

## Appendix B

Table B: Regression results for all infections, early childhood (&lt;2 years)

	Crude*(95% CI)		Adjusted*(95% CI)		1998-2003†(95% CI)		2004-2010‡(95% CI)		BMI§(95% CI)	
Breastfeeding:										
No BF	2.13	(1.61–2.81)	1.89	(1.45–2.47)	2.25	(1.51–3.35)	1.64	(1.17–2.32)	1.81	(1.35–2.42)
EBF <4 MO with BF <6 MO	1.46	(1.30–1.64)	1.41	(1.25–1.59)	1.34	(1.13–1.59)	1.48	(1.25–1.74)	1.40	(1.23–1.59)
EBF <4 MO with BF ≥6 MO	1.33	(1.16–1.52)	1.31	(1.14–1.50)	1.26	(1.02–1.56)	1.35	(1.12–1.63)	1.29	(1.11–1.49)
EBF 4–5 MO with BF <6 MO	1.19	(0.95–1.50)	1.16	(0.92–1.46)	1.21	(0.86–1.71)	1.11	(0.84–1.47)	1.09	(0.84–1.40)
EBF 4–5 MO with BF ≥6 MO	1.04	(0.94–1.15)	1.05	(0.94–1.16)	1.06	(0.92–1.23)	1.04	(0.89–1.20)	1.04	(0.93–1.16)
EBF ≥6 MO	1	ref	1	ref	1	ref	1	ref	1	ref
SGA:										
Yes			1.58	(1.14–2.19)	1.59	(0.98–2.57)	1.55	(0.99–2.43)	1.60	(1.12–2.28)
No			1	ref	1	ref	1	ref	1	ref
LGA:										
Yes			1.22	(1.02–1.47)	1.40	(1.06–1.84)	1.08	(0.86–1.36)	1.21	(0.99–1.47)
No			1	ref	1	ref	1	ref	1	ref
Congenital malformation:										
Yes			2.25	(1.82–2.79)	2.18	(1.64–2.90)	2.32	(1.71–3.17)	2.27	(1.82–2.84)
No			1	ref	1	ref	1	ref	1	ref
Sex:										
Male			1	ref	1	ref	1	ref	1	ref
Female			0.89	(0.82–0.96)	0.95	(0.85–1.07)	0.83	(0.75–0.93)	0.88	(0.81–0.96)
Maternal age (years):										
≤19			1.00	(0.71–1.42)	1.03	(0.65–1.63)	0	(0.59–1.63)	1.08	(0.75–1.55)
20-24			1	ref	1	ref	1	ref	1	ref
25-29			1.00	(0.86–1.15)	1.06	(0.85–1.32)	0.96	(0.79–1.17)	1.01	(0.86–1.18)
30-34			0.95	(0.82–1.10)	1.01	(0.80–1.28)	0.91	(0.75–1.11)	0.95	(0.81–1.11)
≥35			0.88	(0.74–1.05)	1.01	(0.77–1.32)	0.80	(0.64–1.00)	0.89	(0.74–1.07)
Parity:										
1			1	ref	1	ref	1	ref	1	ref
2			1.18	(1.07–1.29)	1.06	(0.93–1.22)	1.29	(1.14–1.46)	1.17	(1.06–1.30)
3			1.17	(1.03–1.33)	1.04	(0.86–1.25)	1.30	(1.10–1.55)	1.17	(1.03–1.34)
≥4			1.42	(1.18–1.71)	1.23	(0.95–1.61)	1.62	(1.25–2.10)	1.47	(1.21–1.79)

Maternal smoking:									
No smoking		1	ref	1	ref	1	ref	1	ref
Smoking		1.04	(0.89–1.21)	0.99	(0.80–1.23)	1.10	(0.89–1.37)	1.04	(0.89–1.22)
Maternal education (years):									
≤9		1.07	(0.91–1.25)	1.09	(0.87–1.37)	1.03	(0.83–1.29)	1.05	(0.89–1.24)
10–12		1.03	(0.93–1.13)	1.01	(0.86–1.17)	1.04	(0.91–1.18)	1.04	(0.93–1.16)
13–14		1.01	(0.88–1.15)	1.00	(0.83–1.21)	1.00	(0.83–1.21)	1.02	(0.88–1.17)
≥15		1	ref	1	ref	1	ref	1	ref
Maternal country of birth:									
Sweden		1	ref	1	ref	1	ref	1	ref
Other Nordic		1.06	(0.82–1.37)	1.09	(0.78–1.54)	1.03	(0.70–1.52)	1.07	(0.82–1.40)
Europe and North America		1.04	(0.86–1.25)	1.15	(0.87–1.51)	0.96	(0.74–1.25)	1.08	(0.88–1.33)
Asia		0.94	(0.79–1.12)	0.88	(0.67–1.15)	0.98	(0.79–1.23)	0.93	(0.77–1.13)
Africa		1.41	(1.08–1.84)	1.35	(0.93–1.94)	1.45	(1.01–2.10)	1.48	(1.12–1.95)
Other		0.92	(0.58–1.45)	1.00	(0.48–2.10)	0.84	(0.49–1.45)	0.84	(0.54–1.30)
Year of birth:									
1998		1	ref	1	ref	1	ref	1	ref
1999		0.80	(0.64–0.99)	0.81	(0.66–1.01)	0.81	(0.66–1.00)	0.79	(0.63–0.99)
2000		0.99	(0.82–1.21)	1.02	(0.84–1.24)	1.01	(0.83–1.22)	1.03	(0.84–1.26)
2001		0.89	(0.74–1.09)	0.93	(0.77–1.13)	0.93	(0.76–1.12)	0.94	(0.76–1.16)
2002		0.87	(0.72–1.06)	0.90	(0.74–1.09)	0.89	(0.73–1.08)	0.92	(0.75–1.12)
2003		0.79	(0.65–0.96)	0.82	(0.68–0.99)	0.81	(0.67–0.98)	0.78	(0.63–0.95)
2004		0.84	(0.70–1.02)	0.89	(0.73–1.07)			1	ref
2005		0.84	(0.70–1.02)	0.88	(0.73–1.06)	0.99	(0.83–1.20)	0.90	(0.74–1.10)
2006		0.73	(0.60–0.89)	0.77	(0.64–0.93)	0.87	(0.73–1.05)	0.76	(0.62–0.93)
2007		0.69	(0.57–0.84)	0.73	(0.60–0.88)	0.82	(0.68–0.99)	0.71	(0.58–0.87)
2008		0.58	(0.47–0.71)	0.61	(0.50–0.75)	0.69	(0.57–0.84)	0.61	(0.49–0.75)
2009		0.59	(0.48–0.73)	0.62	(0.51–0.77)	0.70	(0.57–0.87)	0.62	(0.50–0.77)
2010		0.55	(0.44–0.67)	0.59	(0.48–0.72)	0.66	(0.54–0.81)	0.58	(0.47–0.72)
Pregnancy BMI:									
Underweight								1.09	(0.82–1.44)
Normal								1	ref
Overweight								0.98	(0.89–1.09)
Obese								1.12	(0.98–1.28)
Observations (N):		37,825		37,825		15,553		22,272	
								33,422	

Clusters (Maternal ID):	25,487	25,487	12,445	16,998	23,605
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\*Adjusted for year of birth. Analysis included 37,825 children.

†Adjusted for year of birth small for gestational age, large for gestational age, congenital malformation, sex, maternal age, parity, maternal smoking, maternal education level and maternal country of birth. Analysis included 37,825 children.

‡Included children born 1998 to 2003. Adjusted for year of birth small for gestational age, large for gestational age, congenital malformation, sex, maternal age, parity, maternal smoking, maternal education level and maternal country of birth. Analysis excluded children born 2004 to 2010, leaving 15,553 children.

§Included children born 2004 to 2010. Adjusted for year of birth small for gestational age, large for gestational age, congenital malformation, sex, maternal age, parity, maternal smoking, maternal education level and maternal country of birth. Analysis excluded children born 1998 to 2003, leaving 22,272 children.

¶Adjusted for year of birth small for gestational age, large for gestational age, congenital malformation, sex, maternal age, parity, maternal smoking, maternal education level, maternal country of birth and pregnancy BMI. Analysis excluded children with missing data on pregnancy BMI, leaving 33,422 children.

Incidence rate ratios were estimated using negative binomial regression models. Correlation between siblings was accounted for using generalized estimating equations with robust standard errors. CI, confidence intervals. BF, breastfeeding. EBF, exclusive breastfeeding. MO, months. SGA, small for gestation age. LGA, large for gestation age. BMI, body mass index.

**Table C: Regression results for all infections, later childhood (2–4 years)**

	Crude <sup>*</sup> (95% CI)		Adjusted <sup>†</sup> (95% CI)		Adjusted 2 <sup>‡</sup> (95% CI)		1998-2003 <sup>§</sup> (95% CI)		2004-2010 <sup>¶</sup> (95% CI)		BMI <sup>#</sup> (95% CI)	
Breastfeeding:												
No BF	1.98	(1.27–3.09)	1.73	(1.12–2.66)	1.52	(1.00–2.33)	2.51	(1.54–4.09)	0.82	(0.37–1.82)	1.54	(0.98–2.40)
EBF <4 MO with BF <6 MO	1.60	(1.29–1.98)	1.52	(1.23–1.87)	1.43	(1.16–1.75)	1.29	(0.97–1.71)	1.54	(1.13–2.08)	1.46	(1.17–1.82)
EBF <4 MO with BF ≥6 MO	1.35	(1.07–1.71)	1.31	(1.03–1.66)	1.27	(1.00–1.61)	1.39	(1.01–1.91)	1.22	(0.86–1.73)	1.32	(1.03–1.69)
EBF 4–5 MO with BF <6 MO	0.98	(0.69–1.38)	0.97	(0.69–1.38)	0.97	(0.68–1.37)	0.90	(0.59–1.38)	1.08	(0.61–1.89)	1.01	(0.70–1.47)
EBF 4–5 MO with BF ≥6 MO	1.05	(0.88–1.24)	1.05	(0.88–1.24)	1.05	(0.88–1.24)	1.07	(0.86–1.34)	1.04	(0.81–1.35)	1.04	(0.86–1.24)
EBF ≥6 MO	1	ref	1	ref	1	ref	1	ref	1	ref	1	ref
SGA:												
Yes			2.23	(1.43–3.46)	2.12	(1.37–3.29)	1.68	(0.88–3.23)	2.49	(1.41–4.40)	2.26	(1.45–3.53)
No			1	ref	1	ref	1	ref	1	ref	1	ref
LGA:												
Yes			1.21	(0.91–1.60)	1.17	(0.89–1.54)	1.03	(0.68–1.53)	1.33	(0.92–1.93)	1.08	(0.80–1.45)
No			1	ref	1	ref	1	ref	1	ref	1	ref
Congenital malformation:												
Yes			3.44	(2.36–5.03)	2.89	(2.03–4.11)	2.37	(1.66–3.39)	3.42	(1.97–5.95)	2.96	(2.04–4.29)
No			1	ref	1	ref	1	ref	1	ref	1	ref
Sex												
Male			1	ref	1	ref	1	ref	1	ref	1	ref
Female			0.90	(0.78–1.04)	0.91	(0.79–1.05)	0.94	(0.78–1.12)	0.87	(0.71–1.07)	0.92	(0.79–1.07)
Maternal age (years):												
≤19			0.64	(0.33–1.24)	0.65	(0.33–1.26)	0.67	(0.27–1.53)	0.67	(0.24–1.88)	0.67	(0.33–1.35)
20–24			1	ref	1	ref	1	ref	1	ref	1	ref
25–29			0.98	(0.78–1.25)	0.98	(0.77–1.23)	0.96	(0.71–1.28)	0.99	(0.70–1.39)	1.00	(0.78–1.27)
30–34			0.82	(0.65–1.04)	0.82	(0.65–1.04)	1.02	(0.75–1.39)	0.66	(0.47–0.93)	0.81	(0.63–1.04)
≥35			0.96	(0.73–1.25)	0.98	(0.75–1.27)	1.22	(0.86–1.74)	0.81	(0.56–1.18)	0.97	(0.73–1.29)
Parity:												
1			1	ref	1	ref	1	ref	1	ref	1	ref
2			0.98	(0.84–1.14)	0.96	(0.83–1.12)	0.90	(0.73–1.12)	1.04	(0.84–1.30)	0.98	(0.83–1.15)
3			0.99	(0.80–1.23)	0.97	(0.78–1.20)	0.85	(0.63–1.15)	1.11	(0.82–1.50)	0.97	(0.78–1.23)
≥4			0.99	(0.67–1.48)	0.94	(0.64–1.36)	0.60	(0.39–0.92)	1.33	(0.81–2.18)	0.96	(0.65–1.43)
Maternal smoking:												
No smoking			1	ref	1	ref	1	ref	1	ref	1	ref

Smoking	1.04	(0.80–1.37)	1.04	(0.80–1.34)	0.92	(0.68–1.25)	1.16	(0.78–1.73)	0.96	(0.73–1.27)	
Maternal education (years):											
≤9	1.15	(0.87–1.53)	1.13	(0.86–1.49)	1.24	(0.89–1.73)	0.99	(0.65–1.53)	1.19	(0.89–1.57)	
10–12	0.90	(0.76–1.07)	0.90	(0.76–1.07)	0.98	(0.77–1.26)	0.81	(0.64–1.03)	0.91	(0.75–1.09)	
13–14	1.11	(0.91–1.37)	1.12	(0.92–1.37)	1.10	(0.82–1.46)	1.13	(0.84–1.51)	1.10	(0.89–1.37)	
≥15	1	ref	1	ref	1	ref	1	ref	1	ref	
Maternal country of birth:											
Sweden	1	ref	1	ref	1	ref	1	ref	1	ref	
Other Nordic	0.91	(0.47–1.78)	0.89	(0.46–1.72)	0.66	(0.33–1.31)	1.20	(0.43–3.37)	0.90	(0.44–1.84)	
Europe and North America	0.99	(0.72–1.37)	0.98	(0.71–1.35)	1.09	(0.68–1.72)	0.90	(0.58–1.38)	0.86	(0.60–1.24)	
Asia	1.04	(0.77–1.40)	1.05	(0.78–1.40)	0.88	(0.60–1.27)	1.17	(0.77–1.76)	1.12	(0.82–1.51)	
Africa	1.23	(0.70–2.18)	1.14	(0.66–1.97)	1.19	(0.67–2.12)	1.12	(0.48–2.61)	1.14	(0.64–2.02)	
Other	1.05	(0.54–2.05)	1.03	(0.56–1.89)	1.33	(0.58–3.04)	0.76	(0.32–1.80)	0.90	(0.49–1.66)	
Year of birth:											
1998	1	ref	1	ref	1	ref		1	ref	1	ref
1999	1.01	(0.74–1.38)	1.05	(0.74–1.38)	1.10	(0.80–1.50)	1.07	(0.79–1.46)	1.18	(0.85–1.62)	
2000	0.99	(0.72–1.36)	1.04	(0.72–1.36)	1.03	(0.76–1.41)	1.02	(0.75–1.39)	1.00	(0.72–1.39)	
2001	0.93	(0.67–1.29)	0.99	(0.67–1.29)	0.99	(0.72–1.36)	0.97	(0.71–1.32)	0.91	(0.64–1.30)	
2002	0.97	(0.71–1.31)	1.01	(0.71–1.31)	1.03	(0.76–1.39)	1.00	(0.74–1.35)	1.05	(0.76–1.44)	
2003	0.94	(0.69–1.29)	0.98	(0.69–1.29)	1.01	(0.74–1.37)	0.97	(0.72–1.33)	1.06	(0.76–1.48)	
2004	0.72	(0.52–1.00)	0.77	(0.52–1.00)	0.78	(0.56–1.07)	1	ref	0.88	(0.63–1.23)	
2005	0.79	(0.55–1.12)	0.83	(0.55–1.12)	0.83	(0.59–1.17)		1.07	(0.76–1.50)	0.77	(0.54–1.11)
2006	0.56	(0.40–0.80)	0.60	(0.40–0.80)	0.62	(0.44–0.87)		0.80	(0.57–1.12)	0.62	(0.43–0.90)
2007	0.70	(0.50–1.00)	0.74	(0.50–1.00)	0.78	(0.55–1.10)		1.01	(0.72–1.44)	0.79	(0.55–1.14)
2008	0.66	(0.46–0.95)	0.71	(0.46–0.95)	0.76	(0.53–1.09)		1.00	(0.70–1.43)	0.79	(0.54–1.15)
2009	0.68	(0.46–1.02)	0.72	(0.46–1.02)	0.76	(0.52–1.13)		0.98	(0.68–1.42)	0.77	(0.52–1.16)
2010	0.53	(0.38–0.74)	0.58	(0.38–0.74)	0.63	(0.45–0.87)		0.83	(0.59–1.15)	0.65	(0.46–0.91)
Previous admissions:											
Yes				3.39	(2.78–4.12)	2.86	(2.24–3.65)	3.94	(2.94–5.28)	3.46	(2.81–4.26)
No				1	ref	1	ref	1	ref	1	ref
Pregnancy BMI:											
Underweight									0.74	(0.45–1.22)	
Normal									1	ref	
Overweight									1.01	(0.84–1.20)	
Obese									1.03	(0.83–1.29)	

Observations (N):	37,621	37,621	37,621	15,466	22,155	33,236
Clusters (Maternal ID):	25,344	25,344	25,344	12,377	16,910	23,471

\*Adjusted for year of birth. Analysis included 37,621 children.

†Adjusted for year of birth small for gestational age, large for gestational age, congenital malformation, sex, maternal age, parity, maternal smoking, maternal education level and maternal country of birth. Analysis included 37,621 children.

‡Adjusted for year of birth small for gestational age, large for gestational age, congenital malformation, sex, maternal age, parity, maternal smoking, maternal education level, maternal country of birth and previous admissions. Analysis included 37,621 children.

§Included children born 1998 to 2003. Adjusted for year of birth small for gestational age, large for gestational age, congenital malformation, sex, maternal age, parity, maternal smoking, maternal education level, maternal country of birth and previous admissions. Analysis excluded children born 2004 to 2010, leaving 15,466 children.

¶Included children born 2004 to 2010. Adjusted for year of birth small for gestational age, large for gestational age, congenital malformation, sex, maternal age, parity, maternal smoking, maternal education level, maternal country of birth and previous admissions. Analysis excluded children born 1998 to 2003, leaving 22,155 children.

#Adjusted for year of birth small for gestational age, large for gestational age, congenital malformation, sex, maternal age, parity, maternal smoking, maternal education level, maternal country of birth, previous admissions and pregnancy BMI. Analysis excluded children with missing data on pregnancy BMI, leaving 33,236 children.

Incidence rate ratios were estimated using negative binomial regression models. Correlation between siblings was accounted for using generalized estimating equations with robust standard errors. BF, breastfeeding. EBF exclusive breastfeeding. MO, months. SGA, small for gestation age. LGA, large for gestation age. BMI, body mass index.