

Appendix 9. Parity Subgroup Demographics and Analysis

Delivery information was unavailable for 21 nulliparous women, who were either lost to follow-up or discontinued participation during the study period. Within this group, 21 women provided data at 12 weeks, 9 at 24 weeks, 18 at 28 weeks and 1 at 32 weeks' gestation, beyond which they no longer participated. Delivery information was available for 439 nulliparous women, of whom a further 5 withdrew consent during the study period.

Table A9.1: Baseline maternal characteristics for nulliparous, parous and total populations. Values are mean \pm SD for continuous variables, and number (percentage) for categorical values. *BMI= Body Mass Index (kg/m²); GA= Gestational Age. *defined as Hb <110 g/L, † unmedicated, ††(non- ischaemic non- congenital).*

<i>Maternal baseline characteristics</i>	Nulliparous N=460	Parous N=581	Total N=1041
Maternal age (years) \pm SD	30.5 \pm 4.9	32.3 \pm 4.7	31.5 \pm 4.9
Maternal weight (kg) \pm SD	67.4 \pm 12.9	69.0 \pm 14.5	68.3 \pm 13.9
Maternal BMI (kg/m ²) \pm SD	24.5 \pm 4.4	25.2 \pm 4.9	24.9 \pm 4.7
BMI category	293 (63.7)	318 (54.7)	611 (58.7)
- Normal (18.5-24.9 kg/m ²) (%)			
- Overweight (25.0-29.9 kg/m ²) (%)	116 (25.2)	169 (29.1)	285 (27.4)
- Obese (\geq 30 kg/m ²) (%)	51 (11.1)	94 (16.2)	145 (13.9)
GA at first visit (weeks) \pm SD	13.3 \pm 2.6	13.0 \pm 2.3	13.1 \pm 2.4
Ethnicity:	391 (85.0)	497 (85.7)	889 (85.4)
- White (%)			
- Asian (%)	24 (5.2)	28 (4.8)	52 (5.2)
- African/Caribbean (%)	4 (0.9)	19 (3.3)	23 (2.2)
- Mixed (%)	8 (1.7)	10 (1.7)	18 (1.7)

Green LJ, Mackillop LH, Salvi D, Pullon R, Loerup L, Mossop J et al. Gestation-specific vital sign reference ranges in pregnancy. *Obstet Gynecol* 2020;135.

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- Other (%)	33 (7.2)	26 (4.5)	59 (5.7)
Smoker (%)	27 (5.9)	52 (9.0)	79 (7.6)
Anemia* (%)	4 (0.9)	3 (0.5)	7 (0.7)
Pre-gestational diabetes (%)	0	6 (1.0)	6 (0.6)
Pre-existing hypertension [†] (%)	7 (1.5)	10 (1.7)	17 (1.6)
Cardiac disease ^{††} (%)	6 (1.3)	6 (1.0)	12 (1.2)
Pre-existing renal disease (%)	5 (1.1)	19 (3.3)	24 (2.3)

Table A9.2: Smoothed centiles for systolic blood pressure and diastolic blood pressure (mmHg) for nulliparous cohort according to gestational age for 3rd, 10th, 50th, 90th and 97th centiles (95% CI).

Gestational age (weeks)	Centiles for Systolic Blood Pressure (95% CI)				
	3rd	10th	50th	90th	97th
12	95.5 (92.5 - 98.5)	102 (100.1 - 103.9)	115.7 (114.6 - 116.7)	130.2 (128.4 - 131.9)	137.8 (135.5 - 140.1)
14	95.5 (93 - 98.1)	101.8 (100.2 - 103.4)	115.2 (114.3 - 116.2)	129.7 (128.3 - 131.2)	137.4 (135.3 - 139.6)
16	95.6 (93.5 - 97.8)	101.7 (100.4 - 103.1)	114.9 (114 - 115.8)	129.5 (128.2 - 130.8)	137.3 (135 - 139.5)
18	95.8 (93.9 - 97.7)	101.7 (100.6 - 102.9)	114.8 (113.8 - 115.7)	129.3 (127.8 - 130.8)	137.2 (134.8 - 139.6)
20	96 (94.5 - 97.5)	101.8 (100.7 - 103)	114.7 (113.8 - 115.6)	129.3 (127.9 - 130.8)	137.2 (135.2 - 139.3)
22	96.4 (94.9 - 97.8)	102.1 (101 - 103.2)	114.9 (114.1 - 115.7)	129.6 (128.3 - 130.8)	137.5 (135.4 - 139.6)
24	96.8 (95.4 - 98.1)	102.4 (101.5 - 103.4)	115.2 (114.5 - 116)	129.9 (128.7 - 131.1)	137.8 (135.7 - 140)
26	97.2 (95.8 - 98.5)	102.8 (101.8 - 103.7)	115.5 (114.7 - 116.3)	130.2 (129 - 131.4)	138.1 (136 - 140.3)
28	97.5 (96.1 - 98.8)	103.1 (102 - 104.1)	115.8 (114.9 - 116.8)	130.4 (129.1 - 131.8)	138.4 (136.3 - 140.5)
30	97.8 (96.4 - 99.1)	103.4 (102.4 - 104.4)	116.1 (115.2 - 117.1)	130.7 (129.1 - 132.4)	138.6 (136.3 - 140.9)
32	98.3 (96.7 - 99.9)	103.9 (102.7 - 105.2)	116.7 (115.5 - 118)	131.3 (129.3 - 133.3)	139.1 (136.4 - 141.8)
34	99.2 (97.1 - 101.3)	104.9 (103.7 - 106)	117.8 (116.8 - 118.8)	132.4 (130.5 - 134.3)	140.2 (137.4 - 143)
36	100.5 (99 - 102)	106.3 (105.2 - 107.3)	119.3 (118.4 - 120.2)	134 (132.5 - 135.6)	141.8 (139.4 - 144.2)
38	102.1 (100.3 - 103.9)	107.9 (106.5 - 109.3)	121.2 (120 - 122.3)	136 (134.2 - 137.8)	143.8 (141 - 146.7)
40	103.8 (100.7 - 106.9)	109.7 (107.4 - 112.1)	123.2 (121.2 - 125.1)	138.2 (135.1 - 141.3)	146 (141.5 - 150.6)

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Gestational age (weeks)	Centiles for Diastolic Blood Pressure (95% CI)				
	3rd	10th	50th	90th	97th
12	56.5 (54.5 - 58.5)	61.2 (59.8 - 62.6)	71.3 (70.3 - 72.3)	82.1 (80.7 - 83.5)	87.7 (85.5 - 89.8)
14	56.2 (54.7 - 57.7)	60.8 (59.6 - 61.9)	70.7 (69.6 - 71.7)	81.4 (80 - 82.9)	87 (85 - 89)
16	56.1 (54.5 - 57.7)	60.5 (59.5 - 61.6)	70.2 (69.4 - 71.1)	80.9 (79.7 - 82.2)	86.6 (84.3 - 88.8)
18	56.1 (54.9 - 57.3)	60.4 (59.5 - 61.3)	70 (69.1 - 70.9)	80.7 (79.6 - 81.8)	86.3 (84.6 - 88.1)
20	56.2 (55.2 - 57.2)	60.5 (59.8 - 61.2)	70 (69.4 - 70.6)	80.7 (79.8 - 81.5)	86.3 (85 - 87.7)
22	56.6 (54.1 - 59)	60.8 (59.8 - 61.8)	70.3 (69.7 - 70.9)	81 (79.8 - 82.1)	86.7 (83.4 - 90)
24	57.1 (56.1 - 58)	61.3 (60.7 - 62)	70.9 (70.2 - 71.5)	81.6 (80.7 - 82.5)	87.3 (85.7 - 88.9)
26	57.7 (56.7 - 58.7)	62 (61.2 - 62.7)	71.6 (70.8 - 72.3)	82.3 (80.9 - 83.7)	88 (85.6 - 90.5)
28	58.3 (57.2 - 59.4)	62.7 (61.9 - 63.5)	72.3 (71.6 - 73.1)	83.1 (81.7 - 84.5)	88.8 (86.2 - 91.4)
30	58.9 (57.9 - 59.9)	63.4 (62.6 - 64.1)	73.2 (72.5 - 73.9)	83.9 (82.9 - 85)	89.6 (87.9 - 91.2)
32	59.6 (58.6 - 60.7)	64.2 (63.4 - 65.1)	74.2 (73.3 - 75)	85 (83.9 - 86)	90.5 (89.2 - 91.9)
34	60.6 (59 - 62.2)	65.3 (64.3 - 66.4)	75.5 (74.7 - 76.2)	86.3 (85.4 - 87.3)	91.9 (90.2 - 93.5)
36	61.8 (60.5 - 63)	66.7 (65.7 - 67.6)	77.1 (76.3 - 77.8)	88 (87.2 - 88.8)	93.5 (92.3 - 94.7)
38	63 (61.2 - 64.8)	68.1 (66.6 - 69.5)	78.7 (77.6 - 79.9)	89.8 (88.6 - 90.9)	95.2 (93.7 - 96.8)
40	64.1 (61.9 - 66.3)	69.4 (67.7 - 71)	80.3 (79 - 81.6)	91.4 (89.6 - 93.2)	96.9 (94.4 - 99.3)

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Table A9.3: Smoothed centiles for systolic blood pressure and diastolic blood pressure (mmHg) for parous cohort according to gestational age for 3rd, 10th, 50th, 90th and 97th centiles (95% CI).

Gestational age (weeks)	Centiles for Systolic Blood Pressure (95% CI)				
	3rd	10th	50th	90th	97th
12	93.8 (92.3 - 95.4)	99.8 (98.7 - 100.9)	113.3 (112.3 - 114.2)	128.8 (127.4 - 130.1)	137.3 (135.3 - 139.2)
14	93.7 (91.9 - 95.5)	99.5 (98.4 - 100.7)	112.7 (112 - 113.5)	128 (126.4 - 129.5)	136.2 (133.5 - 138.9)
16	93.7 (92.1 - 95.3)	99.4 (98.5 - 100.3)	112.4 (111.6 - 113.2)	127.4 (125.8 - 128.9)	135.4 (132.5 - 138.4)
18	93.8 (92.6 - 95.1)	99.5 (98.6 - 100.3)	112.3 (111.5 - 113.1)	127 (125.5 - 128.4)	134.8 (132.5 - 137.2)
20	94.1 (93.2 - 95)	99.6 (98.9 - 100.4)	112.3 (111.6 - 113)	126.8 (125.5 - 128)	134.5 (132.7 - 136.3)
22	94.4 (93.2 - 95.6)	99.9 (98.9 - 100.8)	112.4 (111.8 - 113.1)	126.7 (125.4 - 128.1)	134.3 (132.3 - 136.4)
24	94.7 (93.8 - 95.7)	100.2 (99.3 - 101)	112.6 (111.9 - 113.3)	126.8 (125.5 - 128.1)	134.3 (132.4 - 136.3)
26	95.1 (93.8 - 96.4)	100.5 (99.4 - 101.5)	112.9 (112.2 - 113.6)	127.1 (125.7 - 128.4)	134.5 (132.4 - 136.7)
28	95.5 (94.4 - 96.6)	100.9 (99.9 - 101.8)	113.3 (112.6 - 114)	127.5 (126.3 - 128.7)	135 (133 - 136.9)
30	96 (94.8 - 97.1)	101.4 (100.5 - 102.2)	113.9 (113.2 - 114.5)	128.1 (126.9 - 129.4)	135.6 (133.4 - 137.8)
32	96.5 (95.2 - 97.8)	102 (101.1 - 102.8)	114.6 (113.9 - 115.2)	128.9 (127.6 - 130.2)	136.5 (134.1 - 138.8)
34	97.2 (95.9 - 98.4)	102.6 (101.7 - 103.5)	115.3 (114.7 - 116)	129.8 (128.6 - 131.1)	137.4 (135.5 - 139.3)
36	97.9 (96.6 - 99.1)	103.4 (102.4 - 104.3)	116.2 (115.5 - 116.9)	130.8 (129.5 - 132.1)	138.4 (136.6 - 140.2)
38	98.6 (97.2 - 100.1)	104.2 (103.1 - 105.3)	117.1 (116.2 - 118)	131.8 (130.5 - 133.1)	139.5 (137.6 - 141.4)
40	99.5 (97.1 - 101.8)	105 (103.2 - 106.9)	118 (116.8 - 119.3)	132.8 (130.8 - 134.9)	140.6 (137.3 - 143.9)

Gestational age (weeks)	Centiles for Diastolic Blood Pressure (95% CI)				
	3rd	10th	50th	90th	97th
12	55.1 (53.3 - 56.9)	59.6 (58.5 - 60.6)	69.5 (68.6 - 70.3)	80.6 (79.5 - 81.7)	86.6 (84.7 - 88.5)
14	54.9 (53.8 - 55.9)	59.2 (58.5 - 59.8)	68.9 (68.2 - 69.5)	79.9 (78.7 - 81)	85.8 (84 - 87.6)
16	54.8 (53.9 - 55.6)	58.9 (58.4 - 59.5)	68.5 (67.8 - 69.1)	79.4 (78.2 - 80.5)	85.2 (83.4 - 87.1)
18	54.8 (54 - 55.6)	58.9 (58.3 - 59.4)	68.3 (67.7 - 68.9)	79.1 (78.1 - 80.1)	85 (83.3 - 86.6)
20	54.9 (53.9 - 56)	59 (58.4 - 59.5)	68.3 (67.7 - 68.9)	79.1 (78.1 - 80)	84.9 (83.2 - 86.6)
22	55.2 (54.2 - 56.2)	59.2 (58.6 - 59.8)	68.4 (67.8 - 69.1)	79.2 (78.3 - 80.1)	85 (83.7 - 86.3)
24	55.6 (54.6 - 56.6)	59.6 (58.9 - 60.2)	68.8 (68.2 - 69.3)	79.5 (78.6 - 80.4)	85.3 (83.9 - 86.7)
26	56.1 (55.2 - 56.9)	60 (59.4 - 60.6)	69.2 (68.8 - 69.7)	80 (79.1 - 80.8)	85.7 (84.5 - 86.9)
28	56.6 (55.9 - 57.3)	60.6 (60.1 - 61.1)	69.8 (69.3 - 70.4)	80.6 (79.9 - 81.2)	86.3 (85.3 - 87.3)
30	57.3 (56.4 - 58.2)	61.3 (60.8 - 61.9)	70.6 (70.1 - 71.2)	81.4 (80.7 - 82.1)	87.1 (85.7 - 88.5)
32	58.1 (57.1 - 59.2)	62.2 (61.5 - 62.8)	71.6 (71 - 72.2)	82.4 (81.4 - 83.3)	88.1 (86.4 - 89.7)
34	59 (58.1 - 59.9)	63.1 (62.5 - 63.8)	72.7 (72.1 - 73.3)	83.5 (82.5 - 84.4)	89.1 (87.7 - 90.5)
36	59.9 (59 - 60.8)	64.1 (63.4 - 64.7)	73.7 (73.1 - 74.3)	84.6 (83.7 - 85.4)	90.2 (89 - 91.4)
38	60.8 (59.6 - 62)	65 (64.2 - 65.9)	74.8 (74 - 75.6)	85.7 (84.7 - 86.8)	91.3 (89.8 - 92.8)
40	61.7 (59.8 - 63.6)	66.1 (64.7 - 67.4)	76 (74.8 - 77.1)	86.9 (85.4 - 88.4)	92.5 (90.4 - 94.5)

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Figure A9.1: Smoothed centiles for blood pressure (mmHg); 3rd, 10th, 50th, 90th and 97th centiles for nulliparous and parous cohorts.

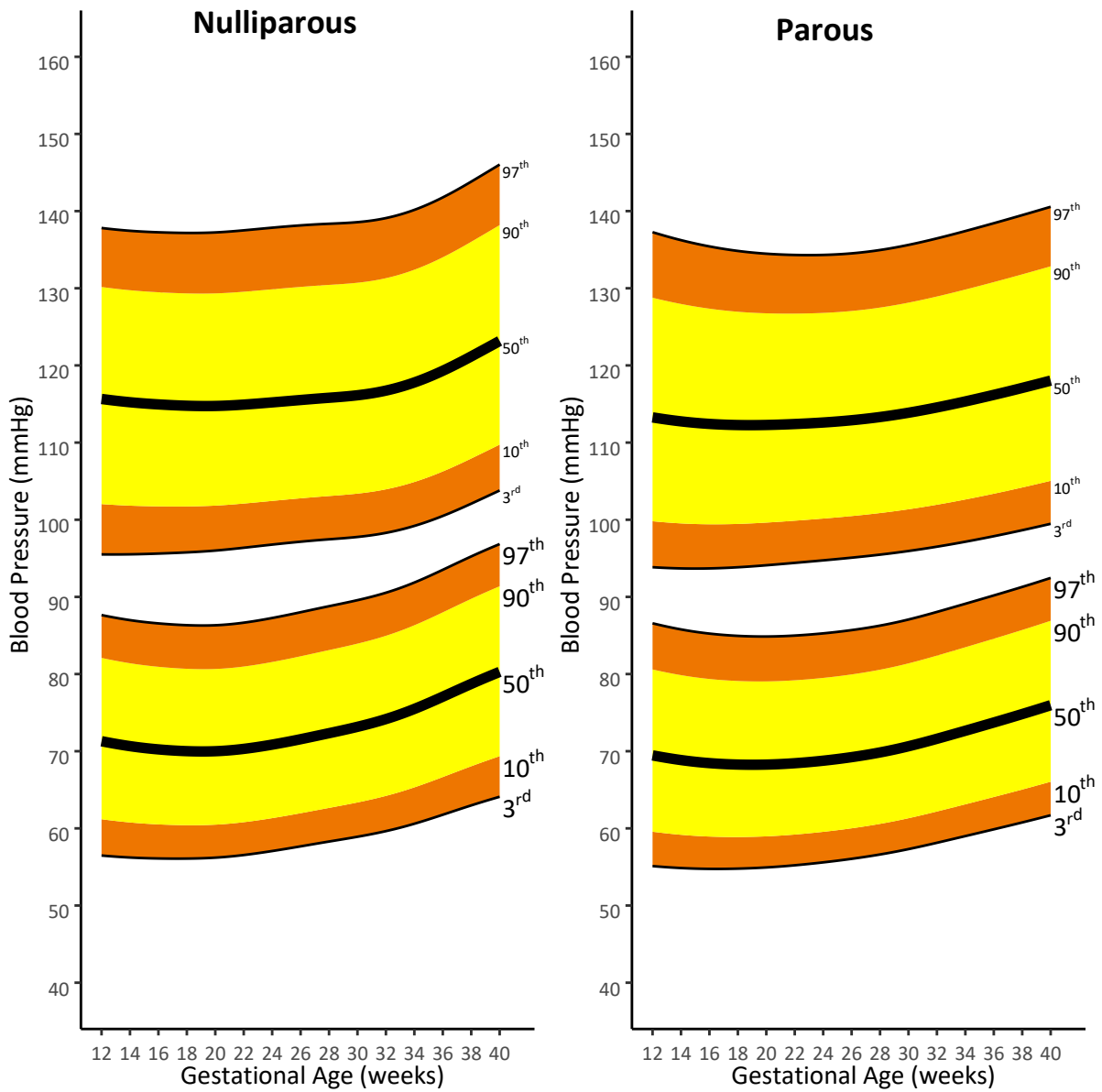


Figure A9.2: Smoothed centiles for heart rate (bpm); 3rd, 10th, 50th, 90th and 97th centiles for nulliparous and parous cohorts.

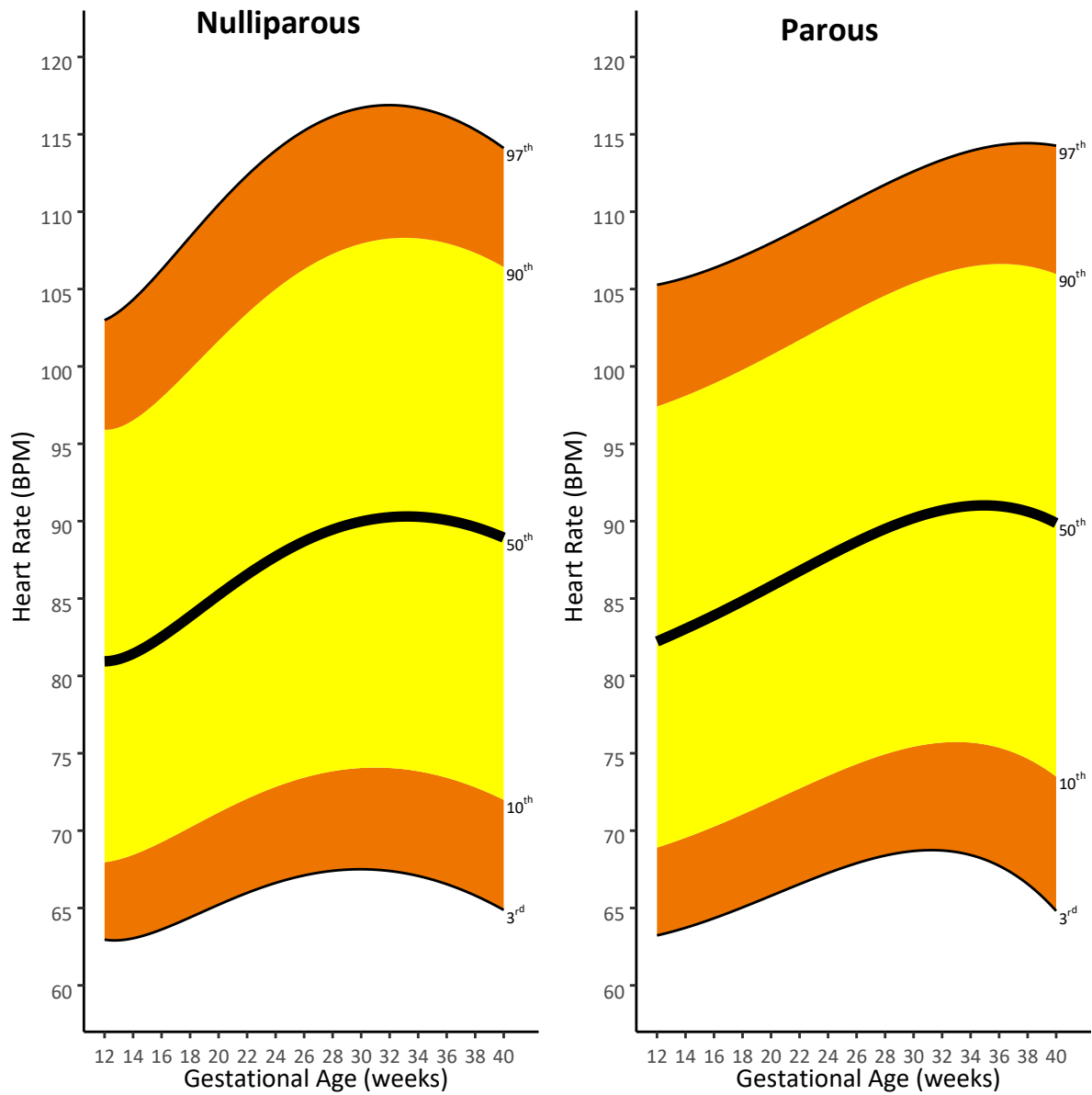


Figure A9.3: Smoothed centiles for respiratory rate (breaths per minute); 3rd, 10th, 50th, 90th and 97th centiles for nulliparous and parous cohorts.

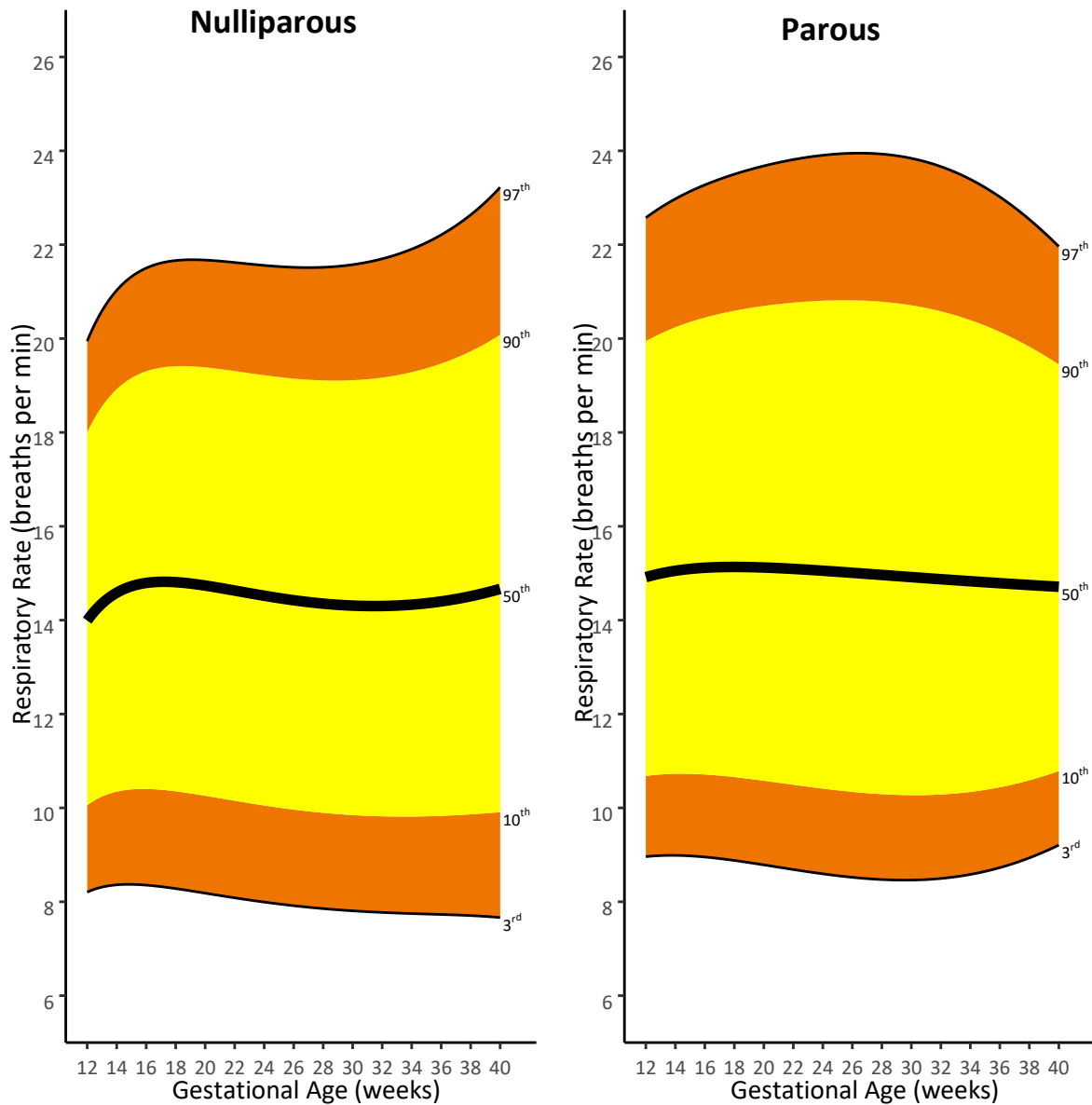


Figure A9.4: Smoothed centiles for oxygen saturation SpO₂ (%); 3rd, 10th, 50th, 90th and 97th centiles for nulliparous and parous cohorts.

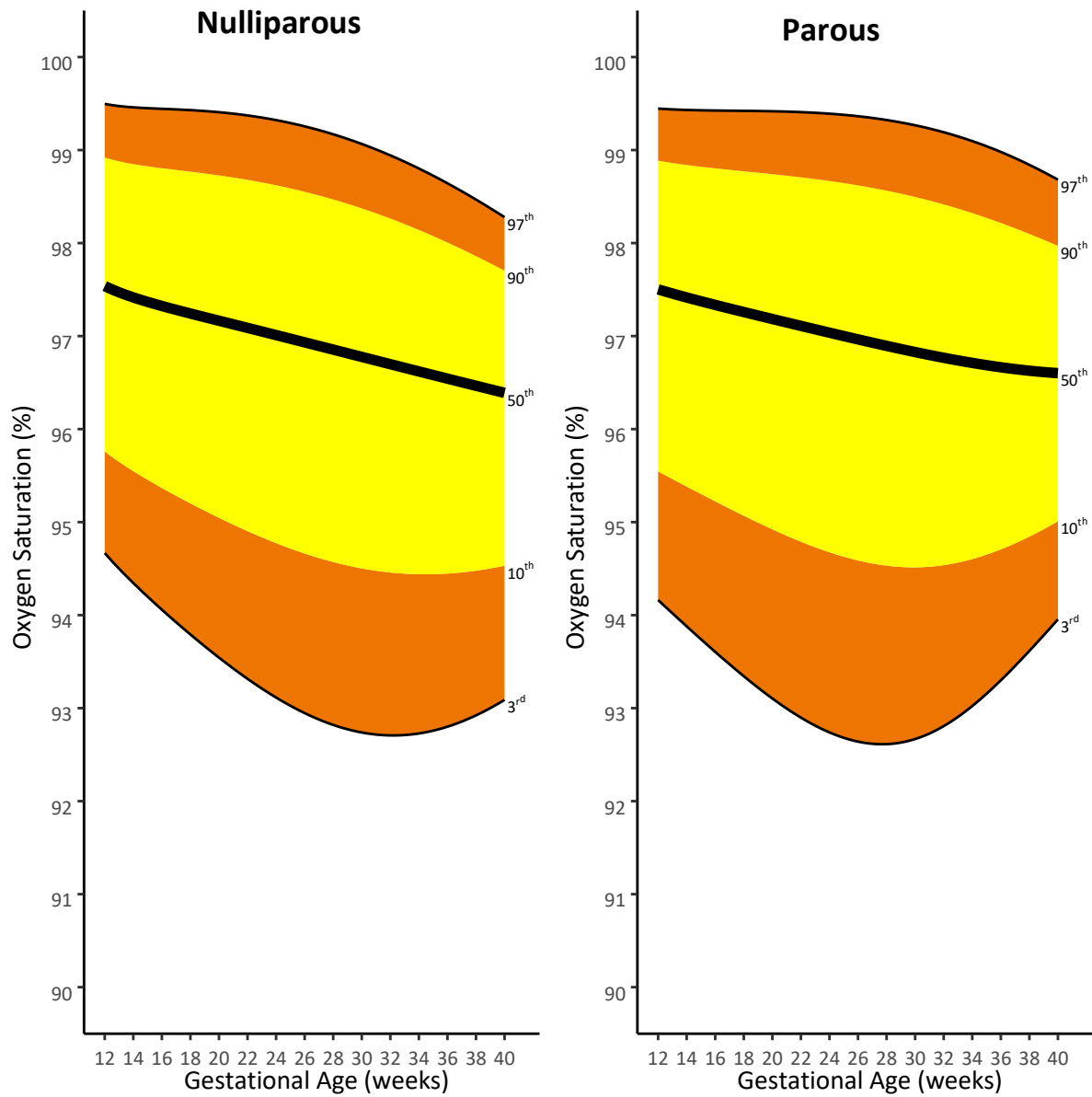


Figure A9.5: Smoothed centiles for temperature (°C) from Genius thermometer device; 3rd, 10th, 50th, 90th and 97th centiles for nulliparous and parous cohorts.

