



Appendix

**This appendix was part of the submitted manuscript and has been peer reviewed.
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Appendix to: Cheney K, Farber R, Barratt AL, et al. Population attributable fractions of perinatal outcomes for nulliparous women associated with overweight and obesity, 1990–2014. *Med J Aust* 2018; 208: 119-125. doi: 10.5694/mja17.00344.

Table 1: Demographic characteristics of pregnant, nulliparous women with singleton births, 1990–2014, including women with missing data

Variable	Included women (n = 42 582)						Excluded women (n = 14 103)
	1990–1994	1995–1999	2000–2004	2005–2009	2010–2014	Total	
Age in years [mean (SD)]	28.7 (5.35)	29.5 (5.41)	30.5 (5.29)	31.3 (5.01)	31.6 (4.89)	30.3 (5.31)	30.8 (5.5)
Missing age	2 (< 0.1%)	1 (0.0%)	0	0	0	3 (< 0.1%)	
Age (5-year groups)							
< 20	375 (4.0%)	265 (3.1%)	144 (1.9%)	119 (1.5%)	98 (1.1%)	1001 (2.4%)	477 (3.4%)
20–24	1746 (18.7%)	1385 (15.9%)	880 (11.9%)	635 (8.1%)	569 (6.2%)	5215 (12.3%)	1371 (9.7%)
25–29	3158 (33.8%)	2631 (30.3%)	1943 (26.2%)	1977 (25.1%)	2279 (24.7%)	11 988 (28.2%)	3494 (24.8%)
30–34	2747 (29.4%)	2730 (31.4%)	2741 (37.0%)	3073 (39.0%)	3769 (40.8%)	15 060 (35.4%)	5177 (36.72%)
35–39	1089 (11.6%)	1421 (16.4%)	1383 (18.7%)	1726 (21.9%)	2024 (21.9%)	7643 (18.0%)	2868 (20.3%)
> 40	239 (2.6%)	256 (3.0%)	316 (4.3%)	358 (4.5%)	506 (5.5%)	1675 (3.9%)	710 (5.0%)
Missing body mass index	1058 (9.8%)	1582 (15.0%)	1836 (19.7%)	3893 (31.9%)	3954 (28.7%)	12 323 (21.7%)	
Maternal body mass index (kg/m²)							
Underweight (< 18.5)	850 (9.1%)	912 (10.5%)	719 (9.7%)	622 (7.9%)	745 (8.1%)	3848 (9.0%)	236 (13.3%)
Normal weight (18.5–24.99)	6871 (73.5%)	6103 (70.3%)	5085 (68.7%)	5420 (68.7%)	6308 (68.2%)	29 787 (70.0%)	1239 (69.7%)
Overweight (25.0–29.99)	1184 (12.7%)	1207 (13.9%)	1130 (15.3%)	1261 (16.0%)	1518 (16.4%)	6300 (14.8%)	222 (12.5%)
Obese class I (30.0–34.99)	316 (3.4%)	317 (3.7%)	330 (4.5%)	392 (5.0%)	432 (4.7%)	1787 (4.2%)	58 (3.3%)

Variable	Included women (n = 42 582)						Excluded women (n = 14 103)
	1990–1994	1995–1999	2000–2004	2005–2009	2010–2014	Total	
Obese class II (35.0–39.99)	87 (0.9%)	102 (1.2%)	93 (1.3%)	135 (1.7%)	151 (1.6%)	568 (1.3%)	17 (1.0%)
Obese class III (≥ 40.00)	46 (0.5%)	47 (0.5%)	50 (0.7%)	58 (0.7%)	91 (1.0%)	292 (0.7%)	5 (0.3%)
Missing country of birth	160 (1.5%)	147 (1.4%)	126 (1.4%)	12 (0.1%)	12 (0.1%)	457 (0.8%)	
Country of birth							
Oceania	5752 (61.5%)	4859 (55.9%)	4385 (59.2%)	4543 (57.6%)	4678 (50.6%)	24 217 (56.9%)	7626 (55.9%)
North–west Europe	603 (6.5%)	523 (6.0%)	528 (7.1%)	617 (7.8%)	763 (8.3%)	3034 (7.1%)	1030 (7.6%)
Southern and eastern Europe	595 (6.4%)	429 (4.9%)	258 (3.5%)	221 (2.8%)	260 (2.8%)	1763 (4.1%)	427 (3.1%)
North Africa and the Middle East	368 (3.9%)	293 (3.4%)	173 (2.3%)	133 (1.7%)	148 (1.6%)	1115 (2.6%)	320(2.4%)
South–east Asia	827 (8.8%)	864 (9.9%)	785 (10.6%)	677 (8.6%)	759 (8.2%)	3912 (9.2%)	1135 (8.3%)
North–east Asia	764 (8.2%)	1167 (13.4%)	815 (11.0%)	976 (12.4%)	1484 (16.0%)	5206 (12.2%)	1751 (12.8%)
Southern and central Asia	182 (2.0%)	255 (2.9%)	203 (2.7%)	429 (5.4%)	785 (8.5%)	1854 (4.4%)	799 (5.9%)
Americas	170 (1.8%)	218 (2.5%)	171 (2.3%)	211 (2.7%)	280 (3.0%)	1050 (2.5%)	391 (2.9%)
Sub–Saharan Africa	93 (1.0%)	80 (0.9%)	89 (1.2%)	81 (1.0%)	88 (1.0%)	431 (1.0%)	164 (1.2%)
Missing SEIFA data	352 (3.3%)	225 (2.1%)	9 (0.1%)	552 (4.5%)	762 (5.5%)	1900 (3.4%)	
SEIFA quintile							
1 (lowest)	4039 (43.2%)	1987 (22.9%)	1204 (16.3%)	754 (9.6%)	593 (6.4%)	8577 (20.1%)	1688 (13.8%)

Variable	Included women (n = 42 582)						Excluded women (n = 14 103)
	1990–1994	1995–1999	2000–2004	2005–2009	2010–2014	Total	
2	1181 (12.6%)	840 (9.7%)	1094 (14.8%)	872 (11.1%)	1447 (15.7%)	5434 (12.8%)	1467 (12.0%)
3	2189 (23.4%)	2142 (24.7%)	1406 (19.0%)	1946 (24.7%)	1739 (18.8%)	9422 (22.1%)	2387 (19.6%)
4	1282 (13.7%)	2642 (30.4%)	2196 (29.7%)	1101 (14.0%)	1691 (18.3%)	8912 (20.9%)	2385 (19.6%)
5 (highest)	633 (7.1%)	1077 (12.4%)	1507 (20.4%)	3215 (40.8%)	3775 (40.8%)	10237 (24.0%)	4273 (35.0%)
Smoking at booking							
Yes	1398 (15.0%)	782 (9.0%)	486 (6.56%)	318 (4.0%)	348 (3.8%)	3332 (7.8%)	979 (6.9%)
No	7956 (85.1%)	7906 (91.0%)	6921 (93.4%)	7570 (96.0%)	8897 (96.2%)	39 250 (92.2%)	13 121 (93.1%)
Total	9354 (22.0%)	8688 (20.4%)	7407 (17.4%)	7888 (18.5%)	9245 (21.7%)	42 582	
Total before exclusions	10 828 (19.1%)	10 565 (18.6%)	9328 (16.5%)	12 192 (21.5%)	13 769 (24.3%)	56 682	

* Three records were missing year of delivery.
SD = Standard deviation.
SEIFA = Socio–Economic Indexes for Areas.

Table 2. Missing maternal body mass index data, in one-year time periods (three records had missing year of delivery)

Year	Number of women	Missing body mass index data	Body mass index, mean (SD)
1990	2063	139 (6.7%)	22.5 (3.8)
1991	2208	154 (7.0%)	22.3 (3.7)
1992	2202	158 (7.2%)	22.4 (4.2)
1993	2205	274 (12.4%)	22.2 (4.0)
1994	2150	333 (15.5%)	22.5 (4.3)
1995	2053	385 (18.8%)	22.5 (4.2)
1996	2278	366 (16.1%)	22.3 (3.8)
1997	2269	279 (12.3%)	22.3 (4.1)
1998	2061	286 (13.9%)	22.6 (4.1)
1999	1904	266 (14.0%)	22.8 (4.7)
2000	1893	333 (17.6%)	22.3 (4.2)
2001	1668	358 (21.5%)	22.7 (4.0)
2002	1728	351 (20.3%)	22.8 (4.6)
2003	2068	386 (18.7%)	23.0 (4.3)
2004	1971	408 (20.7%)	23.1 (4.7)
2005	2031	454 (22.4%)	23.2 (4.7)
2006	2544	629 (24.7%)	23.0 (4.4)
2007	2462	603 (24.5%)	22.8 (4.2)
2008	2542	660 (26.0%)	23.0 (4.5)
2009	2613	1547 (59.2%)	23.1 (4.4)
2010	2711	1797 (66.3%)	23.0 (4.5)
2011	2782	631 (22.7%)	23.0 (4.5)
2012	2832	544 (19.2%)	23.1 (4.6)
2013	2693	500 (18.6%)	23.0 (4.5)
2014	2751	482 (17.5%)	23.0 (4.6)

Table 3: Multivariate analysis of association between WHO body mass index classes and maternal and neonatal outcomes over 25 years for 42 582 nulliparous singleton births stratified by smoking status [rate ratios* with 95% confidence intervals]

Outcome	Underweight	Overweight	Obese class I	Obese class II	Obese class III	Combined obese
Prematurity						
Non-smoker	1.01 (0.88–1.16)	1.33 (1.21–1.47)	1.58 (1.37–1.84)	1.60 (1.24–2.07)	1.61 (1.12–2.30)	1.59 (1.40–1.80)
Smoker	1.15 (0.86–1.54)	0.58 (0.41–0.82)	0.67 (0.41–1.10)	1.10 (0.60–2.04)	0.87 (0.34–2.21)	0.79 (0.55–1.15)
Admitted to Nursery						
Non-smoker	0.89 (0.80–1.00)	1.31 (1.22–1.41)	1.55 (1.38–1.73)	1.94 (1.64–2.30)	1.50 (1.14–1.98)	1.62 (1.48–1.78)
Smoker	1.10 (0.87–1.39)	0.90 (0.72–1.12)	0.84 (0.60–1.19)	1.12 (0.71–1.76)	1.31 (0.75–2.27)	0.97 (0.75–1.25)

* Adjusted for maternal age, smoking status, socioeconomic status, country of birth, year of birth. Normal BMI class as reference group.