

Supplemental Online Content

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eTable 2. The Distribution of the Number of Blood Routine Examinations (White Blood Cell Indicators) Throughout the Entire Pregnancy for Each Pregnant Woman

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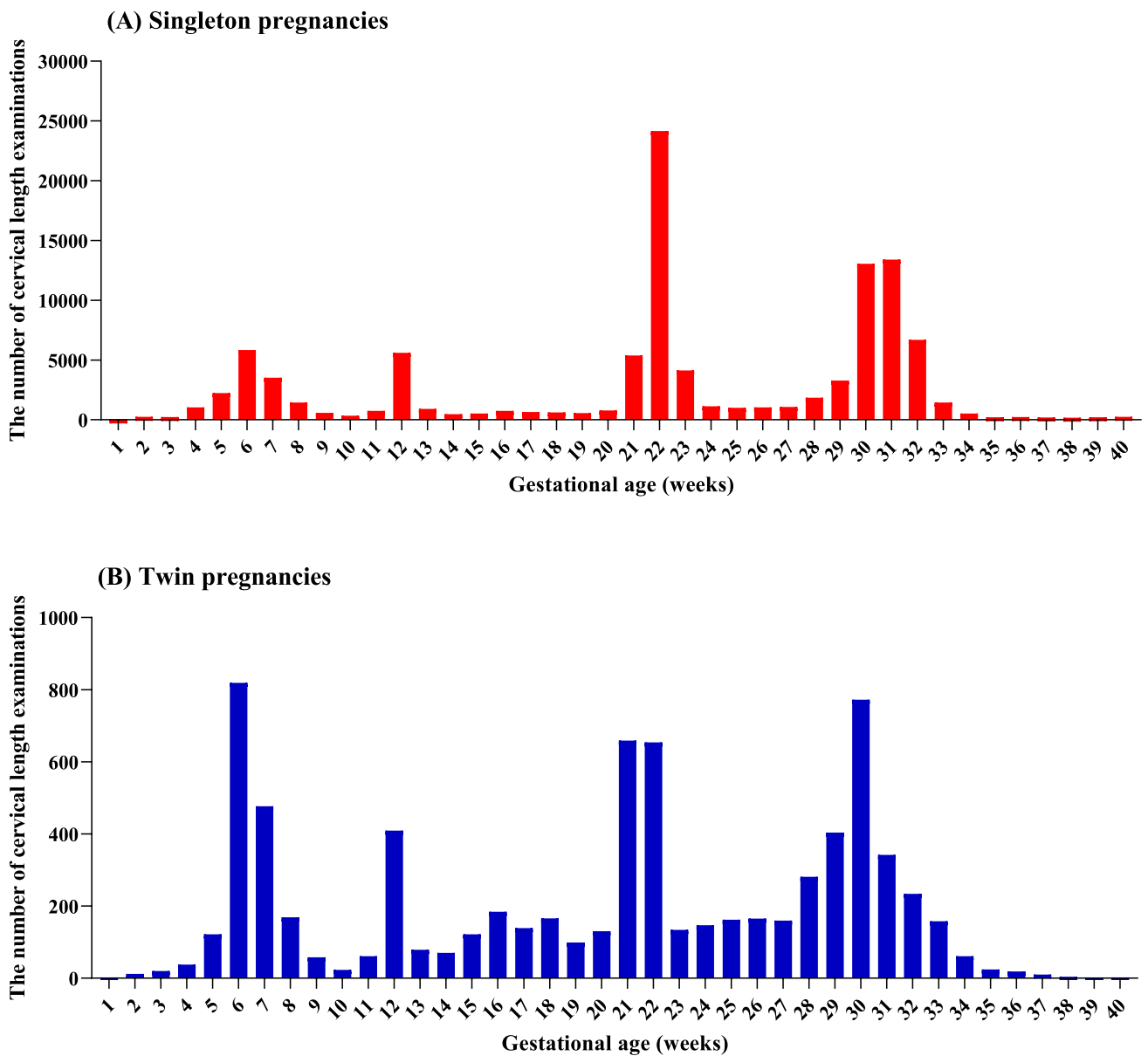
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This supplemental material has been provided by the authors to give readers additional information about their work.

eTable 1. The distribution of the number of cervical length examinations throughout the entire pregnancy for each pregnant woman

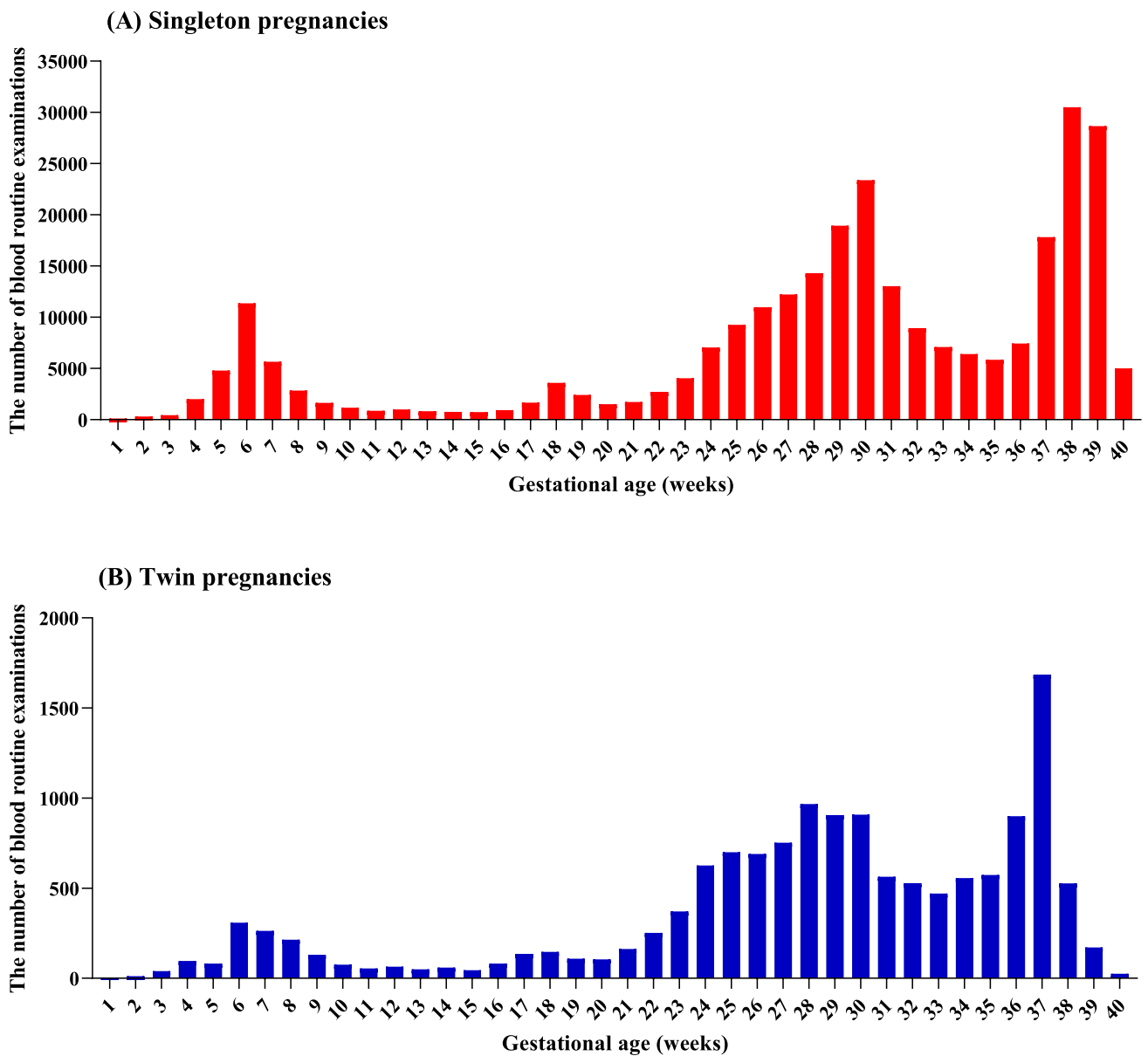
	The number of cervical length examinations			
	2	3	4	≥ 5
Singleton, n(%)	18209 (49.2)	9407 (25.4)	5104 (13.8)	4329 (11.7)
Twin, n(%)	337 (19.7)	304 (17.8)	333 (19.5)	735 (43.0)



eFigure 1. The distribution of the number of cervical length examinations throughout the entire pregnancy for each pregnant woman

eTable 2. The distribution of the number of blood routine examinations (white blood cell indicators) throughout the entire pregnancy for each pregnant woman

	The number of blood routine examinations (white blood cell indicators)										
	2	3	4	5	6	7	8	9	10	11	≥12
Singleton,	114	753	1051	2865	8056	9623	7571	4605	2725	1615	2692
n(%)	(0.3)	(1.8)	(2.5)	(6.9)	(19.3)	(23.1)	(18.2)	(11.1)	(6.5)	(3.9)	(6.5)
Twin,	1	30	59	103	198	291	313	264	187	123	284
n(%)	(0.1)	(1.6)	(3.2)	(5.6)	(10.7)	(15.7)	(16.9)	(14.3)	(10.1)	(6.6)	(15.3)



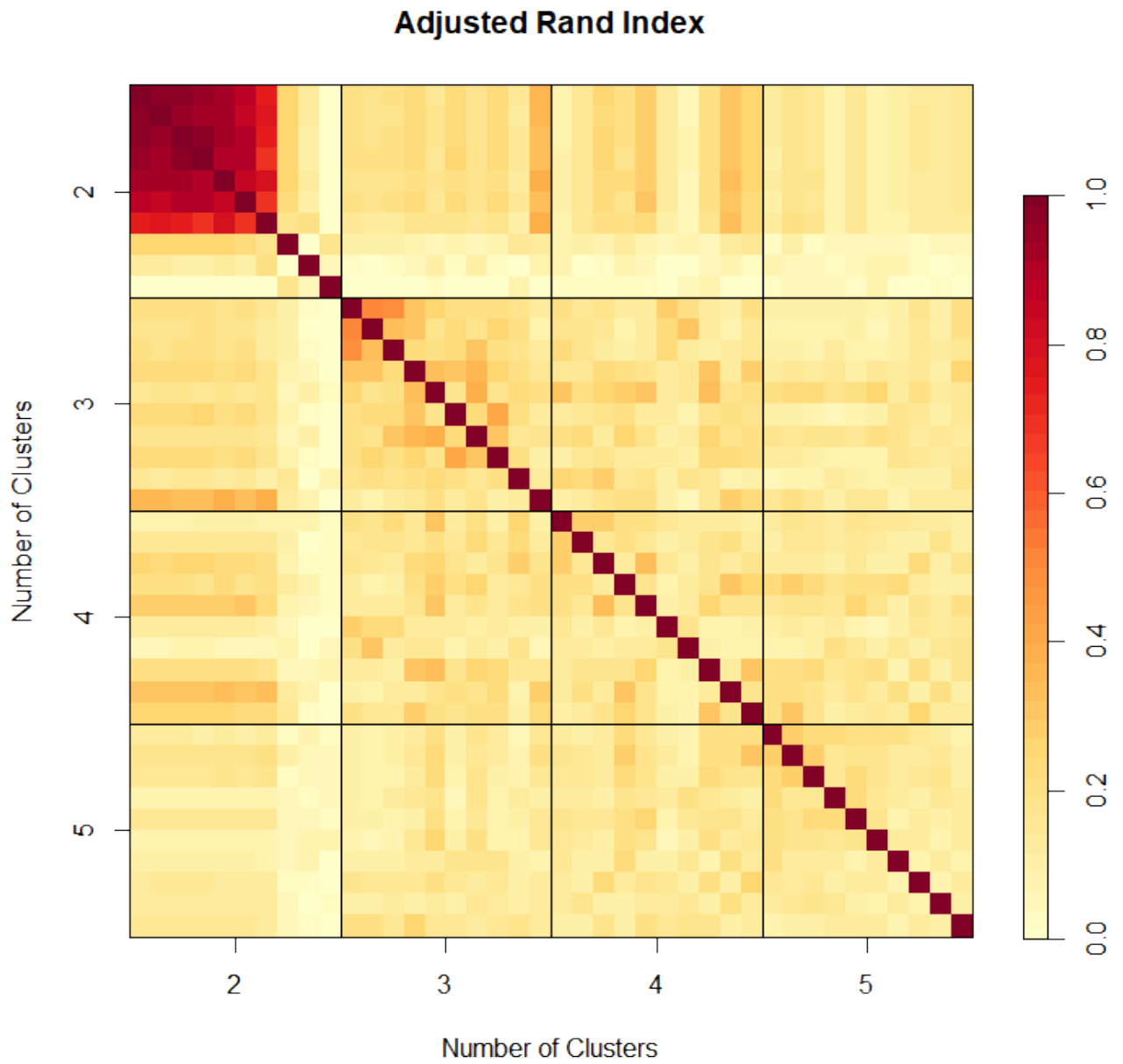
eFigure 2. The distribution of the number of blood routine examinations (white blood cell indicators) throughout the entire pregnancy for each pregnant woman

eTable 3. Neonatal outcomes of singleton pregnancies

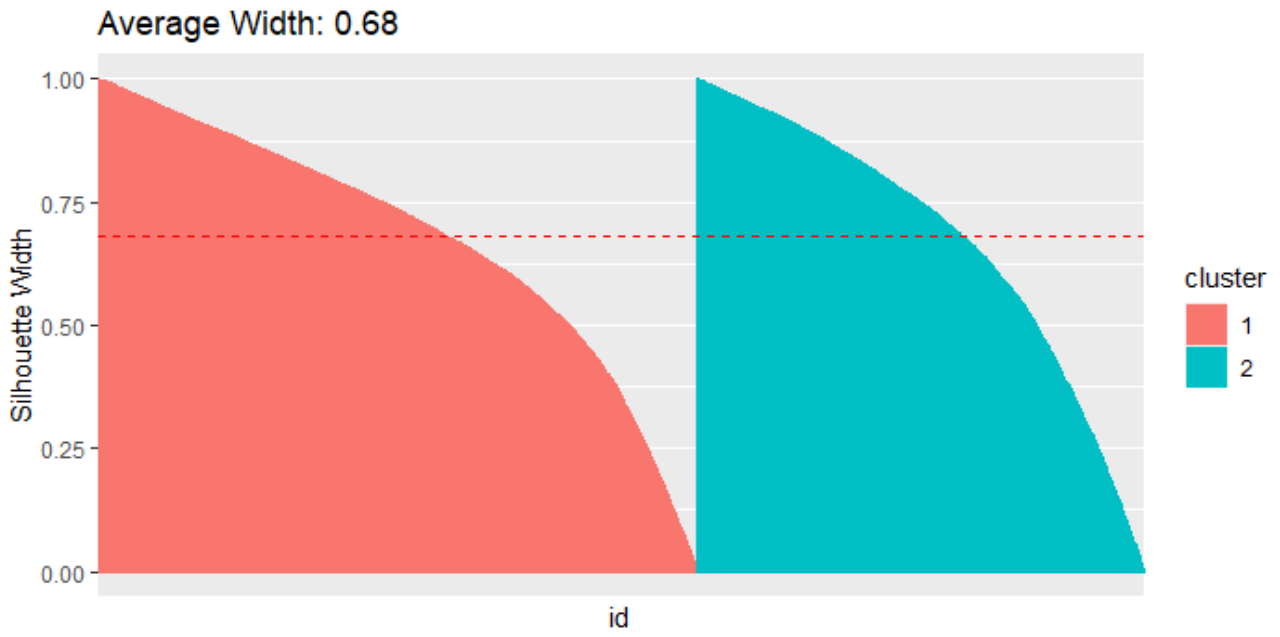
Neonatal Outcome	All (n=43487)	Cervical length	
		Stable (n=21400)	Shortened (n=22087)
Neonatal intensive care unit, n(%)			
No	36802 (88.2)	17974 (88.4)	18828 (88.1)
Yes	4904 (11.8)	2366 (11.6)	2538 (11.9)
Gender of the newborn, n(%)			
Boys	21579 (51.7)	10574 (52.0)	11005 (51.5)
Girls	20127 (48.3)	9766 (48.0)	10361 (48.5)
Birth weight, (g)	3312.0±437.1	3349.8±426.8	3276.0±443.7
Birth length, (cm)	49.5±2.1	49.7±2.0	49.3±2.2
Small for gestational age, n(%)			
No	39259 (94.1)	19310 (94.9)	19949 (93.4)
Yes	2447 (5.9)	1030 (5.1)	1417 (6.6)
Large for gestational age, n(%)			
No	35191 (84.4)	16791 (82.6)	18400 (86.1)
Yes	6515 (15.6)	3549 (17.5)	2966 (13.9)

eTable 4. Neonatal outcomes of twin pregnancies

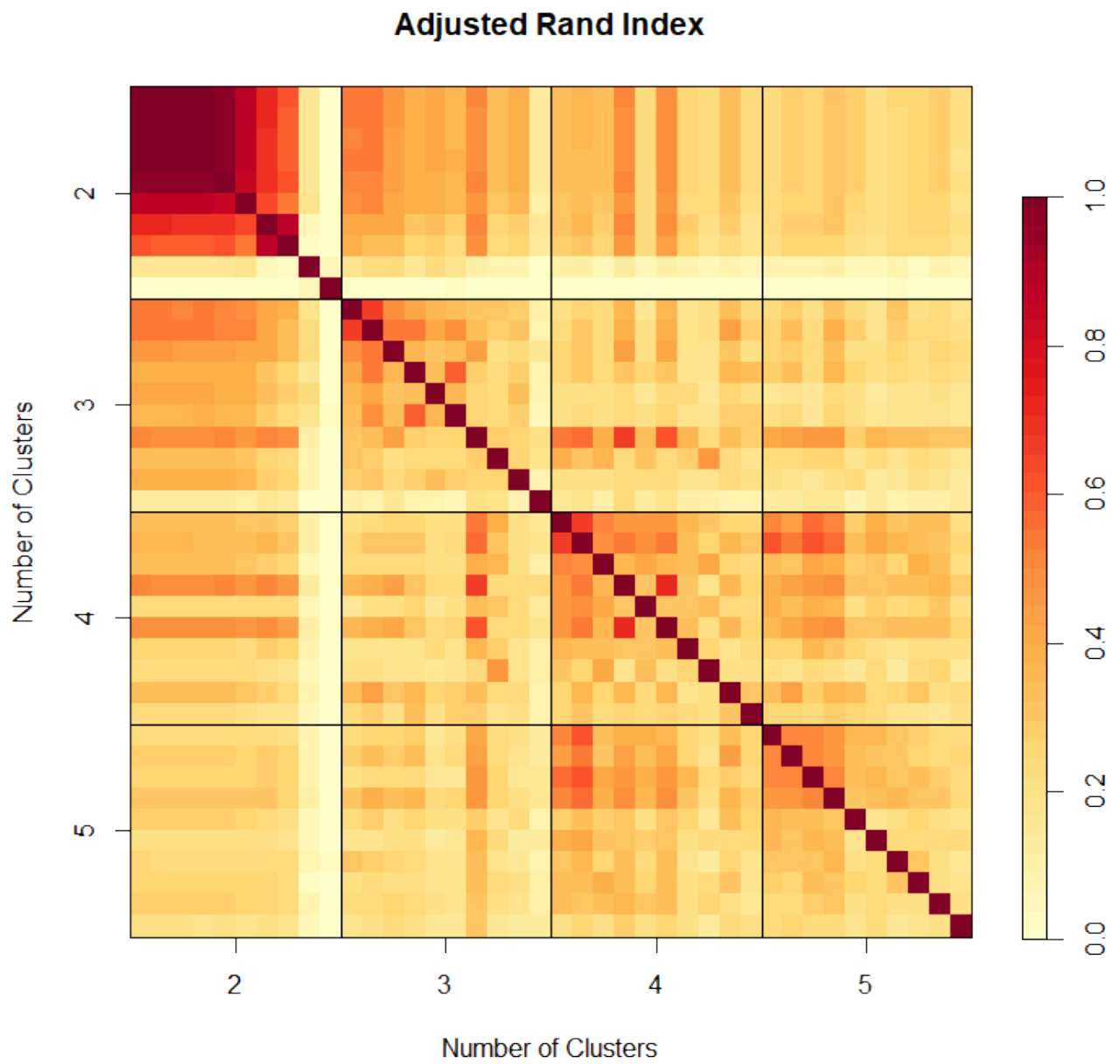
Neonatal Outcome	All (n=1953)	Cervical length	
		Stable (n=1369)	Shortened (n=584)
Neonatal intensive care unit, n(%)			
No	1423 (76.8)	1044 (79.9)	379 (69.4)
Yes	430 (23.2)	263 (20.1)	167 (30.6)
Gender of the newborn of fetus one, n(%)			
Boys	1017 (54.9)	723 (55.3)	294 (53.9)
Girls	836 (45.1)	584 (44.7)	252 (46.2)
Birth weight of fetus one, (g)	2582.9±434.2	2639.6±399.0	2447.2±482.6
Birth length of fetus one, (cm)	46.3±2.9	46.7±2.5	45.5±3.5
Small for gestational age of fetus one, n(%)			
No	1822 (98.3)	1284 (98.2)	538 (98.5)
Yes	31 (1.7)	23 (1.8)	8 (1.5)
Large for gestational age of fetus one, n(%)			
No	1503 (81.1)	1047 (80.1)	456 (83.5)
Yes	350 (18.9)	260 (19.9)	90 (16.5)
Gender of the newborn of fetus two, n(%)			
Boys	971 (52.4)	690 (52.8)	281 (51.5)
Girls	882 (47.6)	617 (47.2)	265 (48.5)
Birth weight of fetus two, (g)	2528.6±425.9	2585.3±396.1	2393.0±463.2
Birth length of fetus two, (cm)	46.2±2.8	46.6±2.6	45.4±3.0
Small for gestational age of fetus two, n(%)			
No	1782 (96.2)	1258 (96.3)	524 (96.0)
Yes	71 (3.8)	49 (3.8)	22 (4.0)
Large for gestational age of fetus two, n(%)			
No	1575 (85.0)	1103 (84.4)	472 (86.5)
Yes	278 (15.0)	204 (15.6)	74 (13.6)



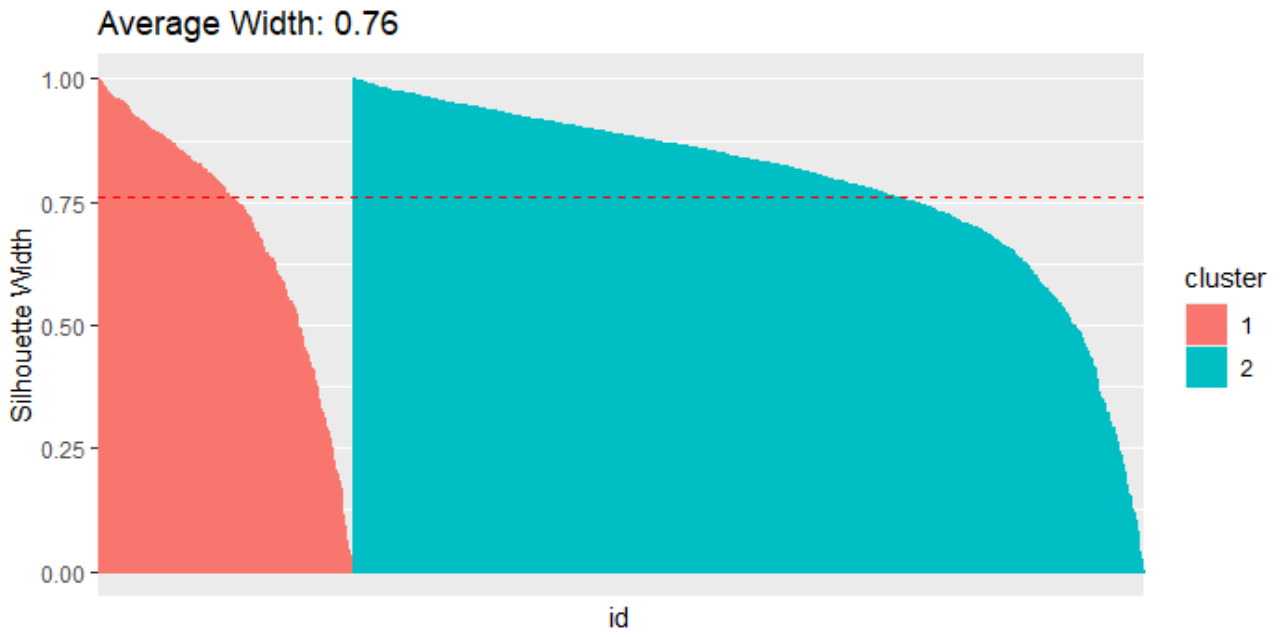
eFigure 3. Adjusted Rand index of longitudinal clustering of cervical length in singleton pregnancies



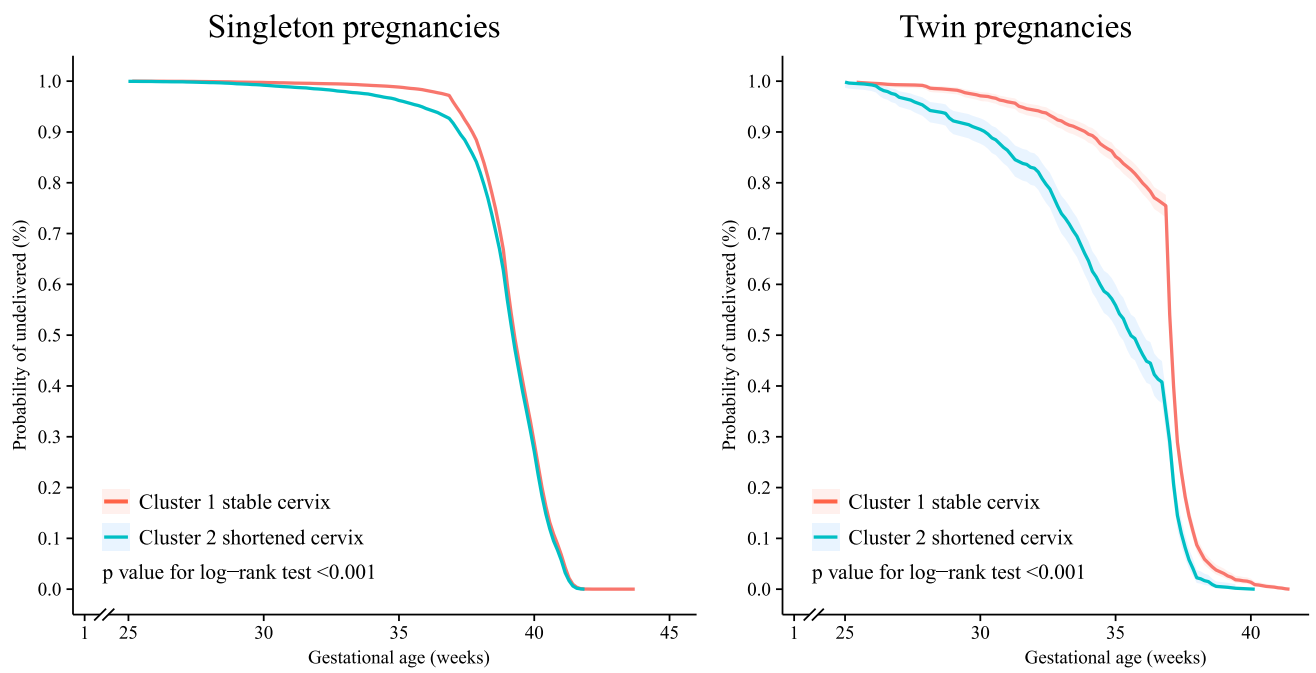
eFigure 4. Average silhouette value of longitudinal clustering of cervical length in singleton pregnancies



eFigure 5. Adjusted Rand index of longitudinal clustering of cervical length in twin pregnancies

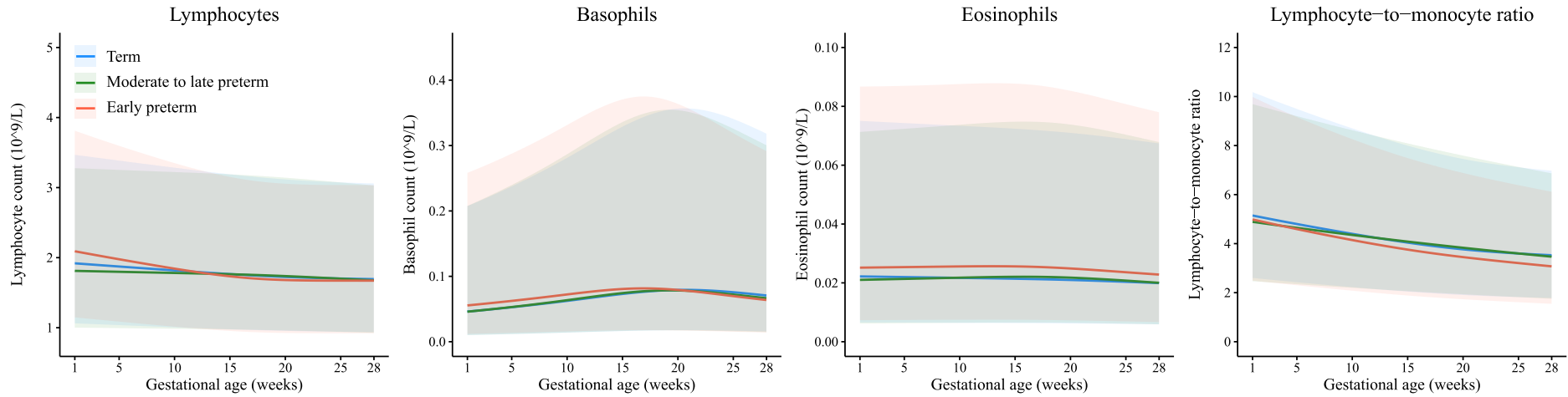


eFigure 6. Average silhouette value of longitudinal clustering of cervical length in twin pregnancies

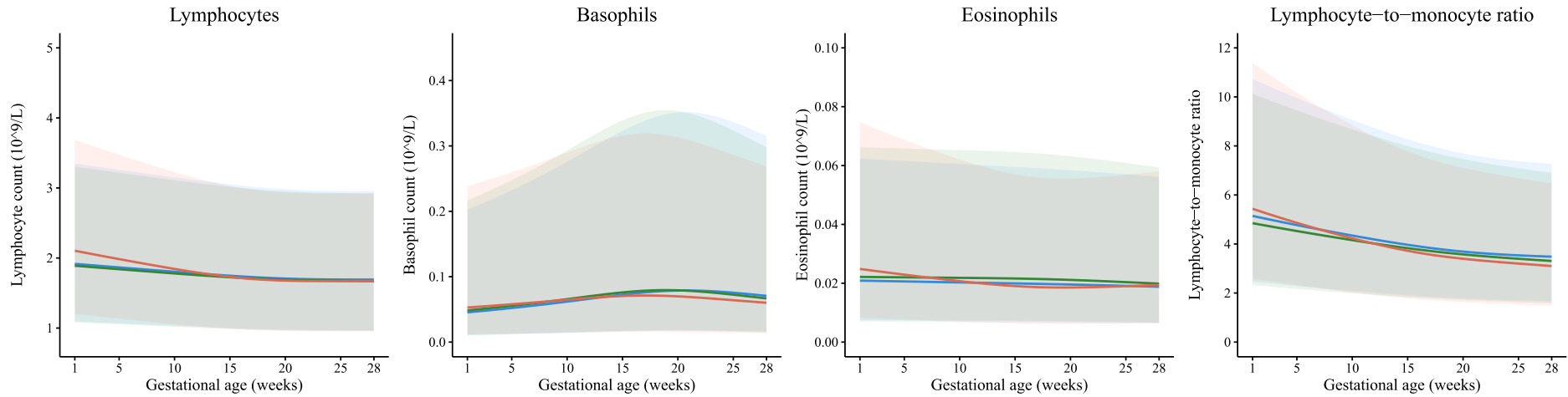


eFigure 7. Survival analysis of gestational age at delivery stratified by cervical length clusters in singleton and twin pregnancies

Cluster 1 stable cervix of singleton pregnancies

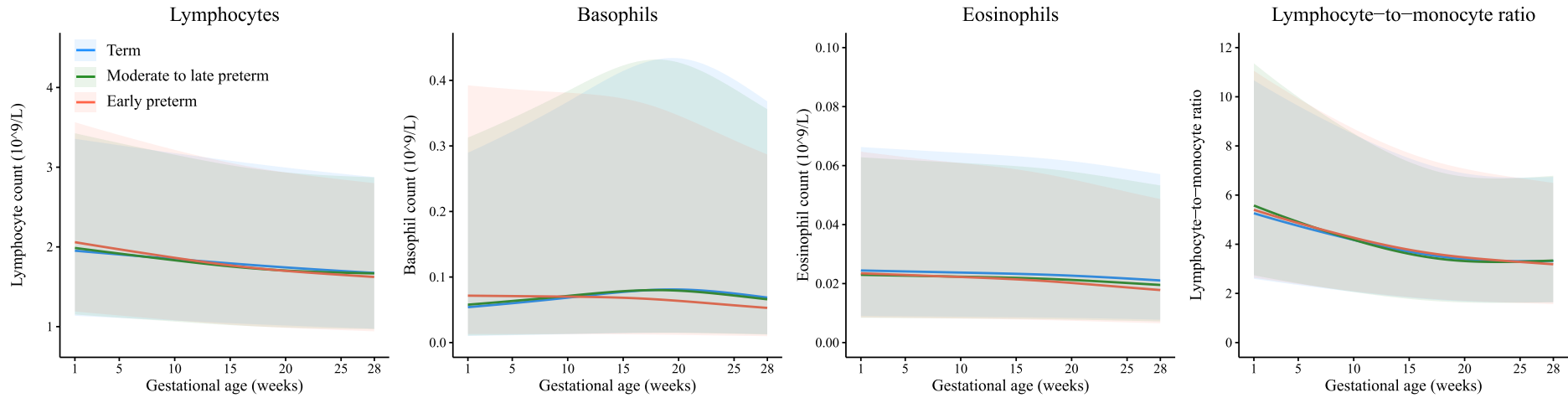


Cluster 2 shortened cervix of singleton pregnancies

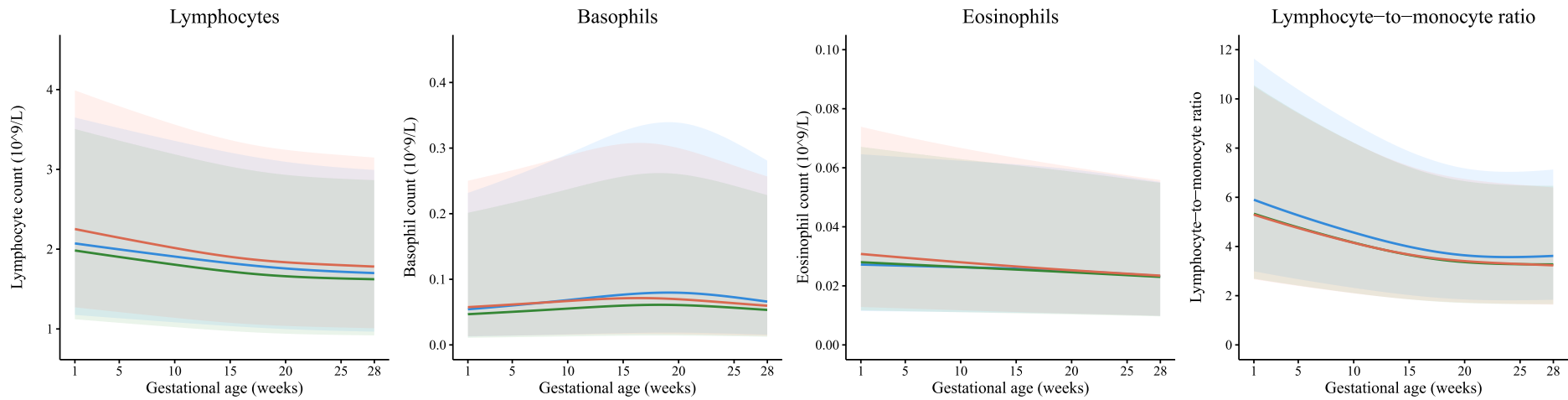


eFigure 8. Gestational age-specific trajectories for lymphocytes, basophils, eosinophils, lymphocyte-to-monocyte ratio stratified by cervical length clusters in singleton pregnancies.

Cluster 1 stable cervix of twin pregnancies

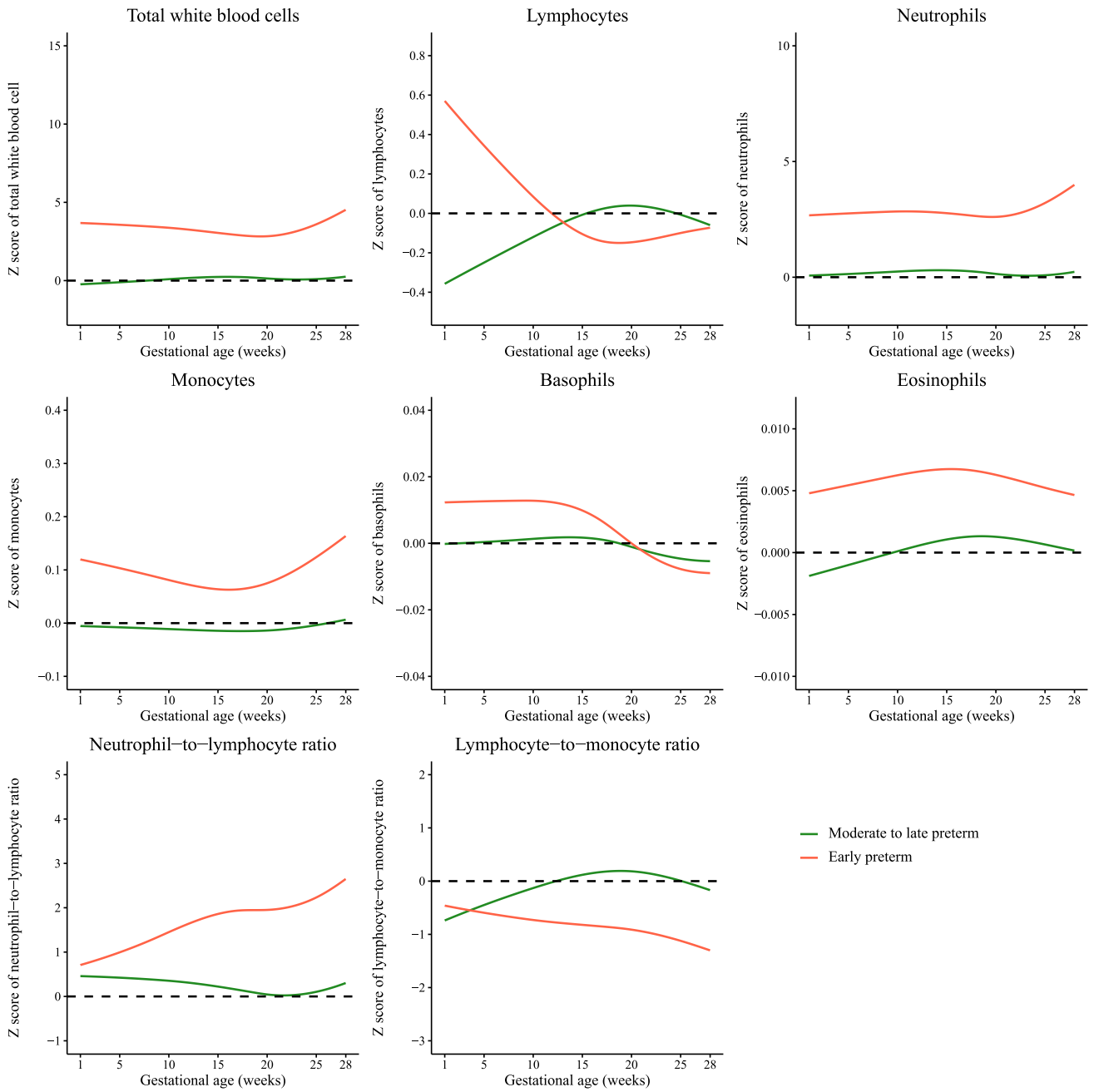


Cluster 2 shortened cervix of twin pregnancies



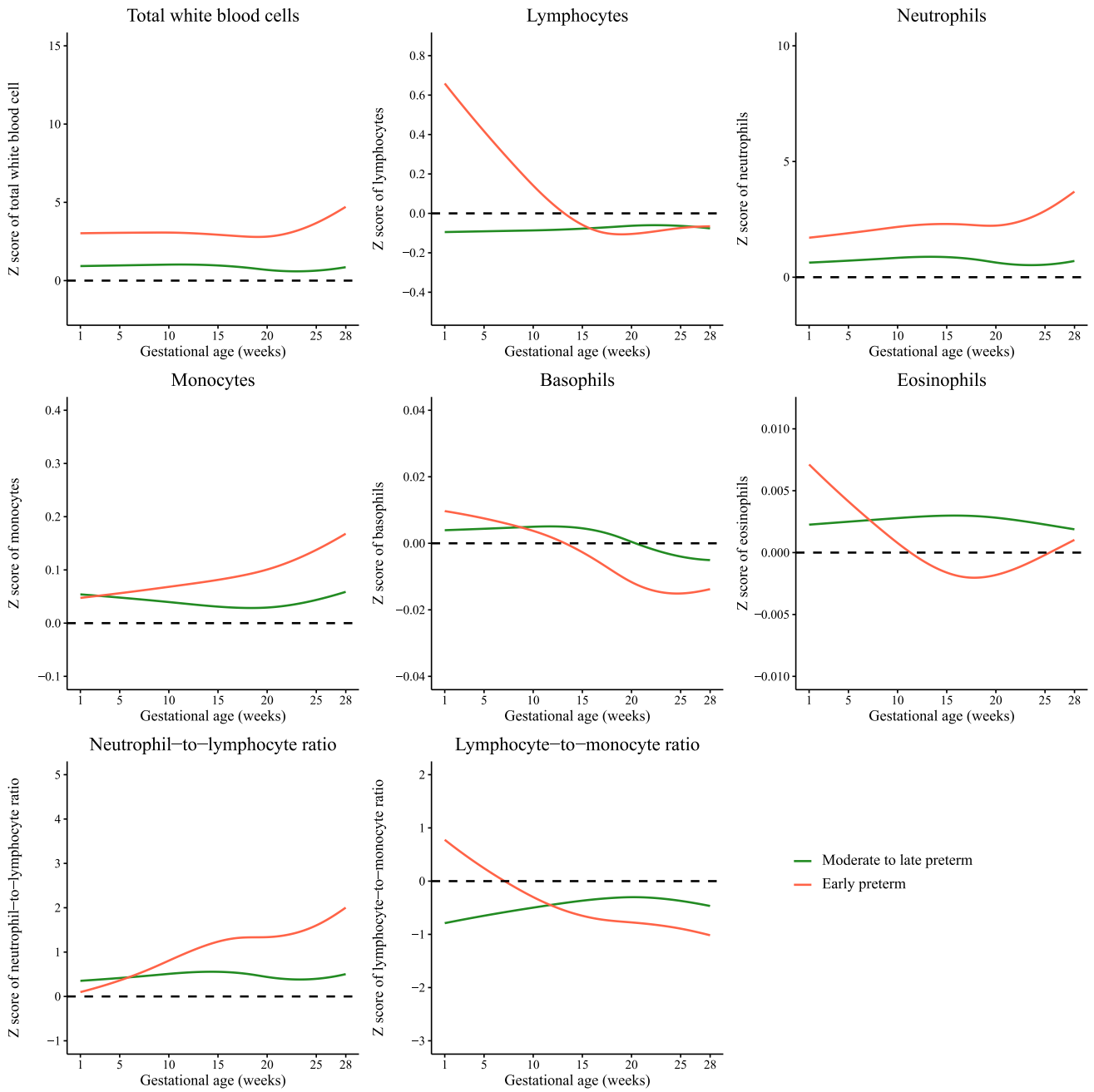
eFigure 9. Gestational age-specific trajectories for lymphocytes, basophils, eosinophils, lymphocyte-to-monocyte ratio stratified by cervical length clusters in twin pregnancies.

Cluster 1 stable cervix of singleton pregnancies



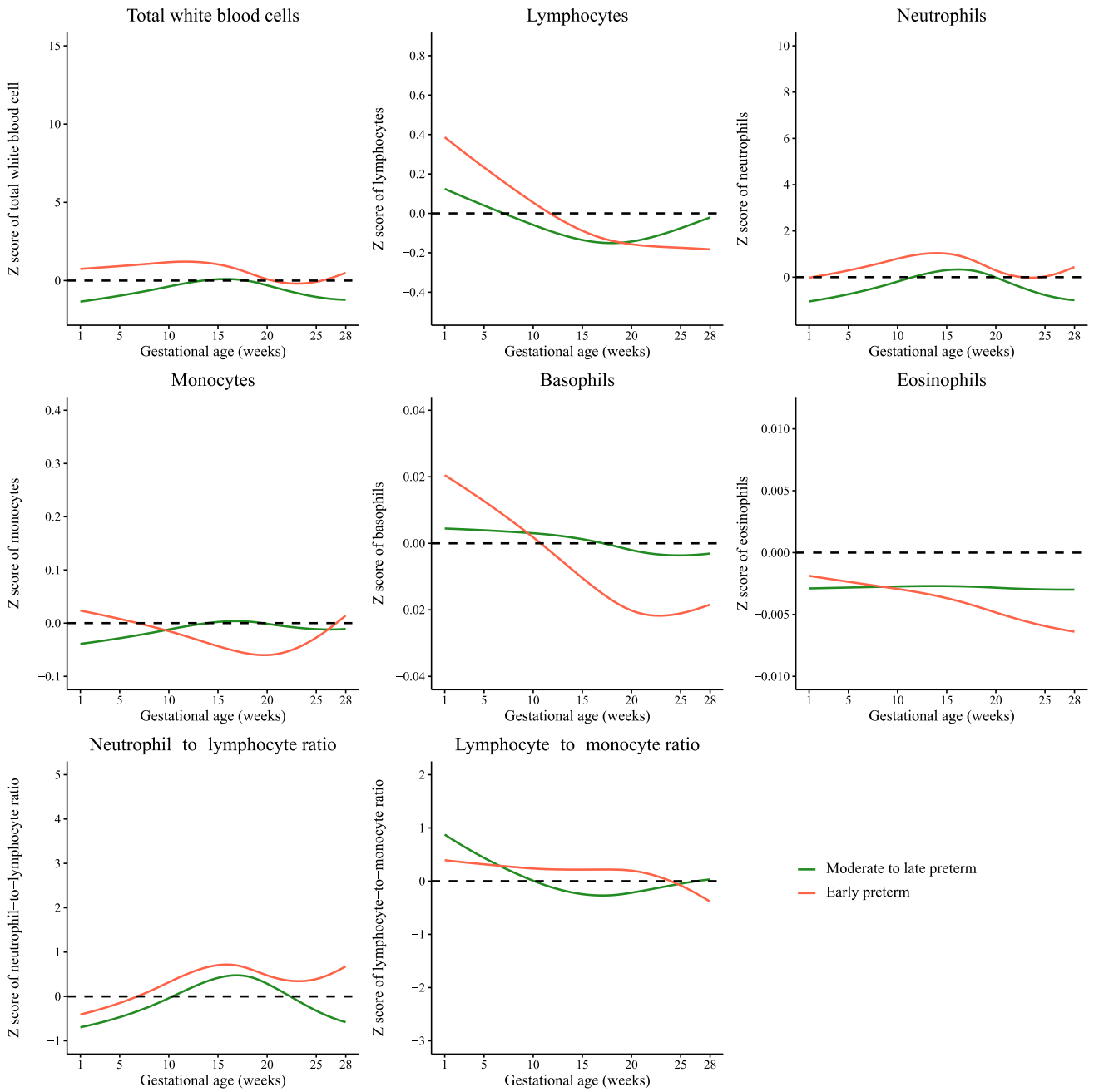
eFigure 10. Gestational age-specific Z-score for white blood cell indicators in singleton pregnancies with stable cervix with reference to term birth

Cluster 2 shortened cervix of singleton pregnancies



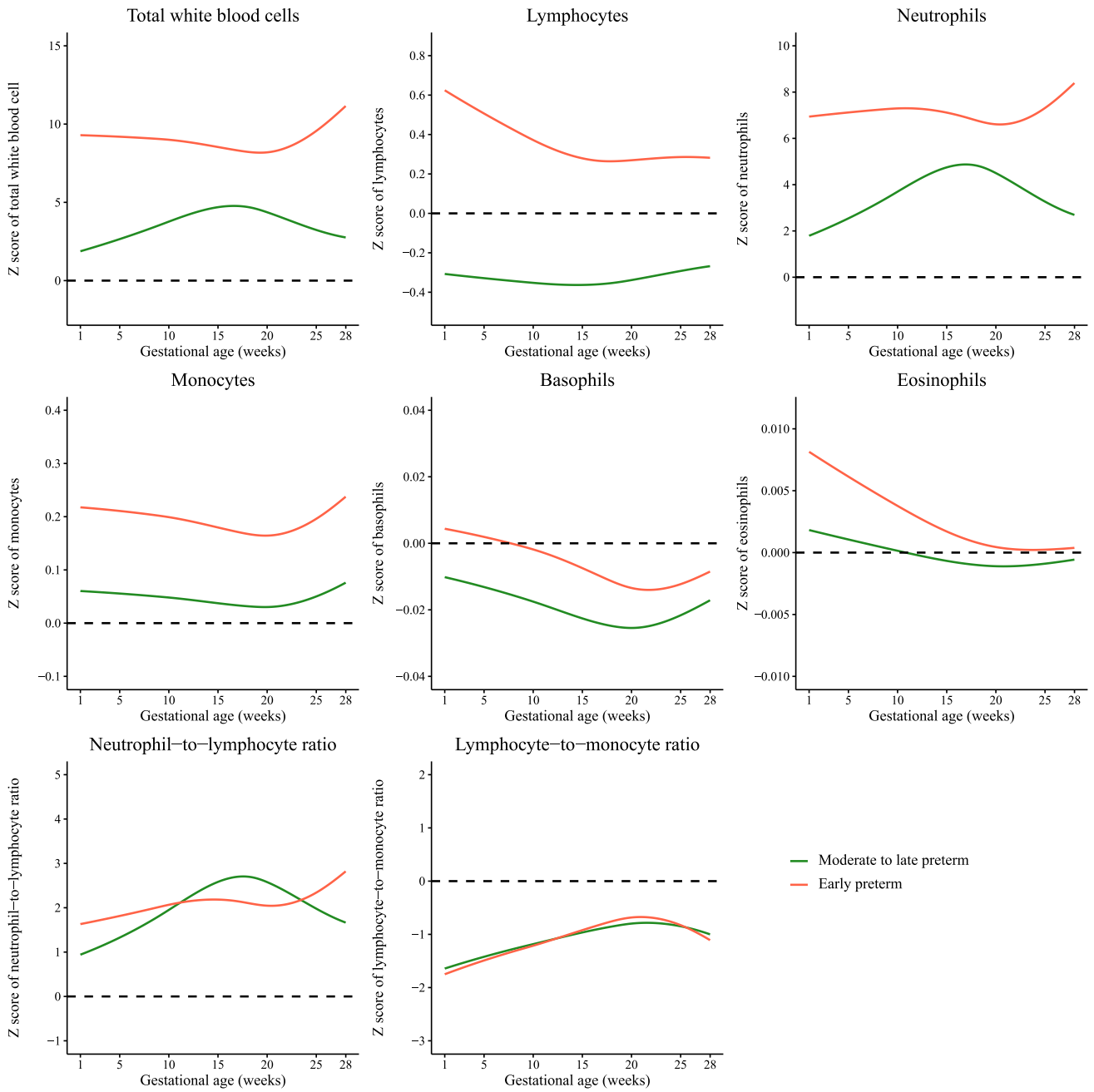
eFigure 11. Gestational age-specific Z-score for white blood cell indicators in singleton pregnancies with shortened cervix with reference to term birth

Cluster 1 stable cervix of twin pregnancies



eFigure 12. Gestational age-specific Z-score for white blood cell indicators in twin pregnancies with stable cervix with reference to term birth

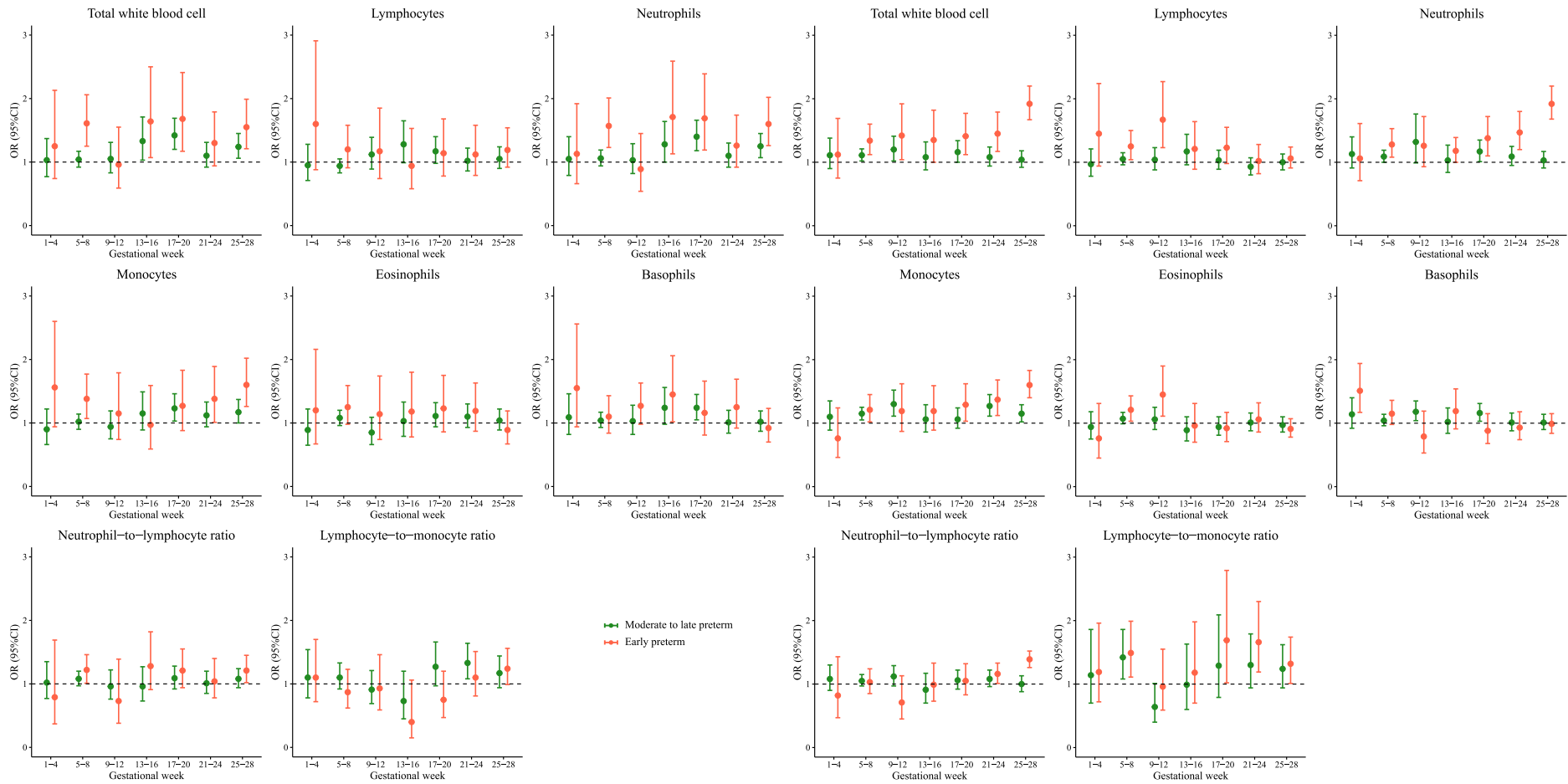
Cluster 2 shortened cervix of twin pregnancies



eFigure 13. Gestational age-specific Z-score for white blood cell indicators in twin pregnancies with shortened cervix with reference to term birth

Cluster 1 stable cervix of singleton pregnancies

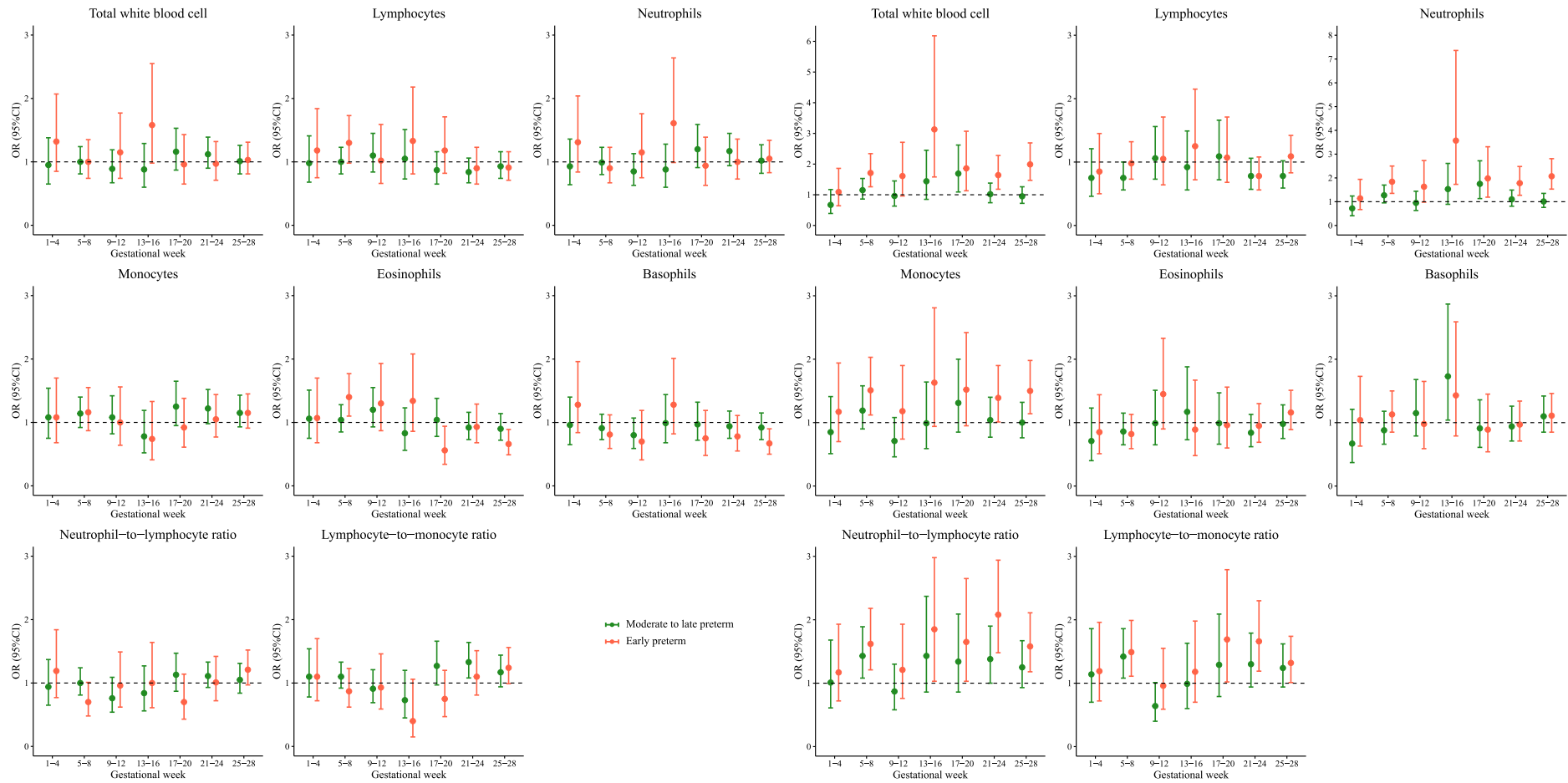
Cluster 2 shortened cervix of singleton pregnancies



eFigure 14. The relationship between white blood cell indicators and spontaneous preterm birth stratified by cervical length clusters in singleton pregnancies.

Cluster 1 stable cervix of twin pregnancies

Cluster 2 shortened cervix of twin pregnancies



eFigure 15. The relationship between white blood cell indicators and spontaneous preterm birth stratified by cervical length clusters in twin pregnancies.

eTable 5. Likelihood ratio test for between-group comparison of white blood cell indicators by gestational week of delivery

White blood cell tests indications	Cervical length trajectory patterns	P value of likelihood ratio test	
		Singleton pregnancies	Twin pregnancies
Total white blood cell	Cluster 1 stable cervix	<0.001	0.204
	Cluster 2 shortened cervix	<0.001	<0.001
Lymphocytes	Cluster 1 stable cervix	0.285	0.670
	Cluster 2 shortened cervix	0.158	0.017
Neutrophils	Cluster 1 stable cervix	<0.001	0.119
	Cluster 2 shortened cervix	<0.001	<0.001
Monocytes	Cluster 1 stable cervix	0.509	0.502
	Cluster 2 shortened cervix	0.399	0.009
Eosinophils	Cluster 1 stable cervix	0.984	0.360
	Cluster 2 shortened cervix	0.191	0.540
Basophils	Cluster 1 stable cervix	0.208	0.091
	Cluster 2 shortened cervix	0.084	0.616
Neutrophil-to-lymphocyte ratio	Cluster 1 stable cervix	<0.001	0.399
	Cluster 2 shortened cervix	<0.001	<0.001
Lymphocyte-to-monocyte ratio	Cluster 1 stable cervix	<0.001	0.073
	Cluster 2 shortened cervix	<0.001	<0.001

Note: To compare whether there are statistically significant differences in the white blood cell indicators trajectories curves among the early preterm birth, moderate to late preterm birth, and term birth, we fitted white blood cell indicators trajectories curves within each group using a random effects model with natural cubic splines and subsequently employed likelihood ratio tests to assess for statistical differences between the three models. The p-values presented in the above table correspond to the intergroup comparisons derived from the likelihood ratio tests.

eTable 6. Estimating the association between white blood cell indicators and spontaneous preterm birth using logistic regression with reference to term birth

White blood cell tests indications	Gestational weeks interval	Spontaneous preterm birth	Cervical length trajectory patterns	Singleton pregnancies			Twin pregnancies		
				OR (95%CI)	P for OR	P for interaction	OR (95%CI)	P for OR	P for interaction
Total white blood cells	1~4	Moderate to late preterm	Cluster 1 stable cervix	1.03 (0.77~1.37)	0.85	0.38	0.95 (0.65~1.38)	0.77	0.17
			Cluster 2 shortened cervix	1.11 (0.90~1.38)	0.34		0.67 (0.39~1.17)	0.16	
		Early preterm	Cluster 1 stable cervix	1.25 (0.74~2.13)	0.40	0.16	1.32 (0.85~2.07)	0.22	0.28
			Cluster 2 shortened cervix	1.12 (0.75~1.69)	0.57		1.09 (0.64~1.86)	0.74	
	5~8	Moderate to late preterm	Cluster 1 stable cervix	1.04 (0.92~1.17)	0.54	<0.01	1.00 (0.81~1.24)	0.99	0.55
			Cluster 2 shortened cervix	1.11 (1.02~1.21)	0.02		1.15 (0.86~1.53)	0.36	
		Early preterm	Cluster 1 stable cervix	1.61 (1.25~2.06)	<0.01	<0.01	1.00 (0.74~1.35)	0.99	<0.01
			Cluster 2 shortened cervix	1.34 (1.12~1.60)	<0.01		1.71 (1.26~2.34)	<0.01	
	9~12	Moderate to late preterm	Cluster 1 stable cervix	1.05 (0.83~1.31)	0.70	<0.01	0.89 (0.67~1.19)	0.44	0.85
			Cluster 2 shortened cervix	1.20 (1.02~1.41)	0.03		0.96 (0.63~1.45)	0.85	
		Early preterm	Cluster 1 stable cervix	0.96 (0.59~1.55)	0.85	0.02	1.15 (0.74~1.77)	0.53	0.33
			Cluster 2 shortened cervix	1.42 (1.04~1.92)	0.03		1.61 (0.96~2.71)	0.07	
	13~16	Moderate to late preterm	Cluster 1 stable cervix	1.33 (1.03~1.71)	0.03	0.11	0.88 (0.60~1.29)	0.50	0.71
			Cluster 2 shortened cervix	1.08 (0.88~1.32)	0.48		1.44 (0.85~2.45)	0.18	
		Early preterm	Cluster 1 stable cervix	1.64 (1.07~2.50)	0.02	<0.01	1.58 (0.98~2.55)	0.06	<0.01
			Cluster 2 shortened cervix	1.35 (1.00~1.82)	0.05		3.13 (1.58~6.18)	<0.01	
	17~20	Moderate to late preterm	Cluster 1 stable cervix	1.42 (1.20~1.69)	<0.01	<0.01	1.16 (0.87~1.53)	0.31	<0.01
			Cluster 2 shortened cervix	1.16 (1.00~1.34)	0.05		1.69 (1.09~2.62)	0.02	
		Early preterm	Cluster 1 stable cervix	1.68 (1.17~2.41)	<0.01	<0.01	0.96 (0.65~1.43)	0.85	0.03
			Cluster 2 shortened cervix	1.41 (1.12~1.77)	<0.01		1.86 (1.13~3.07)	0.02	
	21~24	Moderate to late preterm	Cluster 1 stable cervix	1.10 (0.92~1.31)	0.28	0.20	1.12 (0.90~1.39)	0.31	0.42
			Cluster 2 shortened cervix	1.08 (0.94~1.24)	0.31		1.02 (0.74~1.38)	0.92	
		Early preterm	Cluster 1 stable cervix	1.30 (0.94~1.79)	0.11	<0.01	0.97 (0.71~1.32)	0.83	<0.01
			Cluster 2 shortened cervix	1.45 (1.17~1.79)	<0.01		1.64 (1.18~2.28)	<0.01	
25~28	Moderate to late preterm	Cluster 1 stable cervix	1.24 (1.06~1.45)	<0.01	0.22	1.01 (0.81~1.26)	0.93	0.52	
		Cluster 2 shortened cervix	1.04 (0.92~1.18)	0.54		0.95 (0.72~1.26)	0.74		
	Early preterm	Cluster 1 stable cervix	1.55 (1.21~1.99)	<0.01	<0.01	1.03 (0.81~1.31)	0.79	<0.01	
		Cluster 2 shortened cervix	1.92 (1.67~2.20)	<0.01		1.99 (1.47~2.69)	<0.01		
Lymphocytes	1~4	Moderate to late preterm	Cluster 1 stable cervix	0.95 (0.71~1.28)	0.75	0.70	0.98 (0.68~1.41)	0.92	0.29
			Cluster 2 shortened cervix	0.97 (0.78~1.21)	0.81		0.75 (0.46~1.21)	0.23	
		Early preterm	Cluster 1 stable cervix	1.60 (0.88~2.91)	0.13	0.81	1.18 (0.75~1.84)	0.47	0.86
			Cluster 2 shortened cervix	1.45 (0.94~2.24)	0.09		0.85 (0.50~1.45)	0.55	
	5~8	Moderate to late preterm	Cluster 1 stable cervix	0.94 (0.83~1.05)	0.27	0.40	1.00 (0.81~1.23)	0.97	0.08
			Cluster 2 shortened cervix	1.05 (0.96~1.15)	0.25		0.75 (0.56~1.00)	0.05	
		Early preterm	Cluster 1 stable cervix	1.20 (0.91~1.58)	0.19	<0.01	1.30 (0.98~1.73)	0.07	0.37

			Cluster 2 shortened cervix	1.25 (1.04~1.50)	0.02		0.98 (0.73~1.32)	0.89	
	9~12	Moderate to late preterm	Cluster 1 stable cervix	1.12 (0.89~1.39)	0.34	0.30	1.10 (0.84~1.45)	0.48	0.44
			Cluster 2 shortened cervix	1.04 (0.88~1.23)	0.63		1.06 (0.73~1.56)	0.75	
	9~12	Early preterm	Cluster 1 stable cervix	1.17 (0.74~1.85)	0.51	<0.01	1.02 (0.66~1.59)	0.92	0.72
			Cluster 2 shortened cervix	1.67 (1.23~2.27)	<0.01		1.05 (0.64~1.71)	0.86	
	13~16	Moderate to late preterm	Cluster 1 stable cervix	1.28 (0.99~1.65)	0.06	0.71	1.05 (0.73~1.51)	0.81	0.75
			Cluster 2 shortened cervix	1.17 (0.96~1.44)	0.12		0.92 (0.56~1.49)	0.73	
	13~16	Early preterm	Cluster 1 stable cervix	0.94 (0.58~1.53)	0.81	0.29	1.33 (0.81~2.18)	0.25	0.28
			Cluster 2 shortened cervix	1.21 (0.89~1.64)	0.23		1.25 (0.72~2.15)	0.43	
	17~20	Moderate to late preterm	Cluster 1 stable cervix	1.17 (0.98~1.40)	0.09	0.13	0.87 (0.65~1.16)	0.35	0.85
			Cluster 2 shortened cervix	1.03 (0.89~1.19)	0.70		1.09 (0.72~1.66)	0.67	
	17~20	Early preterm	Cluster 1 stable cervix	1.14 (0.78~1.68)	0.50	0.66	1.18 (0.82~1.71)	0.38	0.60
			Cluster 2 shortened cervix	1.23 (0.98~1.55)	0.07		1.07 (0.68~1.71)	0.76	
	21~24	Moderate to late preterm	Cluster 1 stable cervix	1.02 (0.86~1.22)	0.79	0.30	0.84 (0.67~1.06)	0.15	0.11
			Cluster 2 shortened cervix	0.93 (0.80~1.07)	0.32		0.78 (0.57~1.06)	0.11	
	21~24	Early preterm	Cluster 1 stable cervix	1.12 (0.79~1.58)	0.52	0.87	0.90 (0.65~1.23)	0.50	0.08
			Cluster 2 shortened cervix	1.02 (0.82~1.28)	0.86		0.78 (0.56~1.08)	0.13	
	25~28	Moderate to late preterm	Cluster 1 stable cervix	1.05 (0.90~1.24)	0.51	0.92	0.93 (0.74~1.16)	0.52	0.05
			Cluster 2 shortened cervix	1.00 (0.88~1.13)	0.95		0.78 (0.59~1.02)	0.07	
	25~28	Early preterm	Cluster 1 stable cervix	1.19 (0.92~1.54)	0.20	0.34	0.91 (0.71~1.16)	0.43	0.57
			Cluster 2 shortened cervix	1.06 (0.91~1.24)	0.43		1.09 (0.83~1.42)	0.53	
Neutrophils	1~4	Moderate to late preterm	Cluster 1 stable cervix	1.05 (0.79~1.40)	0.73	0.27	0.93 (0.64~1.36)	0.72	0.21
			Cluster 2 shortened cervix	1.13 (0.91~1.40)	0.25		0.72 (0.41~1.24)	0.23	
	1~4	Early preterm	Cluster 1 stable cervix	1.13 (0.66~1.92)	0.66	0.32	1.31 (0.84~2.04)	0.24	0.24
			Cluster 2 shortened cervix	1.06 (0.71~1.61)	0.77		1.14 (0.67~1.94)	0.62	
	5~8	Moderate to late preterm	Cluster 1 stable cervix	1.06 (0.94~1.19)	0.34	<0.01	0.99 (0.80~1.23)	0.94	0.28
			Cluster 2 shortened cervix	1.09 (1.00~1.19)	0.05		1.27 (0.95~1.70)	0.11	
	5~8	Early preterm	Cluster 1 stable cervix	1.57 (1.23~2.01)	<0.01	<0.01	0.90 (0.67~1.23)	0.52	<0.01
			Cluster 2 shortened cervix	1.28 (1.08~1.53)	<0.01		1.84 (1.35~2.50)	<0.01	
	9~12	Moderate to late preterm	Cluster 1 stable cervix	1.03 (0.82~1.29)	0.80	0.26	0.85 (0.63~1.13)	0.26	0.98
			Cluster 2 shortened cervix	1.18 (1.00~1.39)	0.04		0.95 (0.63~1.44)	0.83	
	9~12	Early preterm	Cluster 1 stable cervix	0.89 (0.54~1.45)	0.63	0.16	1.15 (0.75~1.76)	0.53	0.30
			Cluster 2 shortened cervix	1.26 (0.93~1.72)	0.14		1.63 (0.98~2.73)	0.06	
	13~16	Moderate to late preterm	Cluster 1 stable cervix	1.28 (1.00~1.64)	0.05	0.27	0.88 (0.60~1.28)	0.50	0.67
			Cluster 2 shortened cervix	1.03 (0.84~1.27)	0.75		1.53 (0.89~2.61)	0.12	
	13~16	Early preterm	Cluster 1 stable cervix	1.71 (1.13~2.59)	0.01	<0.01	1.61 (0.99~2.64)	0.06	<0.01
			Cluster 2 shortened cervix	1.32 (0.99~1.76)	0.06		3.57 (1.73~7.36)	<0.01	
	17~20	Moderate to late preterm	Cluster 1 stable cervix	1.40 (1.18~1.66)	<0.01	<0.01	1.20 (0.91~1.59)	0.20	<0.01
			Cluster 2 shortened cervix	1.17 (1.01~1.35)	0.04		1.75 (1.13~2.72)	0.01	
17~20	Early preterm	Cluster 1 stable cervix	1.69 (1.19~2.39)	<0.01	<0.01	0.94 (0.63~1.39)	0.75	0.02	

			Cluster 2 shortened cervix	1.38 (1.10~1.72)	<0.01		1.98 (1.19~3.31)	<0.01	
	21~24	Moderate to late preterm	Cluster 1 stable cervix	1.10 (0.92~1.30)	0.30	0.15	1.17 (0.94~1.45)	0.16	0.19
			Cluster 2 shortened cervix	1.09 (0.95~1.25)	0.24		1.10 (0.81~1.49)	0.56	
		Early preterm	Cluster 1 stable cervix	1.26 (0.92~1.74)	0.15	<0.01	1.00 (0.73~1.36)	0.98	<0.01
			Cluster 2 shortened cervix	1.47 (1.20~1.80)	<0.01		1.78 (1.27~2.48)	<0.01	
	25~28	Moderate to late preterm	Cluster 1 stable cervix	1.25 (1.07~1.45)	<0.01	0.21	1.02 (0.82~1.27)	0.85	0.78
			Cluster 2 shortened cervix	1.03 (0.91~1.17)	0.59		1.01 (0.76~1.35)	0.92	
		Early preterm	Cluster 1 stable cervix	1.60 (1.26~2.02)	<0.01	<0.01	1.05 (0.83~1.34)	0.67	<0.01
			Cluster 2 shortened cervix	1.92 (1.68~2.20)	<0.01		2.07 (1.53~2.81)	<0.01	
Monocytes	1~4	Moderate to late preterm	Cluster 1 stable cervix	0.90 (0.66~1.22)	0.48	0.56	1.08 (0.75~1.54)	0.68	0.84
			Cluster 2 shortened cervix	1.10 (0.89~1.35)	0.38		0.85 (0.51~1.41)	0.53	
		Early preterm	Cluster 1 stable cervix	1.56 (0.94~2.60)	0.08	0.62	1.08 (0.68~1.70)	0.76	0.36
			Cluster 2 shortened cervix	0.76 (0.46~1.24)	0.27		1.17 (0.70~1.94)	0.55	
	5~8	Moderate to late preterm	Cluster 1 stable cervix	1.02 (0.90~1.14)	0.79	<0.01	1.14 (0.92~1.40)	0.23	0.10
			Cluster 2 shortened cervix	1.15 (1.05~1.25)	<0.01		1.19 (0.90~1.58)	0.22	
		Early preterm	Cluster 1 stable cervix	1.38 (1.07~1.77)	0.01	<0.01	1.16 (0.87~1.55)	0.31	<0.01
			Cluster 2 shortened cervix	1.21 (1.02~1.45)	0.03		1.51 (1.12~2.03)	<0.01	
	9~12	Moderate to late preterm	Cluster 1 stable cervix	0.94 (0.75~1.19)	0.63	<0.01	1.08 (0.82~1.42)	0.60	0.42
			Cluster 2 shortened cervix	1.30 (1.11~1.52)	<0.01		0.71 (0.46~1.08)	0.11	
		Early preterm	Cluster 1 stable cervix	1.15 (0.74~1.79)	0.53	0.20	1.00 (0.64~1.56)	0.99	0.23
			Cluster 2 shortened cervix	1.19 (0.87~1.62)	0.29		1.18 (0.74~1.90)	0.49	
	13~16	Moderate to late preterm	Cluster 1 stable cervix	1.15 (0.89~1.49)	0.27	0.42	0.78 (0.52~1.19)	0.25	0.57
			Cluster 2 shortened cervix	1.06 (0.86~1.29)	0.60		0.99 (0.59~1.64)	0.96	
		Early preterm	Cluster 1 stable cervix	0.97 (0.59~1.59)	0.89	0.29	0.74 (0.41~1.33)	0.31	0.65
			Cluster 2 shortened cervix	1.19 (0.89~1.59)	0.23		1.63 (0.94~2.81)	0.08	
	17~20	Moderate to late preterm	Cluster 1 stable cervix	1.23 (1.03~1.46)	0.02	0.16	1.25 (0.95~1.65)	0.12	0.83
			Cluster 2 shortened cervix	1.06 (0.92~1.24)	0.42		1.31 (0.85~2.00)	0.22	
		Early preterm	Cluster 1 stable cervix	1.27 (0.88~1.83)	0.20	0.01	0.92 (0.61~1.38)	0.68	0.13
			Cluster 2 shortened cervix	1.29 (1.03~1.62)	0.03		1.52 (0.95~2.42)	0.08	
	21~24	Moderate to late preterm	Cluster 1 stable cervix	1.12 (0.94~1.33)	0.21	<0.01	1.22 (0.98~1.52)	0.07	0.23
			Cluster 2 shortened cervix	1.27 (1.11~1.45)	<0.01		1.04 (0.77~1.40)	0.81	
		Early preterm	Cluster 1 stable cervix	1.38 (1.01~1.89)	0.04	<0.01	1.05 (0.77~1.44)	0.75	<0.01
			Cluster 2 shortened cervix	1.37 (1.12~1.68)	<0.01		1.39 (1.01~1.90)	0.04	
25~28	Moderate to late preterm	Cluster 1 stable cervix	1.17 (1.00~1.37)	0.05	0.02	1.15 (0.93~1.43)	0.21	0.62	
		Cluster 2 shortened cervix	1.15 (1.02~1.29)	0.03		1.00 (0.76~1.32)	0.99		
	Early preterm	Cluster 1 stable cervix	1.60 (1.26~2.02)	<0.01	<0.01	1.15 (0.91~1.45)	0.26	<0.01	
		Cluster 2 shortened cervix	1.60 (1.40~1.83)	<0.01		1.50 (1.14~1.98)	<0.01		
Eosinophils	1~4	Moderate to late preterm	Cluster 1 stable cervix	0.89 (0.65~1.22)	0.46	0.43	1.06 (0.75~1.51)	0.73	0.48
			Cluster 2 shortened cervix	0.94 (0.75~1.18)	0.62		0.71 (0.40~1.23)	0.22	
		Early preterm	Cluster 1 stable cervix	1.20 (0.67~2.16)	0.54	0.53	1.07 (0.68~1.70)	0.77	0.93

			Cluster 2 shortened cervix	0.76 (0.45~1.31)	0.33		0.85 (0.51~1.44)	0.55	
	5~8	Moderate to late preterm	Cluster 1 stable cervix	1.08 (0.96~1.20)	0.20	0.89	1.04 (0.85~1.28)	0.71	0.61
			Cluster 2 shortened cervix	1.07 (0.99~1.17)	0.10		0.86 (0.65~1.15)	0.31	
	5~8	Early preterm	Cluster 1 stable cervix	1.25 (0.98~1.59)	0.08	<0.01	1.40 (1.10~1.77)	<0.01	0.95
			Cluster 2 shortened cervix	1.21 (1.03~1.43)	0.02		0.82 (0.59~1.13)	0.22	
	9~12	Moderate to late preterm	Cluster 1 stable cervix	0.85 (0.66~1.09)	0.20	0.71	1.20 (0.93~1.55)	0.17	0.29
			Cluster 2 shortened cervix	1.06 (0.90~1.25)	0.48		0.99 (0.65~1.51)	0.98	
	9~12	Early preterm	Cluster 1 stable cervix	1.14 (0.74~1.74)	0.55	<0.01	1.30 (0.87~1.93)	0.20	0.59
			Cluster 2 shortened cervix	1.45 (1.11~1.90)	<0.01		1.45 (0.90~2.33)	0.12	
	13~16	Moderate to late preterm	Cluster 1 stable cervix	1.03 (0.79~1.33)	0.83	0.49	0.83 (0.56~1.23)	0.35	0.97
			Cluster 2 shortened cervix	0.89 (0.72~1.10)	0.29		1.17 (0.73~1.88)	0.51	
	13~16	Early preterm	Cluster 1 stable cervix	1.18 (0.78~1.80)	0.43	0.88	1.34 (0.86~2.08)	0.19	0.63
			Cluster 2 shortened cervix	0.96 (0.70~1.31)	0.80		0.89 (0.48~1.67)	0.73	
	17~20	Moderate to late preterm	Cluster 1 stable cervix	1.11 (0.94~1.32)	0.22	0.96	1.04 (0.78~1.38)	0.79	0.99
			Cluster 2 shortened cervix	0.94 (0.81~1.10)	0.45		0.99 (0.66~1.47)	0.95	
	17~20	Early preterm	Cluster 1 stable cervix	1.23 (0.86~1.75)	0.26	0.77	0.56 (0.34~0.94)	0.03	0.14
			Cluster 2 shortened cervix	0.92 (0.71~1.17)	0.49		0.96 (0.60~1.56)	0.88	
	21~24	Moderate to late preterm	Cluster 1 stable cervix	1.10 (0.93~1.30)	0.28	0.50	0.92 (0.73~1.16)	0.47	0.19
			Cluster 2 shortened cervix	1.01 (0.88~1.16)	0.89		0.84 (0.62~1.13)	0.24	
	21~24	Early preterm	Cluster 1 stable cervix	1.19 (0.87~1.63)	0.28	0.29	0.93 (0.68~1.29)	0.68	0.57
			Cluster 2 shortened cervix	1.06 (0.86~1.32)	0.57		0.95 (0.69~1.30)	0.74	
	25~28	Moderate to late preterm	Cluster 1 stable cervix	1.04 (0.89~1.22)	0.61	0.73	0.90 (0.72~1.14)	0.39	0.44
			Cluster 2 shortened cervix	0.97 (0.86~1.10)	0.62		0.98 (0.75~1.28)	0.88	
	25~28	Early preterm	Cluster 1 stable cervix	0.89 (0.67~1.19)	0.43	0.11	0.66 (0.49~0.89)	<0.01	0.55
			Cluster 2 shortened cervix	0.91 (0.78~1.07)	0.25		1.16 (0.89~1.51)	0.28	
Basophils	1~4	Moderate to late preterm	Cluster 1 stable cervix	1.09 (0.82~1.46)	0.55	0.24	0.96 (0.65~1.40)	0.82	0.19
			Cluster 2 shortened cervix	1.14 (0.92~1.40)	0.23		0.67 (0.37~1.21)	0.18	
	1~4	Early preterm	Cluster 1 stable cervix	1.55 (0.94~2.56)	0.09	<0.01	1.28 (0.84~1.96)	0.24	0.42
			Cluster 2 shortened cervix	1.51 (1.17~1.94)	<0.01		1.04 (0.63~1.73)	0.87	
	5~8	Moderate to late preterm	Cluster 1 stable cervix	1.04 (0.93~1.17)	0.47	0.06	0.91 (0.73~1.13)	0.40	0.25
			Cluster 2 shortened cervix	1.04 (0.96~1.14)	0.33		0.88 (0.66~1.18)	0.40	
	5~8	Early preterm	Cluster 1 stable cervix	1.10 (0.84~1.43)	0.50	0.82	0.81 (0.59~1.12)	0.21	0.97
			Cluster 2 shortened cervix	1.15 (0.98~1.36)	0.09		1.13 (0.85~1.50)	0.39	
	9~12	Moderate to late preterm	Cluster 1 stable cervix	1.03 (0.82~1.28)	0.80	<0.01	0.80 (0.59~1.07)	0.13	0.98
			Cluster 2 shortened cervix	1.18 (1.04~1.35)	0.01		1.15 (0.79~1.68)	0.47	
	9~12	Early preterm	Cluster 1 stable cervix	1.27 (0.98~1.63)	0.07	0.71	0.70 (0.41~1.19)	0.18	0.33
			Cluster 2 shortened cervix	0.79 (0.53~1.19)	0.26		0.98 (0.59~1.65)	0.95	
	13~16	Moderate to late preterm	Cluster 1 stable cervix	1.24 (0.98~1.56)	0.07	0.12	0.99 (0.68~1.44)	0.95	0.08
			Cluster 2 shortened cervix	1.02 (0.84~1.24)	0.85		1.73 (1.04~2.87)	0.04	
13~16	Early preterm	Cluster 1 stable cervix	1.45 (1.02~2.06)	0.04	0.03	1.28 (0.82~2.01)	0.28	0.16	

			Cluster 2 shortened cervix	1.19 (0.91~1.54)	0.20		1.43 (0.79~2.59)	0.24	
	17~20	Moderate to late preterm	Cluster 1 stable cervix	1.24 (1.05~1.45)	<0.01	<0.01	0.97 (0.72~1.32)	0.85	0.35
			Cluster 2 shortened cervix	1.16 (1.03~1.31)	0.01		0.91 (0.61~1.36)	0.64	
		Early preterm	Cluster 1 stable cervix	1.16 (0.81~1.66)	0.41	0.63	0.75 (0.48~1.19)	0.22	0.35
			Cluster 2 shortened cervix	0.88 (0.68~1.15)	0.36		0.89 (0.54~1.45)	0.64	
	21~24	Moderate to late preterm	Cluster 1 stable cervix	1.01 (0.84~1.20)	0.95	0.82	0.94 (0.75~1.18)	0.59	0.64
			Cluster 2 shortened cervix	1.01 (0.88~1.16)	0.88		0.94 (0.71~1.26)	0.70	
		Early preterm	Cluster 1 stable cervix	1.25 (0.92~1.69)	0.15	0.84	0.78 (0.55~1.11)	0.17	0.40
			Cluster 2 shortened cervix	0.93 (0.74~1.18)	0.57		0.97 (0.71~1.34)	0.87	
	25~28	Moderate to late preterm	Cluster 1 stable cervix	1.02 (0.87~1.19)	0.84	0.80	0.92 (0.73~1.15)	0.46	0.87
			Cluster 2 shortened cervix	1.01 (0.90~1.14)	0.83		1.10 (0.85~1.42)	0.48	
		Early preterm	Cluster 1 stable cervix	0.92 (0.70~1.23)	0.59	0.71	0.67 (0.50~0.90)	<0.01	0.46
			Cluster 2 shortened cervix	0.99 (0.84~1.15)	0.85		1.11 (0.85~1.46)	0.43	
Neutrophil-to-lymphocyte ratio	1~4	Moderate to late preterm	Cluster 1 stable subgroup	1.02 (0.77~1.35)	0.89	0.75	0.94 (0.65~1.37)	0.75	0.93
			Cluster 2 shortened subgroup	1.08 (0.90~1.30)	0.42		1.01 (0.61~1.68)	0.96	
		Early preterm	Cluster 1 stable subgroup	0.79 (0.37~1.69)	0.54	0.94	1.19 (0.77~1.84)	0.42	0.96
			Cluster 2 shortened subgroup	0.82 (0.47~1.43)	0.48		1.17 (0.72~1.93)	0.52	
	5~8	Moderate to late preterm	Cluster 1 stable subgroup	1.08 (0.97~1.20)	0.15	0.81	1.00 (0.81~1.24)	0.98	0.03
			Cluster 2 shortened subgroup	1.05 (0.97~1.15)	0.23		1.43 (1.08~1.89)	0.01	
		Early preterm	Cluster 1 stable subgroup	1.22 (1.01~1.46)	0.04	0.26	0.70 (0.48~1.01)	0.06	<0.01
			Cluster 2 shortened subgroup	1.03 (0.85~1.24)	0.77		1.62 (1.21~2.18)	<0.01	
	9~12	Moderate to late preterm	Cluster 1 stable subgroup	0.96 (0.76~1.22)	0.76	0.29	0.76 (0.54~1.09)	0.13	0.42
			Cluster 2 shortened subgroup	1.12 (0.97~1.29)	0.12		0.87 (0.58~1.30)	0.50	
		Early preterm	Cluster 1 stable subgroup	0.73 (0.38~1.39)	0.33	0.95	0.96 (0.62~1.49)	0.86	0.41
			Cluster 2 shortened subgroup	0.71 (0.45~1.13)	0.15		1.21 (0.76~1.93)	0.42	
	13~16	Moderate to late preterm	Cluster 1 stable subgroup	0.96 (0.73~1.27)	0.79	0.66	0.84 (0.56~1.27)	0.42	0.13
			Cluster 2 shortened subgroup	0.91 (0.70~1.17)	0.45		1.43 (0.86~2.37)	0.17	
		Early preterm	Cluster 1 stable subgroup	1.28 (0.91~1.82)	0.16	0.29	1.00 (0.61~1.64)	1.00	0.07
			Cluster 2 shortened subgroup	0.99 (0.73~1.33)	0.92		1.85 (1.03~2.98)	0.04	
	17~20	Moderate to late preterm	Cluster 1 stable subgroup	1.09 (0.92~1.28)	0.32	0.78	1.13 (0.87~1.47)	0.37	0.46
			Cluster 2 shortened subgroup	1.06 (0.92~1.22)	0.43		1.34 (0.86~2.09)	0.20	
		Early preterm	Cluster 1 stable subgroup	1.21 (0.94~1.55)	0.14	0.37	0.70 (0.43~1.14)	0.15	<0.01
			Cluster 2 shortened subgroup	1.05 (0.83~1.32)	0.68		1.65 (1.03~2.65)	0.04	
	21~24	Moderate to late preterm	Cluster 1 stable subgroup	1.01 (0.85~1.20)	0.89	0.49	1.11 (0.93~1.33)	0.26	0.25
			Cluster 2 shortened subgroup	1.08 (0.96~1.22)	0.19		1.38 (1.00~1.90)	0.05	
		Early preterm	Cluster 1 stable subgroup	1.04 (0.78~1.40)	0.78	0.52	1.01 (0.72~1.42)	0.96	<0.01
			Cluster 2 shortened subgroup	1.16 (1.01~1.33)	0.03		2.08 (1.48~2.94)	<0.01	
	25~28	Moderate to late preterm	Cluster 1 stable subgroup	1.08 (0.94~1.24)	0.29	0.44	1.05 (0.84~1.31)	0.68	0.33
			Cluster 2 shortened subgroup	1.00 (0.88~1.13)	0.95		1.25 (0.93~1.67)	0.14	
		Early preterm	Cluster 1 stable subgroup	1.21 (1.02~1.45)	0.03	0.17	1.21 (0.97~1.52)	0.09	0.14

			Cluster 2 shortened subgroup	1.39 (1.26~1.52)	<0.01		1.58 (1.18~2.11)	<0.01	
Lymphocyte-to-monocyte ratio	1~4	Moderate to late preterm	Cluster 1 stable subgroup	0.94 (0.70~1.27)	0.70	0.72	1.10 (0.76~1.59)	0.62	0.91
			Cluster 2 shortened subgroup	0.87 (0.68~1.10)	0.24		1.01 (0.63~1.61)	0.98	
		Early preterm	Cluster 1 stable subgroup	0.87 (0.44~1.70)	0.67	0.12	1.33 (0.86~2.06)	0.19	0.09
			Cluster 2 shortened subgroup	1.47 (1.11~1.95)	<0.01		0.76 (0.43~1.34)	0.34	
	5~8	Moderate to late preterm	Cluster 1 stable subgroup	0.93 (0.82~1.05)	0.22	0.56	0.94 (0.76~1.17)	0.60	0.04
			Cluster 2 shortened subgroup	0.90 (0.82~0.99)	0.03		0.66 (0.49~0.90)	<0.01	
		Early preterm	Cluster 1 stable subgroup	0.85 (0.62~1.18)	0.34	0.36	1.14 (0.86~1.51)	0.35	<0.01
			Cluster 2 shortened subgroup	0.99 (0.81~1.20)	0.88		0.63 (0.45~0.89)	<0.01	
	9~12	Moderate to late preterm	Cluster 1 stable subgroup	1.10 (0.89~1.37)	0.38	0.03	1.01 (0.76~1.33)	0.96	0.25
			Cluster 2 shortened subgroup	0.79 (0.66~0.96)	0.02		1.32 (0.91~1.92)	0.15	
		Early preterm	Cluster 1 stable subgroup	0.87 (0.53~1.44)	0.60	0.29	1.38 (0.94~2.04)	0.10	0.18
			Cluster 2 shortened subgroup	1.22 (0.90~1.65)	0.20		0.87 (0.51~1.48)	0.61	
	13~16	Moderate to late preterm	Cluster 1 stable subgroup	1.06 (0.83~1.37)	0.63	0.83	1.22 (0.85~1.76)	0.28	0.75
			Cluster 2 shortened subgroup	1.09 (0.89~1.33)	0.41		1.06 (0.66~1.71)	0.81	
		Early preterm	Cluster 1 stable subgroup	1.10 (0.70~1.71)	0.68	0.77	1.61 (0.99~2.61)	0.05	0.09
			Cluster 2 shortened subgroup	1.16 (0.87~1.55)	0.30		0.71 (0.40~1.26)	0.24	
	17~20	Moderate to late preterm	Cluster 1 stable subgroup	0.90 (0.74~1.09)	0.27	0.67	0.78 (0.57~1.06)	0.11	1.00
			Cluster 2 shortened subgroup	0.95 (0.81~1.10)	0.49		0.77 (0.50~1.20)	0.25	
		Early preterm	Cluster 1 stable subgroup	0.80 (0.52~1.25)	0.33	0.60	1.23 (0.85~1.78)	0.27	0.35
			Cluster 2 shortened subgroup	0.90 (0.70~1.16)	0.43		0.59 (0.35~1.01)	0.06	
	21~24	Moderate to late preterm	Cluster 1 stable subgroup	0.87 (0.72~1.05)	0.14	0.22	0.72 (0.56~0.92)	<0.01	0.69
			Cluster 2 shortened subgroup	0.75 (0.64~0.88)	<0.01		0.78 (0.58~1.05)	0.11	
		Early preterm	Cluster 1 stable subgroup	0.91 (0.63~1.30)	0.59	0.40	0.92 (0.67~1.26)	0.60	0.01
			Cluster 2 shortened subgroup	0.74 (0.58~0.96)	0.02		0.52 (0.35~0.76)	<0.01	
25~28	Moderate to late preterm	Cluster 1 stable subgroup	0.90 (0.76~1.06)	0.20	1.00	0.82 (0.65~1.04)	0.10	0.86	
		Cluster 2 shortened subgroup	0.90 (0.79~1.02)	0.10		0.79 (0.61~1.04)	0.09		
	Early preterm	Cluster 1 stable subgroup	0.77 (0.58~1.04)	0.09	0.58	0.90 (0.70~1.16)	0.42	0.55	
		Cluster 2 shortened subgroup	0.68 (0.57~0.81)	<0.01		0.79 (0.60~1.04)	0.09		