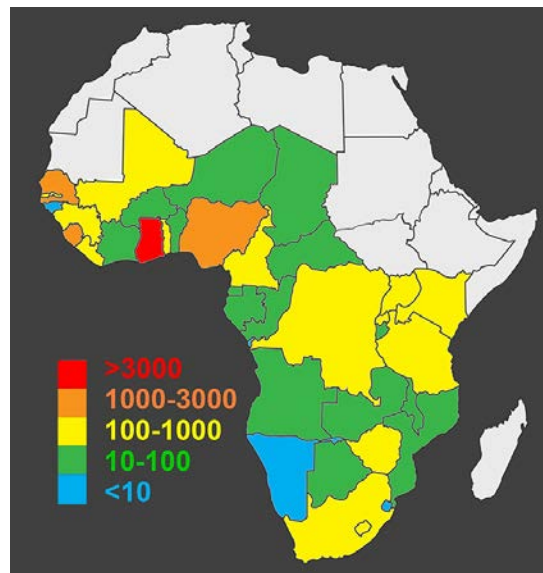
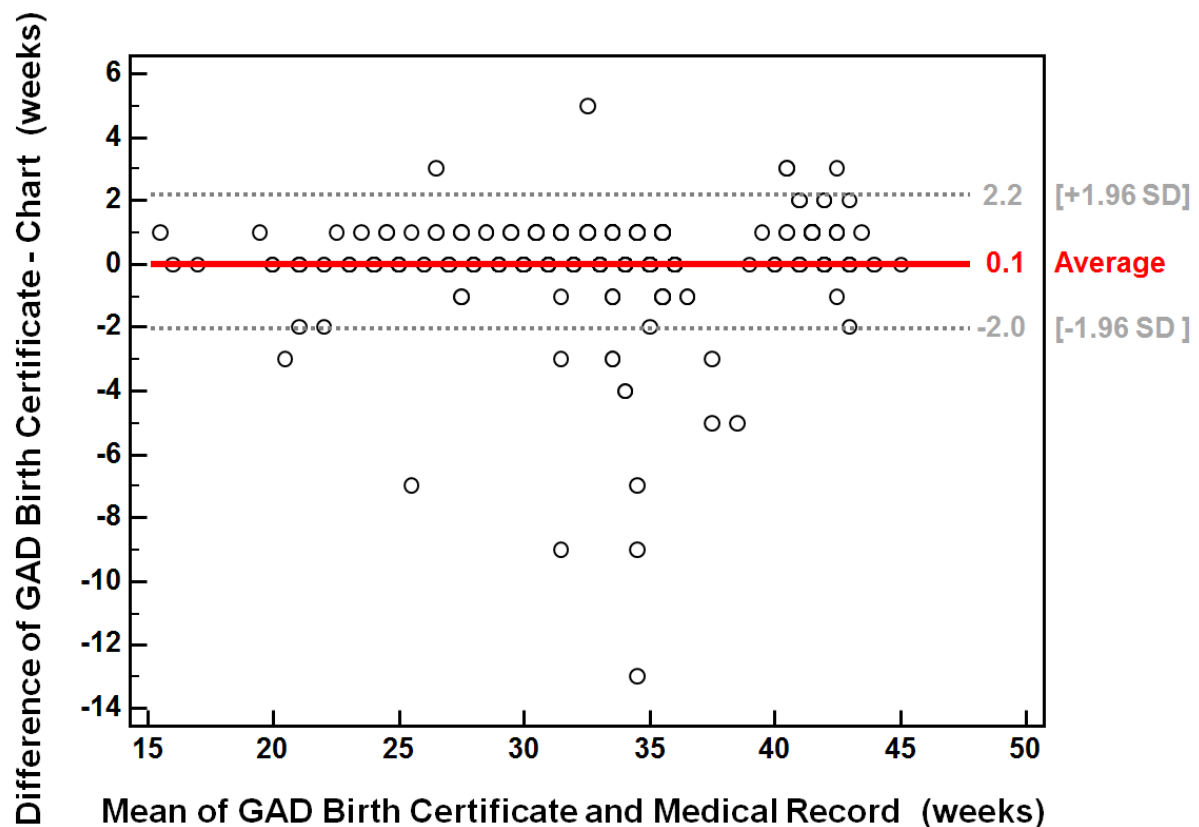


Appendix 1. Nativity characteristics of the African-born Black (ABB) group. Maternal birth countries selected for inclusion in the ABB group were as follows: Angola, Botswana, Benin, Burkina Faso, Burundi, Chad, Congo, Cameroon, Central African Republic, Equatorial Guinea, Gambia, Gabon, Ghana, Guinea, Ivory Coast, Kenya, Lesotho, Liberia, Malawi, Mali, Mozambique, Niger, Nigeria, Guinea-Bissau, Rwanda, South Africa, Senegal, Sierra Leone, Togo, Tanzania, Uganda, Namibia, Swaziland, Zambia, and Zimbabwe. The heatmap shows that >50% of the singleton births in the ABB group mapped to mothers born in 3 West African countries: Nigeria, Senegal, and Sierra Leone. The excluded countries were those of predominantly Arab speaking population. As South Sudan appeared as a distinct country only in 2011, there were no mothers born in South Sudan in our data set. Madagascar was excluded as the main population, Malagasy, is of Polynesian descent.



Appendix 2. Validation of the gestational age documented on the birth certificate. Bald Altman plot of the agreement between gestational age at delivery (GAD) recorded on the birth certificate and that documented in the medical chart in a verification sample of 683 singleton births to women in all 4 race-nativity groups as follows: U.S.-born White (USBW) women: n=134; U.S.-born Black (USBB) women: n=131; African-born Black (ABB) women: n=2; Somalia-born (SB) women: n=416). The *red solid line* marks the average difference (0.1 weeks). The *dotted grey lines* mark the limits of agreement [-2.0 to +2.2 weeks]. For 19 cases (2.8% of the validation sample) the difference fell outside the limits of agreement. The verification sample included all preterm and postterm births that occurred to SB women from 2000–2014 at four hospitals in central Ohio. The verification sample included preterm births to USBW women and USBB women (2000–2014) which were chosen using a random number generator and matched by delivery month, year, and facility with preterm births to SB women. Both GADs were analyzed as completed weeks (integer) values which results in overlap of cases with identical coordinates.



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Appendix 3. Results of Posthoc Comparisons Among the Four Race–Nativity Groups in the Study

Variable	USBW – USBB	USBW – ABB	USBW – SB	USBB – ABB	USBB – SB	ABB – SB	χ^2 P value
Total PTB rate among singleton births (%)	7.9 – 13.0 5.091* [0.181]	7.9 – 8.4 0.571 [0.746]	7.9 – 5.9 1.975* [0.719]	13.0 – 8.4 4.519* [0.763]	13.0 – 5.9 7.066* [0.737]	8.4 – 5.9 2.546* [1.033]	8438.5 <i>P</i> <.001
Total PTB rate among singleton births of nulliparous women (%)	8.6 – 12.3 3.704* [0.291]	8.6 – 9.5 0.846 [1.370]	8.6 – 6.2 2.406* [1.692]	12.3 – 9.5 2.858* [1.394]	12.3 – 6.2 6.110* [1.711]	9.5 – 6.2 3.252* [2.172]	1597.9 <i>P</i> <.001
Total PTB rate among singleton births of multiparous women (%)	7.3 – 13.2 5.901* [0.232]	7.3 – 7.6 0.296 [0.902]	7.3 – 5.8 1.560* [0.826]	13.2 – 7.6 5.905* [0.925]	13.2 – 5.8 7.461* [0.851]	7.6 – 5.8 1.856* [1.218]	7224.8 <i>P</i> <.001
Total PTB rate among singleton births of nonsmoking women (%)	7.2 – 12.4 5.157* [0.193]	7.2 – 8.4 1.158* [0.751]	7.2 – 5.9 1.332* [0.731]	12.4 – 8.4 4.519* [0.763]	12.4 – 5.9 7.066* [0.737]	8.4 – 5.9 2.546* [1.033]	7677.8 <i>P</i> <.001
Early PTB rate among singleton births (%)	1.9 – 4.5 2.628* [0.110]	1.9 – 3.2 1.250* [0.469]	1.9 – 2.1 0.178 [0.436]	4.5 – 3.2 1.377* [0.480]	4.5 – 2.1 2.450* [0.448]	3.2 – 2.1 1.073* [0.639]	7789.8 <i>P</i> <.001
Late PTB rate among singleton births (%)	5.9 – 8.3 2.360* [0.150]	5.9 – 5.1 0.797* [0.593]	5.9 – 3.7 2.214* [0.574]	8.3 – 5.1 3.157* [0.607]	8.3 – 3.7 4.574* [0.589]	5.1 – 3.7 1.417* [0.822]	2526.9 <i>P</i> <.001
Post-term births among singleton births (%)	0.5 – 0.6 0.018 [0.041]	0.5 – 0.8 0.271* [0.240]	0.5 – 5.8 5.236* [0.710]	0.6 – 0.8 0.253* [0.242]	0.6 – 5.8 5.218* [0.711]	0.8 – 5.8 4.967* [0.749]	4131.1 <i>P</i> <.001
Early-term births among term singleton births (%)	29.0 – 32.3 3.207* [0.276]	29.0 – 27.0 2.002* [1.251]	29.0 – 18.9 10.189* [1.271]	32.3 – 27.0 5.208* [1.272]	32.3 – 18.9 13.396* [1.292]	27.0 – 18.9 8.187* [1.777]	1535.1 <i>P</i> <.001
Full-term births among term singleton births (%)	63.9 – 60.2 3.722* [0.289]	63.9 – 62.9 1.026 [1.360]	63.9 – 59.8 4.151* [1.591]	60.2 – 62.9 2.696* [1.381]	60.2 – 59.8 0.429 [1.610]	62.9 – 59.8 3.126* [2.087]	1369.6 <i>P</i> <.001
Late-term births among term singleton births (%)	7.0 – 7.5 0.515* [0.156]	7.0 – 10.1 3.027* [0.846]	7.0 – 21.4 14.340* [1.328]	7.5 – 10.1 2.512* [0.856]	7.5 – 21.4 13.825* [1.335]	10.1 – 21.4 11.313* [1.572]	2479.5 <i>P</i> <.001
Spontaneous PTB among all singleton births %	4.7 – 8.0 3.289* [0.183]	4.7 – 4.5 0.163 [0.647]	4.7 – 3.8 0.940* [0.674]	8.0 – 4.5 3.452* [0.667]	8.0 – 3.8 4.229* [0.694]	4.5 – 3.8 0.777 [0.931]	3544.4 <i>P</i> <.001
Health care provider-initiated PTB among all singleton births %	3.1 – 4.8 1.755* [0.145]	3.1 – 3.9 0.845* [0.602]	3.1 – 2.1 0.999* [0.504]	4.8 – 3.9 0.910* [0.615]	4.8 – 2.1 2.754* [0.520]	3.9 – 2.1 1.844* [0.782]	1568.4 <i>P</i> <.001

The Marascuilo procedure allows comparisons of all possible pairs of proportions. The order of the variables follows the manuscript text and panels in [Figure 2](#). The test is statistically significant if the absolute difference between the proportions of the two groups is greater than the critical range between groups (*P*<.05). In each cell, the first line displays the difference between the compared proportions for each variable. The second line represents the absolute difference between the two proportions. The third line represents the critical range value in square brackets. The asterisk indicates significant difference between the compared proportions (absolute difference greater than the critical range). The critical value of χ^2 with 3 degrees of freedom is 7.815 for all variables. Abbreviations: USBW: US-born White, USBB: US-born Black, ABB: African-born Black, SB: Somalia-born, PTB: preterm birth.

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Appendix 4. Logistic Regression Adjusted Odds Ratios for Preterm and Postterm Birth

Variable	Odds Ratio	95% Confidence Interval	P value
Preterm birth			
Race-nativity	1 (reference)		
USBW*	1.571	1.550 – 1.593	<i>P</i> <.001
USBB*	1.135	1.055 – 1.221	<i>P</i> =.001
ABB*	0.772	0.697 – 0.855	<i>P</i> <.001
SB*			
Maternal age categories†	1.195	1.178 – 1.212	<i>P</i> <.001
Mother married*	0.875	0.865 – 0.886	<i>P</i> <.001
Mother's education level†	0.905	0.900 – 0.911	<i>P</i> <.001
Mother smoked during pregnancy*	1.327	1.309 – 1.344	<i>P</i> <.001
First birth*	1.120	1.108 – 1.132	<i>P</i> <.001
Pregnancy-associated hypertension*	2.757	2.709 – 2.806	<i>P</i> <.001
Chronic (preexisting) hypertension*	2.842	2.764 – 2.923	<i>P</i> <.001
Diabetes (any type)*	1.655	1.623 – 1.688	<i>P</i> <.001
Male newborn*	1.108	1.097 – 1.120	<i>P</i> <.001
Birth year‡	0.990	0.988 – 0.991	<i>P</i> <.001
Postterm birth			
Race-nativity	1 (reference)		
USBW*	1.066	1.006 – 1.131	<i>P</i> =.031
USBB*	1.905	1.530 – 2.372	<i>P</i> <.001
ABB*	10.323	9.240 – 11.533	<i>P</i> <.001
SB*			
Maternal age categories†	1.260	1.195 – 1.328	<i>P</i> <.001
Mother married*	1.203	1.146 – 1.263	<i>P</i> <.001
Mother's education level†	0.789	0.773 – 0.806	<i>P</i> <.001
Mother smoked during pregnancy*	0.821	0.777 – 0.867	<i>P</i> <.001
First birth*	1.607	1.543 – 1.673	<i>P</i> <.001
Pregnancy-associated hypertension*	0.330	0.285 – 0.382	<i>P</i> <.001
Chronic (preexisting) hypertension*	0.418	0.325 – 0.540	<i>P</i> <.001
Diabetes (any type)*	0.358	0.307 – 0.419	<i>P</i> <.001
Male newborn*	1.045	1.006 – 1.086	<i>P</i> =.023
Birth year‡	0.906	0.902 – 0.910	<i>P</i> <.001

Variables were entered in the logistic regression model in either nominal (*), ordinal (†) or continuous format (‡). Number of observations: 1,913,326. Abbreviations: USBW: US-born White, USBB: US-born Black, ABB: African-born Black, SB: Somalia-born.

Appendix 5. Newborn Outcome Characteristics of Births in the Four Race–Nativity Groups

Characteristic	All Groups N=1,960,693	USBW n=1,638,219	USBB n=303,028	ABB n=10,966	SB n=8,480
Meconium-stained amniotic fluid – no. (%) *†					
yes	110,645 (5.6)	84,954 (5.2)	22,861 (7.5)	1,336 (12.2)	1,494 (17.6)
no	1,843,987 (94)	1,548,271 (94.5)	279,152 (92.1)	9,597 (87.5)	6,967 (82.2)
not recorded	6,061 (0.3)	4,994 (0.3)	1,015 (0.3)	33 (0.3)	19 (0.2)
Meconium aspiration syndrome ^a – no. (%) †					
yes	572 (0.0)	467 (0.0)	98 (0.0)	4 (0.0)	3 (0.0)
no	760,413 (38.8)	645,919 (39.4)	109,560 (36.2)	2,762 (25.2)	2,172 (25.6)
not recorded	1,199,708 (61.2)	991,833 (60.5)	193,370 (63.8)	8,200 (74.8)	6,305 (74.4)
Apgar score at 5 min <7 – no. (%) *†					
yes	79,781 (4.1)	60,264 (3.7)	18,430 (6.1)	627 (5.7)	460 (5.4)
no	1,745,363 (89)	1,462,267 (89.3)	265,200 (87.5)	10,102 (92.1)	7,794 (91.9)
not recorded	135,549 (6.9)	115,688 (7.1)	19,398 (6.4)	237 (2.2)	226 (2.7)
Birth injury – no. (%) ‡‡					
yes	13,300 (0.7)	10,168 (0.6)	3,041 (1)	67 (0.6)	24 (0.3)
no	1,946,615 (99.3)	1,627,390 (99.3)	299,880 (99)	10,894 (99.3)	8,451 (99.7)
not recorded	778 (0)	661 (0)	107 (0)	5 (0)	5 (0.1)
Assisted ventilation >30 min ^b – no. (%) †					
yes	4,997 (0.3)	4,174 (0.3)	791 (0.3)	11 (0.1)	21 (0.2)
no	755,988 (38.6)	6,42212 (39.2)	108,867 (35.9)	2,755 (25.1)	2,154 (25.4)
not recorded	1,199,708 (61.2)	991,833 (60.5)	193,370 (63.8)	8,200 (74.8)	6,305 (74.4)
Newborn sex – no. (%) §†					
Male	1,004,057 (51.2)	840,539 (51.3)	153,665 (50.7)	5,550 (50.6)	4,303 (50.7)
Female	956,577 (48.8)	797,639 (48.7)	149,346 (49.3)	5,416 (49.4)	4,176 (49.3)
unknown	59 (0.0)	41 (0.0)	17 (0.0)	0 (0.0)	1 (0.0)
Male/female sex ratio	1.05	1.05	1.03	1.02	1.03

† Chi² followed by multiple comparisons using Marascuilo procedure ;

*Significant differences were obtained for all comparisons ($P<.001$) except between ABB and SB groups;

‡Significant differences were obtained for all comparisons ($P<.001$) except between USBW and ABB groups;

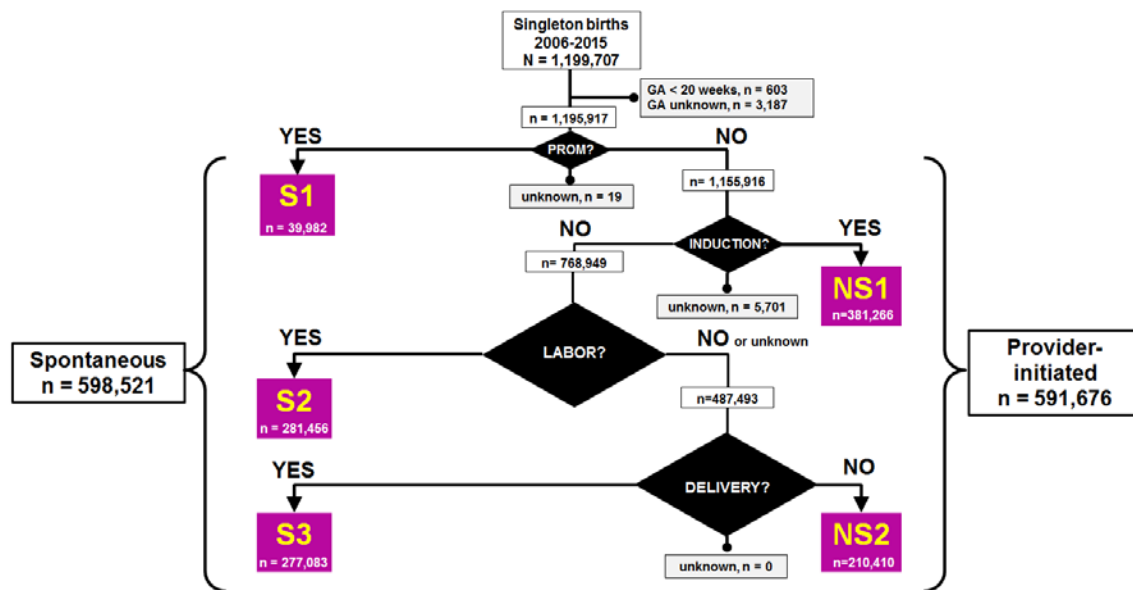
§Significant difference ($P<.001$) was obtained solely for the comparison between USBW and USBB groups.

Abbreviations: USBW: US-born White, USBB: US-born Black, ABB: African-born Black, IQR: inter-quartile range.

^a Variable available only in the 2000-2005 birth certificates.

^b Variable available only in the 2006-2015 birth certificates

Appendix 6. Results of the algorithm segregating between spontaneous or health care provider-initiated onset to delivery among all singleton births. A previously developed algorithm that combines information on 11 fields on the 2003 U.S. Standard Certificate of Live Birth was applied to singleton births between 2006–2015 (Ohio transitioned to the 2003 revision of the birth certificate only in 2006). GA, gestational age; PROM: premature rupture of membranes; S1, S2, S3, births segregating as having spontaneous onset; NS1, NS2, births segregating as having nonspontaneous (health care provider-initiated) onset.

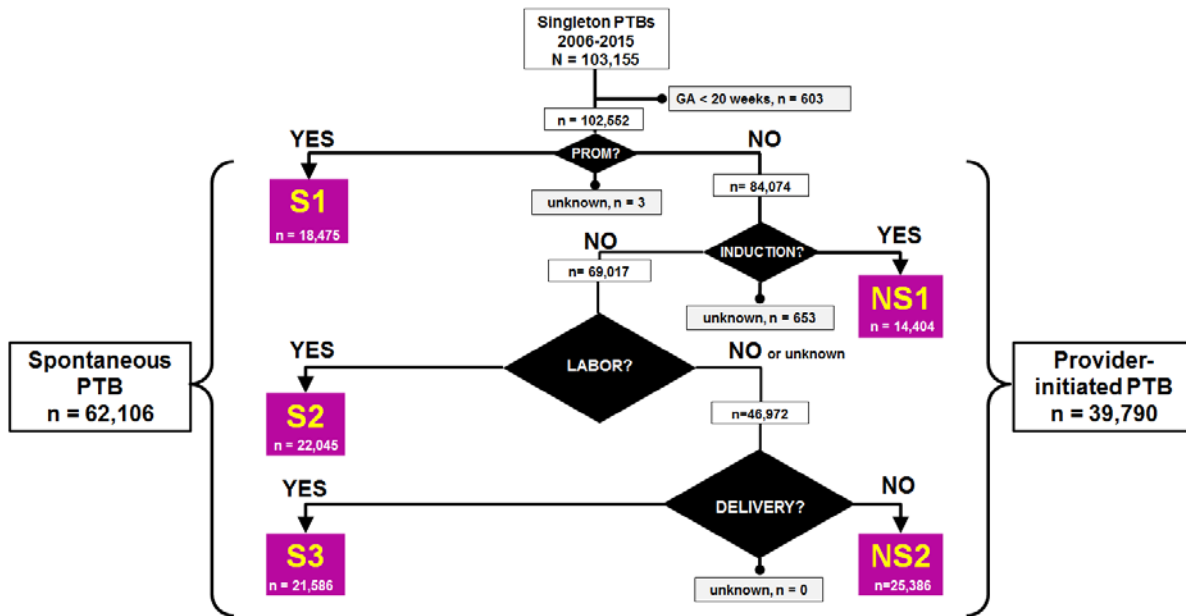


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Appendix 7. Results of the algorithm segregating between spontaneous or health care provider-initiated onset to delivery among singleton preterm births. A previously developed algorithm that combines information on 11 fields on the 2003 U.S. Standard Certificate of Live Birth was applied to singleton preterm births between 2006–2015. PTB, preterm birth (<37 completed weeks of gestation); GA, gestational age; PROM, premature rupture of membranes; S1, S2, S3, births segregating as having spontaneous onset; NS1, NS2, births segregating as having nonspontaneous (health care provider–initiated) onset.

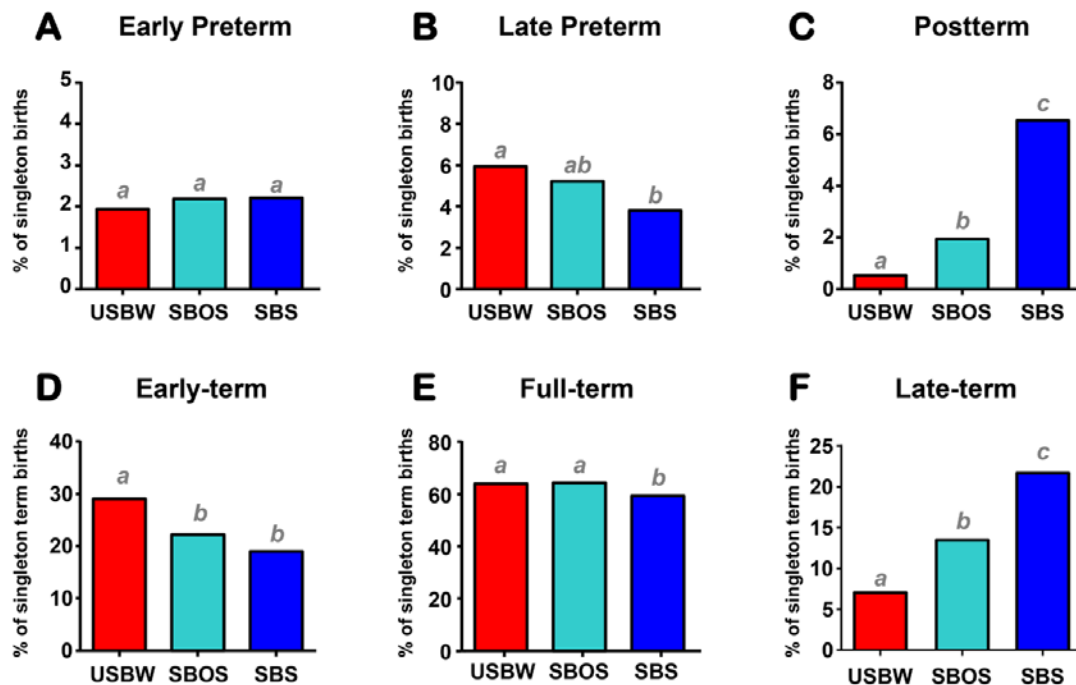


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Appendix 8. Disparity patterns among ethnic Somali women of different nativity analyzed by clinically relevant gestational periods. A–C. Proportion of early preterm births (20–33 completed weeks of gestation. Late preterm births (34–36 completed week of gestation (A), and postterm births (≥ 42 completed weeks of gestation (B), to women identified by the algorithm as ethnic Somali and born in Somalia (SBS) or outside Somalia (SBOS) and to U.S.-born White (USBW) women as referent (C). D–F. Among singleton term births, proportion of early-term (D), full-term (E), and late-term (F) births in the same groups. Births were aggregated over a 15-year period (2000–2014) for which maternal names were available. Bars marked with different letters are statistically different at $P < .05$ (χ^2 followed by post hoc multiple comparison using Marascuilo procedure). Differences in proportions and statistical details are shown in Appendix 9.



Appendix 9. Results of Posthoc Comparisons Among Ethnic Somali Groups of Different Nativity

Variable	USBW – SBOS	USBW – SBS	SBOS – SBS	χ^2 P value
Early PTB rate among singleton births (%)	1.9 – 2.1 0.158 [1.214]	1.9 – 2.2 0.269 [0.434]	2.1 – 2.2 0.111 [1.289]	2.7 P=.257
Late PTB rate among singleton births (%)	5.9 – 5.2 0.717 [1.899]	5.9 – 3.8 2.133* [0.570]	5.2 – 3.8 1.415 [1.982]	55.9 P<.001
Post-term births among singleton births (%)	0.5 – 0.6 1.166* [1.103]	0.5 – 0.8 5.525* [0.708]	0.5 – 5.8 4.359* [1.311]	3740.4 P<.001
Early-term births among term singleton births (%)	29.1 – 22.2 6.883* [3.716]	29.1 – 19.0 10.066* [1.245]	22.2 – 19.0 3.183 [3.917]	310.1 P<.001
Full-term births among term singleton births (%)	63.9 – 64.4 0.424 [4.285]	63.9 – 59.3 4.581* [1.558]	64.4 – 59.8 5.005* [4.557]	54.2 P<.001
Late-term births among term singleton births (%)	7.0 – 13.5 6.460* [3.055]	7.0 – 21.7 14.647* [1.305]	13.5 – 21.7 8.188* [3.322]	1987.3 P<.001

The Marascuilo procedure allows comparisons of all possible pairs of proportions. The order of the variables follows the manuscript text and panels in [Figure 2](#). The test is statistically significant if the absolute difference between the proportions of the two groups is greater than the critical range between groups ($P<.05$). In each cell, the first line displays the difference between the compared proportions for each variable. The second line represents the absolute difference between the two proportions. The third line represents the critical range value in square brackets. The asterisk indicates significant difference between the compared proportions (absolute difference greater than the critical range). The critical value of χ^2 with 2 degrees of freedom is 5.992 for all variables.