

Appendix 1 (as supplied by the authors): Univariate associations between surgical site infection following Caesarean section and potential risk factors

Potential Risk Factor	No SSI n (%)	SSI n (%)	Unadjusted OR (95% CI)
Institution-related			
Number of Caesarean sections in the delivery hospital, per year (n=33,991)			
<130	8364 (98.1)	162 (1.9)	Reference
130-949	7107 (96.1)	286 (3.9)	2.06 (1.69-2.52)
950-1249	9133 (96.6)	321 (3.4)	1.81 (1.49-2.20)
≥1250	8464 (98.2)	154 (1.8)	0.94 (0.75-1.17)
Area-level			
Region of maternal residence (n=33,991)			
A	15584 (97.4)	424 (2.6)	Reference
B	5880 (96.4)	217 (3.6)	1.35 (1.14-1.60)
C	6135 (97.4)	163 (2.6)	0.97 (0.81-1.17)
D	5469 (97.9)	119 (2.1)	0.80 (0.65-0.98)
Quintile of neighbourhood-level income (n=33,267)			
1 (lowest)	6441 (96.1)	262 (3.9)	1.68 (1.44-1.97)
2	5842 (97.1)	173 (2.9)	1.24 (1.04-1.48)
3-5	20070 (97.7)	479 (2.3)	Reference
Maternal residence (n=33,971)			
Urban	22978 (97.2)	655 (2.8)	Reference
Rural	10071 (97.4)	267 (2.6)	0.93 (0.81-1.08)
Maternal Demographics			
Maternal age, years (n=33,991)			
<25	6077 (96.4)	228 (3.6)	1.48 (1.26-1.73)
25-34	20392 (97.5)	516 (2.5)	Reference
≥35	6599 (97.4)	179 (2.6)	1.07 (0.90-1.27)
Pre-pregnancy weight, kg (n=33,991)			
<53	2680 (97.7)	63 (2.3)	1.16 (0.87-1.55)
53-66.9	9787 (98.0)	199 (2.0)	Reference
67-76.9	5553 (97.6)	136 (2.4)	1.21 (0.97-1.50)
77-86.9	3976 (97.4)	108 (2.6)	1.33 (1.05-1.69)
87-97.9	2548 (96.7)	86 (3.3)	1.66 (1.28-2.14)
≥98	3043 (94.2)	187 (5.8)	3.00 (2.44-3.68)
Missing	5481 (97.4)	144 (2.6)	1.29 (1.04-1.61)
Marital status (n=33,991)			
Married/common-law	24102 (97.6)	587 (2.4)	Reference
Single/divorced/separated/widowed	7286 (96.2)	287 (3.8)	1.61 (1.40-1.86)
Missing	1680 (97.2)	49 (2.8)	1.19 (0.88-1.60)
Smoking during pregnancy (n=33,708)			
No	25820 (97.5)	651 (2.5)	Reference
Yes	6973 (96.4)	264 (3.6)	1.50 (1.30-1.74)
Alcohol or drug abuse during pregnancy (n=33,991)			

Potential Risk Factor	No SSI n (%)	SSI n (%)	Unadjusted OR (95% CI)
No	32621 (97.3)	897 (2.7)	Reference
Yes	447 (94.5)	26 (5.5)	2.11 (1.41-3.15)
Maternal medical conditions			
Non-obstetric pre-existing health conditions affecting pregnancy (n=33,991)			
No	26761 (97.5)	681 (2.5)	Reference
Yes	6307 (96.3)	242 (3.7)	1.49 (1.28-1.73)
Hypertension (n=33,991)			
No	28719 (97.5)	738 (2.5)	Reference
Pre-existing	515 (95.7)	23 (4.3)	1.75 (1.14-2.67)
Gestational or unspecified	2605 (95.9)	110 (4.1)	1.65 (1.34-2.02)
Preeclampsia	1229 (95.9)	52 (4.1)	1.66 (1.24-2.20)
Diabetes (n=33,991)			
No	30955 (97.4)	819 (2.6)	Reference
Pre-existing	203 (94.9)	11 (5.1)	2.04 (1.10-2.76)
Gestational	1910 (95.4)	93 (4.6)	1.83 (1.46-2.28)
Anemia during pregnancy (n=33,991)			
No	30551 (97.3)	837 (2.7)	Reference
Yes	2517 (96.7)	86 (3.3)	1.24 (0.99-1.56)
Depression during pregnancy (n=33,991)			
No	31592 (97.3)	866 (2.7)	Reference
Yes	1476 (96.3)	57 (3.7)	1.38 (1.05-1.82)
Anticoagulation therapy during pregnancy (n=33,991)			
No	32774 (97.3)	900 (2.7)	Reference
Yes	294 (92.7)	23 (7.3)	2.82 (1.84-4.35)
Maternal influenza vaccination during pregnancy (n=33,991)			
No	32105 (97.3)	901 (2.7)	Reference
Yes	963 (97.8)	22 (2.2)	1.22 (0.80-1.87)
Pregnancy history			
Parity (n=33,991)			
Primiparous	16268 (96.8)	545 (3.2)	Reference
Multiparous	16800 (97.8)	378 (2.2)	0.66 (0.58-0.76)
Mode of delivery in last pregnancy (n=33,991)			
Not applicable	18188 (96.9)	589 (3.1)	Reference
Vaginal	4187 (97.4)	111 (2.6)	0.81 (0.66-1.00)
Caesarean section	10693 (98.0)	223 (2.0)	0.63 (0.54-0.74)
Number of previous Caesarean sections (n=33,991)			
None	20748 (96.9)	663 (3.1)	Reference
One	9695 (98.0)	199 (2.0)	0.64 (0.55-0.75)
Two or more	2625 (97.7)	61 (2.3)	0.70 (0.54-0.92)
SSI after previous Caesarean section(n=33,991)			
No	32731 (97.3)	908 (2.7)	Reference
Yes	337 (95.7)	15 (4.3)	0.72 (0.34-1.55)
Pregnancy characteristics			

Potential Risk Factor	No SSI n (%)	SSI n (%)	Unadjusted OR (95% CI)
Weight gain during pregnancy, kg (n=33,991)			
<10	5493 (97.2)	158 (2.8)	1.11 (0.92-1.34)
10-19.9	13875 (97.5)	356 (2.5)	Reference
20-29.9	4480 (96.9)	142 (3.1)	1.24 (1.02-1.51)
≥30	615 (94.2)	38 (5.8)	2.37 (1.68-3.35)
Missing	8605 (97.4)	229 (2.6)	1.03 (0.87-1.22)
Chorioamnionitis during pregnancy (n=33,991)			
No	32383 (97.4)	867 (2.6)	Reference
Yes	685 (92.4)	56 (7.6)	3.08 (2.33-4.07)
Diagnostic and/or therapeutic procedure(s) performed on mother (n=33,991)			
No	32112 (97.3)	885 (2.7)	Reference
Yes	956 (96.2)	38 (3.8)	1.43 (1.03-1.99)
Steroid use ≥48 hrs before delivery for fetal lung maturity (n=33,991)			
None	31919 (97.3)	873 (2.7)	Reference
Yes	1149 (95.8)	50 (4.2)	1.58 (1.18-2.11)
Cervical dilation in the last examination before Caesarean section, cm (n=33,130)			
None	16758 (98.0)	346 (2.0)	Reference
1-3	3371 (96.8)	113 (3.2)	1.63 (1.31-2.02)
4-10	12104 (96.5)	438 (3.5)	1.77 (1.53-2.04)
Time between rupture of membranes to delivery, hrs (n=33,690)			
<1	16501 (97.8)	370 (2.2)	Reference
2-11	8044 (96.9)	254 (3.1)	1.42 (1.21-1.67)
≥12	8228 (96.6)	293 (3.4)	1.60 (1.37-1.87)
Stage of labour before Caesarean section (n=33,990)			
None	16225 (98.0)	339 (2.0)	Reference
First	10478 (96.7)	354 (3.3)	1.62 (1.40-1.89)
Second	6364 (96.5)	230 (3.5)	1.74 (1.47-2.07)
Spontaneous rupture of membranes (n=33,646)			
Yes	9116 (97.0)	286 (3.0)	Reference
No	23614 (97.4)	630 (2.6)	0.85 (0.73-0.97)
Delivery			
Length of antepartum stay, hrs (n=33,969)			
<24	27786 (97.5)	722 (2.5)	Reference
24-49	3029 (96.8)	99 (3.2)	1.26 (1.02-1.56)
≥50	2231 (95.6)	102 (4.4)	1.76 (1.42-2.17)
Year of delivery (n=33,991)			
1997-2000	7045 (95.3)	346 (4.7)	2.22 (1.86-2.66)
2001-2004	8672 (97.8)	192 (2.2)	1.01 (0.82-1.23)
2005-2008	8806 (97.8)	194 (2.2)	0.99 (0.81-1.21)
2009-2012	8545 (97.8)	191 (2.2)	Reference
Delivering on a weekend (n=33,991)			
No	27441 (97.4)	741 (2.6)	Reference
Yes	5627 (96.9)	182 (3.1)	1.20 (1.02-1.41)

Potential Risk Factor	No SSI n (%)	SSI n (%)	Unadjusted OR (95% CI)
Primary indication for Caesarean section (n=33,991)			
Breech	4471 (97.6)	109 (2.4)	1.28 (1.01-1.63)
Dystocia	8602 (96.5)	311 (3.5)	1.91 (1.59-2.29)
Fetal distress	5066 (96.6)	176 (3.4)	1.83 (1.49-2.26)
Other	5120 (97.4)	139 (2.6)	1.42 (1.14-1.78)
Previous Caesarean section	9809 (98.1)	188 (1.9)	Reference
Regional anesthesia during labour or delivery (n=33,991)			
No	2100 (96.8)	70 (3.2)	Reference
Yes	30968 (97.3)	853 (2.7)	0.83 (0.65-1.07)
Antibiotic therapy during labour and delivery (n=33,991)			
Yes	20909 (97.6)	510 (2.4)	Reference
No	12159 (96.7)	413 (3.3)	1.39 (1.22-1.59)
Maternal blood transfusion (n=33,991)			
No	32749 (97.3)	896 (2.7)	Reference
Yes	319 (92.2)	27 (7.8)	3.08 (2.07-4.59)
Season of delivery (n=33,991)			
December-February	7474 (97.4)	201 (2.6)	0.95 (0.78-1.14)
March-May	8525 (97.3)	238 (2.7)	0.99 (0.82-1.18)
June-August	8659 (97.2)	246 (2.8)	Reference
September-November	8410 (97.3)	238 (2.8)	1.00 (0.83-1.19)
Type of Caesarean section (n=33,991)			
Low segment transverse	32338 (97.3)	902 (2.7)	Reference
Other	730 (97.2)	21 (2.8)	1.04 (0.68-1.62)
Instrumentation used during Caesarean section (n=33,991)			
No	30492 (97.3)	843 (2.7)	Reference
Forceps or vacuum	2576 (97.0)	80 (3.0)	1.12 (0.88-1.41)
General anesthesia during labour or delivery (n=33,991)			
No	30301 (97.4)	821 (2.6)	Reference
Yes	2767 (96.4)	102 (3.6)	1.35 (1.09-1.67)
Other procedures performed during Caesarean section (n=33,991)			
No	26875 (97.3)	756 (2.7)	Reference
Yes	6193 (97.4)	167 (2.6)	0.95 (0.80-1.13)
Fetal and neonatal			
Infant birth weight, g (n=33,967)			
<2,500	2235 (96.9)	72 (3.1)	1.20 (0.94-1.54)
2500-3900	29186 (97.4)	779 (2.6)	Reference
≥4000	1626 (95.9)	69 (4.1)	1.58 (1.22-2.03)
Apgar score at 5 minutes (n=33,794)			
0-6	619 (94.9)	33 (5.1)	Reference
7-10	32256 (97.3)	886 (2.7)	1.94 (1.36-2.77)
Gestational age, weeks (n=33,873)			
<37	3195 (96.4)	121 (3.6)	1.59 (1.29-1.95)
37-39 ⁺⁶	18900 (97.7)	450 (2.3)	Reference

Potential Risk Factor	No SSI n (%)	SSI n (%)	Unadjusted OR (95% CI)
≥40	10858 (96.9)	349 (3.1)	1.35 (1.18-1.56)
Breastfeeding at discharge (n=33,677)			
Yes	23129 (97.6)	572 (2.4)	Reference
No	9645 (96.7)	331 (3.3)	1.37 (1.20-1.58)
Presentation at delivery (n=33,991)			
Other	8906 (97.2)	260 (2.8)	1.08 (0.93-1.25)
Vertex	22243 (97.4)	601 (2.6)	Reference
Missing	1919 (96.9)	62 (3.1)	1.19 (0.91-1.55)
Number of fetuses (n=33,991)			
Singleton	31992 (97.3)	884 (2.7)	Reference
Multiples	1076 (96.5)	39 (3.5)	1.30 (0.94-1.80)
Diagnostic and/or therapeutic procedure(s) performed on fetus (n=33,991)			
No	31702 (97.3)	883 (2.7)	Reference
Yes	1366 (97.2)	40 (2.8)	1.05 (0.76-1.45)

Note: CI=confidence interval, OR=odds ratio, SSI=surgical site infection