

Table S1. Descriptive characteristics of the mothers and babies.

Characteristic	No. of participants (%)	Mean \pm SD
Maternal characteristics	N= 59052	
Age, mean in yrs (sd)		29.2 (5.6)
Body-mass index (kg/m ²):		
< 18.5	3352 (5.7)	
18.5-25	326102 (54.4)	
25.01-30	14452 (24.5)	
>30	7372 (12.5)	
Any prenatal smoking	3197 (5.4)	
Alcohol > 5 units per week	243 (0.4)	
Recreational drugs in pregnancy	393 (0.7)	
Formal education (yrs)		13.0 (3.8)
Single marital status	2945 (5.0)	
Gestation at first ultrasound (days)		95 (27-163) ^a
Gestational age at delivery (wks)		39.0 (37.0 - 41.0) ^a
Pregnancy characteristics		
Hypertension %		
Essential	1092 (1.8)	
Pregnancy induced hypertension	4147 (7.0)	
Pre-eclampsia	1385 (2.3)	
Severe pre-eclampsia	480 (0.8)	
Gestational diabetes	3417 (5.8)	

Caesarean delivery 23474 (39.8)

Fetal/Neonatal characteristics N= 60121

Birth weight (kg) 3.1 (0.6)

Birth length (cm) 48.7 (2.6)

Male fetal sex 30984 (51.6)

Preterm birth < 37 weeks 7094 (12.5)

Stillbirths (per 1000 births) 553 (9.2)

 Antepartum death 445 (7.4)

 Intrapartum death 108 (1.8)

a. Median (interquartile range)

Table S2. Details of congenital abnormalities detected in antepartum death

Case number	Clinical information to describe abnormality from fetal ultrasound	Final Diagnosis
1	Antenatal scan 29 weeks + 1day: single AV valve opening into a large presumed right ventricle. The valve is dysplastic and moderately regurgitant. Flow is purely left to right across an unrestrictive foramen ovale. A left AV valve, the left LV cavity and ascending aorta are hard to identify but transverse aorta has retrograde fill.	Hypoplastic left heart syndrome
2	Hydrocephalus, micrognathia, cleft palate palpable, low set ears, ?chondrodysplasia, ?prune belly abdomen, over riding 2nd and 3rd digits, sac on spine, short sternum	Trisomy 18
3	Hydrocephalus Meningomyelocele	Hydrocephalus, Meningomyelocele
4	TOF, bilateral clubbed feet, 22q11 deletion	TOF
5	Anencephaly with no other abnormalities notes	Anencephaly
6	Single intrauterine gestation with biometry that is internally symmetrical and concordant with gestational age of 22 weeks 0 days. Fetal anatomy is normal with exception of the fetal thorax. There is a large homogenous hyperechoic mass filling the entire right fetal thorax, which measures 4.21 x 3.7 x 2.14cm with a total volume of 17.4mL. The pulmonary artery is enlarged and feeds directly into the centre of this	Lung mass, likely CPAM.
7	Cardiomegaly - Thymic Hypoplasia Splenomegaly - Renal malformation (horse shoe kidney)	Genetic Syndrome = Noonan (probable)
8	Vertebral Dysplasia - liver and spleen hypoplasia Hypoplastic left heart syndrome = aorta hypoplasia + ventricular septal defect	Poly-malformations of the heart, liver, vertebrae
9	Single umbilical artery	Single umbilical artery
10	Neural Tube Defect Bilateral ventriculomegealy chiari malformation	Spina Bifida Hydrocephalus
11	Heart exists more horizontal than normal and left side especially LVOT smaller than expected	small left ventricle, possible aortic coarctation
12	Brain left ventricle dilation. Ambiguous genitalia. Nuchal thickening. Questionable cervical thoracic kyphosis	Thickened nuchal translucency, mild
13	Complex cardiac anomalies. Post axial polydactyly of lower extremities	Complex cardiac anomalies, Post axial polydactyly
14	Suspected bowel atresia	Fetal jejunal obstruction

Table S3. Maternal characteristics comparing antepartum stillborn with live born babies

Condition	Antepartum deaths	Live births N (%)	N	HR (95% CI) ^a
Low socio-economic standing ^b	N=418	N=56 783		
No	291 (69.6)	46075 (81.1)		1.00 (ref)
Yes	127 (30.4)	10708 (18.9)		1.72 (1.29-2.30)
Marital status	439	59367		
Married/cohabiting	390 (88.8)	56427 (95.0)		1.00 (ref)
Single/Widowed/Divorced	49 (11.2)	2940 (5.0)		2.08 (1.51-2.88)
Maternal years of formal education	324	46560		
<6	30 (9.3)	2901 (6.2)		1.94 (1.22-3.10)
6-12	125 (38.6)	17362 (37.3)		1.57 (1.20-2.04)
>12	169 (52.2)	26297 (56.5)		1.00 (ref)
Maternal age (years)	440	59562		
<18	9 (2.0)	1237 (2.1)		0.99 (0.49-1.98)
18-25	120 (27.3)	18615 (31.3)		1.0 (ref)
26-34	234 (53.2)	30864 (51.8)		1.09 (0.86-1.38)
35-39	55 (12.5)	7393 (12.4)		1.01 (0.71-1.43)
≥40	22 (5.0)	1453 (2.4)		2.17 (1.36-3.47)
Maternal height (cm)	392	46770		
≥155	315 (80.4)	46770 (79.0)		1.0 (ref)
<155	77 (19.6)	123430 (21.0)		1.15 (0.88-1.50)
Maternal BMI (kg/m ²)	441	59533		
<18.5	12 (3.3)	3375 (5.8)		0.74 (0.41-1.34)
18.5- 25	199 (54.8)	32428 (56.1)		1.0 (ref)
25.1-30	97 (26.7)	14574 (25.2)		0.97 (0.75-1.26)
30.1-34	34 (9.4)	4461 (7.7)		1.20 (0.83-1.75)
≥35	21 (5.8)	2994 (5.2)		1.18 (0.74-1.86)
Smoking/tobacco	441	59533		

No	409 (92.7)	56314 (94.6)	1.0 (ref)
Yes	32 (7.3)	3219 (5.4)	1.32 (0.90-1.95)
Illicit drug use	442	59534	
No	436 (98.6)	59142 (99.3)	1.0 (ref)
Yes	6 (1.4)	392 (0.7)	1.55 (0.68-3.52)
Alcohol >5 units per week	442	59534	
No	436 (98.6)	59297 (99.6)	1.0 (ref)
Yes	6 (1.4)	237 (0.4)	2.84 (1.26-6.38)
High risk occupation	435	59336	
No	428 (98.4)	58893 (99.3)	1.0 (ref)
Yes	7 (1.6)	443 (0.7)	1.69 (0.79-3.60)

^a Adjusted for country of birth

^b Determined using predefined country specific criteria

^c Mean (SD)

Table S4. Associations between Maternal past medical and obstetric history and antepartum stillbirth

Condition	Antepartum deaths N (%)	Live births N (%)	HR^a (95 % CI)
Diabetes	N= 443	N=59547	
No	435 (98.2)	58 998(99.1)	1.0 (ref)
Yes	8 (1.8)	549 (0.9)	1.99 (0.98-4.03)
Hypertension	443	59547	
No	409 (92.3)	58465 (98.2)	1.0 (ref)
Yes	34 (7.7)	1082 (1.8)	4.19 (2.91-6.05)
Cardiac disease	443	59545	
No	438 (98.9)	59017 (99.1)	1.0 (ref)
Yes	5 (1.1)	528 (0.9)	1.24 (0.51-3.01)
Thyroid disease	443	59545	
No	431 (97.3)	57 657(96.8)	1.0
Yes	12 (2.7)	18 788 (3.2)	0.76 (0.42-1.35)
HIV/AIDS	443	59547	
No	436 (98.4)	59379 (99.7)	1.0 (ref)
Yes	7 (1.6)	168 (0.3)	4.84 (2.28-10.31)
Fertility treatment	441	59466	
No	433 (98.2)	57470 (96.6)	1.0 (ref)
Yes	8 (1.8)	1996 (3.4)	0.54 (0.27-1.10)
Primigravida	445	59567	
Yes	159 (35.7)	23515 (39.5)	1.0 (ref)
No	286 (64.3)	36052 (60.5)	1.21 (0.99-1.48)
Last two pregnancies miscarried ^b	285	36115	
No	258 (90.5)	34072 (94.3)	1.0 (ref)
Yes	27 (9.5)	2043 (5.7)	1.55 (1.02-2.35)

Previous preterm birth ^b	225	28421	
No	192 (85.3)	26129 (91.9)	1.0 (ref)
Yes	33 (14.7)	2292 (8.1)	2.05 (1.53-3.21)
Previous perinatal death ^b	225	28433	
No	206 (91.6)	27180 (95.6)	1.0 (ref)
Yes	19 (8.4)	1253 (4.4)	1.98 (1.22-3.23)

^a Adjusted for country of birth

^b Excluding women in their first pregnancy

Table S5. Conditions first detected in pregnancy and pregnancy-specific conditions and antepartum stillbirth

Condition	Antepartum stillbirth N (%)	Live births N (%)	HR ^a (95% CI)
HIV/AIDS in pregnancy	N= 433	N=59541	
No	426 (98.4)	59342(99.7)	1.0 (ref)
Yes	7 (1.6)	199 (0.3)	4.22 (1.97-9.02)
Lower urinary tract infection	433	59538	
No	369 (85.2)	52419 (88.0)	1.0 (ref)
Yes	64 (14.8)	7119 (12.0)	1.09 (0.81-1.46)
Other infection	433	59538	
No	401 (92.6)	56714 (95.3)	1.0 (ref)
Yes	32 (7.4)	2824 (4.7)	1.32 (0.90-1.95)
Malaria ^b	433	59538	
No	429 (99.1)	59447 (99.8)	1.0 (ref)
Yes	4 (0.9)	91 (0.2)	6.06 (2.27-16.23)
Positive syphilis test ^b	433	59536	
No	431 (99.5)	59481 (99.9)	1.0 (ref)
Yes	2 (0.5)	55 (0.1)	5.20 (1.30-20.86)
Mental illness	434	59538	
No	418 (96.3)	58562(98.4)	1.0 (ref)
Yes	16 (3.7)	976 (1.6)	1.61 (0.94-2.73)
Gestational diabetes	423	59539	
No	416 (96.3)	56071 (94.2)	1.0 (ref)
Yes	16 (3.7)	3468 (5.8)	0.72 (0.43-1.19)
Antepartum haemorrhage	432	59533	
No	373(86.3)	56936 (95.6)	1.0 (ref)
Yes	59 (13.2)	2597 (4.4)	3.68 (2.75-4.92)
Pregnancy induced hypertension	433	59540	

No	383 (88.5)	55314 (92.9)	1.0 (ref)
Yes	50 (11.5)	4226 (7.1)	1.75 (1.29-2.37)
Pre-eclampsia	432	59537	
No	405 (93.8)	58105 (97.6)	1.0 (ref)
Yes	27 (6.2)	1432 (2.4)	3.23 (2.18-4.78)
Severe pre-eclampsia/ eclampsia/ HELLP	432	59539	
No	415 (96.1)	59050 (99.2)	1.0 (ref)
Yes	17 (3.9)	489 (0.8)	5.53 (3.38-9.06)
Multiple pregnancy	445	59567	
No	413 (92.8)	57508 (96.6)	1.0 (ref)
Yes	32 (7.2)	2059(3.4)	2.67 (1.85-3.86)
Gestational age at delivery (weeks)			
16-23.9	98 (22.0)	36 (0.1)	
24-27.9	89 (20.0)	226 (0.4)	
28-32.9	90 (20.2)	862 (1.4)	
>33	168 (37.8)	58443 (98.1)	
Fetal sex	N= 421	N= 59 561	
Male	235 (55.8)	30694 (51.5)	1.21 (1.0-1.46)
Female	186 (44.2)	28867 (48.5)	1.00 (ref)
Congenital anomaly	445	59 561	
No	431 (96.9)	58 256 (97.8)	1.0 (ref)
Yes	14 (3.1)	1305 (2.2)	1.46 (0.86-2.50)
Fetal distress in pregnancy	432	59539	
No	414 (95.8)	58515 (98.3)	1.0 (ref)
Yes	18 (4.2)	1024 (1.7)	2.91 (1.80-4.69)

^a Adjusted for country of birth

^b Included as malaria and syphilis are important global causes of antepartum stillbirth, however less than 5 cases of stillbirth recorded across all sites in this study