

Supplementary information

Cohort Profile: PREgnancy Care Integrating translational Scince, Everywhere (PRECISE), a prospective cohort study of pregnant women in The Gambia, Kenya and Mozambique investigating placental disorders

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Table S1: Overview of biological sample collection per participant

Pregnant women (cohort 2-5)	Gambia (n=1251)				Kenya (n=3439)				Mozambique (n=2096)			
	Booking	ANC	Delivery	Postpartum	Booking	ANC	Delivery	Postpartum	Booking	ANC	Delivery	Postpartum
Whole blood	1239	676	802	291	3539	1882	1512	1374	2095	1655	1802	1364
Blood spot	1236				3419				2096			
Maternal Serum	1227	671	794	291	3533	1883	1515	1374	2095	1656	2095	1362
Maternal Plasma	1235	672	801	290	3534	1881	1511	1372	2095	1656	1805	1364
Maternal Buffy coat	1237	676	802	291	3534	1878	1507	1371	2089	1650	1797	1368
Urine sediment	1239	679	752	295	2859	1372	977	522	2092	1653	1798	1365
Urine	1236	676	752	295	3518	1999	1591	1430	2093	1653	1798	1364
Vaginal swab - biochemistry	1093		428		2275		1084		1961		1624	
Vaginal swab - microbiome	1058		419		2134		871		1386		1200	
Placenta punches frozen			589				1180				1688	
Placenta punches paraffin embedded			765				1180				1672	
Cord frozen			590				1176				1555	
Cord – paraffin embedded			765				1175				1604	
Membranes – paraffin embedded			764				1142				1601	
Cord whole blood			669				1733				1614	
Cord blood spot			668				1658				1615	
Cord blood serum			650				1739				1615	
Cord blood plasma			657				1730				1614	
Cord blood buffy			659				1663				1581	

TableS2: Characteristics of pregnant participants by cohort by country

	Kenya		Mozambique		The Gambia		All sites	
	UNS	TOD	UNS	TOD	UNS	TOD	UNS	TOD
Number	N=3450	N=134	N=2097		N=1223	N=28	N=6,770	N=162
Age, median (IQR)	26.0 (23.0, 31.0)	26.0 (23.0, 34.0)	23.0 (19.0, 29.0)		26.0 (22.0, 31.0)	28.0 (24.5, 32.5)	25.0 (21.0-30.0)	27.0 (23.0-34.0)
Age at enrolment								
15-19	245 (7.1%)	7 (5.2%)	554 (26.4%)		153 (12.5%)	3 (10.7%)	952 (14.1%)	10 (6.2%)
20-24	1069 (31.0%)	45 (33.6%)	626 (29.9%)		329 (26.9%)	4 (14.3%)	2,024 (29.9%)	49 (30.2%)
25-29	1012 (29.3%)	26 (19.4%)	455 (21.7%)		351 (28.7%)	11 (39.3%)	1,818 (26.9%)	37 (22.8%)
30-34	710 (20.6%)	23 (17.2%)	270 (12.9%)		217 (17.7%)	6 (21.4%)	1,197 (17.7%)	29 (17.9%)
35-39	337 (9.8%)	21 (15.7%)	145 (6.9%)		122 (10.0%)	2 (7.1%)	604 (8.9%)	23 (14.2%)
40-44	71 (2.1%)	10 (7.5%)	42 (2.0%)		43 (3.5%)	2 (7.1%)	156 (2.3%)	12 (7.4%)
45-49	5 (0.1%)	0 (0.0%)	5 (0.2%)		4 (0.3%)	0 (0.0%)	14 (0.2%)	0 (0.0%)
Missing	1 (<1%)	2 (1.5%)	0 (0.0%)		4 (0.3%)	0 (0.0%)	5 (0.1%)	2 (1.2%)
Marital status								
Never married (or single)	212 (6.1%)	8 (6.0%)	906 (43.2%)		22 (1.8%)	0 (0.0%)	1,140 (16.8%)	8 (4.9%)
Married/ Co-habiting	3164 (91.7%)	118 (88.1%)	1179 (56.2%)		1196 (97.8%)	27 (96.4%)	5,539 (81.8%)	145 (89.5%)
Separated/Divorced	54 (1.6%)	1 (0.7%)	7 (0.3%)		5 (0.4%)	1 (3.6%)	66 (1.0%)	2 (1.2%)
Widowed/Missing	20 (0.6%)	7 (5.2%)	5 (0.2%)		0 (0.0%)	0 (0.0%)	25 (0.4%)	7 (4.3%)
Highest Education level								
None	322 (9.3%)	15 (11.2%)	109 (5.2%)		781 (63.9%)	16 (57.1%)	1,212 (17.9%)	31 (19.1%)
Primary	1812 (52.5%)	73 (54.5%)	704 (33.6%)		193 (15.8%)	5 (17.9%)	2,709 (40.0%)	78 (48.1%)
Secondary	895 (25.9%)	30 (22.4%)	1258 (60.0%)		192 (15.7%)	6 (21.4%)	2,345 (34.6%)	36 (22.2%)
Higher	408 (11.8%)	9 (6.7%)	26 (1.2%)		56 (4.6%)	1 (3.6%)	490 (7.2%)	10 (6.2%)
Missing	13 (0.4%)	7 (5.2%)	0 (0.0%)		1 (0.1%)	0 (0.0%)	14 (0.2%)	7 (4.3%)

Occupation								
Housewife	1892 (54.8%)	71 (53.0%)	1524 (72.7%)		1074 (87.8%)	25 (89.3%)	4,490 (66.3%)	96 (59.3%)
Student	69 (2.0%)	5 (3.7%)	344 (16.4%)		13 (1.1%)	0 (0.0%)	426 (6.3%)	5 (3.1%)
Professional	248 (7.2%)	8 (6.0%)	61 (2.9%)		20 (1.6%)	0 (0.0%)	329 (4.9%)	8 (4.9%)
Factory	83 (2.4%)	3 (2.2%)	15 (0.7%)		0 (0.0%)	0 (0.0%)	98 (1.4%)	3 (1.9%)
Large-scale agriculture	4 (0.1%)	0 (0.0%)	20 (1.0%)		9 (0.7%)	0 (0.0%)	33 (0.5%)	0 (0.0%)
Market trader	340 (9.9%)	5 (3.7%)	91 (4.3%)		45 (3.7%)	3 (10.7%)	476 (7.0%)	8 (4.9%)
Construction	2 (0.1%)	0 (0.0%)	1 (<1%)		0 (0.0%)	0 (0.0%)	3 (0.0%)	0 (0.0%)
Business	325 (9.4%)	17 (12.7%)	38 (1.8%)		0 (0.0%)	0 (0.0%)	325 (4.8%)	17 (10.5%)
Informal - Employment	441 (12.8%)	16 (11.9%)	0 (0.0%)		0 (0.0%)	0 (0.0%)	441 (6.5%)	16 (9.9%)
Other (specify)	31 (0.9%)	2 (1.5%)	0 (0.0%)		61 (5.0%)	0 (0.0%)	130 (1.9%)	2 (1.2%)
Missing	15 (0.4%)	7 (5.2%)	3 (0.1%)		1 (0.1%)	0 (0.0%)	19 (0.3%)	7 (4.3%)
Religion								
Muslim	1344 (39.0%)	42 (31.3%)	27 (1.3%)		1215 (99.3%)	28 (100.0%)	2,586 (38.2%)	70 (43.2%)
Christian	2082 (60.3%)	84 (62.7%)	2042 (97.4%)		8 (0.7%)	0 (0.0%)	4,132 (61.0%)	84 (51.9%)
Other (specify)	11 (0.3%)	1 (0.7%)	26 (1.2%)		0 (0.0%)	0 (0.0%)	37 (0.5%)	1 (0.6%)
Missing	13 (0.4%)	7 (5.2%)	2 (0.1%)		0 (0.0%)	0 (0.0%)	15 (0.2%)	7 (4.3%)
% likelihood below the USAID-extreme poverty line, median (IQR)	2.3 (0.3, 7.4)	2.3 (0.3, 15.4)	5.7 (0.0, 12.9)		25.2 (12.9, 28.9)	21.4 (12.8, 25.7)	5.7 (0.3-15.4)	2.5 (0.4-16.8)
% likelihood below the poverty line, median (IQR)	13.9 (4.6, 30.0)	13.9 (4.6, 36.9)	21.4 (7.2, 31.7)		46.9 (27.9, 58.6)	46.9 (22.2, 53.7)	20.3 (6.1-36.9)	17.8 (6.1-46.4)
Maternal BMI, median (IQR)	24.0 (21.5, 27.7)	26.6 (24.1, 30.6)	24.2 (22.1, 27.0)		22.0 (19.8, 24.7)	21.9 (19.4, 27.9)	23.8 (21.3-27.0)	26.2 (23.4-30.6)
Maternal BMI								
<18.5	143 (4.1%)	0 (0.0%)	39 (1.9%)		163 (13.3%)	3 (10.7%)	345 (5.1%)	3 (1.9%)
18.5-24.9	1853 (53.7%)	40 (29.9%)	1172 (55.9%)		778 (63.6%)	15 (53.6%)	3,803 (56.2%)	55 (34.0%)
25-29.9	908 (26.3%)	34 (25.4%)	661 (31.5%)		205 (16.8%)	4 (14.3%)	1,774 (26.2%)	38 (23.5%)
30+	522 (15.1%)	36 (26.9%)	225 (10.7%)		74 (6.1%)	6 (21.4%)	821 (12.1%)	42 (25.9%)
Missing	24 (0.7%)	24 (17.9%)	0 (0.0%)		3 (0.2%)	0 (0.0%)	27 (0.4%)	24 (14.8%)
Parity								
Zero	990 (28.7%)	56 (41.8%)	828 (39.5%)		234 (19.1%)	3 (10.7%)	2,052 (30.3%)	60 (37.0%)

One	922 (26.7%)	20 (14.9%)	507 (24.2%)		207 (16.9%)	3 (10.7%)	1,636 (24.2%)	23 (14.2%)
Two	639 (18.5%)	20 (14.9%)	336 (16.0%)		179 (14.6%)	6 (21.4%)	1,154 (17.0%)	25 (15.4%)
Three	401 (11.6%)	12 (9.0%)	244 (11.6%)		152 (12.4%)	3 (10.7%)	797 (11.8%)	15 (9.3%)
Four	238 (6.9%)	9 (6.7%)	123 (5.9%)		163 (13.3%)	5 (17.9%)	524 (7.7%)	14 (8.6%)
Five or More	260 (7.5%)	17 (12.7%)	59 (2.8%)		288 (23.5%)	8 (28.6%)	607 (9.0%)	25 (15.4%)
HIV status								
No	3349 (97.1%)	131 (97.8%)	1855 (88.5%)		1202 (98.3%)	28 (100.0%)	6,406 (94.6%)	159 (98.1%)
Yes	101 (2.9%)	3 (2.2%)	242 (11.5%)		21 (1.7%)	0 (0.0%)	364 (5.4%)	3 (1.9%)
Missing	0 (0.0%)	0 (0.0%)	0 (0.0%)		0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Village – Rural and urban index #								
Peri-urban	1335 (38.7%)	79 (59.0%)	45 (2.1%)		10 (0.8%)	0 (0.0%)	1,390 (20.5%)	79 (48.8%)
Rural	217 (6.3%)	3 (2.2%)	858 (40.9%)		739 (60.4%)	11 (39.3%)	1,814 (26.8%)	14 (8.6%)
Urban	1898 (55.0%)	51 (38.1%)	1194 (56.9%)		474 (38.8%)	17 (60.7%)	3,566 (52.7%)	68 (42.0%)
Missing	0 (0.0%)	1 (0.7%)	0 (0.0%)		0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.6%)

Table S3a: Maternal Pregnancy outcomes by cohort and by country

	Kenya [#]		Mozambique		The Gambia [#]		Total	
	UNS	TOD	UNS	TOD	UNS	TOD	UNS	TOD
Number of women with pregnancy outcome data	2592	114	1861		1154	24	5607	138
Miscarriages (<20 weeks)	5 (0.2%)		17 (0.9%)		12 (1.0%)		34 (0.6%)	
Maternal hypertension	490 (18.9%)	84 (73.7%)	288 (15.5%)		335 (29.0%)	14 (58.3%)	1113 (19.9%)	98 (71.0%)
Maternal gestational hypertension	377 (14.5%)	52 (45.6%)	267 (14.4%)		234 (20.2%)	5 (20.8%)	878 (15.7%)	57 (41.3%)
Maternal chronic hypertension	112 (4.3%)	30 (26.3%)	45 (2.4%)		131 (11.4%)	10 (41.7%)	288 (5.1%)	40 (29.0%)
Maternal preeclampsia	132 (5.1%)	62 (54.4%)	51 (2.7%)		147 (12.7%)	8 (33.3%)	330 (5.9%)	70 (50.7%)
Missing maternal hypertension information	893 (34.5%)	20(17.5%)	81 (4.4%)		309 (26.8%)	6 (25.0%)	1283 (22.8%)	26 (18.8%)
Maternal admissions to ICU	0		4		1		5	
Maternal deaths	6		0		3		9	
Missing pregnancy outcome	5 (0.1%)	2	1 (0.1%)		2 (0.1%)	1	8 (0.1%)	3

Table S3b: Infant outcomes by cohort and by country

	Kenya		Mozambique		The Gambia		Total	
	UNS	TOD	UNS	TO D	UNS	TOD	UNS	TOD
Number of children with birth outcome data (total birth)	2633	121	1863		1172	25	5668	146
Number of singletons	2541 (96.5%)	107 (88.4%)	1827 (98.1%)		1112 (94.9%)	23 (92.0%)	5480 (96.7%)	130 (89.0%)
Number of twins	92 (3.5%)	14 (11.6%)	36 (1.9%)		60 (5.1%)	2 (8.0%)	188 (3.3%)	16 (11.0%)
Vital status at birth								
Number of livebirths	2579 (97.9%)	103 (85.1%)	1800 (96.7%)		1105 (94.3%)	21 (84.0%)	5484 (96.8%)	124 (84.9%)
Number of stillbirths (>=20 weeks)	46 (1.7%)	16 (13.2%)	61 (3.3%)		58 (5.9%)	3 (12.0%)	165 (2.9%)	19 (13.0%)
Missing birth outcome	8 (0.1%)	2 (1.7%)	2 (0.1%)		9 (0.8%)	0 (0.0%)	19 (0.3%)	2 (1.4%)
Mode of delivery								
Unassisted vaginal/Cephalic	2073 (78.7%)	83 (68.6%)	1387 (74.4%)		937 (79.9%)	19 (76.0%)	4397 (77.6%)	102 (69.9%)
Operative vaginal	1 (<1%)	0 (0.0%)	138 (7.4%)		13 (1.1%)	0 (0.0%)	152 (2.7%)	0 (0.0%)
Vaginal breech	12 (0.5%)	0 (0.0%)	129 (6.9%)		5 (0.4%)	0 (0.0%)	146 (2.6%)	0 (0.0%)
Caesarean section	385 (14.6%)	34 (28.1%)	194 (10.4%)		34 (2.9%)	0 (0.0%)	613 (10.8%)	34 (23.3%)
Missing mode of delivery	162 (6.2%)	4 (3.3%)	15 (0.8%)		183 (15.6%)	6 (24.0%)	360 (6.4%)	10 (6.8%)
Birth weight (Total births)								
Median (IQR)	3010.0 (2705.0, 3292.5)	2843.8 (2347.5, 3160.0)	3092.5 (2800, 3390)		3000.0 (2717.2, 3311.2)	3000.0 (2302.5, 3200.0)	3025.0 (2740.0, 3310.0)	2863.8 (2347.5, 3165.0)
Missing birthweight								
Birth weight categories								
<2500g	312 (11.8%)	36 (29.8%)	198 (10.6%)		116 (9.9%)	5 (20.0%)	626 (11.0%)	41 (28.1%)
2500g to 4000g	1939 (73.6%)	73 (60.3%)	1615 (86.7%)		835 (71.2%)	13 (52.0%)	4389 (77.4%)	86 (58.9%)
>4000g	45 (1.7%)	1 (0.8%)	31 (1.7%)		9 (0.8%)	0 (0.0%)	85 (1.5%)	1 (0.7%)
Missing birth weight	337 (12.8%)	11 (9.1%)	19 (1.0%)		212 (18.1%)	7 (28.0%)	568 (10.0%)	18 (12.3%)
Gestational age at delivery	2579 (97.9%)	115 (95.0%)	1855 (99.6%)		1129 (96.3%)	23 (92.0%)	5563 (98.1%)	138 (94.5%)
Median (IQR)	39.1 (37.3, 40.6)	38.0 (36.0, 39.1)	39.6 (38.0, 40.9)		39.0 (37.1, 40.4)	38.7 (34.4, 40.1)	39.1 (37.6, 40.6)	38.0 (35.9, 39.1)
Missing GA	54 (2.1%)	6 (5.0%)	8 (0.4%)		43 (3.7%)	2 (8.0%)	105 (1.9%)	8 (5.5%)
Preterm birth categories (total births)								
Extremely preterm: <28+0 weeks	31 (1.2%)	5 (4.1%)	23 (1.2%)		21 (1.8%)	1 (4.0%)	75 (1.3%)	6 (4.1%)
Very preterm: 28+0 - 31+6	55 (2.1%)	5 (4.1%)	31 (1.7%)		33 (2.8%)	2 (8.0%)	119 (2.1%)	7 (4.8%)
Moderate preterm: 32+0 - 33+6	91 (3.5%)	6 (5.0%)	36 (1.9%)		29 (2.5%)	2 (8.0%)	156 (2.8%)	8 (5.5%)
Late preterm: 34+0 - 36+6	333 (12.6%)	22 (18.2%)	171 (9.2%)		144 (12.3%)	3 (12.0%)	648 (11.4%)	25 (17.1%)
Total preterm (<37+0 weeks)	510 (19.4%)	38 (31.4%)	261 (14.0%)		227 (19.4%)	8 (32.0%)	998 (17.6%)	46 (31.5%)
Size for gestational age								
Severely Small for Gestational Age (<3rd centile)	166 (6.3%)	11 (9.1%)	142 (7.6%)		78 (6.7%)	3 (12.0%)	386 (6.8%)	14 (9.6%)
Small for Gestational Age (3 rd - 10 th centile)	260 (9.9%)	13 (10.7%)	203 (10.9%)		114 (9.7%)	1 (4.0%)	577 (10.2%)	14 (9.6%)
Appropriate for Gestational Age (10 th to 90 th centile)	1544 (58.6%)	66 (54.5%)	1313 (70.5%)		608 (51.9%)	13 (52.0%)	3465 (61.1%)	79 (54.1%)

Large for Gestational Age (>90th centile)	167 (6.3%)	10 (8.3%)	96 (5.2%)		68 (5.8%)	1 (4.0%)	331 (5.8%)	11 (7.5%)
Extremely Large for Gestational Age (>97th centile)	77 (2.9%)	3 (2.5%)	55 (3.0%)		38 (3.2%)	0 (0.0%)	170 (3.0%)	3 (2.1%)
Missing size for gestational age	419 (15.9%)	18 (14.9%)	54 (2.9%)		266 (22.7%)	7 (28.0%)	739 (13.0%)	25 (17.1%)
Neonatal admission to neonatal unit								
Yes	52 (2.0%)	5 (4.2%)	58 (3.1%)		15 (1.3%)	0 (0.0%)	125 (2.2%)	5 (3.4%)
Missing admission to neonatal unit	440 (16.7%)	23 (19.0%)	80 (4.3%)		290 (24.7%)	9 (36.0%)	812 (14.3%)	32 (21.9%)