

Appendix 1. Sensitivity Analyses

	A1. Full sample, no NTSV selection				A2. NTSV sample, excluding Hawaii and Alaska				A3. All NTSV mothers including deliveries of RI/NJ/CT residents out of the states				A4. Singleton and term selection			
	OR	P> z	95% CI		OR	P> z	95% CI		OR	P> z	95% CI		OR	P> z	95% CI	
Blood transfusion																
Residential rurality (ref: Large metro, center)																
Large metro, fringe	1.09	0.00	1.04	1.14	1.16	0.00	1.06	1.26	1.17	0.00	1.07	1.27	1.09	0.00	1.03	1.15
Med. Metro	1.24	0.00	1.14	1.34	1.48	0.00	1.27	1.74	1.44	0.00	1.24	1.68	1.22	0.00	1.10	1.35
Small Metro	1.10	0.03	1.01	1.20	1.19	0.05	1.00	1.42	1.15	0.11	0.97	1.37	1.14	0.02	1.02	1.28
Micropolitan	1.22	0.00	1.13	1.32	1.40	0.00	1.20	1.64	1.35	0.00	1.16	1.58	1.22	0.00	1.11	1.36
Non-Core (Rural)	1.10	0.03	1.01	1.19	1.33	0.00	1.13	1.57	1.28	0.00	1.09	1.50	1.15	0.01	1.03	1.27
Delivery county (ref: Large metro center)																
Large metro, fringe	1.15	0.00	1.10	1.21	1.12	0.01	1.03	1.22	1.17	0.00	1.07	1.27	1.17	0.00	1.10	1.24
Med. Metro	1.01	0.88	0.93	1.08	0.88	0.10	0.75	1.02	0.88	0.08	0.75	1.02	1.01	0.79	0.92	1.12
Small Metro	1.22	0.00	1.12	1.33	1.18	0.06	0.99	1.39	1.19	0.04	1.01	1.41	1.18	0.00	1.06	1.31
Micropolitan	1.81	0.00	1.68	1.96	1.80	0.00	1.54	2.11	1.84	0.00	1.58	2.14	1.85	0.00	1.67	2.05
Non-Core (Rural)	3.22	0.00	2.94	3.53	3.20	0.00	2.69	3.80	3.31	0.00	2.79	3.92	3.18	0.00	2.84	3.55
Mother's age (in years)																
< 18	1.23	0.00	1.13	1.34	1.52	0.00	1.35	1.72	1.52	0.00	1.35	1.71	1.32	0.00	1.20	1.46
18/19	1.10	0.00	1.04	1.17	1.32	0.00	1.21	1.44	1.32	0.00	1.21	1.43	1.18	0.00	1.11	1.26
20/24	0.99	0.44	0.95	1.02	1.12	0.00	1.05	1.19	1.11	0.00	1.05	1.19	1.03	0.13	0.99	1.07
30/34	1.06	0.00	1.02	1.09	1.05	0.14	0.98	1.12	1.05	0.18	0.98	1.12	1.05	0.01	1.01	1.10
35/39	1.17	0.00	1.12	1.21	1.06	0.22	0.97	1.16	1.08	0.09	0.99	1.18	1.15	0.00	1.10	1.21
40+	1.42	0.00	1.34	1.51	1.13	0.18	0.95	1.34	1.13	0.15	0.96	1.34	1.41	0.00	1.30	1.52
Race or ethnicity (ref: Non-Hispanic White)																
Non-Hispanic Black	1.20	0.00	1.16	1.24	1.04	0.29	0.97	1.11	1.02	0.52	0.95	1.10	1.21	0.00	1.16	1.27
Hispanic	1.07	0.00	1.03	1.10	1.05	0.14	0.98	1.12	1.05	0.15	0.98	1.12	1.06	0.00	1.02	1.11
American Indian & Alaskan Native	1.70	0.00	1.57	1.85	1.57	0.00	1.33	1.84	1.53	0.00	1.31	1.79	1.78	0.00	1.62	1.95
Asian American & Pacific Islander	1.16	0.00	1.10	1.23	1.07	0.18	0.97	1.18	1.01	0.87	0.92	1.11	1.16	0.00	1.08	1.24
Others, multiple race	1.89	0.00	1.63	2.18	2.00	0.00	1.55	2.57	1.85	0.00	1.44	2.37	1.92	0.00	1.62	2.28
Foreign mother	0.92	0.00	0.89	0.96	1.07	0.05	1.00	1.15	1.09	0.02	1.02	1.16	0.95	0.01	0.91	0.99
Mother's education (ref: high school graduate)																
Less than high school	1.14	0.00	1.10	1.19	1.07	0.09	0.99	1.16	1.08	0.06	1.00	1.16	1.11	0.00	1.06	1.16
Some college or AA	0.91	0.00	0.88	0.94	0.91	0.00	0.86	0.97	0.92	0.01	0.87	0.97	0.89	0.00	0.86	0.93
BA & +	0.84	0.00	0.81	0.87	0.88	0.00	0.82	0.95	0.88	0.00	0.82	0.94	0.80	0.00	0.76	0.84
Married	0.95	0.00	0.93	0.98	1.00	0.87	0.95	1.06	1.01	0.76	0.95	1.06	0.94	0.00	0.91	0.97
Delivery pay (ref: private insurance)																
Medicaid	1.04	0.01	1.01	1.08	1.00	0.87	0.94	1.05	0.99	0.82	0.94	1.05	1.05	0.01	1.01	1.09
Self-Pay	1.01	0.73	0.94	1.08	1.06	0.40	0.93	1.21	1.10	0.15	0.97	1.25	1.03	0.51	0.95	1.11
Others	0.99	0.87	0.94	1.06	0.90	0.08	0.80	1.01	0.92	0.14	0.82	1.03	1.01	0.78	0.94	1.08
Starting time of prenatal care (ref: first trimester)																
2nd and 3rd trimester	1.15	0.00	1.12	1.18	1.04	0.13	0.99	1.10	1.04	0.13	0.99	1.10	1.13	0.00	1.09	1.17
No PNC	1.66	0.00	1.54	1.79	1.14	0.24	0.92	1.42	1.13	0.25	0.91	1.41	1.79	0.00	1.62	1.99
Smoking during pregnancy																
Mother's BMI (kg/m ²) before pregnancy (ref: normal weight: 18.5-24.99)	1.01	0.61	0.97	1.05	0.88	0.00	0.81	0.96	0.87	0.00	0.80	0.95	0.98	0.35	0.93	1.03
underweight: <18.5	1.21	0.00	1.14	1.28	1.27	0.00	1.16	1.40	1.27	0.00	1.16	1.39	1.26	0.00	1.18	1.35
Overweight: 25-29.99	0.85	0.00	0.83	0.88	0.85	0.00	0.81	0.90	0.86	0.00	0.81	0.90	0.86	0.00	0.84	0.89
Obese I: 30-34.99	0.78	0.00	0.75	0.81	0.75	0.00	0.70	0.81	0.76	0.00	0.71	0.82	0.79	0.00	0.76	0.82
Obese II: 35-39.99	0.69	0.00	0.65	0.72	0.68	0.00	0.61	0.75	0.68	0.00	0.62	0.75	0.71	0.00	0.67	0.76

Hartenbach EM, Kuo HD, Greene MZ, Shrider EA, Antony KM, Ehrenthal DB. Peripartum blood transfusion among rural women in the United States. *Obstet Gynecol* 2020;135.

The authors provided this information as a supplement to their article.

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Obese III: 40+	0.63	0.00	0.60	0.66	0.64	0.00	0.57	0.72	0.63	0.00	0.57	0.71	0.65	0.00	0.61	0.70
Mother with diabetes	1.02	0.72	0.92	1.13	1.04	0.74	0.81	1.33	1.05	0.71	0.82	1.33	1.01	0.93	0.87	1.16
Mother with GDM	1.05	0.38	0.94	1.17	1.10	0.49	0.85	1.42	1.09	0.52	0.84	1.40	1.08	0.32	0.93	1.26
Mother with chronic hypertension	1.56	0.00	1.46	1.67	1.63	0.00	1.39	1.91	1.62	0.00	1.39	1.89	1.67	0.00	1.53	1.82
Mother with preg-related hypertension	1.92	0.00	1.85	1.99	2.24	0.00	2.11	2.39	2.21	0.00	2.08	2.35	2.08	0.00	1.99	2.18
Gestational age (ref: term 37-41 weeks)																
preterm: 17-36	1.68	0.00	1.61	1.75												
pastterm: 42-50	1.09	0.37	0.90	1.31	1.17	0.20	0.92	1.48	1.20	0.12	0.95	1.50	1.09	0.35	0.91	1.32
Birthweight (ref: 2500-4000 grams)																
< 1500 g	1.60	0.00	1.47	1.74												
1500-2499 g	1.31	0.00	1.21	1.42												
1500-2499 g	1.04	0.13	0.99	1.09	0.81	0.01	0.69	0.95	0.80	0.01	0.68	0.94	1.00	0.92	0.91	1.11
4000+ g	1.47	0.00	1.38	1.56	1.74	0.00	1.57	1.91	1.71	0.00	1.56	1.89	1.52	0.00	1.43	1.62
Induction	1.47	0.00	1.43	1.51	1.43	0.00	1.37	1.50	1.43	0.00	1.37	1.49	1.47	0.00	1.43	1.52
Labor augmentation	1.37	0.00	1.33	1.42	1.35	0.00	1.29	1.42	1.36	0.00	1.30	1.43	1.41	0.00	1.37	1.46
Antibiotics (mother)	1.49	0.00	1.46	1.53	1.47	0.00	1.40	1.53	1.47	0.00	1.40	1.53	1.48	0.00	1.44	1.52
Chorioamnionitis	2.29	0.00	2.15	2.43	2.21	0.00	2.04	2.39	2.17	0.00	2.01	2.35	2.30	0.00	2.15	2.46
Epidural	0.76	0.00	0.74	0.78	0.87	0.00	0.82	0.92	0.87	0.00	0.83	0.92	0.84	0.00	0.81	0.86
Vaginal, Vacuum	2.24	0.00	2.11	2.39	2.01	0.00	1.85	2.18	1.98	0.00	1.83	2.14	2.20	0.00	2.05	2.35
Vaginal, Forcep	3.43	0.00	3.09	3.82	3.20	0.00	2.80	3.65	3.16	0.00	2.77	3.60	3.42	0.00	3.05	3.83
Cesarean delivery	2.91	0.00	2.82	2.99	2.03	0.00	1.94	2.14	2.03	0.00	1.93	2.13	2.72	0.00	2.63	2.81
Mother transferred	1.90	0.00	1.75	2.06	3.46	0.00	2.73	4.39	3.22	0.00	2.56	4.04	3.20	0.00	2.74	3.74
Birth Attendant (ref: doctor)																
Certified midwife	1.13	0.00	1.07	1.19	1.18	0.00	1.09	1.28	1.17	0.00	1.08	1.27	1.16	0.00	1.10	1.22
Other midwife	1.31	0.00	1.13	1.52	1.22	0.16	0.92	1.62	1.25	0.10	0.96	1.64	1.39	0.00	1.19	1.64
First born	0.90	0.00	0.88	0.93									1.02	0.52	0.96	1.08
Singleton	0.48	0.00	0.46	0.50												
Breech position	1.08	0.00	1.04	1.12									0.00	0.00	0.00	0.00
_cons	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.02	0.93	0.99

A1: The sample consisted of all 2014-2016 mothers including a handful of Rhode Island, Connecticut, and New Jersey mothers who delivered in other states and thus filled out 2003 birth certificates; including mothers of multiples, non-first live birth, pre-term births, and breech position.

A2: The sample in this equation is consisted of the 2014-2016 NTSV analytical sample but excluding mothers residing in Hawaii and Alaska.

A3: The sample in this equation is consisted of the 2014-2016 NTSV analytical sample but including a handful of RI/NJ/CT mothers who delivered in other states and thus filled out 2003 birth certificates.

A4: In this equation, the sample includes mothers with singleton pregnancies at term (multiparous women and those with breech presentation were added back to the NTSV cohort)