650 **Supplemental Figure 1: Sample and variable selection**

651 **[see attached: "ML Supplemental Figure 1.pdf"]**

652 *Figure legend: Participant breakdown and variable inclusion. EFA = exploratory factor*

653 *analysis.*

654   **Supplemental Table 1: Sample Characteristics (pre- and post-imputation)**

Category	Measure	Pre-imputation			Missing (pre-imputation, %)	Post-imputation		
		Livebirths	Stillbirths	P-value[1]		Livebirths	Stillbirths	P-value[1]
Delivery-related (not in models)	Delivery mode (cesarean)	1087 (36.8)	145 (14.8)	**<0.001**	NA			
	Gestational age (GA) at delivery	36.1 ± 5.6	27.9 ± 6.8	**<0.001**	NA			
	Fetal weight (g) at delivery/autopsy	2896 ± 1030	1337 ± 1151	**<0.001**	NA			
Demographics (maternal)	Age (years)	27.6 ± 6.2	27.8 ± 6.8	0.9	0.35			
	Education (years)	13.2 ± 3.0	12.8 ± 2.9	**0.008**	41.0	13.2 ± 2.4	13.0 ± 2.4	**0.006**
	Ethnicity (Hispanic)	753 (35.9)	360 (37.0)	0.5	22.9	755 (25.2)	360 (36.7)	**<0.001**
	Race (minority)	1281 (42.7)	237 (24.1)	**<0.001**	0.00			
	Born in United States	1415 (79.4)	451 (78.6)	0.7	40.8	2551 (85.0)	769 (78.3)	**<0.001**
	Interview conducted in English	1591 (89.0)	510 (88.5)	0.8	40.6	2792 (93.1)	891 (90.7)	**0.016**
Demographics (biologic father of baby)	Ethnicity (Hispanic)	667 (37.8)	204 (35.9)	0.4	41.4	758 (25.3)	359 (36.6)	**<0.001**
	Race (minority)	673 (22.4)	253 (25.8)	**0.032**	0.00			
	Education (years)	13.0 ± 3.3	12.8 ± 3.0	0.087	43.8	13.1 ± 2.7	12.8 ± 2.5	**<0.001**
	Born in United States	1335 (75.6)	431 (75.9)	0.9	41.4	2538 (84.6)	794 (80.9)	**0.006**
Family history	Chromosomal anomaly	70 (2.3)	31 (3.2)	0.2	0.00			
	Congenital disorder	207 (6.9)	79 (8.0)	0.2	0.00			
	Cystic fibrosis	18 (0.6)	5 (0.5)	0.7	0.00			
	Developmental delay	95 (3.2)	31 (3.2)	0.9	0.00			
	Congenital heart disease	176 (5.9)	63 (6.4)	0.5	0.00			
	Neuromuscular disorder	31 (1.0)	18 (1.8)	**0.049**	0.00			
	Neural tube defect	37 (1.2)	15 (1.5)	0.5	0.00			
	Neonatal death	214 (7.1)	84 (8.6)	0.14	0.00			
	Blood disorder	135 (4.5)	69 (7.0)	**0.002**	0.00			
	Intrauterine fetal demise	200 (6.7)	147 (15.0)	**<0.001**	0.00			
	Recurrent pregnancy loss	164 (5.5)	88 (9.0)	**<0.001**	0.00			
	Diabetes	427 (24.1)	173 (30.4)	**0.003**	41.3	431 (14.4)	175 (17.8)	**0.009**
Maternal health history	Any chronic condition	1310 (43.7)	410 (41.8)	0.3	0.00			
	Asthma	202 (11.3)	68 (11.8)	0.7	40.8	202 (6.7)	68 (6.9)	0.8
	Blood disorder	997 (33.2)	321 (32.7)	0.8	0.00			
	Cardiovascular disease	1147 (38.2)	350 (35.6)	0.15	0.00			
	Cancer	20 (1.1)	4 (0.7)	0.4	40.9	20 (0.7)	4 (0.4)	0.4
	Gastrointestinal disorder	816 (27.2)	281 (28.6)	0.4	0.00			
	Hypertension (pre-pregnancy)	264 (14.8)	86 (15.0)	0.9	40.8	266 (8.9)	88 (9.0)	0.9

	Diabetes (pre-pregnancy)	57 (3.2)	36 (6.3)	**0.001**	40.9	58 (1.9)	36 (3.7)	**0.002**
	Obesity (body mass index ≥30)	409 (13.6)	168 (17.1)	**0.007**	0.00			
	Rheumatologic disease	737 (24.6)	241 (24.5)	0.9	0.00			
	Kidney disease	1140 (38.0)	350 (35.6)	0.2	0.00			
	Thyroid disease	63 (2.1)	21 (2.1)	0.9	0.00			
	Mental health condition	838 (27.9)	304 (31.0)	0.069	0.00			
	Depression	825 (46.5)	293 (51.6)	**0.036**	41.2	825 (27.5)	294 (29.9)	0.14
	Seizures	24 (1.3)	12 (2.1)	0.2	40.9	24 (0.8)	12 (1.2)	0.2
	Sexually transmitted infection	239 (8.0)	94 (9.6)	0.11	0.00			
	Surgery	983 (54.0)	342 (56.7)	0.2	39.1	1176 (39.2)	446 (45.4)	**<0.001**
	Urinary tract infection	445 (25.0)	162 (28.2)	0.12	40.9	446 (14.9)	162 (16.5)	0.2
Obstetric history	Intrauterine fetal demise	22 (0.7)	120 (12.2)	**<0.001**	0.00			
	Fertility treatment	360 (12.0)	139 (14.2)	0.077	0.00			
	Spontaneous abortion	280 (32.1)	129 (48.5)	**<0.001**	71.4	431 (14.4)	205 (20.9)	**<0.001**
	Total pregnancies (number)	2.7 ± 1.7	2.8 ± 1.9	0.4	40.8	2.7 ± 1.4	2.7 ± 1.6	0.5
Social history	Received income assistance	909 (30.3)	271 (27.6)	0.11	0.00			
	History of emotional abuse	22 (1.5)	3 (0.6)	0.2	51.6	28 (0.9)	3 (0.3)	0.052
	History of physical abuse	38 (2.5)	9 (1.9)	0.4	50.0	41 (1.4)	10 (1.0)	0.4
	History of sexual abuse	8 (0.6)	0 (0.0)	0.2	56.1	11 (0.4)	2 (0.2)	0.7
	Significant life events 12 months before pregnancy	2.1 ± 2.0	2.5 ± 2.2	**<0.001**	42.5	1.7 ± 1.6	1.9 ± 1.8	**<0.001**
	Marital status (married)	984 (55.2)	283 (49.3)	**0.014**	40.8	1994 (66.5)	597 (60.8)	**0.001**
	Moved during pregnancy	546 (30.6)	176 (30.7)	0.9	40.8	656 (21.9)	181 (18.4)	**0.022**
	Biologic father of baby involved in pregnancy care	1377 (77.2)	411 (71.6)	**0.006**	40.8	2587 (86.2)	816 (83.1)	**0.015**
	Partner desired pregnancy	1255 (75.2)	405 (75.1)	0.9	44.6	2533 (84.4)	829 (84.4)	0.9
	Patient desired pregnancy	979 (55.3)	327 (57.4)	0.4	41.2	1830 (61.0)	665 (67.7)	**<0.001**
	Unstable living situation	148 (4.9)	52 (5.3)	0.7	0.00			
Substance use	Smoking during pregnancy	303 (10.1)	132 (13.4)	**0.004**	0.00			
	Alcohol during pregnancy	708 (23.6)	234 (23.8)	0.9	0.00			
	Other drug use during pregnancy	71 (2.4)	36 (3.7)	**0.029**	0.00			
Prenatal laboratory data	Anemia screen (positive)	543 (18.1)	109 (11.1)	**<0.001**	0.00			
	Rubella screen (positive)	104 (6.2)	35 (6.8)	0.7	45.1	104 (3.5)	35 (3.6)	0.9
	Chlamydia (positive)	68 (5.1)	28 (7.3)	0.10	57.1	68 (2.3)	31 (3.2)	0.12
	Gonorrhea (positive)	16 (1.2)	7 (1.8)	0.4	57.3	16 (0.5)	8 (0.8)	0.3

	Syphilis (positive)	13 (0.8)	3 (0.6)	0.8	44.2	13 (0.4)	4 (0.4)	0.9
	Diabetic screen (positive)	214 (7.1)	52 (5.3)	**0.045**	NA			
	Antibodies (positive)	27 (1.6)	4 (0.7)	0.2	43.2	27 (0.9)	5 (0.5)	0.2
	Anti-D antibodies	1583 (89.2)	517 (91.7)	0.10	41.3	2809 (93.6)	935 (95.2)	0.070
	Urine culture (positive)	259 (25.7)	85 (27.5)	0.5	66.9	324 (10.8)	118 (12.0)	0.3
	Bleeding disorder (labor/delivery)	1223 (40.8)	458 (46.6)	**0.001**	NA			
	Anemia (labor/delivery)	1070 (35.7)	309 (31.4)	**0.018**	NA			
	Leukocytosis (labor/delivery)	982 (32.7)	380 (38.7)	**<0.001**	NA			
	Thrombocytopenia (labor/delivery)	186 (6.2)	79 (8.0)	**0.044**	NA			
	Proteinuria	935 (31.2)	261 (26.6)	**0.006**	NA			
2nd trimester (quad) screen	Down syndrome risk (given as ratio, 1:x)	8328 ± 14358	7163 ± 11637	**0.034**	77.7	7182 ± 8189	7262 ± 7230	**0.049**
	hCG (MoM)	1.07 ± 0.60	1.25 ± 1.06	0.5	78.2	1.15 ± 0.37	1.29 ± 0.58	**<0.001**
	MSAFP (MoM)	1.12 ± 0.60	1.38 ± 0.95	**<0.001**	77.4	1.18 ± 0.36	1.34 ± 0.59	**<0.001**
	UE3 (MoM)	1.06 ± 0.46	0.99 ± 0.44	**0.043**	78.4	1.12 ± 0.28	1.05 ± 0.29	**<0.001**
Prenatal care	Fluid loss	163 (9.1)	83 (14.5)	**<0.001**	NA			
	Abdominal pain (prior to onset of labor)	745 (24.8)	255 (26.0)	0.5	NA			
	Vaginal bleeding	278 (9.3)	118 (12.0)	**0.012**	NA			
	Hospitalization (prior to delivery)	653 (21.8)	203 (20.7)	0.5	NA			
	Preterm labor (prior to delivery)	220 (7.3)	35 (3.6)	**<0.001**	NA			
	Reduced fetal movement	320 (10.7)	343 (34.9)	**<0.001**	NA			
	Elevated blood pressure	630 (21.0)	212 (21.6)	0.7	NA			
	Influenza during pregnancy	608 (34.1)	218 (38.0)	0.088	40.9	615 (20.5)	223 (22.7)	0.14
	Earliest prenatal visit (GA)	12.1 ± 6.7	11.4 ± 5.8	0.085	42.4	18.8 ± 10.2	14.9 ± 7.4	**<0.001**
	Ratio of latest prenatal visit to bGA	0.90 ± 0.08	0.83 ± 0.11	**<0.001**	0.00			
	Ratio of total prenatal visits to bGA	0.12 ± 0.14	0.08 ± 0.12	**<0.001**	0.00			
	GA at which pregnancy discovered	6.2 ± 3.9	6.9 ± 4.6	**0.033**	57.0	7.2 ± 3.1	7.1 ± 3.2	**0.002**
Ultrasound	Fetal anomaly	63 (2.1)	72 (7.3)	**<0.001**	NA			
	Sex (female)	1459 (48.6)	411 (41.9)	**<0.001**				
	10-week ultrasound (completed)	554 (18.5)	196 (20.0)	0.3	0.00			
	Anatomy ultrasound (completed)	1151 (38.4)	421 (42.9)	**0.012**	0.00			
	Abnormal fluid (oligohydramnios or polyhydramnios)	80 (2.7)	97 (9.9)	**<0.001**	NA			

	Abnormal growth (large [>90th percentile] or small [<10th percentile] for gestational age)	65 (2.2)	44 (4.5)	**<0.001**	NA			
	Placental anomalies	131 (4.4)	57 (5.8)	0.065	NA			
	Earliest ultrasound (GA)	16.2 ± 7.9	15.1 ± 7.0	**0.026**	44.6	21.8 ± 9.2	18.9 ± 7.5	**<0.001**
	Ratio of latest ultrasound to bGA	0.72 ± 0.16	0.81 ± 0.14	**<0.001**	NA			

All values given as mean ± standard deviation (continuous measures) or number (percentage) (categorical variables). Empty cells listed in post-imputation columns indicate that variable did not require imputation.

[1]P-values comparing stillbirths versus livebirths; Mann-Whitney test used for continuous measures, Chi-Square for categorical measures. P-values <0.05 are considered significant (bolded).

Abbreviations: hCG = human chorionic gonadotropin; MoM = multiples of median; MSAFP = maternal serum alpha-feto protein; UE3 = unconjugated estriol; GA = gestational age; bGA = gestational age at birth/delivery

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