

Appendix: Supplementary tables [posted as supplied by author]

Table A | Distribution of postpartum hemorrhage following 466,686 Swedish deliveries (1997-2009), in relation to maternal & delivery characteristics

Maternal characteristics	N total	Postpartum hemorrhage			
		N	%	OR	95% CI
Age at delivery					
<20	11174	419	3.75	1.00	
20-34	396686	21567	5.44	1.48	1.34, 1.63
>35	58826	4003	6.80	1.87	1.69, 2.08
Parity					
Primipara	208534	12653	6.07	1.00	
Multipara	258152	13336	5.17	0.84	0.82, 0.86
Civil status					
Living with father	416182	23115	5.55	1.00	
Living alone	10720	509	4.75	0.85	0.77, 0.93
Unknown	13573	657	4.84	0.86	0.80, 0.94
Country of origin					
Scandinavian	433322	24235	5.59	1.00	
Non-Scandinavian	33222	1751	5.27	0.94	0.89, 0.99
Highest education					
9yrs compulsory	41532	1886	4.54	1.00	
Upper secondary, <3yrs	73530	3829	5.21	1.15	1.09, 1.22
Upper secondary, 3yrs	132508	7297	5.51	1.23	1.16, 1.29
University	217602	12919	5.94	1.33	1.26, 1.40
Smoking in 1st trimester					
Non-smoker	394332	22201	5.63	1.00	
Smoker	44715	1983	4.43	0.78	0.74, 0.82
Height					
<160	45745	2154	4.71	1.00	
160-169	240520	12777	5.31	1.14	1.08, 1.19
>=170	149740	9098	6.08	1.31	1.25, 1.38
Pre-pregnancy BMI					
<20	43860	2003	4.57	1.00	
20-24	230881	12503	5.42	1.20	1.14, 1.26
>=25	134787	8081	6	1.33	1.27, 1.40
Diabetes					
No	463888	25747	5.55	1.00	
Yes	2798	242	8.65	1.61	1.41, 1.84
Chronic Hypertension					
No	464347	25808	5.56	1.00	
Yes	2339	181	7.74	1.43	1.22, 1.67
Coagulopathy					
No	464870	25829	5.56	1.00	
Yes	1816	160	8.81	1.64	1.38, 1.95

Maternal characteristics	N total	Postpartum hemorrhage			
		N	%	OR	95% CI
Fibroids					
No	466354	25943	5.56	1.00	
Yes	332	46	13.86	2.73	1.95, 3.83
Gestational Diabetes					
No	463630	25766	5.56	1.00	
Yes	3056	223	7.30	1.34	1.16, 1.54
Preeclampsia					
No	453289	24861	5.48	1.00	
Yes	13397	1128	8.42	1.58	1.49, 1.69
Chorioamnionitis					
No	465862	25933	5.57	1.00	
Yes	824	56	6.80	1.24	0.94, 1.62
Placenta previa/accreta					
No	465298	25601	5.50	1.00	
Yes	1388	388	27.95	6.66	5.92, 7.50
Abruptio placenta					
No	464972	25747	5.54	1.00	
Yes	1714	242	14.12	2.80	2.45, 3.22
Delivery/offspring characteristics					
Birth year					
1997-2000	125323	6069	4.84	1.00	
2001-2004	169957	9580	5.64	1.17	1.14, 1.21
2005-2009	171406	10340	6.03	1.26	1.22, 1.30
Induction					
No	412476	21808	5.29	1.00	
Yes	54210	4181	7.71	1.50	1.45, 1.55
Weak/prolonged labor					
No	392020	19799	5.05	1.00	
Yes	74666	6190	8.29	1.70	1.65, 1.75
Cesarean delivery					
No	399025	19671	4.93	1.00	
Yes	67661	6318	9.34	1.99	1.93, 2.05
Offspring sex					
Male	240255	13047	5.43	1.00	
Female	226431	12942	5.72	1.06	1.03, 1.08
Multiples					
Single birth	461758	25247	5.47	1.00	
Multiples	4928	742	15.06	3.06	2.83, 3.32
Postterm					
No	441178	23739	5.38	1.00	
Yes	25149	2233	8.88	1.71	1.64, 1.79
High birth weight (=>4000g)					
No	370216	17808	4.81	1.00	
Yes	95080	8133	8.55	1.85	1.80, 1.90

TABLE B | Clustering of postpartum hemorrhage; tetrachoric correlations

Cluster-level	All deliveries		
	N	TCC	95% CI
Couples	183,170	0.32	(0.30, 0.33)
Mothers, new partner	26,646	0.26	(0.21, 0.30)
Fathers, new partner	23,527	0.02	(-.03, 0.08)
Sisters	97,228	0.10	(0.08, 0.13)
Brothers	91,168	0.04	(0.02, 0.07)
Mixed siblings	177,944	0.01	(-.01, 0.03)

NOTE: N is number of pair-wise correlations in the cluster

TABLE C | Clustering of postpartum hemorrhage following vaginal delivery; Pair-wise odds ratios with univariable adjustment for potentially shared risk factors

Explanatory Covariate	Pair-wise odds ratio for PPH in vaginal deliveries only						
		Couple	Mother new p	Father new p	Sisters	Brothers	Mixed
All	N	116,552	21,090	16,236	63,352	57,332	112,420
	Crude	4.54 (4.20, 4.91)	3.64 (2.93, 4.51)	0.97 (0.69, 1.37)	1.58 (1.34, 1.87)	1.27 (1.05, 1.53)	1.03 (0.89, 1.19)
Mother's age		4.64 (4.29, 5.02)	3.64 (2.93, 4.51)	0.97 (0.69, 1.37)	1.58 (1.34, 1.87)	1.26 (1.05, 1.53)	1.03 (0.89, 1.19)
Birth year		4.52 (4.18, 4.89)	3.62 (2.92, 4.50)	0.96 (0.68, 1.36)	1.58 (1.33, 1.87)	1.27 (1.05, 1.53)	1.03 (0.89, 1.19)
Parity		4.52 (4.18, 4.89)	3.64 (2.94, 4.52)	1.00 (0.71, 1.40)	1.58 (1.34, 1.87)	1.27 (1.05, 1.53)	1.03 (0.89, 1.19)
IP-interval		4.63 (4.28, 5.01)	3.65 (2.94, 4.52)	0.98 (0.70, 1.38)	1.59 (1.34, 1.87)	1.26 (1.05, 1.53)	1.03 (0.89, 1.19)
Height	N	92,434	18,446	14,000	50,360	45,544	88,964
	Crude	4.72 (4.32, 5.16)	3.30 (2.59, 4.20)	1.02 (0.71, 1.47)	1.54 (1.27, 1.87)	1.19 (0.95, 1.50)	1.05 (0.89, 1.24)
	Adjusted	4.68 (4.28, 5.11)	3.28 (2.57, 4.17)	1.01 (0.70, 1.46)	1.51 (1.24, 1.84)	1.19 (0.95, 1.49)	1.04 (0.88, 1.23)
BMI	N	74,208	16,223	12,245	40,604	36,524	71,288
	Crude	4.75 (4.30, 5.25)	3.16 (2.44, 4.10)	0.98 (0.66, 1.45)	1.58 (1.27, 1.95)	1.19 (0.92, 1.55)	1.04 (0.87, 1.26)
	Adjusted	4.74 (4.29, 5.23)	3.16 (2.45, 4.10)	0.97 (0.65, 1.44)	1.57 (1.27, 1.95)	1.19 (0.92, 1.55)	1.04 (0.87, 1.26)
Education	N	116,116	21,023	15,780	63,252	57,000	111,980
	Crude	4.54 (4.20, 4.91)	3.64 (2.94, 4.52)	0.97 (0.68, 1.37)	1.57 (1.32, 1.85)	1.28 (1.06, 1.54)	1.03 (0.89, 1.19)
	Adjusted	4.53 (4.19, 4.89)	3.64 (2.94, 4.52)	0.96 (0.67, 1.36)	1.57 (1.33, 1.86)	1.28 (1.06, 1.54)	1.03 (0.89, 1.19)
Smoking	N	93,470	18,963	14,459	50,880	45,740	90,320
	Crude	4.59 (4.20, 5.01)	3.43 (2.71, 4.33)	1.03 (0.72, 1.48)	1.54 (1.28, 1.87)	1.22 (0.97, 1.52)	1.03 (0.87, 1.21)
	Adjusted	4.56 (4.18, 4.99)	3.43 (2.71, 4.33)	1.03 (0.72, 1.48)	1.54 (1.27, 1.86)	1.21 (0.97, 1.52)	1.03 (0.87, 1.21)

Explanatory Covariate	Pair-wise odds ratio for PPH in vaginal deliveries only						
		Couple	Mother new p	Father new p	Sisters	Brothers	Mixed
All	N	116,552	21,090	16,236	63,352	57,332	112,420
	Crude	4.54 (4.20, 4.91)	3.64 (2.93, 4.51)	0.97 (0.69, 1.37)	1.58 (1.34, 1.87)	1.27 (1.05, 1.53)	1.03 (0.89, 1.19)
DM		4.54 (4.20, 4.91)	3.64 (2.93, 4.51)	0.97 (0.69, 1.37)	1.58 (1.34, 1.87)	1.27 (1.05, 1.54)	1.03 (0.89, 1.19)
HT		4.54 (4.20, 4.91)	3.63 (2.92, 4.50)	0.98 (0.69, 1.37)	1.59 (1.34, 1.88)	1.27 (1.05, 1.53)	1.03 (0.89, 1.19)
Coagulopathy		4.54 (4.20, 4.91)	3.63 (2.93, 4.51)	0.97 (0.69, 1.37)	1.58 (1.34, 1.87)	1.27 (1.05, 1.53)	1.03 (0.89, 1.19)
Fibroids		4.54 (4.20, 4.91)	3.63 (2.92, 4.50)	0.97 (0.69, 1.37)	1.58 (1.34, 1.87)	1.27 (1.05, 1.53)	1.03 (0.89, 1.19)
PE		4.56 (4.21, 4.93)	3.60 (2.90, 4.48)	0.97 (0.69, 1.37)	1.59 (1.35, 1.88)	1.27 (1.05, 1.53)	1.03 (0.89, 1.20)
Chorioamnionitis		4.55 (4.20, 4.91)	3.63 (2.93, 4.51)	0.98 (0.69, 1.37)	1.58 (1.34, 1.87)	1.27 (1.05, 1.53)	1.03 (0.89, 1.19)
Induction		4.42 (4.08, 4.78)	3.51 (2.82, 4.36)	0.97 (0.69, 1.37)	1.58 (1.34, 1.87)	1.28 (1.06, 1.54)	1.03 (0.89, 1.19)
Labor complication		4.55 (4.20, 4.92)	3.60 (2.90, 4.48)	0.97 (0.69, 1.37)	1.57 (1.33, 1.86)	1.27 (1.05, 1.53)	1.03 (0.89, 1.20)
Sex		4.54 (4.20, 4.91)	3.63 (2.92, 4.51)	0.97 (0.69, 1.37)	1.59 (1.34, 1.87)	1.27 (1.06, 1.54)	1.03 (0.89, 1.19)
Multiples		4.53 (4.19, 4.90)	3.64 (2.93, 4.52)	0.97 (0.69, 1.37)	1.59 (1.34, 1.88)	1.27 (1.05, 1.53)	1.03 (0.89, 1.19)
Postterm	N	116,342	21,034	16,177	63,240	57,224	112,220
	Crude	4.54 (4.20, 4.91)	3.65 (2.94, 4.53)	0.97 (0.69, 1.37)	1.59 (1.34, 1.88)	1.28 (1.06, 1.54)	1.03 (0.89, 1.19)
	Adjusted	4.46 (4.12, 4.83)	3.57 (2.87, 4.44)	0.98 (0.69, 1.38)	1.57 (1.33, 1.86)	1.28 (1.06, 1.55)	1.02 (0.88, 1.18)
High birth weight	N	115,388	20,972	16,149	62,716	56,800	111,260
	Crude	4.58 (4.23, 4.95)	3.68 (2.97, 4.57)	0.97 (0.69, 1.37)	1.59 (1.34, 1.88)	1.28 (1.06, 1.54)	1.03 (0.89, 1.19)
	Adjusted	4.20 (3.88, 4.56)	3.46 (2.77, 4.32)	0.94 (0.67, 1.33)	1.54 (1.30, 1.82)	1.27 (1.05, 1.53)	1.02 (0.88, 1.19)

NOTE: Results from Alternating Logistic Regression; N is number of pair-wise correlations in the cluster

TABLE D | Clustering of postpartum hemorrhage; Pair-wise odds ratios

Cluster-level	All deliveries			All deliveries - complete case							
	N	Crude		N	Crude			M1		M2	
		OR	95% CI		OR	95% CI	OR	95% CI	OR	95% CI	
Couples	183,170	3.58	3.38, 3.79	142,610	3.66	3.43, 3.90	3.23	3.02, 3.46	3.01	2.80, 3.23	
Mothers, new partner	26,646	2.97	2.49, 3.54	23,079	2.83	2.33, 3.43	2.58	2.11, 3.15	2.55	2.08, 3.12	
Fathers, new partner	23,527	1.06	0.84, 1.36	20,063	1.17	0.90, 1.50	1.13	0.87, 1.47	1.12	0.86, 1.45	
Sisters	97,228	1.55	1.38, 1.73	75,828	1.56	1.37, 1.78	1.48	1.30, 1.69	1.43	1.25, 1.63	
Brothers	91,168	1.20	1.06, 1.36	71,008	1.16	1.00, 1.34	1.13	0.98, 1.31	1.12	0.97, 1.30	
Mixed siblings	177,944	1.03	0.94, 1.13	138,384	1.05	0.94, 1.17	1.03	0.92, 1.15	1.03	0.93, 1.14	

NOTE: Results from Alternating Logistic Regression; N is number of pair-wise correlations in the cluster

M1 includes birth year, maternal age, parity, inter-pregnancy interval, height, BMI, induction, labor complication, postterm birth and high birth weight

M2 is M1 adjusted also for Cesarean