LIST OF CONTENTS

ST 1A   Birth years when information on the type of Caesarean section was available for each site.

Birth Year	Denmark	Finland	Norway	Sweden	Western Australia
1984-1986	NA	NA	U	U	S
1987	NA	U	U	U	S
1988-1989	NA	U	S	S	S
1990-1996	NA	S	S	S	S
1997-1999	S	S	S	S	S
1999-2004	S	S	S	S	NA

S=Specified type of Caesarean section (planned, emergency), U=Unspecified Caesarean section, NA = Data not available

ST 1B   Steps of inclusion and exclusions by study sites.

Steps of Inclusion/Exclusion	Denmark	Finland	Norway	Sweden	Western Australia	Total
Birth within study period	521 949	1 087 784	1 168 407	2 114 170	357 733	5 250 043
Births within gestational week 26-44	518 289	1 079 177	1 088 391	2 109 090	356 024	5 150 971
Only singleton births	497 606	1 049 638	1 056 521	2 054 072	346 515	5 004 352
Alive at 1 year old: Final data for analysis	494, 80 (10%)	1 048 547 (21%)	1 052 397 (21%)	2 046 785 (41%)	345 186 (7%)	4 987 395 (100%)

ST 2   Number of births by mode of delivery and gestational age (weeks).

Week of ges-tational	Vaginal delivery Frequency (%)	Type of Caesarean Section (CS)				All Deliveries Frequency (%)
		Planned CS Frequency (%)	Emergency CS Frequency (%)	Unspecified CS Frequency (%)	All CS Frequency (%)	
26-30	7 146 (0.16)	3 952 (1.62)	5 084 (1.75)	2 683 (1.96)	11 719 (1.7)	18 865 (0.38)
31	3 223 (0.07)	1 524 (0.63)	1 944 (0.67)	1 254 (0.92)	4 722 (0.7)	7 945 (0.16)
32	5 143 (0.12)	2 213 (0.91)	2 728 (0.94)	1 599 (1.17)	6 540 (1.0)	11 683 (0.23)
33	9 280 (0.21)	2 789 (1.14)	3 542 (1.22)	2 127 (1.55)	8 458 (1.3)	17 738 (0.36)
34	18 375 (0.42)	3 847 (1.58)	4 645 (1.60)	2 831 (2.07)	11 323 (1.7)	29 698 (0.60)
35	35 874 (0.83)	5 041 (2.07)	6 736 (2.31)	3 850 (2.81)	15 627 (2.3)	51 501 (1.03)
36	77 626 (1.80)	8 886 (3.65)	10 427 (3.58)	5 673 (4.15)	24 986 (3.7)	102 612 (2.06)
37	186 900 (4.34)	24 115 (9.89)	18 752 (6.44)	11 307 (8.27)	54 174 (8.1)	241 074 (4.83)
38	479 612 (11.11)	**84 319 (34.59)**	41 766 (14.35)	**33 341 (24.37)**	**159 426 (23.7)**	639 038 (12.81)
39	1 015 141 (23.52)	51 879 (21.28)	**61 638 (21.17)**	28 766 (21.03)	142 283 (21.2)	1 157 424 (23.21)
40	**1 313 989 (30.44)**	27 016 (11.08)	54 534 (18.73)	19 198 (14.03)	100 748 (15.0)	**1 414 737 (28.37)**
41	847 194 (19.63)	18 704 (7.67)	47 154 (16.2)	14 536 (10.63)	80 394 (12.0)	927 588 (18.60)
42	278 828 (6.46)	8 512 (3.49)	27 945 (9.6)	7 891 (5.77)	44 348 (6.6)	323 176 (6.48)
43	31 163 (0.72)	841 (0.35)	3 820 (1.31)	1 433 (1.05)	6 094 (0.9)	37 257 (0.75)
44	6 250 (0.14)	111 (0.05)	391 (0.13)	302 (0.22)	804 (0.1)	7 054 (0.14)
Total	4 315 744 (100.00)	243 749 (100.00)	291 106 (100.00)	136 791 (100.00)	671 646 (100.00)	4 987 390 (100.00)

ST 3 Number of births and prevalence of autism spectrum disorder (ASD) by week of gestation (weeks 26-30 as one group).

| Gestational age | Vaginal births (ASD %) | Type of Caesarean Section (CS) | | | All births (ASD %) |
		Planned CS (ASD %)	Emergency CS (ASD %)	All CS births [a] (ASD %)	
26-30	7 146 (1.37)	3 952 (1.85)	5 084 (0.89)	11 719 (1.44)	18 865 (1.42)
31	3 223 (0.93)	1 524 (1.44)	1 944 (0.87)	4 722 (1.12)	7 945 (1.04)
32	5 143 (0.93)	2 213 (1.36)	2 728 (0.92)	6 540 (1.13)	11 683 (1.04)
33	9 280 (0.82)	2 789 (1.00)	3 542 (0.79)	8 458 (0.89)	17 738 (0.85)
34	18 375 (0.88)	3 847 (0.81)	4 645 (0.93)	11 323 (0.87)	29 698 (0.88)
35	35 874 (0.82)	5 041 (1.01)	6 736 (0.71)	15 627 (0.82)	51 501 (0.82)
36	77 626 (0.76)	8 886 (1.08)	10 427 (0.93)	24 986 (1.03)	102 612 (0.83)
37	186 900 (0.70)	24 115 (0.88)	18 752 (0.77)	54 174 (0.81)	241 074 (0.73)
38	479 612 (0.62)	84 319 (0.68)	41 766 (0.70)	159 426 (0.72)	639 038 (0.65)
39	1 015 141 (0.59)	51 879 (0.77)	61 638 (0.80)	142 283 (0.75)	1 157 424 (0.61)
40	1 313 989 (0.56)	27 016 (0.72)	54 534 (0.77)	100 748 (0.76)	1 414 737 (0.57)
41	847 194 (0.58)	18 704 (0.92)	47 154 (0.78)	80 394 (0.81)	927 588 (0.60)
42	278 828 (0.63)	8 512 (0.87)	27 945 (0.81)	4 4348 (0.80)	323 176 (0.65)
43	31 163 (0.50)	841 (0.48)	3 820 (0.60)	6 094 (0.69)	37 257 (0.53)
44	6 250 (0.26)	111 (0.90)	391 (0.77)	804 (0.62)	7 054 (0.30)

[a] Including unspecified CS.

ST 4   Number of births and prevalence of autism spectrum disorder (ASD) by gestational age subgroups (weeks 26-36, 37-38, 39-41, and 42-44) for each site.

Gestational age-group	Vaginal births (ASD %)	CS births (ASD %)	All births (ASD %)
Denmark:			
26-36	14 253 (1.37)	8 987 (1.62)	23 240 (1.47)
37-38	59 249 (1.30)	23 324 (1.14)	82 573 (1.25)
39-41	309 867 (1.10)	37 809 (1.52)	347 676 (1.15)
42-44	34 030 (1.17)	6 961 (1.36)	40 991 (1.20)
Finland:			
26-36	28 987 (0.97)	15 291 (1.10)	44 278 (1.01)
37-38	142 120 (0.67)	38 935 (0.81)	181 055 (0.70)
39-41	680 824 (0.62)	94 535 (0.82)	775 359 (0.64)
42-44	39 753 (0.75)	8 102 (0.89)	47 855 (0.78)
Norway:			
26-36	34 423 (0.15)	18 256 (0.17)	52 679 (0.16)
37-38	120 547 (0.15)	31 207 (0.14)	151 754 (0.15)
39-41	660 222 (0.11)	64 050 (0.18)	724 272 (0.11)
42-44	109 283 (0.12)	14 409 (0.16)	123 692 (0.12)
Sweden:			
26-36	66 099 (1.11)	34 128 (1.39)	100 227 (1.20)
37-38	286 455 (0.78)	92 029 (0.91)	378484 (0.81)
39-41	1 323 462 (0.70)	97 066 (0.92)	1 420 528 (0.72)
42-44	126 942 (0.85)	20 604 (0.99)	147 546 (0.87)
Western Australia:			
26-36	12 905 (0.31)	6 713 (0.54)	19 618 (0.39)
37-38	58 141 (0.31)	28 105 (0.43)	86 246 (0.35)
39-41	201 949 (0.28)	29 965 (0.42)	231 914 (0.30)
42-44	6 233 (0.26)	1 170 (0.51)	7 403 (0.30)

ST 5 Number of births and prevalence of autism spectrum disorder (ASD) by gestational age subgroups (weeks 26-36, 37-38, 39-41, and 42-44). All births and for male and female offspring respectively.

Gestational age-group	Vaginal births (ASD %)	Caesarean section (ASD %)	All births (ASD %)
All	4 315 744 (0.60)	671 646 (0.79)	4 987 390 (0.62)
26-36	156 667 (0.83)	83 375 (1.02)	240 002 (0.90)
37-38	666 512 (0.65)	213 600 (0.74)	880 112 (0.67)
39-41	3 176 324 (0.57)	323 425 (0.77)	3 499 749 (0.59)
42-44	316 241 (0.61)	51 246 (0.78)	367 487 (0.63)
Boys (all)	2 201 829 (0.88)	357 351 (1.14)	2 559 180 (0.92)
26-36	87 033 (1.12)	44 497 (1.43)	131 530 (1.22)
37-38	347 564 (0.93)	110 068 (1.08)	457 632 (0.97)
39-41	1 600 779 (0.85)	173 059 (1.11)	1 773 838 (0.88)
42-44	166 453 (0.88)	29 727 (1.07)	196 180 (0.91)
Girls (all)	2 113 915 (0.30)	314 295 (0.40)	2 428 210 (0.31)
26-36	69 634 (0.47)	38 878 (0.56)	108 512 (0.50)
37-38	318 948 (0.34)	103 532 (0.39)	422 480 (0.35)
39-41	1 575 545 (0.29)	150 366 (0.37)	1 725 911 (0.30)
42-44	149 788 (0.31)	21 519 (0.39)	171 307 (0.32)

ST 6   Odds ratios (OR) and hazard ratios (HR) with two-sided 95% confidence intervals (CI) of autistic disorder (AD) following Caesarean section compared with vaginal delivery considering different subgroups of births.

Analysis	Vaginal births (AD%)	Caesarean section (AD%)	OR (95% CI)
Primary analysis:			
M1: Without adjusting for gestational age	4 315 744 (0.20)	671 646 (0.29)	1.42 (1.35 − 1.49)
M2: Adjusting for gestational age	4 315 744 (0.20)	671 646 (0.29)	1.34 (1.27 − 1.41)
Sub-groups analysis:			
M3: First born only	960 021 (0.22)	167 751 (0.32)	1.31 (1.19 − 1.45)
M4: Including Paternal Age	3 423 186 (0.21)	515 657 (0.33)	1.35 (1.28 − 1.43)
M5: Cox regression (HR)	3 111 057 (0.24)	478 622 (0.34)	1.34 (1.27 − 1.42)
M6: Logistic regression restricted date-of diagnosis cohort	3 111 057 (0.24)	478 622 (0.34)	1.33 (1.26 − 1.40)

M1: Logistic regression models included site (Denmark, Finland, Norway, Sweden, Western Australia), sex, birth year (1984-89, 1990-1994, 1995-99, and 2000-2004) and maternal age (<25, 25-29, 30-34, 35-39, ≥40) as covariates.

M2: M1 + gestational age

M3: M2 but only included first born.

M4: M2 + including paternal age (<25, 25-29, 30-34, 35-39, ≥40) as covariates, but excluded data from Finland due to missing information of paternal age.

M5: Stratified Cox regression models using birth years (1984-89, 1990-1994, 1995-99, and 2000-2004) as strata, and with covariates site (Denmark, Finland, Norway, Sweden, Western Australia), sex, birth year (1984-89, 1990-1994, 1995-99, and 2000-2004), maternal age ($<$25, 25-29, 30-34, 35-39, $\geq$40) and gestational age (26-36, 37-38, 39-41, 42-44)

M6: Denmark, Finland and Sweden were included and used the same set of variables as M5.

[a] Logistic regression models included site (Denmark, Finland, Norway, Sweden, Western Australia), sex, birth year (1984-89, 1990-1994, 1995-99, and 2000-2004) and maternal age ($<$25, 25-29, 30-34, 35-39, $\geq$40) as covariates.

[b] Logistic regression models included site (Denmark, Finland, Norway, Sweden, Western Australia), sex, birth year (1984-89, 1990-1994, 1995-99, and 2000-2004) and maternal age ($<$25, 25-29, 30-34, 35-39, $\geq$40) and **gestational age (26-36, 37-38, 39-41, 42-44)** as covariates.

[c] Finland was excluded. Paternal age ($<$25, 25-29, 30-34, 35-39, $\geq$40) added as a covariate;

[d] Date-of-diagnosis cohort: only Denmark, Finland and Sweden were included.

[e] Stratified Cox regression models using birth years (1984-89, 1990-1994, 1995-99, and 2000-2004) as strata, and with covariates site (Denmark, Finland, Norway, Sweden, Western Australia), sex, birth year (1984-89, 1990-1994, 1995-99, and 2000-2004), maternal age ($<$25, 25-29, 30-34, 35-39, $\geq$40) and **gestational age (26-36, 37-38, 39-41, 42-44)**

ST 7 Number of births and prevalence of autistic disorder (AD) by gestational age sub-groups (weeks 26-36, 37-38, 39-41, and 42-44).

Gestational age (week)	Vaginal births (AD%)	Caesarean section (AD%)	All births (AD %)
26-36	156 667 (0.28)	83 375 (0.40)	240 042 (0.32)
37-38	666 512 (0.22)	213 600 (0.29)	880 112 (0.24)
39-41	3 176 324 (0.19)	323 425 (0.26)	3 499 749 (0.19)
42-44	316 241 (0.20)	51 246 (0.29)	367 487 (0.21)

SF 1a   Odds ratios and two-sided 95% confidence intervals of autism spectrum disorder following emergency Caesarean section compared with vaginal delivery by week of gestation (weeks 26-30 as one group).

Week	Odds ratio [95% CI]
26–30	0.86 [0.58 , 1.26]
31	1.46 [0.74 , 2.87]
32	1.24 [0.73 , 2.12]
33	1.18 [0.74 , 1.90]
34	1.23 [0.86 , 1.76]
35	1.00 [0.72 , 1.38]
36	1.31 [1.04 , 1.63]
37	1.13 [0.95 , 1.35]
38	1.09 [0.96 , 1.24]
39	1.30 [1.18 , 1.43]
40	1.33 [1.20 , 1.47]
41	1.31 [1.17 , 1.46]
42	1.19 [1.03 , 1.37]
43	0.93 [0.59 , 1.46]
44	3.67 [0.93 , 14.47]
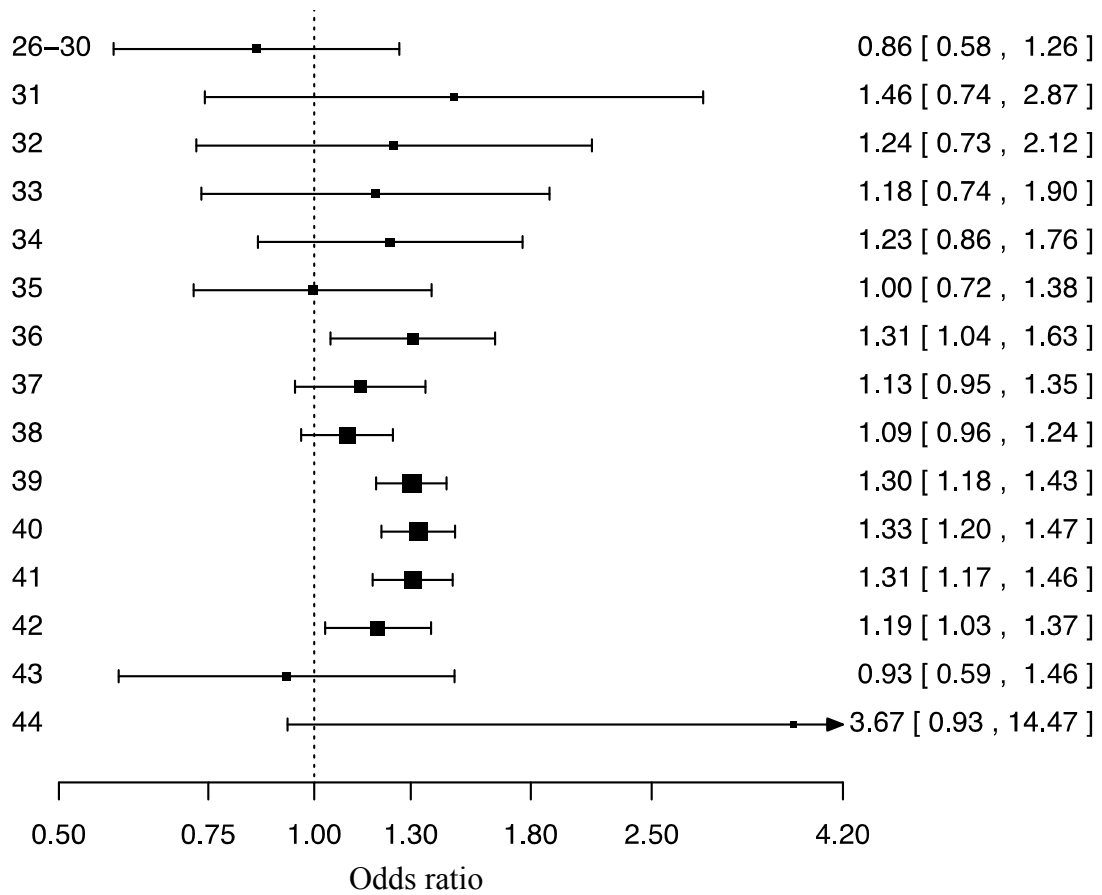
Odds ratio

Each odds ratio was estimated from ordinary logistic regression adjusting for site (Denmark, Finland, Norway, Sweden, Western Australia), sex, birth year (1984-89, 1990-1994, 1995-99, and 2000-2004) and maternal age (<25, 25-29, 30-34, 35-39, ≥40).

SF 1b   Odds ratios and two-sided 95% confidence intervals of autism spectrum disorder following planned Caesarean section compared with vaginal delivery by week of gestation (weeks 26-30 as one group).

Week	Odds ratio [95% CI]
26–30	1.14 [0.81 , 1.60]
31	1.38 [0.74 , 2.58]
32	1.25 [0.76 , 2.05]
33	1.10 [0.69 , 1.74]
34	0.86 [0.58 , 1.29]
35	1.18 [0.86 , 1.61]
36	1.32 [1.05 , 1.65]
37	1.32 [1.13 , 1.53]
38	1.11 [1.01 , 1.22]
39	1.40 [1.26 , 1.55]
40	1.26 [1.09 , 1.45]
41	1.40 [1.20 , 1.64]
42	1.21 [0.95 , 1.54]
43	0.57 [0.21 , 1.60]
44	2.24 [0.24 , 20.93]
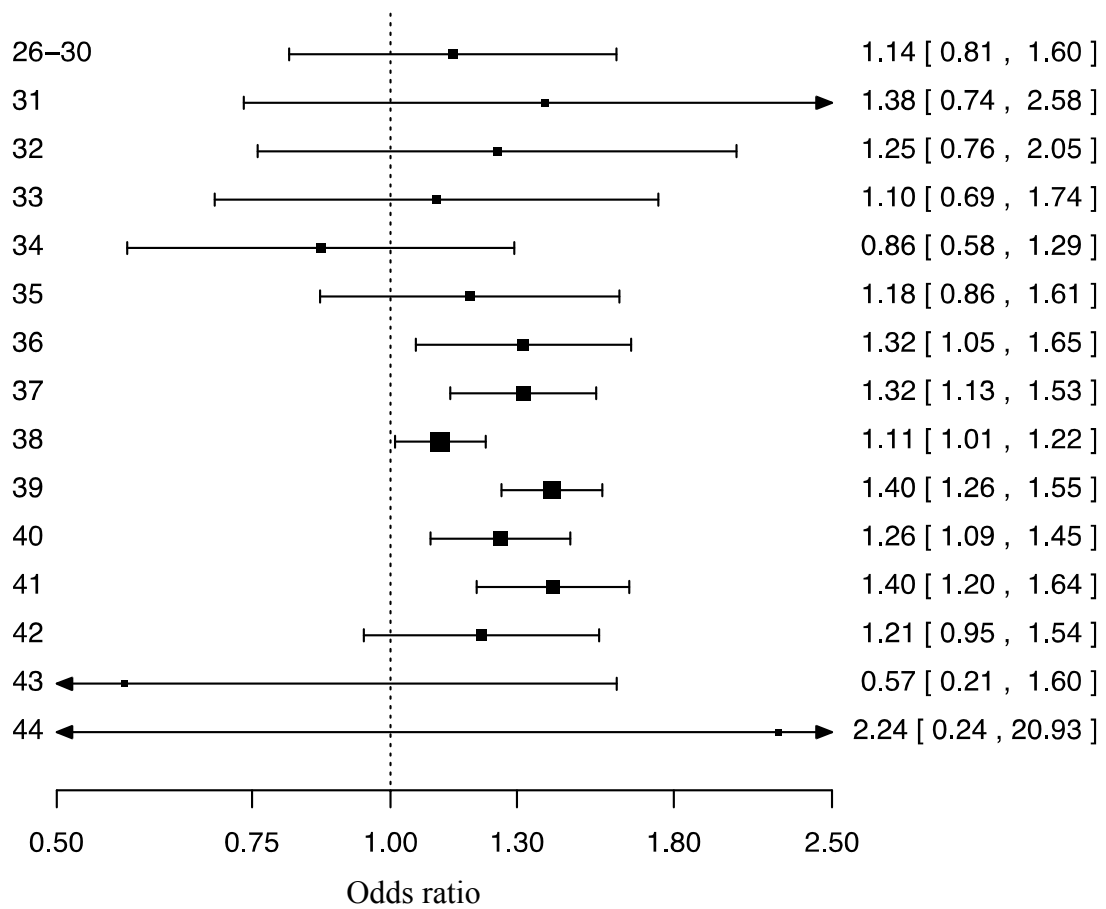
Odds ratio

Each odds ratio was estimated from ordinary logistic regression adjusting for site (Denmark, Finland, Norway, Sweden, Western Australia), sex, birth year (1984-89, 1990-1994, 1995-99, and 2000-2004) and maternal age (<25, 25-29, 30-34, 35-39, ≥40).

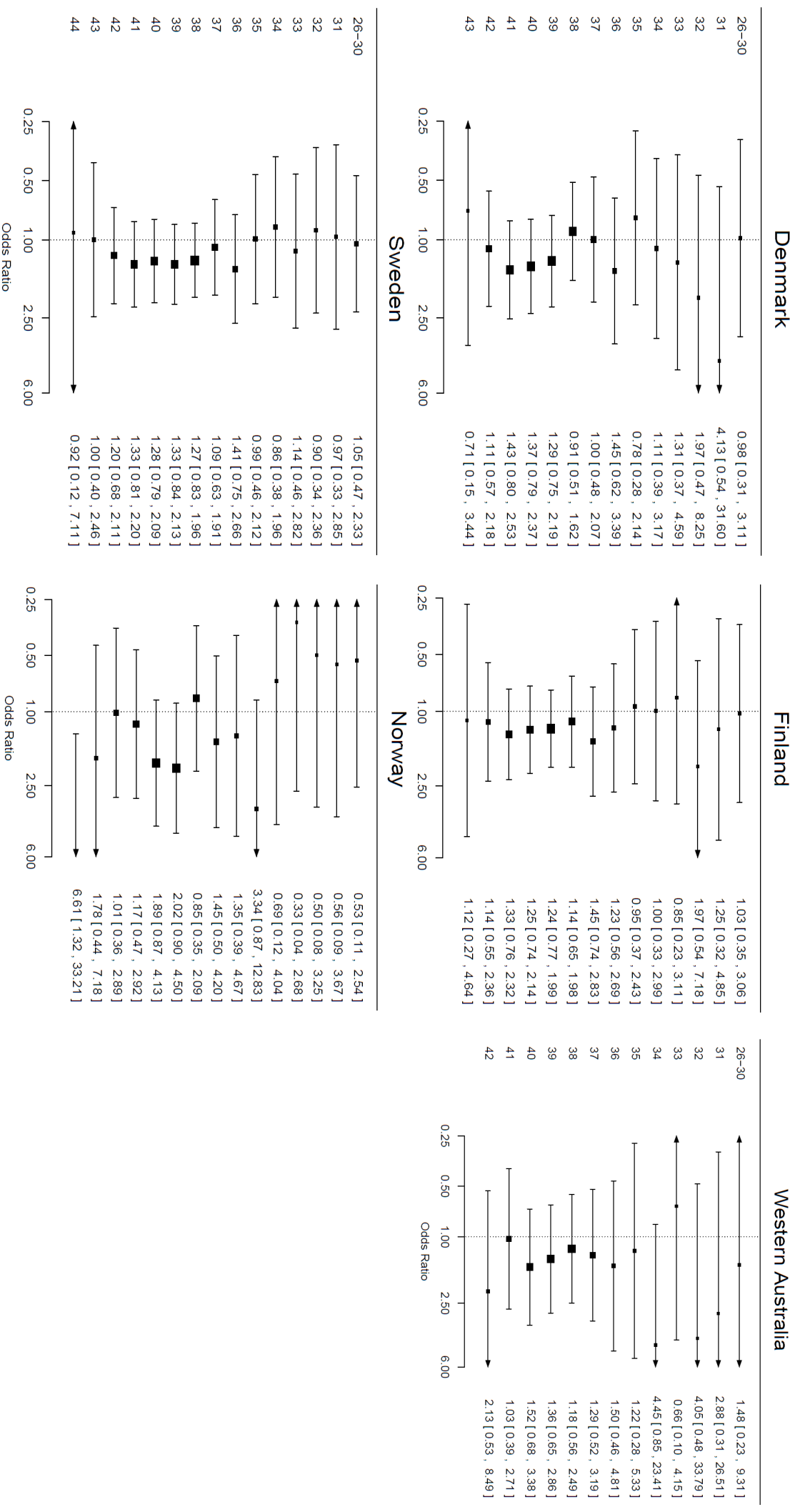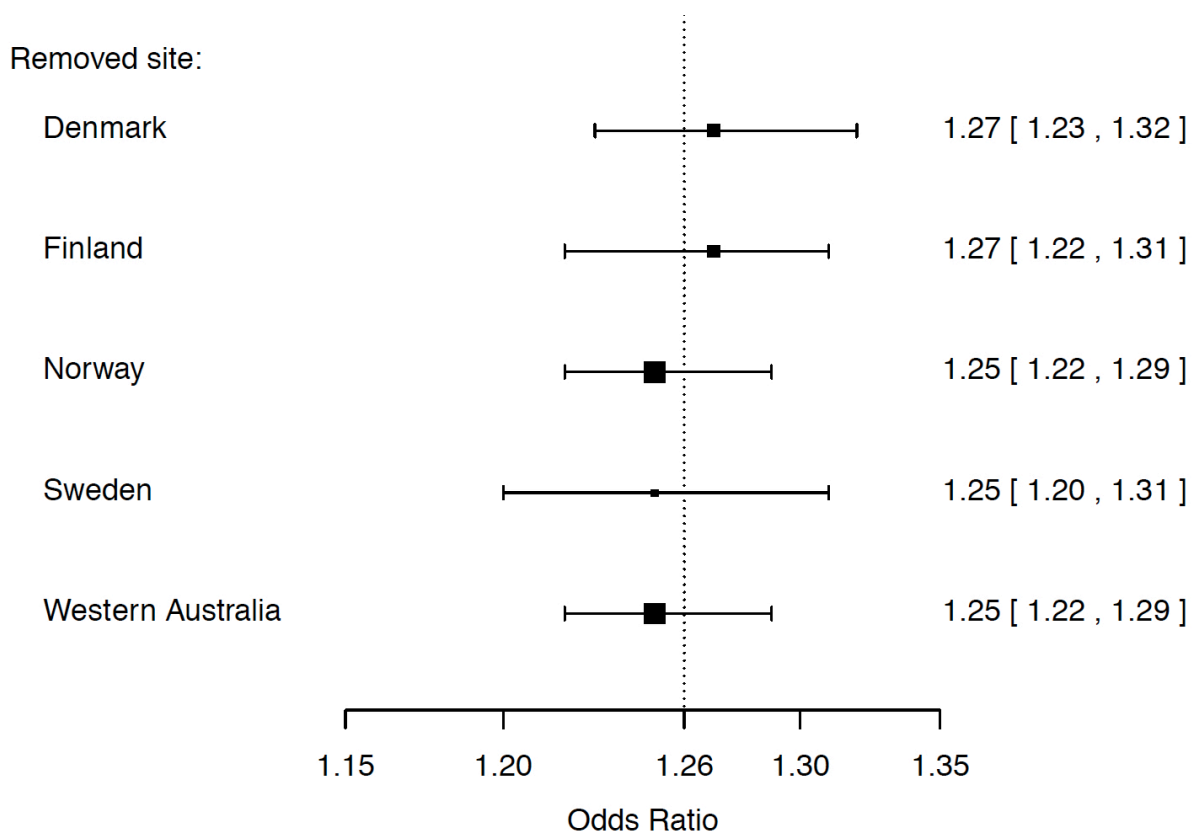SF 2 Odds ratios and two-sided 95% confidence intervals of autism spectrum disorder following Caesarean section compared with vaginal delivery in gestational age for each site.

Denmark

Maternal age	OR [95% CI]
26–30	0.98 [0.31, 3.11]
31	4.13 [0.54, 31.60]
32	1.97 [0.47, 8.25]
33	1.31 [0.37, 4.59]
34	1.11 [0.39, 3.17]
35	0.78 [0.28, 2.14]
36	1.45 [0.62, 3.39]
37	1.00 [0.48, 2.07]
38	0.91 [0.51, 1.62]
39	1.29 [0.75, 2.19]
40	1.37 [0.79, 2.37]
41	1.43 [0.80, 2.53]
42	1.11 [0.57, 2.18]
43	0.71 [0.15, 3.44]

Sweden

Maternal age	OR [95% CI]
26–30	1.05 [0.47, 2.33]
31	0.97 [0.33, 2.85]
32	0.90 [0.34, 2.36]
33	1.14 [0.46, 2.82]
34	0.86 [0.38, 1.96]
35	0.99 [0.46, 2.12]
36	1.41 [0.75, 2.66]
37	1.09 [0.63, 1.91]
38	1.27 [0.83, 1.96]
39	1.33 [0.84, 2.13]
40	1.28 [0.79, 2.09]
41	1.33 [0.81, 2.20]
42	1.20 [0.68, 2.11]
43	1.00 [0.40, 2.46]
44	0.92 [0.12, 7.11]

Finland

Maternal age	OR [95% CI]
26–30	1.03 [0.35, 3.06]
31	1.25 [0.32, 4.85]
32	1.97 [0.54, 7.18]
33	0.85 [0.23, 3.11]
34	1.00 [0.33, 2.99]
35	0.95 [0.37, 2.43]
36	1.23 [0.56, 2.69]
37	1.45 [0.74, 2.83]
38	1.14 [0.65, 1.98]
39	1.24 [0.77, 1.99]
40	1.25 [0.74, 2.14]
41	1.33 [0.76, 2.32]
42	1.14 [0.55, 2.36]
43	1.12 [0.27, 4.64]

Norway

Maternal age	OR [95% CI]
26–30	0.53 [0.11, 2.54]
31	0.56 [0.09, 3.67]
32	0.50 [0.08, 3.25]
33	0.33 [0.04, 2.68]
34	0.69 [0.12, 4.04]
35	3.34 [0.87, 12.83]
36	1.35 [0.39, 4.67]
37	1.45 [0.50, 4.20]
38	0.85 [0.35, 2.09]
39	2.02 [0.90, 4.50]
40	1.89 [0.87, 4.13]
41	1.17 [0.47, 2.92]
42	1.01 [0.36, 2.89]
43	1.78 [0.44, 7.18]
44	6.61 [1.32, 33.21]

Western Australia

| Maternal age	OR [95% CI]
26–30	1.48 [0.23, 9.31]
31	2.88 [0.31, 26.51]
32	4.05 [0.48, 33.79]
33	0.66 [0.10, 4.15]
34	4.45 [0.85, 23.41]
35	1.22 [0.28, 5.33]
36	1.50 [0.46, 4.81]
37	1.29 [0.52, 3.19]
38	1.18 [0.56, 2.49]
39	1.36 [0.65, 2.86]
40	1.52 [0.68, 3.38]
41	1.03 [0.39, 2.71]
42	2.13 [0.53, 8.49]

Each odds ratio was estimated from ordinary logistic regression adjusting for sex, birth year (1984-89, 1990-1994, 1995-99, and 2000-2004) and maternal age (<25, 25-29, 30-34, 35-39, ≥40).

SF 3   Site influence analysis by leave-one-out approach. Odds ratios and two-sided 95% confidence intervals of autism spectrum disorder; Caesarean section compared with vaginal delivery. Left Y-axis indicates removed site for that particular OR estimate.

Removed site:

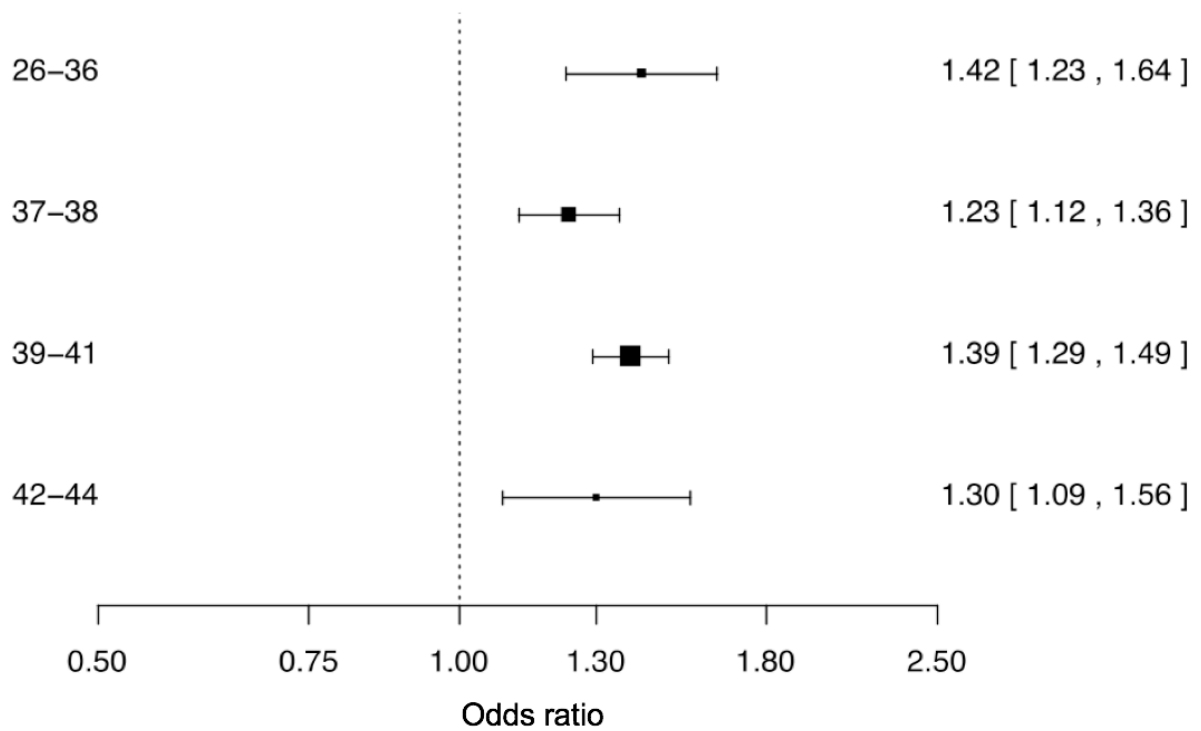| Removed site	Odds Ratio [95% CI]
Denmark	1.27 [1.23 , 1.32]
Finland	1.27 [1.22 , 1.31]
Norway	1.25 [1.22 , 1.29]
Sweden	1.25 [1.20 , 1.31]
Western Australia	1.25 [1.22 , 1.29]

Odds Ratio: 1.15   1.20   1.26   1.30   1.35

Each odds ratio was estimated from ordinary logistic regression adjusting for site (remaining sites of: Denmark, Finland, Norway, Sweden, Western Australia), sex, birth year (1984-89, 1990-1994, 1995-99, and 2000-2004), maternal age (<25, 25-29, 30-34, 35-39, ≥40) and gestational age (weeks 26-36, 37-38, 39-41, 42-44). The full data OR estimate 1.26 was used as the reference line.

SF 4   Odds ratios and two-sided 95% confidence intervals of autism spectrum disorder following Caesarean section compared with vaginal delivery in gestational age subgroups (weeks 26-36, 37-38, 39-41, and 42-44) for male and female offspring, respectively.
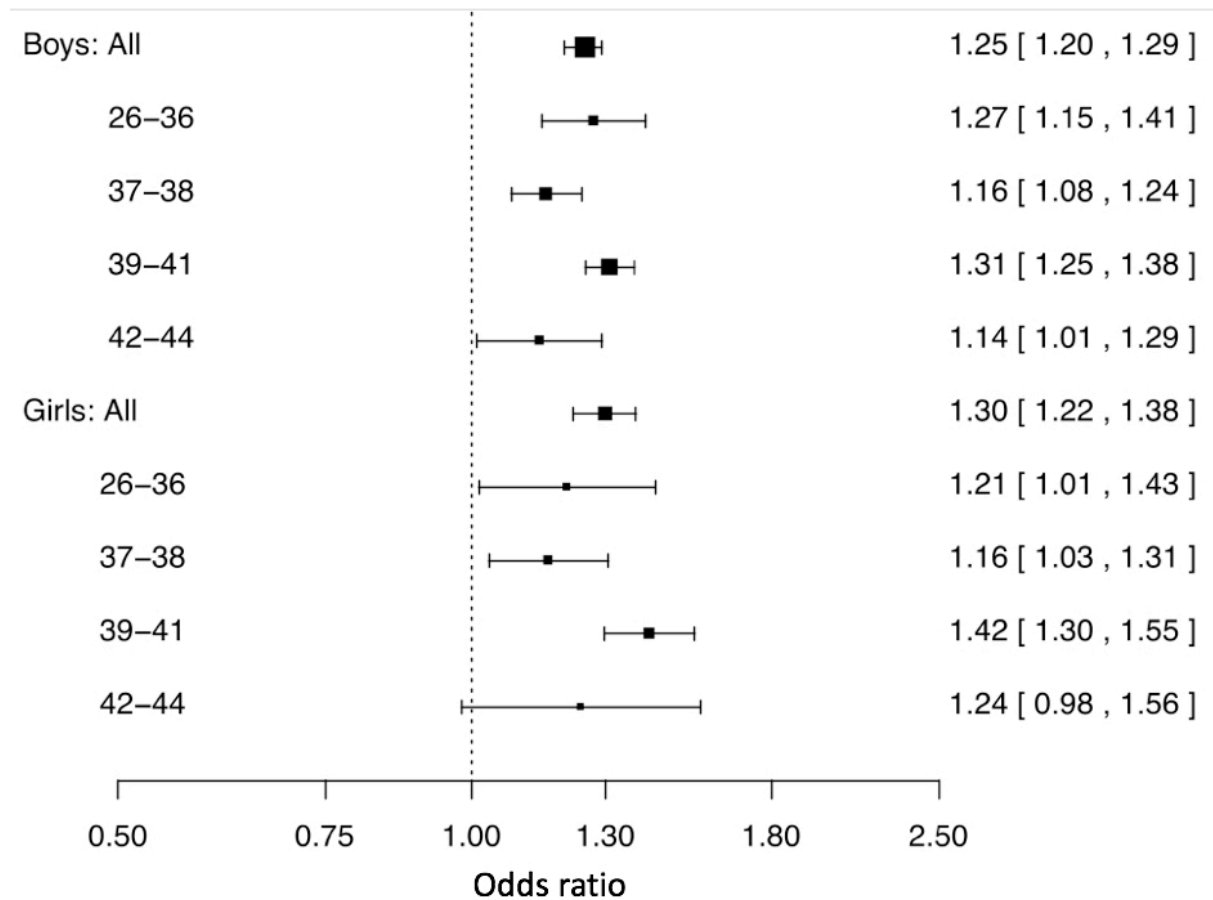
Each odds ratio was estimated from ordinary logistic regression adjusting for site (Denmark, Finland, Norway, Sweden, Western Australia), birth year (1984-89, 1990-1994, 1995-99, and 2000-2004) and maternal age (<25, 25-29, 30-34, 35-39, ≥40).

SF 5 Odds ratios and two-sided 95% confidence intervals of autistic disorder following Caesarean section compared with vaginal delivery in gestational age subgroups (weeks 26-36, 37-38, 39-41, and 42-44).

Each odds ratio was estimated from ordinary logistic regression adjusting for site (Denmark, Finland, Norway, Sweden, Western Australia), sex, birth year (1984-89, 1990-1994, 1995-99, and 2000-2004) and maternal age (<25, 25-29, 30-34, 35-39, ≥40).