (%): GA at delivery n=232 (7.9), Birthweight n=49 (1.7), Size for GA n=232 (7.9), Pregnancy outcome n=16 (0.6). Where data
 654 are missing on outcomes, cases were excluded on the regression. Interpretation of OR's: Compared to normal BMI,
 655 underweight/overweight/obese BMI increases (OR >1) or decreases (OR <1) the likelihood of having spontaneous PTD/Provider-
 656 Initiated PTD /LBW /HBW/ SGA/LGA/ Stillbirth /Miscarriage.
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658 Table S2. Maternal baseline characteristics, overall and by maternal BMI in HIV-infected women with live singleton births, subset
659 cohort

	BMI (n = 471)					Chi ² p- value
	Total n = 471	Underweight n = 10	Normal n = 124	Overweight n = 107	Obese n = 211	
Age (years)						0.097
<20	18 (4)	0	9 (7)	3 (3)	5 (2)	
20-24	62 (13)	1 (10)	23 (19)	14 (13)	22 (10)	
25-29	135 (29)	4 (40)	42 (34)	29 (27)	57 (27)	
30-34	153 (32)	4 (40)	35 (28)	35 (33)	73 (35)	
≥35	103 (22)	1 (10)	15 (12)	26 (24)	54 (26)	
Median (IQR)	30 (26-34)	29 (26-33)	28 (24-32)	31 (26-34)	31 (27-35)	
Height (cm)						0.028
≤155	116 (25)	5 (50)	35 (28)	22 (21)	48 (23)	
156-161	178 (38)	3 (30)	42 (34)	34 (32)	94 (45)	
≥162	174 (37)	2 (20)	46 (37)	51 (48)	68 (32)	
Median (IQR)	160 (156-164)	156 (149-159)	159 (155-165)	162 (156-165)	160 (156-163)	
ART status						0.467
Initiation during pregnancy	249 (53)	5 (50)	72 (58)	51 (48)	111 (53)	
Initiation before pregnancy	222 (47)	5 (50)	52 (42)	56 (52)	100 (47)	
Marital status						0.689
Single	222 (47)	4 (40)	64 (52)	53 (50)	90 (43)	
Married	236 (50)	5 (50)	57 (46)	53 (50)	113 (54)	
High school education						0.506
Completed	128 (27)	4 (40)	39 (31)	28 (26)	54 (26)	
Not completed	342 (73)	6 (60)	84 (68)	79 (74)	157 (74)	
Socioeconomic status						0.583
Low	132 (28)	2 (20)	38 (31)	25 (23)	63 (30)	
Medium	165 (35)	3 (30)	37 (30)	42 (39)	75 (36)	

High	163 (35)	5 (50)	47 (38)	37 (35)	67 (32)	
Alcohol use						0.384
Yes	309 (66)	7 (70)	85 (69)	64 (60)	144 (68)	
No	157 (33)	2 (20)	39 (31)	42 (39)	65 (31)	
Haemoglobin (g/dL)						<0.001
Normal (≥ 11.0)	200 (42)	1 (10)	41 (33)	40 (37)	113 (54)	
Mild anaemia (10-10.9)	92 (20)	2 (20)	29 (23)	22 (21)	37 (18)	
Moderate anaemia (7-9.9)	70 (15)	2 (20)	30 (24)	20 (19)	18 (9)	
Severe anaemia (< 7)	0	0	0	0	0	
Median (IQR)	11.1 (10.1-12)	10.0 (9.7-10.7)	10.6 (9.8-11.6)	10.9 (10.0-11.8)	11.5 (10.5-12.2)	
Blood pressure (mmHg)						0.396
Normotensive ($< 140/90$)	438 (93)	9 (90)	118 (95)	104 (97)	199 (94)	
Hypertensive ($\geq 140/90$)	20 (4)	1 (10)	2 (2)	2 (2)	6 (3)	
Median SBP (IQR)	112 (105-121)	112 (107-117)	108 (103-118)	110 (104-120)	114 (107-123)	
Median DBP (IQR)	66 (61-72)	68 (59-76)	64 (60-70)	65 (60-72)	68 (62-73)	
GA at first ANC visit (weeks)						0.079
Median (IQR)	13 (10-17)	12 (10-18)	13 (9-17)	15 (11-18)	13 (9-17)	
Gravidity (number)						0.007
1	79 (17)	1 (10)	34 (27)	14 (13)	28 (13)	
2	162 (34)	5 (50)	44 (35)	42 (39)	68 (32)	
≥ 3	225 (48)	4 (40)	46 (37)	51 (48)	115 (55)	
Median (IQR)	2 (2-3)	2 (2-3)	2 (1-3)	2 (2-3)	3 (2-3)	
Parity (number)						0.087
0	108 (23)	2 (20)	40 (32)	23 (22)	40 (19)	
1	200 (42)	5 (50)	53 (43)	42 (39)	93 (44)	
≥ 2	158 (34)	3 (30)	31 (25)	42 (39)	78 (37)	
Median (IQR)	1 (1-2)	1 (1-2)	1 (0-2)	1 (1-2)	1 (1-2)	
CD4 ⁺ cell count (cells/ μ l)						0.027

Median (IQR)	429 (309-603)	429 (272-554)	383 (251-531)	423 (323-631)	488 (328-631)	
Prior preterm delivery# (<37 weeks GA)						0.490
Yes	41 (9)	2 (20)	10 (8)	12 (11)	16 (8)	

660 SBP - systolic blood pressure, DBP - diastolic blood pressure, GA - gestational age, ANC - antenatal care

661 #Among women with a previous pregnancy

662 Table S3. Association between adverse birth outcomes and BMI among HIV-infected women
 663 with live singleton births in the subset cohort (n = 471)

	Unadjusted Models			Adjusted Models	
	N (%) N = 471	OR (95% CI)	p-value	aOR (95% CI)	p-value
Delivery GA (weeks)					
Term (≥ 37)	416 (88.3)	1.00		1.00	
Spontaneous PTD (< 37)	19 (4.0)	1.03 (0.94, 1.13)	0.539	1.00 (0.87, 1.16)	0.963
Provider-initiated PTD (< 37)	33 (7.0)	1.01 (0.96, 1.06)	0.629	1.04 (0.97; 1.11)	0.265
Birth weight (g)					
Normal (2500-4000)	374 (79.4)	1.00		1.00	
Low (< 2500)	69 (14.7)	0.96 (0.92, 0.99)	0.045	0.96 (0.91, 1.01)	0.079
High (> 4000)	19 (4.0)	1.01 (0.95, 1.07)	0.711	0.98 (0.92, 1.05)	0.652
Size for GA (centile)					
Appropriate (10-90 th)	352 (74.7)	1.00		1.00	
Small ($< 10^{\text{th}}$)	78 (16.6)	0.97 (0.93, 1.01)	0.147	0.96 (0.91, 1.00)	0.064
Large ($> 90^{\text{th}}$)	35 (7.4)	1.07 (1.02, 1.12)	0.003	1.05 (0.99, 1.10)	0.079

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 665 OR - odds ratio, GA - gestational age, PTD - preterm delivery
 666 Preterm model: adjusted for maternal age, ART status, haemoglobin, parity, previous PTD
 667 Birth weight, size for GA and birth outcome models: adjusted for maternal age, ART status, haemoglobin and parity. Missing
 668 data, n (%): Missing data, n (%): GA at delivery n=3 (0.6), Birthweight n=9 (1.9), Size for GA n=6 (1.3). Where data are missing
 669 on outcomes, cases were excluded on the regression. Interpretation of OR's: Increase in GWG increases (OR>1) or decreases
 670 (OR<1) the likelihood of having spontaneous PTD/ Provider-Initiated PTD /LBW/HBW/SGA/LGA compared to respective
 671 reference categories.

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691 Table S4. Association between PTD and BMI in the overall cohort using different GA estimation
 692 methods

	N (%) N = 2921	Unadjusted Models		Adjusted Models	
		OR (95% CI)	p-value	aOR (95% CI)	p-value
USS GA Assessment					
Spontaneous PTD (<37 weeks GA)	66 (2.3)				
Normal	20 (2.4)	1.00			
Underweight	5 (6.0)	3.49 (1.20, 10.15)	0.022	2.01 (0.40, 10.19)	0.400
Overweight	14 (2.0)	0.69 (0.34, 1.39)	0.302	0.68 (0.30, 1.58)	0.373
Obese	27 (2.1)	0.73 (0.40, 1.31)	0.291	0.35 (0.15, 0.79)	0.012
Provider-initiated PTD (<37 weeks GA)	289 (9.9)				
Normal	69 (8.4)	1.00		1.00	
Underweight	6 (7.1)	1.21 (0.48, 3.09)	0.685	0.77 (0.16, 3.60)	0.735
Overweight	61 (8.5)	0.87 (0.60, 1.27)	0.481	0.88 (0.50, 1.58)	0.679
Obese	153 (11.8)	1.19 (0.87, 1.63)	0.274	1.25 (0.76, 2.03)	0.377
SFH GA Assessment					
Spontaneous PTD (<37 weeks GA)	217 (7.4)				
Normal	87 (11)	1.00		1.00	
Underweight	11 (13.1)	1.31 (0.65, 2.64)	0.456	2.14 (0.76, 6.01)	0.147
Overweight	50 (7.0)	0.69 (0.47, 1.00)	0.050	0.71 (0.43, 1.18)	0.190
Obese	69 (5.3)	0.56 (0.40, 0.79)	0.001	0.56 (0.35, 0.90)	0.017
Provider-initiated PTD (<37 weeks GA)	121 (4.1)				
Normal	33 (4.0)	1.00		1.00	
Underweight	4 (4.8)	1.25 (0.42, 3.71)	0.684	2.04 (0.43, 9.81)	0.373
Overweight	28 (3.9)	1.01 (0.60, 1.71)	0.957	1.17 (0.52, 2.64)	0.707
Obese	56 (4.3)	1.21 (0.77, 1.89)	0.409	1.38 (0.67, 2.83)	0.376
LMP GA Assessment					
Spontaneous PTD (<37 weeks GA)	544 (18.6)				
Normal	206 (25.1)	1.00		1.00	
Underweight	18 (21.4)	0.84 (0.48, 1.50)	0.569	0.42 (0.16, 1.06)	0.066
Overweight	121 (16.9)	0.62 (0.48, 0.81)	<0.001	0.54 (0.37, 0.77)	0.001
Obese	199 (15.3)	0.58 (0.46, 0.72)	<0.001	0.48 (0.35, 0.66)	<0.001
Provider-initiated PTD (<37 weeks GA)	259 (8.9)				
Normal	63 (7.7)	1.00		1.00	
Underweight	6 (7.1)	0.92 (0.38, 2.25)	0.862	0.71 (0.16, 3.12)	0.651
Overweight	53 (7.4)	0.89 (0.60, 1.31)	0.565	0.98 (0.53, 1.80)	0.936
Obese	137 (10.6)	1.30 (0.94, 1.79)	0.112	1.45 (0.87, 2.44)	0.156

693 OR - odds ratio, GA - gestational age, USS - ultrasonography, SFH - symphysis-fundal height, LMP - last menstrual period

694 All models were adjusted for maternal age, HIV status, haemoglobin, parity, previous PTD

695 USS model missing data, n (%): GA at delivery n=1300 (44.5). SFH model missing data, n (%): GA at delivery n=1134 (38.8).

696 LMP model missing data, n (%): GA at delivery n=420 (14.4). Where data are missing on outcomes, cases were excluded on the

697 regression. Interpretation of OR's: Compared to normal BMI, underweight/overweight/obese BMI increases (OR>1) or decreases

698 (OR<1) the likelihood of having spontaneous PTD/Provider-Initiated PTD as assessed using USS/SFH/LMP.