

Web-Table E1: Characteristics of mothers and offspring who were included in analyses for each of the outcomes and those who were excluded from all analyses because of incomplete data (total eligible = 13,758)

| | | Complete data for wheeze at 18m analysis N=9,076 | | Complete data for wheeze at 7y analysis N=7,026 | | Complete data for asthma analysis N=6,974 | | Complete data for lung function analysis N=5,601 | | Complete data for atopy analysis N=5,532 | | Excluded from all analyses due to incomplete data N= 4,202 | |
|-------------------------------------|-------------------------------|---|-------------|--|-------------|--|-------------|---|--------------|---|-------------|---|--------------|
| | | N | Mean (SD)/% | N | Mean (SD)/% | N | Mean (SD)/% | N | Mean (SD)/% | N | Mean (SD)/% | N | Mean (SD)/% |
| Hypertensive disorders of pregnancy | Normotensive | 7276 | 80.2 | 5650 | 80.4 | 5609 | 80.4 | 4470 | 79.8 | 4434 | 80.2 | 3370 | 80.2 |
| | Gestational hypertension | 1279 | 14.1 | 977 | 13.9 | 967 | 13.9 | 808 | 14.4 | 780 | 14.1 | 625 | 14.9 |
| | Preeclampsia | 179 | 2.0 | 130 | 1.9 | 129 | 1.8 | 108 | 1.9 | 108 | 2.0 | 115 | 2.7 |
| | Hypertension before pregnancy | 342 | 3.8 | 269 | 3.8 | 269 | 3.9 | 215 | 3.8 | 210 | 3.8 | 92 | 2.2 |
| Wheeze at 18m | No | 6630 | 73.0 | 4936 | 73.5 | 4902 | 73.5 | 3876 | 72.9 | 3776 | 72.4 | 1185 | 69.6 |
| | Yes | 2446 | 27.0 | 1784 | 26.5 | 1769 | 26.5 | 1444 | 27.1 | 1441 | 27.6 | 517 | 30.4 |
| Wheeze at 7y | No | 6006 | 89.4 | 6278 | 89.4 | 6220 | 89.3 | 4374 | 89.1 | 4302 | 89.3 | 1007 | 88.5 |
| | Yes | 714 | 10.6 | 748 | 10.6 | 743 | 10.7 | 537 | 10.9 | 516 | 10.7 | 131 | 11.5 |
| Asthma | No | 5339 | 80.0 | 5558 | 79.8 | 5567 | 79.8 | 3887 | 79.7 | 3825 | 79.9 | 873 | 77.9 |
| | Yes | 1332 | 20.0 | 1405 | 20.2 | 1407 | 20.2 | 989 | 20.3 | 960 | 20.1 | 248 | 22.1 |
| FEV ₁ SD score* | | 5320 | 0.01 (1.00) | 4911 | 0.02 (1.00) | 4876 | 0.02 (1.00) | 5601 | 0.01 (1.00) | 4393 | 0.02 (0.99) | 978 | -0.06 (1.00) |
| FVC SD score* | | 5400 | 0.01 (1.00) | 4986 | 0.02 (0.99) | 4948 | 0.02 (0.99) | 5601 | 0.03 (0.99) | 4459 | 0.01 (0.99) | 993 | -0.04 (0.99) |
| FEF ₂₅₋₇₅ SD score* | | 5400 | 0.01 (1.01) | 4986 | 0.02 (1.01) | 4948 | 0.02 (1.01) | 5601 | -0.01 (0.99) | 4459 | 0.01 (1.01) | 993 | -0.07 (0.99) |
| Atopy | No | 4121 | 79.0 | 3806 | 79.0 | 3779 | 79.0 | 3468 | 78.9 | 4376 | 79.1 | 782 | 81.0 |
| | Yes | 1096 | 21.0 | 1012 | 21.0 | 1006 | 21.0 | 925 | 21.1 | 1156 | 20.9 | 183 | 19.0 |

| | | | | | | | | | | | | | |
|---|---|------|-----------------|------|-----------------|------|-----------------|------|-----------------|------|-----------------|------|-----------------|
| Sex | Male | 4702 | 51.8 | 3619 | 51.5 | 3591 | 51.5 | 2826 | 50.5 | 2784 | 50.3 | 2183 | 52.0 |
| | Female | 4374 | 48.2 | 3407 | 48.5 | 3383 | 48.5 | 2775 | 49.5 | 2748 | 49.7 | 2019 | 48.0 |
| Multiple pregnancy | Singleton | 8861 | 97.6 | 6879 | 97.9 | 6829 | 97.9 | 5455 | 97.4 | 5386 | 97.4 | 4087 | 97.3 |
| | Twin | 215 | 2.4 | 147 | 2.1 | 145 | 2.1 | 146 | 2.6 | 146 | 2.6 | 115 | 2.7 |
| Maternal ethnicity | White | 8915 | 98.2 | 6913 | 98.4 | 6862 | 98.4 | 5512 | 98.4 | 5435 | 98.2 | 2570 | 95.0 |
| | Non-white | 161 | 1.8 | 113 | 1.6 | 112 | 1.6 | 89 | 1.6 | 97 | 1.8 | 134 | 5.0 |
| Maternal pre-pregnancy BMI (kg/m ²) | | 9076 | 22.92 (3.74) | 7026 | 22.85 (3.65) | 6974 | 22.85 (3.65) | 5601 | 22.94 (3.69) | 5532 | 22.88 (3.65) | 1909 | 23.00 (4.37) |
| Maternal age (years) | | 9076 | 28.76 (4.65) | 7026 | 29.12 (4.51) | 6974 | 29.11 (4.51) | 5601 | 29.29 (4.46) | 5532 | 29.25 (4.52) | 4202 | 26.37 (5.20) |
| Parity | Nulliparous | 4108 | 45.3 | 3277 | 46.6 | 3257 | 46.7 | 2626 | 46.9 | 2516 | 45.5 | 1384 | 43.0 |
| | Multiparous | 4968 | 54.7 | 3749 | 53.4 | 3717 | 53.3 | 2975 | 53.1 | 3016 | 54.5 | 1837 | 57.0 |
| Maternal smoking in pregnancy | None | 4090 | 45.1 | 3349 | 47.7 | 3325 | 47.7 | 2709 | 48.4 | 2688 | 48.6 | 1109 | 30.7 |
| | Passive only | 2953 | 32.5 | 2273 | 32.4 | 2252 | 32.3 | 1849 | 33.0 | 1782 | 32.2 | 1107 | 30.7 |
| | Mother 1-9/day | 763 | 8.4 | 571 | 8.1 | 566 | 8.1 | 446 | 8.0 | 442 | 8.0 | 401 | 11.1 |
| | Mother 10-19/day | 888 | 9.8 | 601 | 8.6 | 601 | 8.6 | 422 | 7.5 | 435 | 7.9 | 627 | 17.4 |
| | Mother 20+/day | 382 | 4.2 | 232 | 3.3 | 230 | 3.3 | 175 | 3.1 | 185 | 3.3 | 364 | 10.1 |
| Maternal education | Certificate of Secondary Education/vocational | 2249 | 24.8 | 1549 | 22.0 | 1533 | 22.0 | 1108 | 19.8 | 1131 | 20.4 | 1280 | 45.9 |
| | Ordinary level | 3275 | 36.1 | 2488 | 35.4 | 2476 | 35.5 | 1971 | 35.2 | 1964 | 35.5 | 835 | 30.0 |
| | Advanced level | 2222 | 24.5 | 1827 | 26.0 | 1809 | 25.9 | 1553 | 27.7 | 1501 | 27.1 | 459 | 16.5 |
| | Degree | 1330 | 14.7 | 1162 | 16.5 | 1156 | 16.6 | 969 | 17.3 | 936 | 16.9 | 213 | 7.6 |
| Maternal asthma | No | 8043 | 88.6 | 6253 | 89.0 | 6211 | 89.1 | 4944 | 88.3 | 4891 | 88.4 | 2470 | 88.1 |
| | Yes | 1033 | 11.4 | 773 | 11.0 | 763 | 10.9 | 657 | 11.7 | 641 | 11.6 | 335 | 11.9 |
| Gestational age [†] | | 9076 | 40 (39, 41) | 7026 | 40 (39, 41) | 6974 | 40 (39, 41) | 5601 | 40 (39, 41) | 5532 | 40 (39, 41) | 4202 | 40 (38, 41) |
| Birth weight | | 9076 | 3423 (543) | 7026 | 3428 (535) | 6974 | 3428 (536) | 5601 | 3429 (539) | 5532 | 3429 (540) | 4027 | 3320 (592) |

* Lung function SD scores are standardised by age, sex and height; [†] Median (inter-quartile range) is presented as this variable has a skewed distribution

| Binary outcomes | Odds ratio (95% CI) |
|--|---------------------------------|
| Wheezing at 18 months (N = 9,076) | |
| Normotensive (reference) | 1 |
| Gestational hypertension | 0.91 (0.79, 1.06) |
| Preeclampsia | 1.19 (0.85, 1.67) |
| Hypertension before pregnancy | 1.05 (0.82, 1.35) |
| Wheezing at 7 years (N = 7,026) | |
| Normotensive (reference) | 1 |
| Gestational hypertension | 1.09 (0.87, 1.37) |
| Preeclampsia | 0.94 (0.52, 1.71) |
| Hypertension before pregnancy | 1.62 (1.14, 2.28) |
| Asthma at 7 years (N = 6,974) | |
| Normotensive (reference) | 1 |
| Gestational hypertension | 1.05 (0.88, 1.25) |
| Preeclampsia | 1.18 (0.77, 1.81) |
| Hypertension before pregnancy | 1.32 (0.99, 1.77) |
| Atopy at 7 years (N = 5,532) | |
| Normotensive (reference) | 1 |
| Gestational hypertension | 1.04 (0.86, 1.27) |
| Preeclampsia | 0.90 (0.54, 1.52) |
| Hypertension before pregnancy | 1.17 (0.84, 1.64) |
| Continuous outcomes | Mean difference (95% CI) |
| FEV₁ SD score[†] at 8 years (N = 5,601) | |
| Normotensive (reference) | 0 |
| Gestational hypertension | 0.04 (-0.03, 0.12) |
| Preeclampsia | -0.08 (-0.27, 0.11) |
| Hypertension before pregnancy | 0.11 (-0.03, 0.25) |
| FVC SD score[†] at 8 years (N = 5,601) | |
| Normotensive (reference) | 0 |
| Gestational hypertension | 0.06 (-0.01, 0.14) |
| Preeclampsia | -0.04 (-0.23, 0.15) |
| Hypertension before pregnancy | 0.06 (-0.08, 0.19) |
| FEF₂₅₋₇₅ SD score[†] at 8 years (N = 5,601) | |
| Normotensive (reference) | 0 |
| Gestational hypertension | -0.02 (-0.10, 0.05) |
| Preeclampsia | -0.09 (-0.28, 0.10) |
| Hypertension before pregnancy | 0.10 (-0.04, 0.24) |

Web-Table E2: Associations of hypertensive disorders of pregnancy with respiratory and atopic outcomes adjusted additionally for birth weight and gestational age at birth*

* Adjusted for offspring sex, maternal asthma, maternal pre-pregnancy BMI, maternal age, maternal parity, maternal education, multiple pregnancy, maternal ethnicity, maternal smoking during pregnancy, birth weight and gestational age at birth.

† Lung function SD scores are standardised by age, sex and height

Web-Figure E1 Directed acyclic graph showing potential confounders and mediators of the associations between hypertensive disorders of pregnancy and offspring respiratory and atopic outcomes



