**AUSTRALIAN CHILD HEALTH AND AIR POLLUTION STUDY**

**(ACHAPS)**

**FINAL REPORT**

**APPENDICES FOR PART B**

**December 17, 2010**

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# Lung function Models

Table 1.1: Bsp Models

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Single** | **Joint-PM2.5** | **Joint-PM10** | **Joint-NO2** | **Joint-O3** | **Joint-CO** | **Joint-SO2** |
| **LIFETIME** |  |  |  |  |  |  |  |
| FEV1 Pre-bronchodilator/ml | 4.08 (-4.29,12.44) P = 0.**3301** | 3.88 (-5.40,13.16) P = 0.4030 | 7.06 (-3.51,17.62) P = 0.1840 | 6.06 (-2.06,14.17) P = 0.1393 | 8.39 (-0.05,16.82) P = 0.0512 | Models  unstable | 9.43 (-8.32,27.18) P = 0.2809 |
| FEV1 Post-bronchodilator/ml | -4.61 (-15.1, 5.92) P = 0.3814 | -4.89 (-16.1, 6.35) P = 0.3841 | -1.50 (-12.8, 9.83) P = 0.7904 | -1.99 (-12.3, 8.37) P = 0.7001 | -2.45 (-13.9, 8.96) P = 0.6653 |  | -2.68 (-30.2,24.86) P = 0.8414 |
| FVC Pre-bronchodilator | 0.92 (-10.0,11.86) P = 0.8658 | 1.58 (-9.12,12.29) P = 0.7662 | 3.55 (-9.67,16.76) P = 0.5895 | 3.73 (-6.41,13.87) P = 0.4611 | 6.31 (-4.82,17.43) P = 0.2574 |  | 3.17 (-6.80,13.14) P = 0.5148 |
| FVC Post-bronchodilator/ml | -8.69 (-21.9, 4.51) P = 0.1905 | -8.20 (-21.6, 5.18) P = 0.2221 | -4.29 (-17.7, 9.11) P = 0.5204 | -5.53 (-18.1, 7.06) P = 0.3795 | -7.80 (-21.6, 5.97) P = 0.2574 |  | -12.9 (-41.9,16.16) P = 0.3663 |
| Change in FEV1 (%) Post- BD | **-0.44 (-0.81,-0.06) P = 0.0236\*D** | **-0.44 (-0.79,-0.08) P = 0.0164\*D** | **-0.43 (-0.78,-0.09) P = 0.0159\*D** | **-0.41 (-0.76,-0.05) P = 0.0251\*D** | **-0.53 (-0.84,-0.22) P = 0.0015\*D** |  | -0.51 (-1.01, 0.00) P = 0.0507 |
| FEV1/FVC Ratio PreBD(%) | 0.11 (-0.10, 0.32) P = 0.2895 | 0.07 (-0.16, 0.31) P = 0.5425 | 0.11 (-0.14, 0.36) P = 0.3638 | 0.10 (-0.10, 0.30) P = 0.3264 | 0.10 (-0.14, 0.33) P = 0.4127 |  | 0.36 (-0.31, 1.04) P = 0.2760 |
| FEV1/FVC Ratio Post- BD(%) | 0.05 (-0.17, 0.27) P = 0.6241 | 0.01 (-0.20, 0.23) P = 0.9113 | -0.02 (-0.27, 0.23) P = 0.8536 | 0.05 (-0.17, 0.26) P = 0.6588 | 0.12 (-0.10, 0.34) P = 0.2636 |  | **0.29 ( 0.01, 0.57) P = 0.0431\*I** |
| Log(exhaled NO) | 0.00 (-0.04, 0.05) P = 0.9290 | 0.01 (-0.03, 0.05) P = 0.7016 | -0.02 (-0.06, 0.01) P = 0.1846 | -0.01 (-0.05, 0.03) P = 0.7229 | 0.00 (-0.03, 0.04) P = 0.8839 |  | -0.04 (-0.10, 0.02) P = 0.1729 |
| **RECENT** |  |  |  |  |  |  |  |
| FEV1 Pre-bronchodilator/ml | 11.48 (-8.06,31.02) P = 0.2395 | 53.77 ( 9.75,97.80) P = 0.0207\*I | 17.10 (-16.7,50.87) P = 0.3092 | 15.26 (-5.01,35.53) P = 0.1346 | 16.67 (-0.64,33.98) P = 0.0584 | Models  unstable | -6.54 (-31.9,18.84) P = 0.5938 |
| FEV1 Post-bronchodilator/ml | -9.01 (-34.2,16.18) P = 0.4708 | 8.40 (-56.3,73.12) P = 0.7820 | -3.30 (-36.2,29.57) P = 0.8391 | -2.46 (-26.3,21.33) P = 0.8339 | -12.2 (-36.0,11.52) P = 0.3004 |  | -23.4 (-47.5, 0.64) P = 0.0557 |
| FVC Pre-bronchodilator | 8.17 (-18.7,35.01) P = 0.5391 | **58.75 ( 2.15,115.4) P = 0.0430\*I** | 13.89 (-30.7,58.47) P = 0.5294 | 14.52 (-13.8,42.84) P = 0.3035 | 10.74 (-14.8,36.23) P = 0.3955 |  | -0.61 (-38.9,37.65) P = 0.9734 |
| FVC Post-bronchodilator/ml | -7.17 (-40.9,26.56) P = 0.6671 | 23.08 (-52.5,98.64) P = 0.5183 | 5.20 (-39.5,49.85) P = 0.8137 | 0.49 (-32.9,33.90) P = 0.9764 | -15.6 (-49.3,18.01) P = 0.3491 |  | -10.3 (-45.8,25.29) P = 0.5500 |
| Change in FEV1 (%) Post-BD | **-1.09 (-1.85,-0.32) P = 0.0070\*D** | **-2.35 (-4.52,-0.17) P = 0.0365\*D** | **-1.12 (-1.87,-0.37) P = 0.0045\*D** | **-0.95 (-1.59,-0.31) P = 0.0050\*D** | **-1.50 (-2.05,-0.94) P < 0.0001\*D** |  | -0.82 (-1.84, 0.19) P = 0.1042 |
| FEV1/FVC Ratio Pre-BD(%) | 0.06 (-0.51, 0.62) P = 0.8412 | -0.11 (-1.02, 0.80) P = 0.8011 | 0.04 (-0.90, 0.98) P = 0.9307 | 0.00 (-0.61, 0.62) P = 0.9930 | 0.12 (-0.45, 0.69) P = 0.6675 |  | -0.33 (-1.12, 0.47) P = 0.3984 |
| FEV1/FVC Ratio Post-BD(%) | -0.28 (-0.96, 0.41) P = 0.4216 | -0.71 (-2.50, 1.08) P = 0.4057 | -0.59 (-1.62, 0.44) P = 0.2493 | -0.27 (-0.96, 0.43) P = 0.4368 | -0.12 (-0.79, 0.56) P = 0.7283 |  | -0.61 (-1.33, 0.11) P = 0.0916 |
| Log(exhaled NO) | 0.05 (-0.01, 0.10) P = 0.0873 | **0.21 ( 0.21, 0.21) P < 0.0001\*I** | 0.02 (-0.04, 0.08) P = 0.4475 | 0.04 (-0.00, 0.08) P = 0.0551 | **0.06 ( 0.02, 0.10) P = 0.0059\*I** |  | **0.05 ( 0.01, 0.10) P = 0.0227\*I** |

Table 1.2. PM2.5 Models

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Single** | **Joint-Bsp** | **Joint-PM10** | **Joint-NO2** | **Joint-O3** | **Joint-CO** | **Joint-SO2** |
| **LIFETIME** |  |  |  |  |  |  |  |
| FEV1 Pre-bronchodilator/ml | 5.71 (-13.4,24.82) P = 0.5505 | 3.59 (-20.3,27.44) P = 0.7625 | 6.59 (-11.4,24.59) P = 0.4653 | 1.22 (-16.1,18.58) P = 0.8880 | 6.84 (-11.6,25.25) P = 0.4571 | -16.3 (-42., 9.7) P = 0.2080 | -0.18 (-39.1,38.73) P = 0.9924 |
| FEV1 Post-bronchodilator/ml | 4.64 (-14.9,24.16) P = 0.6350 | 2.85 (-28.6,34.35) P = 0.8556 | 4.59 (-12.9,22.13) P = 0.6006 | 0.67 (-18.2,19.56) P = 0.9434 | -3.76 (-25.8,18.27) P = 0.7322 | -3.8 (-33.8,26.2) P = 0.7954 | 13.28 (-26.2,52.8) P = 0.4958 |
| FVC Pre-bronchodilator | -3.81 (-21.6,13.95) P = 0.6680 | -12.5 (-37.9,12.87) P = 0.3247 | -6.42 (-22.3, 9.46) P = 0.4201 | -8.45 (-24.9, 8.02) P = 0.3074 | -12.6 (-30.5, 5.40) P = 0.1650 | -15.2 (-37.0, 6.5) P = 0.1619 | -2.76 (-52.9,47.4) P = 0.9109 |
| FVC Post-bronchodilator/ml | -4.90 (-28.6,18.76) P = 0.6790 | -8.48 (-47.3,30.31) P = 0.6606 | -6.63 (-28.1,14.86) P = 0.5377 | -9.48 (-32.9,13.96) P = 0.4203 | -20.1 (-49.2, 9.00) P = 0.1703 | -5.4 (-41.9,31.1) P = 0.7636 | 12.20 (-37.0,61.3) P = 0.6142 |
| Change in FEV1 (%) Post- BD | -0.20 (-0.95, 0.54) P = 0.5896 | -0.13 (-1.06, 0.79) P = 0.7750 | -0.28 (-0.97, 0.40) P = 0.4088 | -0.17 (-0.95, 0.61) P = 0.6656 | -0.70 (-1.67, 0.27) P = 0.1502 | 0.56 (-0.69, 1.8) P = 0.3687 | 0.27 (-0.71, 1.24) P = 0.5787 |
| FEV1/FVC Ratio Pre-bd(%) | **0.49 ( 0.01, 0.98) P = 0.0466\*I** | **0.88 ( 0.21, 1.55) P = 0.0112\*I** | **0.64 ( 0.18, 1.10) P = 0.0069\*I** | 0.47 (-0.04, 0.98) P = 0.0678 | **0.89 ( 0.43, 1.36) P = 0.0004\*I** | 0.34 (-0.26, 0.9) P = 0.2507 | -0.05 (-1.22, 1.12) P = 0.9326 |
| FEV1/FVC Ratio Post- BD(%) | **0.44 ( 0.09, 0.79) P = 0.0154\*I** | **0.66 ( 0.10, 1.22) P = 0.0228\*I** | **0.46 ( 0.07, 0.86) P = 0.0214\*I** | **0.44 ( 0.07, 0.80) P = 0.0199\*I** | **0.62 ( 0.15, 1.09) P = 0.0107\*I** | 0.41 (-0.08, 0.9) P = 0.1003 | 0.09 (-0.67, 0.85) P = 0.8113 |
| Log(exhaled NO) | -0.03 (-0.11, 0.04) P = 0.3522 | 0.05 (-0.06, 0.16) P = 0.3308 | **-0.07 (-0.12,-0.02) P = 0.0091\*D** | -0.04 (-0.10, 0.02) P = 0.1701 | -0.05 (-0.12, 0.02) P = 0.1573 | 0.04 (-0.07, 0.1) P = 0.4322 | -0.05 (-0.23, 0.13) P = 0.5352 |
| **RECENT** |  |  |  |  |  |  |  |
| FEV1 Pre-bronchodilator/ml | 7.07 (-8.43,22.58) P = 0.3527 | -12.5 (-36.3,11.18) P = 0.2719 | 3.08 (-20.6,26.71) P = 0.7874 | **12.6 (-5.23,30.53) P = 0.1555** | 13.5 (-8.89,35.89) P = 0.2194 | Models unstable | 12.0 (-4.23,28.30) P = 0.1285 |
| FEV1 Post-bronchodilator/ml | -24.0 (-48.4, 0.33) P = 0.0529 | **-39.7 (-66.6,-12.8) P = 0.0074\*D** | -23.5 (-48.6, 1.66) P = 0.0653 | -15.5 (-36.8, 5.79) P = 0.1444 | -19.0 (-43.2, 5.29) P = 0.1168 |  | -7.91 (-52.4,36.5) P = 0.6968 |
| FVC Pre-bronchodilator | -13.3 (-38.6,12.08) P = 0.2880 | **-49.3 (-74.4,-24.2) P = 0.0010\*D** | -20.9 (-53.8,11.96) P = 0.1979 | -4.44 (-28.7,19.84) P = 0.7068 | -7.10 (-34.2,20.01) P = 0.5862 |  | 12.32 (-15.9,40.6) P = 0.3498 |
| FVC Post-bronchodilator/ml | **-46.3 (-82.7,-9.95) P = 0.0151\*D** | **-69.2 ( -105,-33.6) P = 0.0011\*D** | **-49.8 (-87.0,-12.6) P = 0.0115\*D** | **-38.2 (-69.8,-6.70) P = 0.0199\*D** | **-44.0 (-71.8,-16.3) P = 0.0039\*D** |  | -14.8 (-78.3,48.7) P = 0.6107 |
| Change in FEV1 (%) Post-BD | **-1.48 (-2.55,-0.42) P = 0.0086\*D** | **-1.23 (-2.08,-0.39) P = 0.0077\*D** | **-1.25 (-2.31,-0.19) P = 0.0231\*D** | **-1.34 (-2.33,-0.34) P = 0.0112\*D** | **-1.51 (-2.49,-0.53) P = 0.0049\*D** |  | -0.77 (-2.26, 0.71) P = 0.2684 |
| FEV1/FVC Ratio Pre-BD(%) | 0.73 (-0.17, 1.63) P = 0.1071 | **1.39 ( 0.97, 1.82) P <=0.0001\*I** | 0.84 (-0.06, 1.75) P = 0.0647 | 0.67 (-0.18, 1.52) P = 0.1149 | **0.98 ( 0.49, 1.47) P = 0.0006\*I** |  | -0.06 (-1.36, 1.24) P = 0.9173 |
| FEV1/FVC Ratio Post-BD(%) | **0.62 ( 0.07, 1.17) P = 0.0279\*I** | **0.97 ( 0.43, 1.51) P = 0.0019\*I** | **0.81 ( 0.23, 1.39) P = 0.0089\*I** | **0.70 ( 0.16, 1.24) P = 0.0138\*I** | **0.82 ( 0.30, 1.33) P = 0.0041\*I** |  | 0.17 (-0.45, 0.80) P = 0.5432 |
| Log(exhaled NO) | **0.02 ( 0.02, 0.02) P < 0.0001\*I** | **0.07 ( 0.07, 0.07) P < 0.0001\*I** | **0.03 ( 0.03, 0.03) P < 0.0001\*I** | **-0.06 (-0.06,-0.06) P < 0.0001\*I** | **-0.07 (-0.07,-0.07) P < 0.0001\*I** |  | **-0.01 (-0.01,-0.01) P < 0.0001\*I** |

Table 1.3. PM10 Models

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Single** | **Joint-Bsp** | **Joint-PM2.5** | **Joint-NO2** | **Joint-O3** | **Joint-CO** | **Joint-SO2** |
| **LIFETIME** |  |  |  |  |  |  |  |
| FEV1 Pre-bronchodilator/ml | -16.6 (-37.1, 3.94) P = 0.1107 | -11.9 (-36.3,12.52) P = 0.3300 | -18.4 (-40.2, 3.35) P = 0.0953 | -4.42 (-24.5,15.67) P = 0.6600 | -10.0 (-31.6,11.53) P = 0.3527 | -14.5 (-41.6,12.61) P = 0.2819 | -12.6 (-38.4,13.06) P = 0.3211 |
| FEV1 Post-bronchodilator/ml | **-19.3 (-38.3,-0.23) P = 0.0473\*D** | -12.2 (-40.2,15.82) P = 0.3841 | **-20.4 (-40.3,-0.47) P = 0.0450\*D** | -8.31 (-27.2,10.59) P = 0.3808 | -12.2 (-35.9,11.56) P = 0.3055 | -13.5 (-40.7,13.74) P = 0.3181 | -6.22 (-29.5,17.01) P = 0.5866 |
| FVC Pre-bronchodilator | -13.3 (-36.2, 9.50) P = 0.2461 | -13.7 (-47.6,20.11) P = 0.4161 | -11.2 (-35.5,13.01) P = 0.3561 | -1.13 (-26.2,23.94) P = 0.9282 | -12.0 (-43.1,19.04) P = 0.4380 | -12.8 (-40.4,14.77) P = 0.3480 | 0.40 (-30.3,31.10) P = 0.9788 |
| FVC Post-bronchodilator/ml | -26.8 (-54.7, 1.07) P = 0.0590 | -24.4 (-66.3,17.48) P = 0.2453 | -24.9 (-53.0, 3.10) P = 0.0799 | -18.1 (-48.2,11.87) P = 0.2299 | -28.6 (-64.0, 6.86) P = 0.1108 | -26.8 (-62.9, 9.41) P = 0.1403 | -2.70 (-33.2,27.80) P = 0.8569 |
| Change in FEV1 (%) Post- BD | -0.07 (-0.90, 0.77) P = 0.8742 | 0.01 (-1.05, 1.07) P = 0.9859 | 0.03 (-0.70, 0.75) P = 0.9378 | -0.18 (-0.91, 0.56) P = 0.6285 | -0.07 (-0.73, 0.58) P = 0.8202 | 0.08 (-1.21, 1.38) P = 0.8942 | 0.44 (-0.11, 0.99) P = 0.1097 |
| FEV1/FVC Ratio PreBD(%) | -0.20 (-1.01, 0.62) P = 0.6301 | 0.05 (-0.94, 1.05) P = 0.9153 | -0.35 (-1.08, 0.38) P = 0.3340 | -0.09 (-0.92, 0.74) P = 0.8325 | 0.12 (-0.73, 0.98) P = 0.7733 | -0.11 (-0.99, 0.78) P = 0.8091 | -0.59 (-1.61, 0.42) P = 0.2382 |
| FEV1/FVC Ratio Post- BD(%) | 0.31 (-0.36, 0.99) P = 0.3567 | 0.60 (-0.26, 1.47) P = 0.1654 | 0.20 (-0.46, 0.85) P = 0.5437 | 0.41 (-0.35, 1.17) P = 0.2864 | 0.69 (-0.12, 1.50) P = 0.0931 | 0.61 (-0.24, 1.45) P = 0.1516 | 0.00 (-0.98, 0.98) P = 0.9964 |
| Log(exhaled NO) | **0.14 ( 0.05, 0.23) P = 0.0040\*I** | **0.11 ( 0.03, 0.20) P = 0.0083\*I** | **0.17 ( 0.09, 0.26) P = 0.0002\*I** | **0.09 ( 0.01, 0.17) P = 0.0237\*I** | 0.05 (-0.02, 0.11) P = 0.1399 | **0.14 ( 0.07, 0.21) P = 0.0006\*I** | **0.13 ( 0.03, 0.24) P = 0.0126\*I** |
| **RECENT** |  |  |  |  |  |  |  |
| FEV1 Pre-bronchodilator/ml | -4.38 (-20.0,11.20) P = 0.5737 | -6.27 (-36.1,23.51) P = 0.6702 | 7.70 (-29.9,45.35) P = 0.6725 | 3.26 (-13.5,20.02) P = 0.6964 | 1.26 (-17.4,19.90) P = 0.8917 | -5.77 (-26.2,14.68) P = 0.5662 | -17.4 (-49.4,14.47) P = 0.2677 |
| FEV1 Post-bronchodilator/ml | -12.6 (-28.5, 3.29) P = 0.1171 | -6.34 (-36.2,23.47) P = 0.6671 | -6.45 (-42.3,29.35) P = 0.7094 | -5.29 (-20.6,10.02) P = 0.4892 | -7.01 (-24.0, 9.93) P = 0.4062 | -10.2 (-35.9,15.53) P = 0.4228 | -17.5 (-48.0,12.94) P = 0.2441 |
| FVC Pre-bronchodilator | -2.06 (-17.0,12.90) P = 0.7826 | -6.41 (-42.4,29.58) P = 0.7186 | 16.66 (-29.3,62.63) P = 0.4560 | 5.80 (-10.8,22.36) P = 0.4833 | 4.04 (-14.4,22.44) P = 0.6583 | -5.34 (-25.0,14.34) P = 0.5812 | -6.34 (-34.0,21.34) P = 0.6380 |
| FVC Post-bronchodilator/ml | -13.1 (-33.6, 7.51) P = 0.2074 | -14.7 (-54.4,25.00) P = 0.4550 | 3.44 (-44.1,51.01) P = 0.8807 | -6.25 (-25.4,12.91) P = 0.5138 | -7.91 (-27.5,11.71) P = 0.4185 | -14.2 (-45.7,17.22) P = 0.3605 | -11.2 (-43.9,21.54) P = 0.4846 |
| Change in FEV1 (%) Post-BD | -0.41 (-1.11, 0.29) P = 0.2447 | 0.05 (-0.91, 1.00) P = 0.9240 | -0.68 (-1.97, 0.61) P = 0.2836 | -0.44 (-1.06, 0.18) P = 0.1551 | -0.43 (-1.03, 0.18) P = 0.1604 | -0.20 (-1.08, 0.69) P = 0.6503 | 0.05 (-0.74, 0.84) P = 0.8970 |
| FEV1/FVC Ratio Pre-BD(%) | -0.13 (-0.74, 0.48) P = 0.6710 | 0.02 (-0.97, 1.02) P = 0.9614 | -0.32 (-1.16, 0.52) P = 0.4379 | -0.11 (-0.71, 0.50) P = 0.7240 | -0.11 (-0.73, 0.51) P = 0.7213 | -0.17 (-0.80, 0.46) P = 0.5871 | -0.53 (-1.77, 0.71) P = 0.3793 |
| FEV1/FVC Ratio Post-BD(%) | -0.06 (-0.58, 0.46) P = 0.8228 | 0.40 (-0.56, 1.35) P = 0.4021 | -0.53 (-1.26, 0.20) P = 0.1464 | -0.01 (-0.55, 0.54) P = 0.9750 | -0.02 (-0.60, 0.56) P = 0.9424 | 0.07 (-0.64, 0.77) P = 0.8491 | -0.24 (-1.35, 0.87) P = 0.6549 |
| Log(exhaled NO) | 0.07 (-0.01, 0.14) P = 0.0723 | 0.03 (-0.04, 0.09) P = 0.4298 | **-0.03 (-0.03,-0.03)** **P < 0.0001\*D** | 0.05 (-0.02, 0.11) P = 0.1574 | 0.03 (-0.02, 0.09) P = 0.2522 | **0.11 ( 0.06, 0.16) P = 0.0002\*I** | 0.03 (-0.05, 0.11) P = 0.4572 |

Table 1.4. NO2 Models

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Single** | **Joint-Bsp** | **Joint-PM2.5** | **Joint-PM10** | **Joint-O3** | **Joint-CO** | **Joint-SO2** |
| **LIFETIME** |  |  |  |  |  |  |  |
| FEV1 Pre-bronchodilator/ml | **-26.2 (-42.2,-10.1) P = 0.0019\*D** | **-26.6 (-45.5,-7.79) P = 0.0067\*D** | **-23.0 (-40.6,-5.47) P = 0.0112\*D** | **-26.9 (-44.1,-9.72) P = 0.0028\*D** | -27.0 (-57.1, 2.97) P = 0.0760 | **-45.4 (-74.3,-16.5) P = 0.0033\*D** | -12.1 (-35.4,11.18) P = 0.2953 |
| FEV1 Post-bronchodilator/ml | **-25.9 (-41.4,-10.4) P = 0.0014\*D** | **-35.4 (-54.2,-16.7) P = 0.0004\*D** | **-20.7 (-37.7,-3.78) P = 0.0176\*D** | **-26.4 (-43.5,-9.38) P = 0.0030\*D** | -26.3 (-56.5, 3.80) P = 0.0850 | **-41.1 (-74.0,-8.21) P = 0.0162\*D** | -10.7 (-33.1,11.77) P = 0.3371 |
| FVC Pre-bronchodilator | **-25.3 (-40.6,-10.0) P = 0.0016\*D** | **-38.5 (-57.9,-19.0) P = 0.0002\*D** | **-23.1 (-40.7,-5.63) P = 0.0106\*D** | **-26.7 (-42.9,-10.5) P = 0.0017\*D** | **-43.1 (-72.2,-14.1) P = 0.0046\*D** | **-38.3 (-69.2,-7.45) P = 0.0169\*D** | -11.0 (-39.5,17.49) P = 0.4344 |
| FVC Post-bronchodilator/ml | **-25.6 (-44.2,-6.94) P = 0.0081\*D** | **-41.9 (-66.2,-17.5) P = 0.0012\*D** | -17.0 (-37.1, 3.09) P = 0.0952 | **-26.7 (-47.5,-5.85) P = 0.0131\*D** | **-42.4 (-75.6,-9.13) P = 0.0137\*D** | **-43.4 (-82.8,-4.05) P = 0.0319\*D** | -5.49 (-31.7,20.76) P = 0.6706 |
| Change in FEV1 (%) Post- BD | 0.11 (-0.48, 0.71) P = 0.7021 | -0.39 (-1.12, 0.34) P = 0.2813 | 0.21 (-0.29, 0.72) P = 0.4030 | 0.13 (-0.55, 0.81) P = 0.7025 | 0.13 (-0.73, 0.99) P = 0.7604 | 0.27 (-0.90, 1.44) P = 0.6373 | 0.21 (-0.40, 0.82) P = 0.4879 |
| FEV1/FVC Ratio PreBD(%) | -0.20 (-0.75, 0.35) P = 0.4623 | 0.16 (-0.59, 0.92) P = 0.6659 | -0.20 (-0.75, 0.34) P = 0.4590 | -0.13 (-0.70, 0.44) P = 0.6506 | 0.29 (-0.85, 1.43) P = 0.6049 | -0.40 (-1.20, 0.40) P = 0.3170 | -0.28 (-1.13, 0.57) P = 0.5094 |
| FEV1/FVC Ratio Post- BD(%) | -0.03 (-0.43, 0.36) P = 0.8749 | 0.09 (-0.51, 0.70) P = 0.7561 | -0.17 (-0.65, 0.30) P = 0.4648 | -0.01 (-0.38, 0.37) P = 0.9638 | 0.61 (-0.35, 1.58) P = 0.2062 | 0.01 (-0.68, 0.71) P = 0.9711 | -0.19 (-0.81, 0.43) P = 0.5375 |
| Log(exhaled NO) | **0.12 ( 0.04, 0.19) P = 0.0023\*I** | 0.09 (-0.01, 0.19) P = 0.0712 | **0.08 ( 0.01, 0.14) P = 0.0168\*I** | **0.14 ( 0.08, 0.20) P < 0.0001\*I** | **0.08 ( 0.00, 0.15) P = 0.0468\*I** | **0.12 ( 0.06, 0.18) P = 0.0003\*I** | **0.19 ( 0.06, 0.32) P = 0.0058\*I** |
| **RECENT** |  |  |  |  |  |  |  |
| FEV1 Pre-bronchodilator/ml | **-28.6 (-46.0,-11.1) P = 0.0019\*D** | -20.2 (-40.5, 0.09) P = 0.0509 | **-27.8 (-46.7,-8.89) P = 0.0049\*D** | -19.3 (-43.5, 4.80) P = 0.1103 | -24.4 (-58.2, 9.51) P = 0.1533 | **-35.7 (-63.4,-8.02) P = 0.0134\*D** | -2.38 (-21.6,16.85) P = 0.7985 |
| FEV1 Post-bronchodilator/ml | **-29.6 (-46.0,-13.1) P = 0.0007\*D** | **-35.6 (-56.7,-14.5) P = 0.0017\*D** | **-25.7 (-43.8,-7.67) P = 0.0063\*D** | **-29.1 (-53.2,-5.04) P = 0.0202\*D** | **-34.6 (-68.5,-0.67) P = 0.0458\*D** | **-37.8 (-70.1,-5.48) P = 0.0236\*D** | -3.63 (-27.1,19.85) P = 0.7497 |
| FVC Pre-bronchodilator | **-27.5 (-44.0,-10.9) P = 0.0016\*D** | **-35.6 (-58.7,-12.6) P = 0.0036\*D** | **-26.8 (-45.1,-8.40) P = 0.0052\*D** | **-29.9 (-58.8,-1.05) P = 0.0429\*D** | -30.3 (-68.5, 7.97) P = 0.1171 | **-33.3 (-62.0,-4.51) P = 0.0250\*D** | -6.04 (-31.4,19.31) P = 0.6236 |
| FVC Post-bronchodilator/ml | **-27.7 (-48.7,-6.61) P = 0.0111\*D** | **-42.7 (-74.1,-11.3) P = 0.0093\*D** | **-23.2 (-45.4,-0.91) P = 0.0417\*D** | -27.6 (-57.2, 1.95) P = 0.0655 | -26.9 (-67.4,13.58) P = 0.1862 | -39.5 (-79.1, 0.17) P = 0.0509 | 6.94 (-27.6,41.47) P = 0.6788 |
| Change in FEV1 (%) Post-BD | 0.02 (-0.73, 0.78) P = 0.9521 | -0.73 (-1.72, 0.27) P = 0.1470 | 0.19 (-0.51, 0.88) P = 0.5896 | -0.49 (-1.50, 0.52) P = 0.3204 | -0.53 (-1.27, 0.21) P = 0.1567 | -0.09 (-1.38, 1.21) P = 0.8915 | -0.12 (-1.02, 0.78) P = 0.7879 |
| FEV1/FVC Ratio Pre-BD(%) | -0.22 (-0.78, 0.34) P = 0.4257 | 0.29 (-0.48, 1.07) P = 0.4443 | -0.21 (-0.80, 0.38) P = 0.4803 | 0.19 (-0.45, 0.83) P = 0.5460 | -0.13 (-0.98, 0.71) P = 0.7492 | -0.27 (-0.90, 0.36) P = 0.3907 | -0.20 (-1.22, 0.81) P = 0.6791 |
| FEV1/FVC Ratio Post-BD(%) | -0.19 (-0.57, 0.19) P = 0.3220 | -0.04 (-0.75, 0.68) P = 0.9167 | -0.20 (-0.63, 0.22) P = 0.3381 | -0.26 (-0.65, 0.14) P = 0.1888 | -0.61 (-1.48, 0.26) P = 0.1659 | -0.13 (-0.57, 0.31) P = 0.5539 | -0.55 (-1.25, 0.15) P = 0.1189 |
| Log(exhaled NO) | **0.13 ( 0.06, 0.21) P = 0.0008\*I** | **0.12 ( 0.06, 0.18) P = 0.0003\*I** | **0.13 ( 0.06, 0.20) P = 0.0004\*I** | **0.21 ( 0.21, 0.21) P < 0.0001\*I** | 0.09 (-0.00, 0.18) P = 0.0563 | **0.09 ( 0.01, 0.16) P = 0.0204\*I** | **0.08 ( 0.00, 0.15) P = 0.0401\*I** |

Table 1.5. O3 Models

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Single** | **Joint-Bsp** | **Joint-PM2.5** | **Joint-PM10** | **Joint-NO2** | **Joint-CO** | **Joint-SO2** |
| **LIFETIME** |  |  |  |  |  |  |  |
| FEV1 Pre-bronchodilator/ml | 10.02 (-4.32,24.37) P = 0.1655 | 6.03 (-10.1,22.16) P = 0.4527 | 8.52 (-4.74,21.77) P = 0.2015 | 4.57 (-10.5,19.61) P = 0.5426 | -3.66 (-24.8,17.44) P = 0.7277 | 9.75 (-15.5,35.00) P = 0.4299 | 9.13 (-8.62,26.88) P = 0.2995 |
| FEV1 Post-bronchodilator/ml | **16.19 ( 3.87,28.51) P = 0.0112\*I** | **20.19 ( 3.88,36.50) P = 0.0167\*I** | **16.87 ( 3.59,30.16) P = 0.0140\*I** | 11.21 (-2.96,25.38) P = 0.1175 | 2.85 (-18.9,24.63) P = 0.7927 | 24.29 (-5.98,54.55) P = 0.1097 | 7.97 (-9.40,25.35) P = 0.3537 |
| FVC Pre-bronchodilator | 8.55 (-6.23,23.33) P = 0.2493 | 9.33 (-8.08,26.74) P = 0.2837 | 11.26 (-3.89,26.41) P = 0.1410 | 2.50 (-14.9,19.91) P = 0.7726 | -13.3 (-34.8, 8.17) P = 0.2179 | 3.25 (-22.2,28.69) P = 0.7924 | 2.06 (-21.9,26.00) P = 0.8609 |
| FVC Post-bronchodilator/ml | 12.18 (-7.16,31.52) P = 0.2103 | 18.63 (-8.30,45.57) P = 0.1688 | 16.52 (-4.08,37.11) P = 0.1129 | 3.06 (-18.3,24.40) P = 0.7733 | -9.34 (-40.8,22.11) P = 0.5518 | 20.52 (-21.7,62.74) P = 0.3226 | -0.57 (-22.7,21.56) P = 0.9578 |
| Change in FEV1 (%) Post- BD | 0.24 (-0.39, 0.87) P = 0.4478 | 0.67 (-0.01, 1.35) P = 0.0547 | 0.38 (-0.26, 1.03) P = 0.2340 | 0.26 (-0.41, 0.94) P = 0.4365 | 0.30 (-0.67, 1.28) P = 0.5321 | 0.84 (-0.37, 2.05) P = 0.1624 | -0.20 (-0.59, 0.19) P = 0.2982 |
| FEV1/FVC Ratio PreBD(%) | 0.09 (-0.34, 0.53) P = 0.6692 | -0.10 (-0.62, 0.42) P = 0.7056 | -0.10 (-0.45, 0.25) P = 0.5603 | 0.16 (-0.32, 0.64) P = 0.4949 | 0.24 (-0.51, 0.99) P = 0.5188 | 0.39 (-0.44, 1.21) P = 0.3399 | 0.34 (-0.17, 0.84) P = 0.1816 |
| FEV1/FVC Ratio Post- BD(%) | 0.18 (-0.14, 0.49) P = 0.2718 | 0.20 (-0.30, 0.69) P = 0.4298 | 0.04 (-0.24, 0.31) P = 0.7944 | 0.36 (-0.02, 0.73) P = 0.0609 | 0.49 (-0.16, 1.13) P = 0.1371 | 0.34 (-0.45, 1.13) P = 0.3768 | 0.26 (-0.10, 0.63) P = 0.1487 |
| Log(exhaled NO) | **-0.13 (-0.19,-0.08) P <= 0.0001\*D** | **-0.10 (-0.15,-0.05) P = 0.0003\*D** | **-0.13 (-0.18,-0.08) P <0.0001\*D** | **-0.12 (-0.17,-0.06) P < 0.0001\*D** | **-0.10 (-0.16,-0.03) P = 0.0034\*D** | **-0.13 (-0.18,-0.07) P = 0.0001\*D** | **-0.15 (-0.21,-0.09) P < 0.0001\*D** |
| **RECENT** |  |  |  |  |  |  |  |
| FEV1 Pre-bronchodilator/ml | 14.43 (-3.29,32.16) P = 0.1073 | -1.33 (-13.5,10.87) P = 0.8251 | 13.87 (-9.06,36.80) P = 0.2180 | 11.52 (-6.69,29.73) P = 0.2073 | 0.53 (-25.9,26.92) P = 0.9679 | 10.89 (-15.3,37.09) P = 0.3962 | -21.4 (-57.0,14.14) P = 0.2216 |
| FEV1 Post-bronchodilator/ml | **20.25 ( 6.37,34.13) P = 0.0054\*I** | **19.63 ( 4.27,34.98) P = 0.0140\*I** | 20.50 (-0.61,41.60) P = 0.0562 | **16.46 ( 1.99,30.93) P = 0.0269\*I** | 0.53 (-21.7,22.73) P = 0.9618 | 24.12 (-8.40,56.64) P = 0.1375 | **-37.3 (-68.4,-6.17) P = 0.0214\*D** |
| FVC Pre-bronchodilator | 15.93 (-2.26,34.12) P = 0.0841 | 9.80 (-7.20,26.81) P = 0.2476 | 19.99 (-5.73,45.70) P = 0.1189 | 13.93 (-5.18,33.05) P = 0.1477 | -1.37 (-29.5,26.72) P = 0.9216 | 17.05 (-16.3,50.38) P = 0.2987 | -13.1 (-43.7,17.40) P = 0.3779 |
| FVC Post-bronchodilator/ml | **22.90 ( 3.08,42.71) P = 0.0247\*I** | **33.22 (11.0,55.44) P = 0.0048\*I** | 21.14 (-2.90,45.18) P = 0.0807 | **20.43 ( 0.12,40.73) P = 0.0486\*I** | 7.53 (-22.7,37.72) P = 0.6161 | **39.45 ( 2.49,76.41) P = 0.0376\*I** | **-33.6 (-60.8,-6.44) P = 0.0181\*D** |
| Change in FEV1 (%) Post-BD | 0.21 (-0.59, 1.00) P = 0.5974 | **1.06 ( 0.54, 1.58) P = 0.0002\*I** | 0.35 (-0.36, 1.06) P = 0.3090 | 0.16 (-0.67, 0.98) P = 0.7025 | -0.09 (-1.17, 0.98) P = 0.8645 | 0.73 (-0.60, 2.06) P = 0.2674 | -0.75 (-1.93, 0.43) P = 0.1982 |
| FEV1/FVC Ratio Pre-BD(%) | -0.01 (-0.49, 0.48) P = 0.9765 | -0.34 (-0.86, 0.18) P = 0.1948 | -0.13 (-0.52, 0.25) P = 0.4744 | -0.01 (-0.57, 0.54) P = 0.9651 | -0.08 (-0.68, 0.51) P = 0.7763 | -0.16 (-0.71, 0.39) P = 0.5464 | -0.38 (-1.42, 0.67) P = 0.4624 |
| FEV1/FVC Ratio Post-BD(%) | -0.08 (-0.45, 0.28) P = 0.6428 | -0.39 (-0.81, 0.04) P = 0.0748 | 0.08 (-0.18, 0.35) P = 0.5049 | -0.15 (-0.58, 0.28) P = 0.4829 | -0.43 (-1.06, 0.20) P = 0.1713 | -0.53 (-1.11, 0.06) P = 0.0761 | -0.31 (-1.29, 0.67) P = 0.5182 |
| Log(exhaled NO) | **-0.14 (-0.20,-0.07) P = 0.0001\*D** | **-0.08 (-0.12,-0.05) P < 0.0001\*D** | **-0.14 (-0.14,-0.14) P < 0.0001\*D** | **-0.13 (-0.19,-0.06) P = 0.0006\*D** | **-0.09 (-0.16,-0.01) P = 0.0267\*D** | **-0.11 (-0.16,-0.06) P = 0.0002\*D** | 0.01 (-0.07, 0.08) P = 0.8914 |

Table 1.6. CO Models

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Single** | **Joint-Bsp** | **Joint-PM2.5** | **Joint-PM10** | **Joint-NO2** | **Joint-O3** | **Joint-SO2** |
| **LIFETIME** |  |  |  |  |  |  |  |
| FEV1 Pre-bronchodilator/ml | 5.06 (-10.1,20.22) P = 0.4987 | Models unstable | 13.34 (-6.21,32.88) P = 0.1721 | 6.08 (-9.57,21.73) P = 0.4318 | **20.77 ( 4.49,37.05) P = 0.0143\*I** | 23.15 (-8.50,54.81) P = 0.1427 | 17.50 (-14.0,48.99) P = 0.2492 |
| FEV1 Post-bronchodilator/ml | -2.71 (-16.2,10.78) P = 0.6834 |  | 0.66 (-18.8,20.10) P = 0.9445 | -1.89 (-14.9,11.12) P = 0.7678 | 11.67 (-0.89,24.22) P = 0.0671 | 15.95 (-14.0,45.94) P = 0.2804 | 13.60 (-19.1,46.34) P = 0.3832 |
| FVC Pre-bronchodilator | -3.83 (-18.2,10.56) P = 0.5885 |  | 0.09 (-20.5,20.67) P = 0.9927 | -2.91 (-17.4,11.59) P = 0.6831 | 9.47 (-3.19,22.13) P = 0.1362 | -4.47 (-36.4,27.50) P = 0.7735 | -3.34 (-27.2,20.51) P = 0.7653 |
| FVC Post-bronchodilator/ml | -9.06 (-25.1, 7.00) P = 0.2565 |  | -8.13 (-31.8,15.51) P = 0.4853 | -7.54 (-22.1, 7.03) P = 0.2974 | 6.05 (-5.91,18.02) P = 0.3078 | 5.44 (-26.2,37.13) P = 0.7239 | -0.15 (-34.4,34.08) P = 0.9923 |
| Change in FEV1 (%) Post- BD | -0.36 (-0.95, 0.24) P = 0.2289 |  | -0.54 (-1.34, 0.26) P = 0.1747 | -0.37 (-0.90, 0.16) P = 0.1616 | **-0.45 (-0.87,-0.03) P = 0.0363\*D** | -0.20 (-0.76, 0.37) P = 0.4771 | -0.05 (-0.66, 0.56) P = 0.8611 |
| FEV1/FVC Ratio PreBD(%) | 0.30 (-0.22, 0.82) P = 0.2479 |  | 0.51 (-0.06, 1.08) P = 0.0762 | 0.30 (-0.22, 0.82) P = 0.2427 | 0.44 (-0.15, 1.03) P = 0.1395 | **1.19 ( 0.19, 2.19) P = 0.0224\*I** | 0.95 (-0.45, 2.35) P = 0.1645 |
| FEV1/FVC Ratio Post- BD(%) | 0.25 (-0.09, 0.59) P = 0.1411 |  | 0.28 (-0.19, 0.74) P = 0.2322 | 0.21 (-0.14, 0.56) P = 0.2270 | 0.25 (-0.16, 0.65) P = 0.2227 | 0.44 (-0.53, 1.41) P = 0.3559 | 0.52 (-0.93, 1.97) P = 0.4515 |
| Log(exhaled NO) | -0.03 (-0.08, 0.01) P = 0.1350 |  | -0.01 (-0.07, 0.05) P = 0.6670 | **-0.05 (-0.09,-0.01) P = 0.0272\*D** | **-0.08 (-0.12,-0.05) P < 0.0001\*D** | **-0.05 (-0.10,-0.01) P = 0.0249\*D** | 0.01 (-0.08, 0.10) P = 0.8044 |
| **RECENT** |  |  |  |  |  |  |  |
| FEV1 Pre-bronchodilator/ml | **21.33 ( 5.14,37.52) P = 0.0117\*I** | Models unstable | Models unstable | **24.07 ( 4.51,43.63) P = 0.0178\*I** | **29.07 (15.0,43.14) P = 0.0002\*I** | **25.84 ( 6.95,44.74) P = 0.0098\*I** | 25.99 (-11.5,63.51) P = 0.1555 |
| FEV1 Post-bronchodilator/ml | 8.77 (-12.5,30.06) P = 0.4049 |  |  | 12.74 (-8.34,33.83) P = 0.2248 | **17.19 ( 1.26,33.12) P = 0.0354\*I** | 14.23 (-5.96,34.42) P = 0.1569 | 19.93 (-12.0,51.88) P = 0.1971 |
| FVC Pre-bronchodilator | 7.04 (-12.0,26.03) P = 0.4531 |  |  | 9.88 (-11.8,31.51) P = 0.3558 | 14.23 (-2.32,30.77) P = 0.0889 | 6.26 (-12.9,25.40) P = 0.5026 | 17.53 (-12.9,47.93) P = 0.2307 |
| FVC Post-bronchodilator/ml | 5.31 (-21.3,31.89) P = 0.6844 |  |  | 11.07 (-12.9,35.08) P = 0.3512 | 13.88 (-6.47,34.23) P = 0.1727 | 14.08 (-8.26,36.42) P = 0.2035 | **30.40 ( 3.85,56.95) P = 0.0284\*I** |
| Change in FEV1 (%) Post-BD | -0.62 (-1.43, 0.18) P = 0.1234 |  |  | -0.56 (-1.18, 0.06) P = 0.0760 | **-0.60 (-1.19,-0.02) P = 0.0426\*D** | -0.56 (-1.15, 0.03) P = 0.0628 | -0.14 (-0.98, 0.69) P = 0.7085 |
| FEV1/FVC Ratio Pre-BD(%) | **0.63 ( 0.10, 1.17) P = 0.0217\*I** |  |  | **0.71 ( 0.06, 1.37) P = 0.0343\*I** | **0.69 ( 0.14, 1.24) P = 0.0165\*I** | **0.84 ( 0.16, 1.53) P = 0.0185\*I** | 0.43 (-1.02, 1.88) P = 0.5295 |
| FEV1/FVC Ratio Post-BD(%) | 0.11 (-0.40, 0.62) P = 0.6583 |  |  | 0.07 (-0.54, 0.67) P = 0.8179 | 0.14 (-0.38, 0.66) P = 0.5898 | -0.08 (-0.76, 0.61) P = 0.8169 | -0.27 (-1.65, 1.12) P = 0.6787 |
| Log(exhaled NO) | -0.01 (-0.09, 0.06) P = 0.7026 |  |  | -0.02 (-0.08, 0.04) P = 0.4775 | -0.05 (-0.12, 0.03) P = 0.2011 | -0.04 (-0.10, 0.01) P = 0.1283 | 0.00 (-0.09, 0.10) P = 0.9136 |

Table 1.7. SO2 Models

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Single** | **Joint-Bsp** | **Joint-PM2.5** | **Joint-PM10** | **Joint-NO2** | **Joint-O3** | **Joint-CO** |
| **LIFETIME** |  |  |  |  |  |  |  |
| FEV1 Pre-bronchodilator/ml | -0.76 (-7.93, 6.40) P = 0.8289 | -6.03 (-34.2,22.17) P = 0.6602 | -1.18 (-11.7, 9.37) P = 0.8202 | -0.06 (-7.13, 7.02) P = 0.9873 | -6.27 (-12.9, 0.36) P = 0.0627 | **-6.62 (-12.3,-0.96) P = 0.0236\*D** | 2.98 (-42.7,48.67) P = 0.8893 |
| FEV1 Post-bronchodilator/ml | -1.52 (-6.80, 3.76) P = 0.5600 | -3.33 (-32.0,25.29) P = 0.8107 | -4.56 (-13.3, 4.18) P = 0.2936 | -1.05 (-6.42, 4.32) P = 0.6918 | **-6.52 (-12.2,-0.89) P = 0.0249\*D** | **-6.19 (-11.3,-1.08) P = 0.0195\*D** | 14.20 (-38.6,66.96) P = 0.5685 |
| FVC Pre-bronchodilator | -3.03 (-12.0, 5.89) P = 0.4906 | -18.3 (-48.0,11.48) P = 0.2149 | -3.77 (-17.4, 9.90) P = 0.5755 | -2.71 (-11.6, 6.16) P = 0.5353 | **-8.92 (-16.0,-1.84) P = 0.0154\*D** | **-8.37 (-16.1,-0.65) P = 0.0347\*D** | -26.0 (-86.8,34.80) P = 0.3697 |
| FVC Post-bronchodilator/ml | -5.17 (-13.8, 3.47) P = 0.2294 | -25.6 (-58.1, 6.97) P = 0.1168 | -8.21 (-20.6, 4.21) P = 0.1859 | -4.72 (-13.4, 3.95) P = 0.2730 | **-10.4 (-17.0,-3.84) P = 0.0031\*D** | **-9.30 (-16.3,-2.32) P = 0.0110\*D** | -26.6 (-95.2,41.92) P = 0.4138 |
| Change in FEV1 (%) Post- BD | -0.06 (-0.24, 0.13) P = 0.5250 | 0.09 (-0.57, 0.74) P = 0.7873 | -0.12 (-0.33, 0.09) P = 0.2363 | -0.07 (-0.25, 0.10) P = 0.4006 | -0.01 (-0.23, 0.21) P = 0.9154 | 0.03 (-0.17, 0.23) P = 0.7657 | 0.39 (-0.87, 1.65) P = 0.5115 |
| FEV1/FVC Ratio PreBD(%) | 0.08 (-0.17, 0.33) P = 0.4970 | 0.43 (-0.63, 1.50) P = 0.4048 | 0.13 (-0.18, 0.43) P = 0.3982 | 0.10 (-0.15, 0.36) P = 0.4213 | 0.05 (-0.25, 0.36) P = 0.7253 | 0.04 (-0.24, 0.33) P = 0.7576 | 1.25 (-0.16, 2.66) P = 0.0772 |
| FEV1/FVC Ratio Post- BD(%) | 0.06 (-0.19, 0.30) P = 0.6331 | **0.88 ( 0.11, 1.64) P = 0.0264\*I** | 0.05 (-0.26, 0.35) P = 0.7488 | 0.05 (-0.20, 0.31) P = 0.6670 | 0.04 (-0.25, 0.34) P = 0.7723 | 0.03 (-0.25, 0.32) P = 0.8133 | **1.52 ( 0.14, 2.91) P = 0.0336\*I** |
| Log(exhaled NO) | **-0.02 (-0.03,-0.00) P = 0.0093\*D** | -0.02 (-0.07, 0.04) P = 0.4750 | -0.01 (-0.03, 0.02) P = 0.7112 | **-0.02 (-0.03,-0.01) P = 0.0002\*D** | -0.00 (-0.02, 0.01) P = 0.8700 | -0.00 (-0.01, 0.00) P = 0.3220 | -0.10 (-0.23, 0.03) P = 0.1003 |
| **RECENT** |  |  |  |  |  |  |  |
| FEV1 Pre-bronchodilator/ml | -2.79 (-13.2, 7.65) P = 0.5838 | -9.91 (-47.8,27.96) P = 0.5879 | -15.8 (-51.5,19.85) P = 0.3417 | -1.26 (-11.4, 8.87) P = 0.7981 | -15.4 (-39.2, 8.41) P = 0.1919 | **-24.9 (-48.1,-1.79) P = 0.0361\*D** | -4.99 (-47.9,37.92) P = 0.8028 |
| FEV1 Post-bronchodilator/ml | -4.13 (-12.2, 3.92) P = 0.2972 | -12.6 (-47.0,21.76) P = 0.4489 | -3.41 (-54.7,47.91) P = 0.8838 | -2.66 (-10.8, 5.50) P = 0.5038 | -13.8 (-43.4,15.93) P = 0.3444 | -20.8 (-54.1,12.45) P = 0.2050 | 20.08 (-35.7,75.82) P = 0.4446 |
| FVC Pre-bronchodilator | -5.70 (-16.7, 5.35) P = 0.2948 | -32.5 (-67.9, 2.79) P = 0.0687 | -15.1 (-40.6,10.38) P = 0.2125 | -4.72 (-15.8, 6.41) P = 0.3867 | **-26.8 (-50.8,-2.77) P = 0.0307\*D** | **-38.3 (-64.3,-12.4) P = 0.0061\*D** | -21.7 (-99.9,56.53) P = 0.5542 |
| FVC Post-bronchodilator/ml | -7.19 (-18.4, 4.06) P = 0.1973 | **-41.5 (-75.4,-7.62) P = 0.0193\*D** | 2.33 (-57.6,62.22) P = 0.9318 | -5.83 (-17.6, 5.92) P = 0.3133 | -28.8 (-63.6, 5.95) P = 0.0989 | -38.2 (-79.6, 3.18) P = 0.0682 | -6.98 (-93.6,79.64) P = 0.8623 |
| Change in FEV1 (%) Post-BD | -0.09 (-0.38, 0.20) P = 0.5397 | 0.02 (-0.97, 1.01) P = 0.9639 | 0.55 (-1.38, 2.48) P = 0.5340 | -0.09 (-0.38, 0.19) P = 0.5069 | 0.08 (-0.92, 1.09) P = 0.8674 | 0.25 (-0.85, 1.36) P = 0.6387 | 1.15 (-0.54, 2.84) P = 0.1615 |
| FEV1/FVC Ratio Pre-BD(%) | 0.10 (-0.21, 0.41) P = 0.5082 | 0.90 (-0.13, 1.94) P = 0.0822 | -0.49 (-2.14, 1.15) P = 0.5152 | 0.13 (-0.18, 0.44) P = 0.3870 | 0.24 (-0.77, 1.25) P = 0.6179 | 0.44 (-0.26, 1.15) P = 0.2027 | 0.60 (-0.47, 1.68) P = 0.2421 |
| FEV1/FVC Ratio Post-BD(%) | 0.03 (-0.29, 0.34) P = 0.8509 | **1.19 ( 0.36, 2.03) P = 0.0078\*I** | -0.27 (-1.01, 0.47) P = 0.4312 | 0.03 (-0.30, 0.37) P = 0.8384 | 0.59 (-0.09, 1.27) P = 0.0851 | **0.76 ( 0.25, 1.28) P = 0.0061\*I** | 1.22 (-0.29, 2.72) P = 0.1020 |
| Log(exhaled NO) | **-0.02 (-0.03,-0.00) P = 0.0116\*D** | **-0.06 (-0.10,-0.01) P = 0.0217\*D** | **0.11 ( 0.11, 0.11) P < 0.0001\*I** | **-0.02 (-0.04,-0.00) P = 0.0170\*D** | 0.03 (-0.03, 0.08) P = 0.3200 | 0.01 (-0.07, 0.09) P = 0.7631 | 0.01 (-0.13, 0.15) P = 0.8552 |

# Symptom Models

Table 2.1.Lifetime Symptoms

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **LIFETIME Bsp** | **Single** | **Joint-PM2.5** | **Joint-PM10** | **Joint-NO2** | **Joint-O3** | **Joint-CO** | **Joint-SO2** |
| Ever had wheezing | 0.99 ( 0.89, 1.10) P = 0.9124 | 1.00 ( 0.90, 1.11) P = 0.9514 | 1.01 ( 0.90, 1.13) P = 0.8544 | 0.99 ( 0.89, 1.10) P = 0.8624 | 1.00 ( 0.89, 1.13) P = 0.9874 | 0.98 ( 0.88, 1.10) P = 0.7817 | 0.90 ( 0.75, 1.08) P = 0.2629 |
| Ever had Asthma | 1.04 ( 0.95, 1.14) P = 0.4204 | 1.05 ( 0.95, 1.15) P = 0.3315 | 1.05 ( 0.96, 1.15) P = 0.3057 | 1.03 ( 0.95, 1.13) P = 0.4542 | 1.03 ( 0.94, 1.13) P = 0.5601 | 1.08 ( 0.98, 1.18) P = 0.1229 | 0.95 ( 0.83, 1.09) P = 0.4339 |
| Ever had medication for asthma/wheezing | 1.00 ( 0.88, 1.15) P = 0.9555 | 1.01 ( 0.88, 1.15) P = 0.8976 | 1.02 ( 0.89, 1.17) P = 0.7642 | 1.00 ( 0.87, 1.14) P = 0.9713 | 0.99 ( 0.85, 1.14) P = 0.8663 | 1.03 ( 0.89, 1.19) P = 0.6831 | 0.90 ( 0.77, 1.05) P = 0.1646 |
| Ever had rhinitis | 1.02 ( 0.90, 1.15) P = 0.7936 | 1.01 ( 0.90, 1.13) P = 0.8521 | 1.01 ( 0.89, 1.14) P = 0.9074 | 1.02 ( 0.89, 1.16) P = 0.8003 | 1.04 ( 0.90, 1.20) P = 0.6051 | 1.00 ( 0.90, 1.11) P = 0.9951 | 0.88 ( 0.71, 1.10) P = 0.2737 |
| **LIFETIME PM2.5** | **Single** | **Joint-Bsp** | **Joint-PM10** | **Joint-NO2** | **Joint-O3** | **Joint-CO** | **Joint-SO2** |
| Ever had wheezing | 1.05 ( 0.90, 1.23) P = 0.5441 | 1.04 ( 0.84, 1.30) P = 0.7031 | 1.07 ( 0.91, 1.25) P = 0.4382 | 1.05 ( 0.90, 1.21) P = 0.5373 | 1.05 ( 0.88, 1.25) P = 0.5939 | 1.22 ( 0.98, 1.52) P = 0.0693 | 1.03 ( 0.71, 1.47) P = 0.8934 |
| Ever had Asthma | 1.00 ( 0.87, 1.16) P = 0.9503 | 0.92 ( 0.71, 1.18) P = 0.5061 | 1.00 ( 0.87, 1.16) P = 0.9596 | 1.00 ( 0.87, 1.15) P = 0.9728 | 1.01 ( 0.84, 1.21) P = 0.9188 | 1.14 ( 0.95, 1.38) P = 0.1674 | 1.13 ( 0.84, 1.52) P = 0.4338 |
| Ever had medication for asthma/wheezing | 1.05 ( 0.89, 1.24) P = 0.5360 | 0.99 ( 0.75, 1.32) P = 0.9584 | 1.06 ( 0.89, 1.26) P = 0.5308 | 1.05 ( 0.90, 1.23) P = 0.5196 | 1.01 ( 0.83, 1.23) P = 0.9124 | 1.19 ( 0.91, 1.56) P = 0.1992 | 1.19 ( 0.85, 1.65) P = 0.3052 |
| Ever had rhinitis | 1.09 ( 0.90, 1.33) P = 0.3664 | 1.18 ( 0.92, 1.53) P = 0.1980 | 1.12 ( 0.92, 1.37) P = 0.2418 | 1.09 ( 0.89, 1.34) P = 0.3909 | 1.17 ( 0.98, 1.41) P = 0.0864 | 1.19 ( 0.92, 1.53) P = 0.1854 | 0.95 ( 0.64, 1.42) P = 0.8006 |
| **LIFETIME PM10** | **Single** | **Joint-Bsp** | **Joint-PM2.5** | **Joint-NO2** | **Joint-O3** | **Joint-CO** | **Joint-SO2** |
| Ever had wheezing | 0.92 ( 0.77, 1.10) P = 0.3530 | 0.86 ( 0.68, 1.07) P = 0.1808 | 0.94 ( 0.78, 1.13) P = 0.4975 | 0.85 ( 0.70, 1.01) P = 0.0705 | 0.87 ( 0.72, 1.05) P = 0.1424 | 0.82 ( 0.63, 1.05) P = 0.1161 | 0.89 ( 0.71, 1.11) P = 0.2967 |
| Ever had Asthma | 0.95 ( 0.81, 1.12) P = 0.5451 | 0.91 ( 0.73, 1.13) P = 0.3916 | 0.98 ( 0.83, 1.15) P = 0.7771 | 0.88 ( 0.74, 1.05) P = 0.1443 | 0.91 ( 0.77, 1.08) P = 0.2956 | 0.93 ( 0.72, 1.19) P = 0.5533 | 0.92 ( 0.76, 1.11) P = 0.3819 |
| Ever had medication for asthma/wheezing | 0.95 ( 0.78, 1.15) P = 0.5862 | 0.88 ( 0.70, 1.11) P = 0.2892 | 0.97 ( 0.80, 1.17) P = 0.7400 | 0.88 ( 0.71, 1.09) P = 0.2434 | 0.90 ( 0.72, 1.13) P = 0.3791 | 0.86 ( 0.65, 1.14) P = 0.3049 | 0.90 ( 0.73, 1.10) P = 0.3002 |
| Ever had rhinitis | 0.96 ( 0.79, 1.18) P = 0.7266 | 1.05 ( 0.82, 1.33) P = 0.7053 | 0.95 ( 0.78, 1.15) P = 0.5833 | 1.00 ( 0.80, 1.23) P = 0.9655 | 1.08 ( 0.86, 1.36) P = 0.5065 | 1.01 ( 0.81, 1.25) P = 0.9566 | 0.81 ( 0.63, 1.05) P = 0.1076 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **LIFETIME NO2** | **Single** | **Bsp** | **PM2.5** | **PM10** | **O3** | **CO** | **SO2** |
| Ever had wheezing | 1.09 ( 0.97, 1.22) P = 0.1370 | 1.05 ( 0.88, 1.26) P = 0.5911 | **1.15 ( 1.01, 1.31) P = 0.0335I\*** | **1.14 ( 1.06, 1.24) P = 0.0009I\*** | 1.05 ( 0.89, 1.24) P = 0.5352 | 1.17 ( 0.94, 1.46) P = 0.1520 | 1.14 ( 0.93, 1.39) P = 0.2176 |
| Ever had Asthma | 1.09 ( 0.99, 1.21) P = 0.0893 | 1.06 ( 0.91, 1.24) P = 0.4419 | 1.14 ( 1.01, 1.28) P = 0.0285I\* | **1.13 ( 1.05, 1.23) P = 0.0021I\*** | 0.93 ( 0.80, 1.08) P = 0.3305 | **1.27 ( 1.04, 1.56) P = 0.0215I\*** | 0.97 ( 0.81, 1.17) P = 0.7573 |
| Ever had medication for asthma/wheezing | 1.08 ( 0.96, 1.22) P = 0.2090 | 1.09 ( 0.91, 1.32) P = 0.3430 | 1.13 ( 0.98, 1.31) P = 0.0972 | **1.14 ( 1.04, 1.25) P = 0.0064I\*** | 1.10 ( 0.92, 1.32) P = 0.2862 | 1.26 ( 0.99, 1.60) P = 0.0579 | 1.04 ( 0.82, 1.32) P = 0.7299 |
| Ever had rhinitis | 0.96 ( 0.81, 1.13) P = 0.6035 | 1.00 ( 0.79, 1.26) P = 0.9736 | 0.94 ( 0.79, 1.13) P = 0.5312 | 0.99 ( 0.84, 1.18) P = 0.9340 | 1.11 ( 0.89, 1.39) P = 0.3451 | 1.05 ( 0.78, 1.41) P = 0.7516 | **0.79 ( 0.63, 0.98) P = 0.0358D\*** |
| **LIFETIME O3** | **Single** | **Bsp** | **PM2.5** | **PM10** | **NO2** | **CO** | **SO2** |
| Ever had wheezing | **0.92 ( 0.84, 1.00) P = 0.0470D\*** | **0.88 ( 0.78, 0.98) P = 0.0221D\*** | **0.91 ( 0.83, 0.99) P = 0.0369D\*** | **0.89 ( 0.81, 0.99) P = 0.0254D\*** | 0.94 ( 0.83, 1.07) P = 0.3667 | 0.95 ( 0.78, 1.15) P = 0.5905 | 0.89 ( 0.79, 1.01) P = 0.0720 |
| Ever had Asthma | **0.91 ( 0.84, 0.99) P = 0.0219D\*** | **0.83 ( 0.76, 0.91) P < 0.0001D\*** | **0.91 ( 0.83, 0.99) P = 0.0295D\*** | **0.89 ( 0.81, 0.97) P = 0.0123D\*** | **0.88 ( 0.78, 0.98) P = 0.0259D\*** | **0.81 ( 0.66, 0.99) P = 0.0362D\*** | 0.95 ( 0.85, 1.05) P = 0.3146 |
| Ever had medication for asthma/wheezing | 0.94 ( 0.88, 1.02) P = 0.1395 | **0.88 ( 0.82, 0.95) P = 0.0014D\*** | 0.94 ( 0.87, 1.02) P = 0.1438 | 0.93 ( 0.84, 1.02) P = 0.1347 | 0.99 ( 0.88, 1.11) P = 0.9043 | 0.93 ( 0.76, 1.14) P = 0.4780 | 0.95 ( 0.81, 1.11) P = 0.4964 |
| Ever had rhinitis | 1.01 ( 0.90, 1.14) P = 0.8571 | 0.97 ( 0.83, 1.14) P = 0.6978 | 0.98 ( 0.88, 1.09) P = 0.6986 | 1.06 ( 0.92, 1.22) P = 0.4550 | 1.07 ( 0.92, 1.25) P = 0.4034 | 0.89 ( 0.74, 1.07) P = 0.2125 | 1.07 ( 0.93, 1.24) P = 0.3543 |
| **LIFETIME CO** | **Single** | **Bsp** | **PM2.5** | **PM10** | **NO2** | **O3** | **SO2** |
| Ever had wheezing | 0.98 ( 0.85, 1.12) P = 0.7318 | 0.98 ( 0.84, 1.14) P = 0.7808 | 1.04 ( 0.92, 1.17) P = 0.5699 | 0.99 ( 0.87, 1.12) P = 0.8375 | 0.92 ( 0.80, 1.07) P = 0.2994 | 0.97 ( 0.79, 1.20) P = 0.7990 | 0.93 ( 0.75, 1.14) P = 0.4769 |
| Ever had Asthma | 1.01 ( 0.88, 1.16) P = 0.8671 | 0.99 ( 0.85, 1.15) P = 0.8951 | 1.08 ( 0.95, 1.23) P = 0.2424 | 1.01 ( 0.89, 1.16) P = 0.8470 | 0.93 ( 0.79, 1.10) P = 0.3795 | 0.93 ( 0.76, 1.15) P = 0.5156 | 0.99 ( 0.81, 1.20) P = 0.9009 |
| Ever had medication for asthma/wheezing | 0.94 ( 0.83, 1.08) P = 0.3796 | 0.93 ( 0.80, 1.09) P = 0.3788 | 0.99 ( 0.87, 1.13) P = 0.9198 | 0.95 ( 0.84, 1.08) P = 0.4121 | 0.87 ( 0.74, 1.02) P = 0.0814 | 0.95 ( 0.75, 1.19) P = 0.6410 | 0.98 ( 0.81, 1.20) P = 0.8653 |
| Ever had rhinitis | 0.95 ( 0.85, 1.06) P = 0.3979 | 0.97 ( 0.87, 1.09) P = 0.6162 | 0.97 ( 0.84, 1.14) P = 0.7386 | 0.95 ( 0.85, 1.06) P = 0.3916 | 0.94 ( 0.82, 1.08) P = 0.3664 | 0.93 ( 0.77, 1.12) P = 0.4257 | 0.88 ( 0.65, 1.18) P = 0.3833 |
| **LIFETIME SO2** | **Single** | **Bsp** | **PM2.5** | **PM10** | **NO2** | **O3** | **CO** |
| Ever had wheezing | 0.98 ( 0.93, 1.02) P = 0.3212 | 0.87 ( 0.66, 1.15) P = 0.3244 | 0.97 ( 0.91, 1.03) P = 0.3149 | 0.98 ( 0.93, 1.03) P = 0.4450 | 0.96 ( 0.90, 1.03) P = 0.2574 | 0.97 ( 0.91, 1.03) P = 0.3232 | **0.61 ( 0.48, 0.77) P < 0.0001D\*** |
| Ever had Asthma | 0.97 ( 0.92, 1.02) P = 0.1969 | 0.86 ( 0.67, 1.10) P = 0.2246 | 0.94 ( 0.88, 1.01) P = 0.1100 | 0.97 ( 0.92, 1.02) P = 0.2611 | **0.94 ( 0.89, 0.99) P = 0.0259D\*** | 0.95 ( 0.90, 1.00) P = 0.0746 | **0.61 ( 0.48, 0.78) P < 0.0001D\*** |
| Ever had medication for asthma/wheezing | 1.00 ( 0.96, 1.04) P = 0.8724 | 0.95 ( 0.74, 1.21) P = 0.6655 | 0.96 ( 0.90, 1.03) P = 0.2428 | 1.00 ( 0.96, 1.05) P = 0.9119 | 0.98 ( 0.93, 1.03) P = 0.4717 | 0.98 ( 0.93, 1.03) P = 0.4663 | **0.67 ( 0.57, 0.79) P < 0.0001D\*** |
| Ever had rhinitis | 0.98 ( 0.93, 1.04) P = 0.4848 | 0.82 ( 0.66, 1.01) P = 0.0620 | 1.00 ( 0.92, 1.07) P = 0.9066 | 0.99 ( 0.94, 1.04) P = 0.6838 | 0.94 ( 0.88, 1.02) P = 0.1467 | 0.97 ( 0.90, 1.04) P = 0.3754 | 0.78 ( 0.54, 1.14) P = 0.2016 |

Table 2.2. Bsp Models

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **LIFETIME Bsp** | **Single** | **Joint-PM2.5** | **Joint- M10** | **Joint-NO2** | **Joint-O3** | **Joint-CO** | **Joint-SO2** |
| Recent wheeze | 1.02 ( 0.92, 1.14) P = 0.6771 | 1.04 ( 0.93, 1.16) P = 0.5259 | 1.06 ( 0.94, 1.19) P = 0.3602 | 1.02 ( 0.91, 1.14) P = 0.7316 | 1.00 ( 0.89, 1.12) P = 0.9875 | 1.03 ( 0.94, 1.14) P = 0.5281 | 0.92 ( 0.74, 1.14) P = 0.4378 |
| Recent wheeze  after exercise | 1.10 ( 0.96, 1.26) P = 0.1779 | 1.10 ( 0.97, 1.25) P = 0.1473 | 1.11 ( 0.96, 1.29) P = 0.1660 | 1.09 ( 0.95, 1.24) P = 0.2157 | 1.07 ( 0.93, 1.23) P = 0.3642 | 1.11 ( 0.98, 1.27) P = 0.1097 | **0.84 ( 0.70, 1.00) P = 0.0458D\*** |
| Current asthma | 1.04 ( 0.92, 1.17) P = 0.5705 | 1.06 ( 0.92, 1.21) P = 0.4446 | 1.06 ( 0.93, 1.21) P = 0.3607 | 1.03 ( 0.91, 1.16) P = 0.6462 | 1.02 ( 0.90, 1.16) P = 0.7274 | 1.11 ( 1.00, 1.23) P = 0.0524 | 0.88 ( 0.70, 1.10) P = 0.2596 |
| Recent visit to GP/ED/ hospital | 0.99 ( 0.91, 1.08) P = 0.8631 | 1.00 ( 0.92, 1.09) P = 0.9929 | 1.03 ( 0.93, 1.15) P = 0.5686 | 0.98 ( 0.90, 1.07) P = 0.6151 | 0.98 ( 0.90, 1.06) P = 0.5660 | 1.04 ( 0.97, 1.13) P = 0.2538 | 0.90 ( 0.74, 1.10) P = 0.3025 |
| Recent use of beta-agonist (short-term) | 1.04 ( 0.93, 1.15) P = 0.4976 | 1.05 ( 0.94, 1.18) P = 0.3934 | 1.06 ( 0.95, 1.20) P = 0.3054 | 1.03 ( 0.93, 1.15) P = 0.5291 | 1.02 ( 0.91, 1.15) P = 0.7266 | 1.08 ( 0.97, 1.19) P = 0.1496 | 0.88 ( 0.73, 1.07) P = 0.2038 |
| Recent cough | 0.96 ( 0.85, 1.09) P = 0.5232 | 0.98 ( 0.87, 1.11) P = 0.7600 | 1.00 ( 0.89, 1.13) P = 0.9993 | 0.96 ( 0.85, 1.08) P = 0.5222 | 0.92 ( 0.82, 1.02) P = 0.1270 | 0.98 ( 0.86, 1.11) P = 0.7069 | 1.00 ( 0.80, 1.24) P = 0.9833 |
| Recent rhinitis | 1.03 ( 0.91, 1.18) P = 0.6102 | 1.03 ( 0.91, 1.15) P = 0.6645 | 1.02 ( 0.90, 1.16) P = 0.7631 | 1.03 ( 0.90, 1.18) P = 0.6564 | 1.05 ( 0.91, 1.22) P = 0.4905 | 1.01 ( 0.91, 1.13) P = 0.8436 | 0.90 ( 0.70, 1.15) P = 0.3990 |
| Recent itchy rash for 6 months | 1.01 ( 0.89, 1.16) P = 0.8435 | 1.01 ( 0.88, 1.15) P = 0.8956 | 0.99 ( 0.88, 1.12) P = 0.8823 | 1.00 ( 0.88, 1.14) P = 0.9903 | 0.99 ( 0.86, 1.14) P = 0.8844 | 0.98 ( 0.86, 1.11) P = 0.7107 | 0.90 ( 0.79, 1.02) P = 0.0973 |
| **RECENT Bsp** |  |  |  |  |  |  |  |
| Recent wheeze | 1.18 ( 0.95, 1.47) P = 0.1344 | 1.57 ( 0.90, 2.75) P = 0.1141 | 1.46 ( 1.17, 1.83) P = 0.0009I\* | 1.14 ( 0.94, 1.38) P = 0.1875 | 1.19 ( 0.96, 1.47) P = 0.1187 | 1.44 ( 1.16, 1.79) P = 0.0009I\* | 1.28 ( 1.05, 1.55) P = 0.0123I\* |
| Recent wheeze  after exercise | **1.45 ( 1.10, 1.91) P = 0.0089I\*** | **2.35 ( 1.37, 4.05) P = 0.0019I\*** | **1.48 ( 1.05, 2.09) P = 0.0265I\*** | **1.37 ( 1.10, 1.71) P = 0.0045I\*** | **1.51 ( 1.16, 1.97) P = 0.0025I\*** | **1.95 ( 1.45, 2.61) P =<= 0.0001I\*** | 1.22 ( 0.92, 1.63) P = 0.1615 |
| Current asthma | 1.28 ( 0.97, 1.71) P = 0.0839 | 1.85 ( 0.92, 3.72) P = 0.0826 | **1.46 ( 1.04, 2.06) P = 0.0291I\*** | 1.24 ( 0.98, 1.57) P = 0.0783 | **1.38 ( 1.06, 1.79) P = 0.0172I\*** | **1.83 ( 1.43, 2.34) P =<= 0.0001I\*** | 1.21 ( 0.87, 1.69) P = 0.2512 |
| Recent visit to GP/ED/ hospital | 1.13 ( 0.85, 1.50) P = 0.4032 | 1.13 ( 0.68, 1.89) P = 0.6342 | **1.57 ( 1.04, 2.39) P = 0.0332I\*** | 1.07 ( 0.82, 1.40) P = 0.6201 | 1.14 ( 0.85, 1.53) P = 0.3793 | **1.53 ( 1.11, 2.12) P = 0.0099I\*** | **1.50 ( 1.02, 2.18) P = 0.0367I\*** |
| Recent use of beta-agonist (short-term) | 1.11 ( 0.89, 1.38) P = 0.3541 | 1.38 ( 0.74, 2.56) P = 0.3079 | 1.21 ( 0.95, 1.54) P = 0.1249 | 1.08 ( 0.87, 1.33) P = 0.4874 | 1.11 ( 0.91, 1.36) P = 0.3111 | 1.49 ( 1.19, 1.87) P = 0.0005I\* | 1.02 ( 0.87, 1.20) P = 0.8055 |
| Recent cough | 0.88 ( 0.69, 1.12) P = 0.3010 | 0.56 ( 0.35, 0.89) P = 0.0133D\* | 1.24 ( 0.99, 1.55) P = 0.0624 | 0.87 ( 0.69, 1.11) P = 0.2706 | **0.76 ( 0.61, 0.94) P = 0.0098D\*** | 1.01 ( 0.74, 1.39) P = 0.9462 | 1.21 ( 0.92, 1.59) P = 0.1733 |
| Recent rhinitis | 1.08 ( 0.85, 1.36) P = 0.5289 | 0.66 ( 0.44, 0.98) P = 0.0411D\* | 1.11 ( 0.87, 1.40) P = 0.3996 | 1.08 ( 0.85, 1.39) P = 0.5244 | 1.09 ( 0.85, 1.40) P = 0.4806 | 1.13 ( 0.95, 1.34) P = 0.1710 | 1.03 ( 0.76, 1.39) P = 0.8494 |
| Recent itchy rash for 6 months | 1.17 ( 0.87, 1.58) P = 0.3061 | 1.91 ( 0.92, 4.00) P = 0.0838 | 1.21 ( 0.88, 1.66) P = 0.2322 | 1.17 ( 0.88, 1.54) P = 0.2850 | 1.10 ( 0.83, 1.47) P = 0.4957 | 1.03 ( 0.76, 1.40) P = 0.8386 | 1.46 ( 0.92, 2.31) P = 0.1098 |

Table 2.3. PM2.5 Models

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **LIFETIME PM2.5** | **Single** | **Joint-Bsp** | **Joint-PM10** | **Joint-NO2** | **Joint-O3** | **Joint-CO** | **Joint-SO2** |
| Recent wheeze | 0.94 ( 0.78, 1.13) P = 0.5064 | 0.90 ( 0.68, 1.21) P = 0.4930 | 0.91 ( 0.75, 1.11) P = 0.3635 | 0.93 ( 0.78, 1.10) P = 0.3819 | 0.90 ( 0.72, 1.12) P = 0.3452 | 1.09 ( 0.86, 1.38) P = 0.4618 | 0.96 ( 0.70, 1.33) P = 0.8127 |
| Recent wheeze  after exercise | 0.99 ( 0.79, 1.24) P = 0.9435 | 1.12 ( 0.79, 1.57) P = 0.5317 | 0.96 ( 0.77, 1.20) P = 0.7436 | 1.00 ( 0.81, 1.24) P = 0.9981 | 1.07 ( 0.81, 1.39) P = 0.6424 | 1.30 ( 0.95, 1.76) P = 0.0996 | 0.94 ( 0.67, 1.33) P = 0.7445 |
| Current asthma | 0.92 ( 0.74, 1.14) P = 0.4360 | 0.79 ( 0.56, 1.12) P = 0.1863 | 0.89 ( 0.71, 1.10) P = 0.2860 | 0.92 ( 0.75, 1.12) P = 0.3849 | 0.90 ( 0.69, 1.19) P = 0.4710 | 1.09 ( 0.85, 1.40) P = 0.4951 | 0.96 ( 0.70, 1.33) P = 0.8268 |
| Recent visit to GP/ED/ hospital | 0.96 ( 0.80, 1.16) P = 0.6898 | 0.96 ( 0.75, 1.22) P = 0.7404 | 0.93 ( 0.74, 1.17) P = 0.5235 | 0.97 ( 0.81, 1.16) P = 0.7371 | 0.90 ( 0.74, 1.10) P = 0.3209 | 1.08 ( 0.80, 1.47) P = 0.6194 | 1.29 ( 0.86, 1.93) P = 0.2147 |
| Recent use of beta-agonist (short-term) | 0.92 ( 0.78, 1.09) P = 0.3245 | 0.85 ( 0.64, 1.11) P = 0.2344 | 0.89 ( 0.75, 1.06) P = 0.1816 | 0.93 ( 0.79, 1.09) P = 0.3491 | 0.89 ( 0.72, 1.10) P = 0.2631 | 1.11 ( 0.87, 1.41) P = 0.3901 | 0.89 ( 0.67, 1.17) P = 0.3988 |
| Recent cough | 0.95 ( 0.78, 1.16) P = 0.6197 | **0.74 ( 0.56, 0.97) P = 0.0266D\*** | 1.04 ( 0.87, 1.24) P = 0.6855 | 0.94 ( 0.77, 1.15) P = 0.5440 | **0.75 ( 0.60, 0.93) P = 0.0075D\*** | 0.93 ( 0.67, 1.31) P = 0.6919 | 1.12 ( 0.84, 1.49) P = 0.4378 |
| Recent rhinitis | 1.13 ( 0.93, 1.37) P = 0.2154 | 1.22 ( 0.93, 1.61) P = 0.1553 | 1.17 ( 0.97, 1.43) P = 0.1029 | 1.14 ( 0.93, 1.39) P = 0.2167 | **1.26 ( 1.04, 1.53) P = 0.0194I\*** | 1.23 ( 0.95, 1.58) P = 0.1191 | 0.98 ( 0.65, 1.47) P = 0.9248 |
| Recent itchy rash for 6 months | 1.03 ( 0.83, 1.29) P = 0.7648 | 1.07 ( 0.76, 1.52) P = 0.6945 | 1.12 ( 0.92, 1.36) P = 0.2640 | 1.05 ( 0.83, 1.31) P = 0.7054 | 1.11 ( 0.81, 1.51) P = 0.5271 | 0.93 ( 0.73, 1.20) P = 0.5877 | 1.48 ( 0.99, 2.19) P = 0.0534 |
| **RECENT PM2.5** |  |  |  |  |  |  |  |
| Recent wheeze | 0.96 ( 0.70, 1.31) P = 0.7881 | 0.88 ( 0.65, 1.18) P = 0.3840 | 0.95 ( 0.70, 1.30) P = 0.7448 | 0.93 ( 0.69, 1.27) P = 0.6645 | 0.90 ( 0.64, 1.26) P = 0.5458 | 0.80 ( 0.54, 1.17) P = 0.2454 | 0.71 ( 0.43, 1.16) P = 0.1709 |
| Recent wheeze  after exercise | 0.97 ( 0.63, 1.49) P = 0.8881 | 0.97 ( 0.68, 1.39) P = 0.8847 | 0.88 ( 0.59, 1.31) P = 0.5404 | 0.88 ( 0.63, 1.22) P = 0.4373 | 0.87 ( 0.62, 1.22) P = 0.4045 | 0.77 ( 0.50, 1.18) P = 0.2286 | **0.57 ( 0.35, 0.91) P = 0.0177D\*** |
| Current asthma | 1.04 ( 0.75, 1.45) P = 0.8245 | 0.96 ( 0.65, 1.43) P = 0.8493 | 0.99 ( 0.74, 1.32) P = 0.9256 | 0.99 ( 0.75, 1.29) P = 0.9241 | 0.91 ( 0.64, 1.28) P = 0.5788 | **0.65 ( 0.55, 0.76) P < 0.0001D\*** | 0.83 ( 0.55, 1.25) P = 0.3690 |
| Recent visit to GP/ED/ hospital | 1.00 ( 0.77, 1.28) P = 0.9724 | 0.97 ( 0.71, 1.33) P = 0.8433 | 0.95 ( 0.74, 1.23) P = 0.6994 | 0.99 ( 0.77, 1.28) P = 0.9676 | 1.03 ( 0.77, 1.36) P = 0.8526 | 0.87 ( 0.60, 1.26) P = 0.4646 | 0.71 ( 0.45, 1.11) P = 0.1335 |
| Recent use of beta-agonist (short-term) | 0.96 ( 0.73, 1.26) P = 0.7901 | 0.87 ( 0.62, 1.21) P = 0.4099 | 0.94 ( 0.72, 1.23) P = 0.6612 | 0.96 ( 0.74, 1.25) P = 0.7902 | 0.92 ( 0.66, 1.27) P = 0.6086 | **0.74 ( 0.59, 0.94) P = 0.0125D\*** | 0.84 ( 0.53, 1.33) P = 0.4524 |
| Recent cough | 0.83 ( 0.59, 1.18) P = 0.3068 | **0.71 ( 0.57, 0.88) P = 0.0016D\*** | 0.93 ( 0.68, 1.26) P = 0.6203 | 0.87 ( 0.63, 1.19) P = 0.3848 | **0.72 ( 0.57, 0.91) P = 0.0066D\*** | **0.69 ( 0.50, 0.94) P = 0.0204D\*** | 1.02 ( 0.68, 1.53) P = 0.9135 |
| Recent rhinitis | 1.09 ( 0.74, 1.60) P = 0.6739 | 1.41 ( 1.10, 1.81) P = 0.0068I\* | 1.29 ( 0.87, 1.90) P = 0.1991 | 1.09 ( 0.72, 1.64) P = 0.6827 | 1.13 ( 0.82, 1.57) P = 0.4522 | 1.13 ( 0.67, 1.91) P = 0.6413 | 0.80 ( 0.38, 1.67) P = 0.5552 |
| Recent itchy rash for 6 months | 0.82 ( 0.62, 1.10) P = 0.1850 | 0.73 ( 0.50, 1.08) P = 0.1165 | 0.75 ( 0.54, 1.04) P = 0.0866 | 0.74 ( 0.51, 1.06) P = 0.1024 | 0.78 ( 0.53, 1.13) P = 0.1867 | **0.47 ( 0.31, 0.71) P = 0.0003D\*** | 0.65 ( 0.40, 1.07) P = 0.0910 |

Table 2.4. PM10 Models

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **LIFETIME PM10** | **Single** | | | **Joint-Bsp** | | **Joint-PM2.5** | | **Joint-NO2** | | **Joint-O3** | | **Joint-CO** | | **Joint-SO2** |
| Recent wheeze | | | 0.96 ( 0.78, 1.17) P = 0.6544 | 0.77 ( 0.59, 1.01) P = 0.0630 | | 1.00 ( 0.82, 1.23) P = 0.9863 | | **0.83 ( 0.69, 1.00) P = 0.0451D\*** | | 0.87 ( 0.73, 1.04) P = 0.1152 | | 0.84 ( 0.67, 1.06) P = 0.1512 | | 0.96 ( 0.78, 1.17) P = 0.6630 | | |
| Recent wheeze  after exercise | | | 1.04 ( 0.82, 1.32) P = 0.7477 | 0.93 ( 0.67, 1.29) P = 0.6511 | | 1.07 ( 0.85, 1.36) P = 0.5518 | | **0.88 ( 0.69, 1.12) P = 0.2916** | | 0.97 ( 0.79, 1.20) P = 0.7929 | | 0.97 ( 0.69, 1.36) P = 0.8498 | | 0.99 ( 0.76, 1.29) P = 0.9300 | | |
| Current asthma | | | 0.97 ( 0.79, 1.18) P = 0.7531 | 0.81 ( 0.60, 1.10) P = 0.1821 | | 1.02 ( 0.85, 1.23) P = 0.8276 | | **0.81 ( 0.66, 0.98) P = 0.0301D\*** | | 0.84 ( 0.70, 1.01) P = 0.0583 | | 0.90 ( 0.70, 1.16) P = 0.4291 | | 1.00 ( 0.81, 1.23) P = 0.9948 | | |
| Recent visit to GP/ED/ hospital | | | 0.86 ( 0.66, 1.13) P = 0.2948 | 0.79 ( 0.56, 1.11) P = 0.1786 | | 0.91 ( 0.67, 1.24) P = 0.5498 | | **0.74 ( 0.56, 0.97) P = 0.0287D\*** | | 0.84 ( 0.62, 1.13) P = 0.2398 | | **0.67 ( 0.49, 0.91) P = 0.0113D\*** | | 0.79 ( 0.57, 1.10) P = 0.1701 | | |
| Recent use of beta-agonist (short-term) | | | 0.96 ( 0.81, 1.14) P = 0.6174 | 0.84 ( 0.67, 1.05) P = 0.1249 | | 1.01 ( 0.86, 1.19) P = 0.8682 | | 0.87 ( 0.74, 1.02) P = 0.0768 | | 0.91 ( 0.76, 1.08) P = 0.2669 | | 0.93 ( 0.77, 1.12) P = 0.4397 | | 0.99 ( 0.84, 1.16) P = 0.8757 | | |
| Recent cough | | | **0.75 ( 0.60, 0.93) P = 0.0080D\*** | **0.69 ( 0.54, 0.90) P = 0.0052D\*** | | **0.73 ( 0.59, 0.90) P = 0.0036D\*** | | **0.70 ( 0.56, 0.88) P = 0.0018D\*** | | **0.70 ( 0.57, 0.87) P = 0.0012D\*** | | **0.64 ( 0.49, 0.85) P = 0.0015D\*** | | **0.78 ( 0.63, 0.95) P = 0.0145D\*** | | |
| Recent rhinitis | | | 0.97 ( 0.79, 1.20) P = 0.7900 | 1.06 ( 0.81, 1.38) P = 0.6636 | | 0.94 ( 0.78, 1.13) P = 0.5184 | | 1.00 ( 0.80, 1.25) P = 0.9896 | | 1.09 ( 0.86, 1.38) P = 0.4584 | | 1.01 ( 0.80, 1.27) P = 0.9518 | | **0.79 ( 0.63, 1.00) P = 0.0490D\*** | | |
| Recent itchy rash for 6 months | | | 0.98 ( 0.80, 1.20) P = 0.8302 | 1.05 ( 0.80, 1.38) P = 0.7201 | | 0.95 ( 0.79, 1.15) P = 0.6177 | | 1.01 ( 0.81, 1.27) P = 0.9186 | | 1.05 ( 0.84, 1.29) P = 0.6831 | | 1.01 ( 0.78, 1.29) P = 0.9626 | | 0.98 ( 0.74, 1.30) P = 0.8877 | | |
| **RECENT PM10** | | |  |  | |  | |  | |  | |  | |  | | |
| Recent wheeze | | | 1.00 ( 0.84, 1.19) P = 0.9972 | **0.76 ( 0.61, 0.96) P = 0.0216D\*** | | 1.02 ( 0.70, 1.49) P = 0.9205 | | 0.94 ( 0.80, 1.11) P = 0.4901 | | 0.97 ( 0.82, 1.15) P = 0.7396 | | 1.03 ( 0.85, 1.24) P = 0.7848 | | 0.80 ( 0.62, 1.03) P = 0.0794 | | |
| Recent wheeze  after exercise | | | 1.15 ( 0.93, 1.44) P = 0.2028 | 0.98 ( 0.73, 1.30) P = 0.8690 | | 1.32 ( 0.90, 1.95) P = 0.1588 | | 1.10 ( 0.91, 1.34) P = 0.3178 | | 1.17 ( 0.96, 1.44) P = 0.1269 | | 1.28 ( 0.97, 1.69) P = 0.0817 | | 0.85 ( 0.65, 1.12) P = 0.2441 | | |
| Current asthma | | | 1.05 ( 0.88, 1.26) P = 0.5674 | 0.85 ( 0.65, 1.11) P = 0.2396 | | 1.16 ( 0.84, 1.59) P = 0.3646 | | 1.00 ( 0.85, 1.18) P = 0.9792 | | 1.04 ( 0.87, 1.25) P = 0.6734 | | 1.13 ( 0.92, 1.37) P = 0.2425 | | 0.87 ( 0.67, 1.14) P = 0.3197 | | |
| Recent visit to GP/ED/ hospital | | | 0.88 ( 0.72, 1.08) P = 0.2114 | **0.66 ( 0.47, 0.94) P = 0.0216D\*** | | 1.11 ( 0.82, 1.51) P = 0.5076 | | 0.83 ( 0.67, 1.02) P = 0.0748 | | 0.87 ( 0.71, 1.06) P = 0.1610 | | 0.82 ( 0.61, 1.11) P = 0.2080 | | 0.74 ( 0.52, 1.07) P = 0.1108 | | |
| Recent use of beta-agonist (short-term) | | | 1.02 ( 0.87, 1.19) P = 0.8446 | 0.90 ( 0.73, 1.11) P = 0.3256 | | 1.05 ( 0.72, 1.53) P = 0.7987 | | 0.99 ( 0.85, 1.15) P = 0.8692 | | 1.01 ( 0.85, 1.20) P = 0.9295 | | 1.11 ( 0.94, 1.32) P = 0.2203 | | 0.88 ( 0.70, 1.10) P = 0.2628 | | |
| Recent cough | | | **0.75 ( 0.63, 0.89) P = 0.0010D\*** | **0.64 ( 0.52, 0.78) P =<= 0.0001D\*** | | **0.74 ( 0.56, 0.99) P = 0.0411D\*** | | **0.74 ( 0.62, 0.87) P = 0.0005D\*** | | **0.72 ( 0.61, 0.84) P < 0.0001D\*** | | **0.71 ( 0.55, 0.90) P = 0.0046D\*** | | 0.86 ( 0.67, 1.10) P = 0.2343 | | |
| Recent rhinitis | | | 0.96 ( 0.78, 1.17) P = 0.6609 | 0.97 ( 0.78, 1.20) P = 0.7742 | | **0.63 ( 0.47, 0.86) P = 0.0034D\*** | | 0.97 ( 0.79, 1.19) P = 0.7676 | | 1.00 ( 0.81, 1.23) P = 0.9692 | | 1.03 ( 0.85, 1.25) P = 0.7845 | | 0.79 ( 0.55, 1.13) P = 0.2036 | | |
| Recent itchy rash for 6 months | | | 1.05 ( 0.85, 1.31) P = 0.6376 | 0.95 ( 0.70, 1.29) P = 0.7587 | | 1.38 ( 0.82, 2.32) P = 0.2235 | | 1.06 ( 0.85, 1.32) P = 0.5878 | | 1.06 ( 0.85, 1.33) P = 0.5987 | | 1.03 ( 0.78, 1.36) P = 0.8581 | | 1.25 ( 0.84, 1.87) P = 0.2679 | | |

Table 2.5. NO2 Models

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **LIFETIME NO2** | **Single** | **Joint-Bsp** | **Joint-PM2.5** | **Joint-PM10** | **Joint-O3** | **Joint-CO** | **Joint-SO2** |
| Recent wheeze | **1.15 ( 1.00, 1.32) P = 0.0423I\*** | 1.06 ( 0.85, 1.32) P = 0.6030 | **1.25 ( 1.07, 1.46) P = 0.0039I\*** | **1.20 ( 1.06, 1.36) P = 0.0036I\*** | 1.06 ( 0.81, 1.38) P = 0.6653 | 1.28 ( 0.97, 1.68) P = 0.0794 | 1.21 ( 0.95, 1.54) P = 0.1248 |
| Recent wheeze  after exercise | **1.27 ( 1.09, 1.47) P = 0.0016I\*** | 1.23 ( 0.96, 1.57) P = 0.0978 | **1.33 ( 1.13, 1.57) P = 0.0006I\*** | **1.31 ( 1.13, 1.52) P = 0.0002I\*** | 1.10 ( 0.82, 1.48) P = 0.5182 | **1.43 ( 1.05, 1.96) P = 0.0230I\*** | 1.27 ( 0.97, 1.67) P = 0.0847 |
| Current asthma | **1.22 ( 1.05, 1.43) P = 0.0108I\*** | 1.15 ( 0.90, 1.46) P = 0.2579 | **1.35 ( 1.14, 1.61) P = 0.0005I\*** | **1.28 ( 1.10, 1.49) P = 0.0011I\*** | 0.92 ( 0.70, 1.22) P = 0.5704 | **1.51 ( 1.08, 2.12) P = 0.0154I\*** | **1.33 ( 1.06, 1.67) P = 0.0124I\*** |
| Recent visit to GP/ED/ hospital | 1.13 ( 0.92, 1.41) P = 0.2485 | 1.23 ( 0.94, 1.61) P = 0.1388 | **1.30 ( 1.01, 1.68) P = 0.0389I\*** | 1.18 ( 0.95, 1.47) P = 0.1375 | **1.51 ( 1.04, 2.19) P = 0.0289I\*** | 1.47 ( 0.98, 2.18) P = 0.0602 | 1.14 ( 0.82, 1.60) P = 0.4340 |
| Recent use of beta-agonist (short-term) | 1.11 ( 0.96, 1.28) P = 0.1501 | 1.03 ( 0.83, 1.27) P = 0.7849 | **1.18 ( 1.02, 1.38) P = 0.0315I\*** | 1.15 ( 1.00, 1.32) P = 0.0547 | 0.99 ( 0.75, 1.30) P = 0.9207 | **1.35 ( 1.05, 1.76) P = 0.0216I\*** | **1.19 ( 1.01, 1.40) P = 0.0394I\*** |
| Recent cough | 0.99 ( 0.85, 1.16) P = 0.8955 | 1.00 ( 0.80, 1.26) P = 0.9905 | 1.11 ( 0.95, 1.31) P = 0.1996 | 0.97 ( 0.82, 1.16) P = 0.7730 | 1.12 ( 0.89, 1.41) P = 0.3284 | 1.23 ( 0.90, 1.69) P = 0.2000 | 0.85 ( 0.67, 1.08) P = 0.1818 |
| Recent rhinitis | 0.96 ( 0.82, 1.14) P = 0.6757 | 1.04 ( 0.81, 1.34) P = 0.7540 | 0.95 ( 0.80, 1.13) P = 0.5596 | 1.00 ( 0.85, 1.19) P = 0.9672 | 1.11 ( 0.85, 1.45) P = 0.4599 | 1.10 ( 0.82, 1.46) P = 0.5237 | **0.77 ( 0.62, 0.96) P = 0.0181D\*** |
| Recent itchy rash for 6 months | 1.00 ( 0.85, 1.19) P = 0.9665 | 1.23 ( 0.92, 1.64) P = 0.1613 | 0.95 ( 0.79, 1.13) P = 0.5485 | 1.01 ( 0.84, 1.21) P = 0.9483 | 1.20 ( 0.86, 1.66) P = 0.2857 | 1.18 ( 0.90, 1.53) P = 0.2303 | 0.95 ( 0.70, 1.28) P = 0.7191 |
| **RECENT NO2** |  |  |  |  |  |  |  |
| Recent wheeze | **1.19 ( 1.04, 1.37) P = 0.0135I\*** | **1.27 ( 1.04, 1.55) P = 0.0196I\*** | **1.27 ( 1.09, 1.48) P = 0.0020I\*** | 1.09 ( 0.81, 1.46) P = 0.5674 | **1.36 ( 1.00, 1.86) P = 0.0485I\*** | **1.30 ( 1.05, 1.61) P = 0.0167I\*** | 1.32 ( 0.97, 1.79) P = 0.0785 |
| Recent wheeze  after exercise | **1.32 ( 1.12, 1.57) P = 0.0011I\*** | **1.53 ( 1.23, 1.90) P = 0.0001I\*** | **1.34 ( 1.13, 1.59) P = 0.0007I\*** | **1.47 ( 1.04, 2.07) P = 0.0301I\*** | **1.74 ( 1.36, 2.24) P <=0.0001I\*** | **1.51 ( 1.14, 2.00) P = 0.0036I\*** | **1.52 ( 1.18, 1.94) P = 0.0011I\*** |
| Current asthma | **1.26 ( 1.08, 1.48) P = 0.0035I\*** | **1.35 ( 1.04, 1.76) P = 0.0263I\*** | **1.33 ( 1.13, 1.56) P = 0.0005I\*** | 1.20 ( 0.90, 1.58) P = 0.2148 | 1.29 ( 0.92, 1.80) P = 0.1428 | **1.52 ( 1.19, 1.96) P = 0.0009I\*** | **1.43 ( 1.03, 1.98) P = 0.0351I\*** |
| Recent visit to GP/ED/ hospital | 1.17 ( 0.94, 1.45) P = 0.1513 | **1.55 ( 1.16, 2.08) P = 0.0034I\*** | **1.31 ( 1.03, 1.67) P = 0.0264I\*** | 1.00 ( 0.82, 1.23) P = 0.9812 | **1.93 ( 1.18, 3.14) P = 0.0084I\*** | 1.33 ( 0.99, 1.80) P = 0.0601 | **1.55 ( 1.00, 2.39) P = 0.0478I\*** |
| Recent use of beta-agonist (short-term) | 1.12 ( 0.98, 1.29) P = 0.0873 | 1.19 ( 0.97, 1.45) P = 0.0939 | **1.18 ( 1.02, 1.36) P = 0.0292I\*** | 1.00 ( 0.78, 1.27) P = 0.9727 | 1.14 ( 0.89, 1.45) P = 0.2979 | **1.29 ( 1.05, 1.60) P = 0.0164I\*** | 1.20 ( 0.94, 1.53) P = 0.1411 |
| Recent cough | 1.00 ( 0.84, 1.18) P = 0.9777 | 1.03 ( 0.78, 1.36) P = 0.8384 | 1.06 ( 0.90, 1.25) P = 0.5078 | 0.85 ( 0.66, 1.09) P = 0.1926 | 1.13 ( 0.90, 1.42) P = 0.2930 | 1.19 ( 0.88, 1.61) P = 0.2469 | 1.15 ( 0.90, 1.48) P = 0.2701 |
| Recent rhinitis | 0.94 ( 0.79, 1.13) P = 0.5055 | 0.97 ( 0.74, 1.27) P = 0.8243 | 0.94 ( 0.78, 1.15) P = 0.5665 | 0.99 ( 0.72, 1.38) P = 0.9661 | 1.05 ( 0.80, 1.38) P = 0.7131 | 1.03 ( 0.80, 1.33) P = 0.8370 | 0.80 ( 0.58, 1.09) P = 0.1518 |
| Recent itchy rash for 6 months | 1.02 ( 0.84, 1.23) P = 0.8747 | 1.02 ( 0.72, 1.46) P = 0.9043 | 0.94 ( 0.78, 1.15) P = 0.5617 | 1.41 ( 0.92, 2.15) P = 0.1141 | 1.34 ( 0.84, 2.12) P = 0.2159 | 1.06 ( 0.86, 1.32) P = 0.5796 | 1.15 ( 0.73, 1.81) P = 0.5599 |

Table 2.6. O3 Models

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **LIFETIME O3** | **Single** | **Joint-Bsp** | **Joint-PM2.5** | **Joint-PM10** | **Joint-NO2** | **Joint-CO** | **Joint-SO2** |
| Recent wheeze | **0.87 ( 0.77, 0.99) P = 0.0310D\*** | 0.87 ( 0.76, 1.01) P = 0.0644 | 0.89 ( 0.78, 1.02) P = 0.0963 | **0.82 ( 0.72, 0.93) P = 0.0027D\*** | 0.90 ( 0.74, 1.09) P = 0.2881 | **0.78 ( 0.64, 0.95) P = 0.0120D\*** | 0.88 ( 0.74, 1.04) P = 0.1419 |
| Recent wheeze  after exercise | **0.82 ( 0.70, 0.96) P = 0.0120D\*** | **0.75 ( 0.62, 0.92) P = 0.0054D\*** | **0.80 ( 0.67, 0.95) P = 0.0119D\*** | **0.79 ( 0.68, 0.93) P = 0.0032D\*** | 0.86 ( 0.67, 1.10) P = 0.2190 | **0.54 ( 0.42, 0.71) P < 0.0001D\*** | 0.87 ( 0.72, 1.06) P = 0.1600 |
| Current asthma | **0.82 ( 0.72, 0.92) P = 0.0014D\*** | **0.76 ( 0.64, 0.90) P = 0.0016D\*** | **0.83 ( 0.71, 0.97) P = 0.0169D\*** | **0.75 ( 0.67, 0.84) P < 0.0001D\*** | **0.78 ( 0.64, 0.95) P = 0.0136D\*** | **0.66 ( 0.50, 0.88) P = 0.0040D\*** | **0.80 ( 0.68, 0.94) P = 0.0073D\*** |
| Recent visit to GP/ED/ hospital | 0.98 ( 0.83, 1.16) P = 0.8425 | 0.92 ( 0.81, 1.04) P = 0.1638 | 1.00 ( 0.85, 1.18) P = 0.9949 | 0.91 ( 0.75, 1.09) P = 0.3079 | 1.21 ( 0.95, 1.56) P = 0.1275 | 1.04 ( 0.79, 1.36) P = 0.7828 | 0.97 ( 0.78, 1.22) P = 0.8213 |
| Recent use of beta-agonist (short-term) | **0.92 ( 0.85, 1.00) P = 0.0382D\*** | **0.89 ( 0.81, 0.98) P = 0.0197D\*** | 0.94 ( 0.85, 1.05) P = 0.2619 | 0.87 ( 0.80, 0.96) P = 0.0039D\* | 0.91 ( 0.78, 1.06) P = 0.2349 | **0.84 ( 0.72, 0.97) P = 0.0194D\*** | **0.85 ( 0.76, 0.95) P = 0.0049D\*** |
| Recent cough | **1.14 ( 1.01, 1.29) P = 0.0381I\*** | 1.15 ( 0.96, 1.37) P = 0.1323 | **1.22 ( 1.10, 1.36) P = 0.0002I\*** | 1.10 ( 0.96, 1.25) P = 0.1650 | 1**.21 ( 1.01, 1.44) P = 0.0347I\*** | **1.26 ( 1.06, 1.50) P = 0.0077I\*** | **1.19 ( 1.03, 1.36) P = 0.0156I\*** |
| Recent rhinitis | 1.00 ( 0.89, 1.13) P = 0.9645 | 0.93 ( 0.79, 1.09) P = 0.3604 | 0.95 ( 0.85, 1.07) P = 0.4059 | 1.06 ( 0.92, 1.22) P = 0.4565 | 1.06 ( 0.89, 1.26) P = 0.5440 | **0.83 ( 0.70, 0.98) P = 0.0264D\*** | 1.09 ( 0.95, 1.26) P = 0.2104 |
| Recent itchy rash for 6 months | 1.01 ( 0.89, 1.14) P = 0.8886 | 0.95 ( 0.73, 1.25) P = 0.7277 | 0.99 ( 0.83, 1.18) P = 0.9079 | 1.10 ( 0.98, 1.23) P = 0.1069 | 1.10 ( 0.88, 1.38) P = 0.3798 | 1.08 ( 0.86, 1.34) P = 0.5189 | 1.05 ( 0.90, 1.24) P = 0.5285 |
| **RECENT O3** |  |  |  |  |  |  |  |
| Recent wheeze | 0.90 ( 0.79, 1.04) P = 0.1463 | 0.88 ( 0.76, 1.01) P = 0.0685 | 0.90 ( 0.71, 1.14) P = 0.3936 | 0.87 ( 0.76, 1.00) P = 0.0516 | 1.08 ( 0.87, 1.35) P = 0.4785 | 0.99 ( 0.81, 1.21) P = 0.9262 | 1.01 ( 0.79, 1.31) P = 0.9146 |
| Recent wheeze  after exercise | 0.88 ( 0.73, 1.07) P = 0.2074 | **0.76 ( 0.59, 0.97) P = 0.0302D\*** | 0.71 ( 0.50, 1.03) P = 0.0679 | 0.90 ( 0.75, 1.08) P = 0.2632 | 1.22 ( 0.94, 1.60) P = 0.1389 | 0.91 ( 0.71, 1.16) P = 0.4394 | 0.92 ( 0.63, 1.33) P = 0.6419 |
| Current asthma | 0.87 ( 0.75, 1.01) P = 0.0717 | **0.75 ( 0.61, 0.91) P = 0.0039D\*** | 0.83 ( 0.65, 1.06) P = 0.1273 | **0.85 ( 0.73, 0.98) P = 0.0308D\*** | 1.01 ( 0.79, 1.28) P = 0.9412 | 0.95 ( 0.79, 1.15) P = 0.6245 | 0.79 ( 0.53, 1.19) P = 0.2577 |
| Recent visit to GP/ED/ hospital | 1.02 ( 0.85, 1.22) P = 0.8529 | 0.89 ( 0.71, 1.11) P = 0.2860 | 1.04 ( 0.91, 1.20) P = 0.5330 | 0.95 ( 0.77, 1.17) P = 0.6434 | **1.50 ( 1.09, 2.07) P = 0.0125I\*** | **1.30 ( 1.02, 1.66) P = 0.0335I\*** | 0.96 ( 0.58, 1.56) P = 0.8577 |
| Recent use of beta-agonist (short-term) | 0.95 ( 0.85, 1.05) P = 0.3077 | **0.88 ( 0.78, 0.99) P = 0.0280D\*** | 0.95 ( 0.79, 1.15) P = 0.5988 | 0.92 ( 0.81, 1.05) P = 0.2334 | 1.02 ( 0.87, 1.19) P = 0.8151 | 1.05 ( 0.91, 1.22) P = 0.4893 | 0.83 ( 0.68, 1.01) P = 0.0618 |
| Recent cough | 1.17 ( 0.99, 1.37) P = 0.0598 | **1.34 ( 1.11, 1.61) P = 0.0022I\*** | 1.12 ( 0.93, 1.34) P = 0.2464 | **1.18 ( 1.02, 1.36) P = 0.0260I\*** | 1.25 ( 1.00, 1.57) P = 0.0524 | **1.40 ( 1.16, 1.68) P = 0.0003I\*** | 1.13 ( 0.78, 1.63) P = 0.5211 |
| Recent rhinitis | 1.01 ( 0.87, 1.17) P = 0.8998 | 0.99 ( 0.79, 1.24) P = 0.9244 | 0.92 ( 0.74, 1.15) P = 0.4733 | 1.04 ( 0.88, 1.24) P = 0.6254 | 1.04 ( 0.85, 1.26) P = 0.6993 | 0.93 ( 0.79, 1.10) P = 0.4058 | 1.20 ( 0.93, 1.55) P = 0.1648 |
| Recent itchy rash for 6 months | 1.06 ( 0.91, 1.23) P = 0.4730 | 1.15 ( 0.95, 1.39) P = 0.1501 | 0.95 ( 0.72, 1.25) P = 0.7111 | **1.17 ( 1.02, 1.35) P = 0.0275I\*** | 1.25 ( 0.88, 1.77) P = 0.2136 | 1.12 ( 0.96, 1.32) P = 0.1584 | 1.16 ( 0.81, 1.66) P = 0.4064 |

Table 2.7. CO Models

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **LIFETIME CO** | **Single** | **Joint-Bsp** | **Joint-PM2.5** | **Joint-PM10** | **Joint-NO2** | **Joint-O3** | **Joint-SO2** |
| Recent wheeze | 0.95 ( 0.84, 1.09) P = 0.4852 | 0.93 ( 0.80, 1.07) P = 0.2995 | 1.01 ( 0.86, 1.20) P = 0.8878 | 0.96 ( 0.85, 1.10) P = 0.5627 | 0.88 ( 0.73, 1.05) P = 0.1454 | 0.82 ( 0.61, 1.08) P = 0.1607 | 0.95 ( 0.84, 1.09) P = 0.4852 |
| Recent wheeze  after exercise | 0.96 ( 0.84, 1.10) P = 0.5971 | 0.94 ( 0.82, 1.07) P = 0.3603 | 0.96 ( 0.80, 1.16) P = 0.6624 | 0.96 ( 0.84, 1.10) P = 0.5521 | 0.85 ( 0.72, 1.01) P = 0.0649 | **0.67 ( 0.47, 0.94) P = 0.0222D\*** | 0.96 ( 0.84, 1.10) P = 0.5971 |
| Current asthma | 1.06 ( 0.90, 1.25) P = 0.4816 | 1.05 ( 0.88, 1.26) P = 0.5575 | 1.16 ( 0.97, 1.38) P = 0.1139 | 1.07 ( 0.91, 1.25) P = 0.4141 | 0.92 ( 0.74, 1.13) P = 0.4118 | 0.89 ( 0.63, 1.25) P = 0.5035 | 1.06 ( 0.90, 1.25) P = 0.4816 |
| Recent visit to GP/ED/ hospital | 0.84 ( 0.69, 1.02) P = 0.0841 | 0.88 ( 0.72, 1.08) P = 0.2148 | 0.87 ( 0.68, 1.12) P = 0.2954 | 0.86 ( 0.72, 1.03) P = 0.0985 | **0.73 ( 0.57, 0.94) P = 0.0164D\*** | 0.84 ( 0.58, 1.22) P = 0.3657 | 0.84 ( 0.69, 1.02) P = 0.0841 |
| Recent use of beta-agonist (short-term) | 0.96 ( 0.85, 1.07) P = 0.4557 | 0.94 ( 0.84, 1.06) P = 0.3086 | 0.99 ( 0.86, 1.14) P = 0.8659 | 0.96 ( 0.86, 1.07) P = 0.4692 | **0.86 ( 0.75, 0.99) P = 0.0337D\*** | 0.84 ( 0.65, 1.08) P = 0.1705 | 0.96 ( 0.85, 1.07) P = 0.4557 |
| Recent cough | 0.92 ( 0.76, 1.13) P = 0.4341 | 0.95 ( 0.79, 1.14) P = 0.5580 | 0.85 ( 0.66, 1.11) P = 0.2350 | 0.95 ( 0.78, 1.15) P = 0.5847 | 0.86 ( 0.72, 1.04) P = 0.1158 | 0.94 ( 0.70, 1.28) P = 0.7077 | 0.92 ( 0.76, 1.13) P = 0.4341 |
| Recent rhinitis | 0.98 ( 0.88, 1.10) P = 0.7895 | 1.00 ( 0.89, 1.12) P = 0.9746 | 1.00 ( 0.85, 1.18) P = 0.9990 | 0.99 ( 0.88, 1.10) P = 0.7975 | 0.95 ( 0.84, 1.09) P = 0.4790 | 0.93 ( 0.76, 1.12) P = 0.4315 | 0.98 ( 0.88, 1.10) P = 0.7895 |
| Recent itchy rash for 6 months | 0.98 ( 0.89, 1.07) P = 0.6109 | 0.99 ( 0.91, 1.08) P = 0.8091 | 0.97 ( 0.84, 1.11) P = 0.6191 | 0.97 ( 0.88, 1.06) P = 0.5153 | 0.92 ( 0.80, 1.06) P = 0.2682 | 1.06 ( 0.86, 1.31) P = 0.5657 | 0.98 ( 0.89, 1.07) P = 0.6109 |
| **RECENT CO** |  |  |  |  |  |  |  |
| Recent wheeze | 0.96 ( 0.80, 1.14) P = 0.6158 | 0.92 ( 0.77, 1.10) P = 0.3542 | 1.18 ( 0.74, 1.87) P = 0.4794 | 0.98 ( 0.82, 1.16) P = 0.7770 | 0.90 ( 0.74, 1.10) P = 0.3154 | 1.00 ( 0.82, 1.23) P = 0.9643 | 0.96 ( 0.80, 1.14) P = 0.6158 |
| Recent wheeze  after exercise | 1.02 ( 0.80, 1.30) P = 0.8482 | 0.90 ( 0.73, 1.11) P = 0.3218 | 1.31 ( 0.83, 2.07) P = 0.2386 | 0.99 ( 0.79, 1.24) P = 0.9205 | 0.94 ( 0.75, 1.18) P = 0.5879 | 1.09 ( 0.88, 1.36) P = 0.4340 | 1.02 ( 0.80, 1.30) P = 0.8482 |
| Current asthma | 1.13 ( 0.93, 1.37) P = 0.2242 | 1.05 ( 0.90, 1.23) P = 0.5298 | **2.24 ( 1.78, 2.81) P < 0.0001I\*** | 1.13 ( 0.95, 1.34) P = 0.1703 | 1.03 ( 0.82, 1.30) P = 0.8052 | 1.21 ( 0.99, 1.48) P = 0.0661 | 1.13 ( 0.93, 1.37) P = 0.2242 |
| Recent visit to GP/ED/ hospital | 0.83 ( 0.63, 1.08) P = 0.1625 | 0.83 ( 0.63, 1.10) P = 0.1952 | 0.88 ( 0.50, 1.54) P = 0.6537 | 0.89 ( 0.68, 1.17) P = 0.4025 | 0.77 ( 0.56, 1.05) P = 0.1017 | 0.87 ( 0.64, 1.19) P = 0.3962 | 0.83 ( 0.63, 1.08) P = 0.1625 |
| Recent use of beta-agonist (short-term) | 0.96 ( 0.83, 1.10) P = 0.5384 | 0.90 ( 0.79, 1.03) P = 0.1244 | **1.46 ( 1.21, 1.76) P < 0.0001I\*** | 0.95 ( 0.83, 1.08) P = 0.4550 | 0.90 ( 0.76, 1.07) P = 0.2344 | 1.00 ( 0.84, 1.17) P = 0.9630 | 0.96 ( 0.83, 1.10) P = 0.5384 |
| Recent cough | 0.81 ( 0.63, 1.02) P = 0.0785 | 0.82 ( 0.64, 1.06) P = 0.1245 | 0.84 ( 0.55, 1.29) P = 0.4274 | 0.85 ( 0.69, 1.06) P = 0.1585 | **0.78 ( 0.63, 0.97) P = 0.0261D\*** | 0.86 ( 0.67, 1.11) P = 0.2510 | 0.81 ( 0.63, 1.02) P = 0.0785 |
| Recent rhinitis | 1.00 ( 0.86, 1.17) P = 0.9903 | 0.99 ( 0.86, 1.14) P = 0.8963 | 0.90 ( 0.51, 1.61) P = 0.7337 | 1.01 ( 0.87, 1.17) P = 0.8762 | 0.99 ( 0.86, 1.15) P = 0.9270 | 1.01 ( 0.85, 1.19) P = 0.9410 | 1.00 ( 0.86, 1.17) P = 0.9903 |
| Recent itchy rash for 6 months | 1.00 ( 0.84, 1.19) P = 0.9909 | 0.92 ( 0.79, 1.08) P = 0.3202 | **1.76 ( 1.11, 2.79) P = 0.0168I\*** | 0.98 ( 0.82, 1.16) P = 0.7981 | 0.99 ( 0.82, 1.19) P = 0.8782 | 1.02 ( 0.87, 1.20) P = 0.8015 | 1.00 ( 0.84, 1.19) P = 0.9909 |

Table 2.8. SO2 Models

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **LIFETIME SO2** | **Single** | **Joint-Bsp** | **Joint-PM2.5** | **Joint-PM10** | **Joint-NO2** | **Joint-O3** | **Joint-CO** |
| Recent wheeze | 0.98 ( 0.94, 1.02) P = 0.2630 | 0.92 ( 0.71, 1.20) P = 0.5465 | 1.00 ( 0.93, 1.07) P = 0.9116 | 0.98 ( 0.94, 1.02) P = 0.3759 | 0.96 ( 0.91, 1.01) P = 0.1510 | 0.96 ( 0.91, 1.02) P = 0.1633 | **0.66 ( 0.48, 0.90) P = 0.0089D\*** |
| Recent wheeze  after exercise | **0.86 ( 0.80, 0.92) P < 0.0001D\*** | 0.81 ( 0.65, 1.00) P = 0.0514 | **0.87 ( 0.79, 0.95) P = 0.0036D\*** | **0.86 ( 0.80, 0.93) P = 0.0001D\*** | **0.83 ( 0.72, 0.96) P = 0.0119D\*** | **0.84 ( 0.73, 0.97) P = 0.0143D\*** | **0.64 ( 0.44, 0.91) P = 0.0131D\*** |
| Current asthma | 0.93 ( 0.87, 1.00) P = 0.0593 | 0.91 ( 0.67, 1.25) P = 0.5748 | 0.94 ( 0.85, 1.04) P = 0.2552 | 0.93 ( 0.87, 1.01) P = 0.0819 | 0.93 ( 0.84, 1.03) P = 0.1580 | 0.94 ( 0.85, 1.04) P = 0.2295 | **0.66 ( 0.45, 0.98) P = 0.0391D\*** |
| Recent visit to GP/ED/ hospital | 0.97 ( 0.87, 1.09) P = 0.6389 | 0.87 ( 0.59, 1.28) P = 0.4736 | 0.94 ( 0.81, 1.08) P = 0.3835 | 0.98 ( 0.87, 1.10) P = 0.7400 | 0.97 ( 0.87, 1.09) P = 0.6597 | 0.97 ( 0.86, 1.08) P = 0.5570 | 0.61 ( 0.33, 1.13) P = 0.1142 |
| Recent use of beta-agonist (short-term) | **0.95 ( 0.91, 0.98) P = 0.0030D\*** | 0.89 ( 0.71, 1.11) P = 0.3050 | 0.97 ( 0.91, 1.02) P = 0.2457 | **0.95 ( 0.91, 0.99) P = 0.0089D\*** | 0.95 ( 0.90, 1.01) P = 0.0868 | 0.97 ( 0.92, 1.02) P = 0.1944 | **0.75 ( 0.58, 0.98) P = 0.0318D\*** |
| Recent cough | 1.02 ( 0.96, 1.08) P = 0.5398 | 0.88 ( 0.72, 1.08) P = 0.2136 | 1.01 ( 0.94, 1.10) P = 0.7626 | 1.02 ( 0.97, 1.08) P = 0.3815 | 0.98 ( 0.92, 1.05) P = 0.6067 | 0.97 ( 0.91, 1.04) P = 0.4542 | 0.73 ( 0.52, 1.03) P = 0.0724 |
| Recent rhinitis | 0.98 ( 0.94, 1.03) P = 0.5319 | **0.81 ( 0.66, 0.98) P = 0.0265D\*** | 1.00 ( 0.93, 1.06) P = 0.9257 | 0.99 ( 0.95, 1.04) P = 0.8025 | 0.96 ( 0.89, 1.03) P = 0.2418 | 0.98 ( 0.91, 1.06) P = 0.5968 | 0.80 ( 0.59, 1.09) P = 0.1643 |
| Recent itchy rash for 6 months | 1.03 ( 0.96, 1.10) P = 0.4442 | 0.90 ( 0.69, 1.17) P = 0.4293 | 0.97 ( 0.88, 1.06) P = 0.4989 | 1.03 ( 0.96, 1.10) P = 0.4517 | 1.04 ( 0.97, 1.11) P = 0.2663 | 1.03 ( 0.97, 1.10) P = 0.3033 | 0.96 ( 0.60, 1.53) P = 0.8496 |
| **RECENT SO2** |  |  |  |  |  |  |  |
| Recent wheeze | 0.96 ( 0.91, 1.02) P = 0.1875 | **0.74 ( 0.59, 0.92) P = 0.0075D\*** | 1.38 ( 0.86, 2.20) P = 0.1808 | 0.98 ( 0.91, 1.05) P = 0.5238 | 0.90 ( 0.71, 1.12) P = 0.3433 | 0.91 ( 0.70, 1.19) P = 0.5000 | **0.63 ( 0.39, 0.99) P = 0.0452D\*** |
| Recent wheeze  after exercise | **0.85 ( 0.79, 0.91) P < 0.0001D\*** | **0.65 ( 0.50, 0.85) P = 0.0015D\*** | **1.48 ( 0.96, 2.30) P = 0.0777** | **0.86 ( 0.80, 0.93) P = 0.0001D\*** | **0.80 ( 0.64, 0.99) P = 0.0431D\*** | 0.84 ( 0.62, 1.13) P = 0.2501 | 0.60 ( 0.35, 1.04) P = 0.0675 |
| Current asthma | 0.94 ( 0.86, 1.02) P = 0.1405 | 0.83 ( 0.60, 1.14) P = 0.2431 | 1.42 ( 0.89, 2.28) P = 0.1457 | 0.95 ( 0.86, 1.04) P = 0.2514 | 0.94 ( 0.74, 1.19) P = 0.6020 | 0.93 ( 0.65, 1.33) P = 0.6923 | 0.71 ( 0.40, 1.26) P = 0.2452 |
| Recent visit to GP/ED/ hospital | 0.97 ( 0.84, 1.13) P = 0.7203 | **0.69 ( 0.50, 0.95) P = 0.0219D\*** | **1.66 ( 1.08, 2.54) P = 0.0202I\*** | 0.99 ( 0.86, 1.15) P = 0.9286 | 0.89 ( 0.60, 1.30) P = 0.5363 | 0.92 ( 0.59, 1.42) P = 0.6946 | **0.39 ( 0.20, 0.73) P = 0.0034D\*** |
| Recent use of beta-agonist (short-term) | **0.93 ( 0.89, 0.98) P = 0.0045D\*** | **0.78 ( 0.64, 0.95) P = 0.0147D\*** | 1.30 ( 0.80, 2.11) P = 0.2958 | **0.94 ( 0.89, 1.00) P = 0.0399D\*** | 0.87 ( 0.71, 1.06) P = 0.1708 | 0.86 ( 0.66, 1.11) P = 0.2518 | 0.79 ( 0.51, 1.22) P = 0.2899 |
| Recent cough | 1.04 ( 0.97, 1.12) P = 0.3015 | 0.80 ( 0.63, 1.01) P = 0.0603 | 1.04 ( 0.69, 1.55) P = 0.8551 | 1.04 ( 0.97, 1.13) P = 0.2561 | 0.93 ( 0.76, 1.14) P = 0.4731 | 0.89 ( 0.68, 1.17) P = 0.3986 | **0.68 ( 0.55, 0.84) P = 0.0003D\*** |
| Recent rhinitis | 0.98 ( 0.91, 1.06) P = 0.6180 | **0.77 ( 0.62, 0.96) P = 0.0185D\*** | 0.84 ( 0.44, 1.62) P = 0.6011 | 1.00 ( 0.92, 1.07) P = 0.9283 | 0.82 ( 0.59, 1.12) P = 0.2042 | 0.88 ( 0.69, 1.14) P = 0.3369 | 0.89 ( 0.58, 1.37) P = 0.5988 |
| Recent itchy rash for 6 months | 1.06 ( 0.96, 1.17) P = 0.2229 | 0.97 ( 0.73, 1.28) P = 0.8212 | **1.68 ( 1.20, 2.36) P = 0.0024I\*** | 1.05 ( 0.95, 1.16) P = 0.3334 | 1.21 ( 0.89, 1.64) P = 0.2197 | 1.23 ( 0.92, 1.66) P = 0.1662 | 1.27 ( 0.86, 1.88) P = 0.2309 |

# Lung Function Interaction Models: Atopy

Table 3.1. Atopy: Bsp

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| FEV1 Pre-bronchodilator/ml | | | | |
| Atopic | 11.92 ( -5.60, 29.45) | 0.1765 | 34.31 ( -2.47, 71.08) | 0.0663 |
| Non-Atopic | -2.14 ( -11.19, 6.90) | 0.6342 | 1.44 ( -22.64, 25.53) | 0.9034 |
| Interaction | -14.07 ( -33.70, 5.57) | 0.1551 | -32.87 ( -77.78, 12.04) | 0.1452 |
| FEV1 Post-bronchodilator/ml | | | | |
| Atopic | 2.24 ( -16.58, 21.06) | 0.8107 | 6.69 ( -35.84, 49.23) | 0.7499 |
| Non-Atopic | -7.98 ( -16.23, 0.28) | 0.0579 | -13.63 ( -38.68, 11.42) | 0.2748 |
| Interaction | -10.22 ( -29.04, 8.61) | 0.2788 | -20.32 ( -64.47, 23.83) | 0.3543 |
| FVC Pre-bronchodilator | | | | |
| Atopic | 5.63 ( -13.35, 24.61) | 0.5516 | 27.53 ( -13.09, 68.16) | 0.1762 |
| Non-Atopic | -7.32 ( -20.86, 6.21) | 0.2803 | -7.57 ( -35.07, 19.92) | 0.5775 |
| Interaction | -12.95 ( -36.29, 10.38) | 0.2681 | -35.11 ( -73.49, 3.27) | 0.0714 |
| FVC Post-bronchodilator/ml | | | | |
| Atopic | -0.86 ( -22.56, 20.84) | 0.9365 | 6.08 ( -42.92, 55.09) | 0.8014 |
| Non-Atopic | **-14.6 ( -26.1, -3.14)D\*** | **0.0138** | -16.08 ( -50.78, 18.62) | 0.3511 |
| Interaction | -13.75 ( -33.48, 5.99) | 0.1667 | -22.16 ( -59.13, 14.81) | 0.2301 |
| Change in FEV1 (%) Post-bronchodilator | | | | |
| Atopic | **-0.49 ( -0.97, -0.01)D\*** | **0.0447** | **-1.40 ( -2.41, -0.38)D\*** | **0.0089** |
| Non-Atopic | -0.29 ( -0.74, 0.15) | 0.1883 | -0.81 ( -1.76, 0.14) | 0.0905 |
| Interaction | 0.20 ( -0.25, 0.65) | 0.3755 | 0.59 ( -0.42, 1.59) | 0.2422 |
| FEV1/FVC Ratio Pre-bronchodilator (%) | | | | |
| Atopic | **0.32 ( 0.02, 0.61)I\*** | 0.0362 | 0.56 ( -0.20, 1.32) | 0.1427 |
| Non-Atopic | 0.19 ( -0.15, 0.54) | 0.2569 | 0.26 ( -0.35, 0.86) | 0.3928 |
| Interaction | -0.12 ( -0.53, 0.29) | 0.5483 | -0.31 ( -1.16, 0.55) | 0.4707 |
| FEV1/FVC Ratio Post-bronchodilator(%) | | | | |
| Atopic | 0.04 ( -0.29, 0.37) | 0.8123 | -0.03 ( -0.87, 0.82) | 0.9476 |
| Non-Atopic | 0.14 ( -0.16, 0.44) | 0.3446 | -0.06 ( -0.79, 0.68) | 0.8751 |
| Interaction | 0.10 ( -0.33, 0.54) | 0.6368 | -0.03 ( -1.00, 0.94) | 0.9509 |
| Log(exhaled NO) | | | | |
| Atopic | 0.02 ( -0.01, 0.05) | 0.2377 | 0.05 ( -0.00, 0.10) | 0.0503 |
| Non-Atopic | -0.02 ( -0.06, 0.02) | 0.335 | 0.00 ( -0.04, 0.05) | 0.8363 |
| Interaction | **-0.04 ( -0.06, -0.01)D\*** | 0.0045 | **-0.05 ( -0.08, -0.01)D\*** | **0.0137** |

Table 3.2. Atopy: PM2.5

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| FEV1 Pre-bronchodilator/ml | | | | |
| Atopic | -16.60 ( -47.01, 13.81) | 0.2773 | -1.94 ( -34.29, 30.40) | 0.9015 |
| Non-Atopic | 5.59 ( -18.24, 29.42) | 0.6388 | 14.50 ( -6.03, 35.04) | 0.1561 |
| Interaction | 22.19 ( -14.91, 59.30) | 0.2346 | 16.45 ( -24.64, 57.53) | 0.4135 |
| FEV1 Post-bronchodilator/ml | | | | |
| Atopic | -20.78 ( -50.48, 8.91) | 0.1654 | -33.29 ( -72.87, 6.29) | 0.0946 |
| Non-Atopic | -0.93 ( -26.77, 24.90) | 0.9423 | -14.04 ( -38.51, 10.42) | 0.2452 |
| Interaction | 19.85 ( -16.12, 55.82) | 0.2722 | 19.25 ( -17.58, 56.08) | 0.2885 |
| FVC Pre-bronchodilator | | | | |
| Atopic | -26.96 ( -63.04, 9.13) | 0.1393 | -28.49 ( -64.32, 7.33) | 0.1762 |
| Non-Atopic | -0.85 ( -31.08, 29.37) | 0.9549 | -13.53 ( -49.90, 22.84) | 0.5775 |
| Interaction | 26.10 ( -22.02, 74.23) | 0.2804 | 14.97 ( -35.41, 65.35) | 0.0714 |
| FVC Post-bronchodilator/ml | | | | |
| Atopic | -28.35 ( -65.40, 8.71) | 0.1303 | -45.47 ( -99.21, 8.27) | 0.0928 |
| Non-Atopic | -6.82 ( -40.33, 26.68) | 0.6835 | **-47.91 ( -84.66, -11.16)D\*** | **0.0132** |
| Interaction | 21.52 ( -20.59, 63.63) | 0.3087 | -2.44 ( -48.03, 43.16) | 0.9123 |
| Change in FEV1 (%) Post-bronchodilator | | | | |
| Atopic | -0.30 ( -1.29, 0.69) | 0.5422 | -1.45 ( -2.93, 0.03) | 0.0548 |
| Non-Atopic | -0.41 ( -1.32, 0.49) | 0.3636 | -1.41 ( -2.34, -0.49)D\* | 0.0046 |
| Interaction | -0.11 ( -1.07, 0.84) | 0.8165 | 0.04 ( -1.19, 1.27) | 0.9461 |
| FEV1/FVC Ratio Pre-bronchodilator (%) | | | | |
| Atopic | 0.49 ( -0.41, 1.40) | 0.2772 | 0.76 ( -0.22, 1.74) | 0.1233 |
| Non-Atopic | 0.44 ( -0.25, 1.13) | 0.2098 | **1.05 ( 0.28, 1.83)I\*** | **0.0104** |
| Interaction | -0.06 ( -1.15, 1.03) | 0.9147 | 0.29 ( -0.78, 1.37) | 0.5749 |
| FEV1/FVC Ratio Post-bronchodilator(%) | | | | |
| Atopic | 0.54 ( -0.07, 1.15) | 0.0789 | 0.18 ( -0.64, 1.00) | 0.6456 |
| Non-Atopic | 0.45 ( -0.08, 0.98) | 0.0975 | **1.21 ( 0.76, 1.67)I\*** | **< 0.0001** |
| Interaction | -0.10 ( -0.87, 0.68) | 0.8038 | **1.03 ( 0.08, 1.98)I\*** | **0.0355** |
| Log(exhaled NO) | | | | |
| Atopic | 0.01 ( -0.04, 0.07) | 0.6139 | Model did not fit |  |
| Non-Atopic | -0.02 ( -0.09, 0.04) | 0.4532 |  |  |
| Interaction | -0.04 ( -0.09, 0.01) | 0.1443 |  |  |

Table 3.3. Atopy: PM10

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| FEV1 Pre-bronchodilator/ml | | | | |
| Atopic | -26.87 ( -58.44, 4.69) | 0.0932 | -3.47 ( -30.08, 23.14) | 0.7938 |
| Non-Atopic | -5.37 ( -31.43, 20.69) | 0.6799 | 5.72 ( -13.44, 24.88) | 0.5498 |
| Interaction | 21.50 ( -15.89, 58.90) | 0.2527 | 9.19 ( -23.58, 41.95) | 0.5743 |
| FEV1 Post-bronchodilator/ml | | | | |
| Atopic | -30.22 ( -62.39, 1.96) | 0.0649 | -17.33 ( -46.40, 11.75) | 0.2356 |
| Non-Atopic | -17.61 ( -48.78, 13.55) | 0.2609 | -3.63 ( -26.44, 19.18) | 0.7494 |
| Interaction | 12.60 ( -29.37, 54.58) | 0.5481 | 13.70 ( -21.14, 48.53) | 0.4317 |
| FVC Pre-bronchodilator | | | | |
| Atopic | -30.65 ( -67.49, 6.19) | 0.1006 | -7.85 ( -34.07, 18.38) | 0.549 |
| Non-Atopic | -16.48 ( -52.88, 19.92) | 0.3665 | -1.64 ( -24.93, 21.65) | 0.8875 |
| Interaction | 14.17 ( -33.61, 61.96) | 0.553 | 6.21 ( -29.09, 41.50) | 0.7243 |
| FVC Post-bronchodilator/ml | | | | |
| Atopic | -35.60 ( -75.57, 4.36) | 0.0794 | -16.32 ( -46.61, 13.97) | 0.2828 |
| Non-Atopic | -40.12 ( -84.04, 3.80) | 0.0723 | -13.14 ( -44.38, 18.10) | 0.4006 |
| Interaction | -4.52 ( -48.07, 39.04) | 0.8354 | 3.18 ( -30.54, 36.91) | 0.8496 |
| Change in FEV1 (%) Post-bronchodilator | | | | |
| Atopic | -0.10 ( -1.27, 1.08) | 0.8667 | -0.62 ( -1.49, 0.26) | 0.1622 |
| Non-Atopic | -0.66 ( -1.67, 0.36) | 0.1987 | -0.53 ( -1.32, 0.26) | 0.1836 |
| Interaction | -0.56 ( -1.62, 0.51) | 0.2976 | 0.09 ( -0.73, 0.90) | 0.831 |
| FEV1/FVC Ratio Pre-bronchodilator (%) | | | | |
| Atopic | -0.08 ( -1.07, 0.91) | 0.8702 | 0.17 ( -0.58, 0.92) | 0.6531 |
| Non-Atopic | 0.45 ( -0.52, 1.42) | 0.3522 | 0.28 ( -0.39, 0.96) | 0.3982 |
| Interaction | 0.53 ( -0.47, 1.54) | 0.2919 | 0.12 ( -0.66, 0.90) | 0.7641 |
| FEV1/FVC Ratio Post-bronchodilator(%) | | | | |
| Atopic | 0.20 ( -0.63, 1.03) | 0.6313 | -0.08 ( -0.72, 0.55) | 0.7938 |
| Non-Atopic | **0.94 ( 0.08, 1.80)I\*** | **0.033** | 0.40 ( -0.32, 1.11) | 0.2674 |
| Interaction | 0.74 ( -0.25, 1.73) | 0.1377 | 0.48 ( -0.36, 1.33) | 0.256 |
| Log(exhaled NO) | | | | |
| Atopic | **0.10 ( 0.03, 0.17)I\*** | **0.0053** | **0.07 ( 0.02, 0.12)I\*** | **0.006** |
| Non-Atopic | 0.07 ( -0.01, 0.15) | 0.0666 | -0.00 ( -0.06, 0.06) | 0.99 |
| Interaction | -0.03 ( -0.08, 0.03) | 0.2977 | **-0.07 ( -0.12, -0.02)D\*** | **0.0034** |

Table 3.4. Atopy: NO2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| FEV1 Pre-bronchodilator/ml | | | | |
| Atopic | -23.38 ( -47.51, 0.74) | 0.0571 | -26.45 ( -53.22, 0.31) | 0.0526 |
| Non-Atopic | -14.73 ( -37.22, 7.76) | 0.1938 | -21.77 ( -45.64, 2.09) | 0.0726 |
| Interaction | 8.65 ( -19.80, 37.11) | 0.5434 | 4.68 ( -27.18, 36.54) | 0.7682 |
| FEV1 Post-bronchodilator/ml | | | | |
| Atopic | -17.29 ( -42.92, 8.34) | 0.181 | -23.52 ( -51.25, 4.21) | 0.0943 |
| Non-Atopic | **-27.34 ( -49.4, -5.28)D\*** | **0.0162** | **-33.52 ( -56.60, -10.43)D\*** | **0.0054** |
| Interaction | -10.05 ( -37.87, 17.77) | 0.4709 | -10.00 ( -41.05, 21.06) | 0.5195 |
| FVC Pre-bronchodilator | | | | |
| Atopic | -23.50 ( -51.09, 4.09) | 0.0932 | **-33.22 ( -58.17, -8.27)D\*** | **0.0102** |
| Non-Atopic | **-34.34 ( -58.3, -10.3)D\*** | **0.0059** | **-40.08 ( -63.98, -16.19)D\*** | **0.0015** |
| Interaction | -10.84 ( -41.78, 20.10) | 0.4842 | -6.87 ( -35.18, 21.45) | 0.6271 |
| FVC Post-bronchodilator/ml | | | | |
| Atopic | -11.21 ( -38.21, 15.79) | 0.4075 | -18.77 ( -46.90, 9.36) | 0.1852 |
| Non-Atopic | **-31.15 ( -56.6, -5.72)D\*** | **0.0174** | **-36.56 ( -64.78, -8.35)D\*** | **0.0123** |
| Interaction | -19.93 ( -45.96, 6.09) | 0.13 | -17.79 ( -44.56, 8.98) | 0.1869 |
| Change in FEV1 (%) Post-bronchodilator | | | | |
| Atopic | 0.42 ( -0.47, 1.31) | 0.3508 | 0.24 ( -0.87, 1.34) | 0.6686 |
| Non-Atopic | -0.58 ( -1.29, 0.12) | 0.1011 | -0.55 ( -1.43, 0.32) | 0.2072 |
| Interaction | **-1.00 ( -1.66, -0.35)D\*** | **0.0035** | -0.79 ( -1.58, 0.00) | 0.0507 |
| FEV1/FVC Ratio Pre-bronchodilator (%) | | | | |
| Atopic | -0.21 ( -1.05, 0.64) | 0.624 | 0.06 ( -0.71, 0.83) | 0.8763 |
| Non-Atopic | 0.52 ( -0.15, 1.19) | 0.1246 | 0.40 ( -0.24, 1.03) | 0.2115 |
| Interaction | 0.73 ( -0.15, 1.60) | 0.1032 | 0.34 ( -0.48, 1.15) | 0.4065 |
| FEV1/FVC Ratio Post-bronchodilator(%) | | | | |
| Atopic | 0.03 ( -0.56, 0.62) | 0.9162 | -0.05 ( -0.59, 0.50) | 0.864 |
| Non-Atopic | 0.22 ( -0.33, 0.78) | 0.4161 | 0.04 ( -0.52, 0.60) | 0.8834 |
| Interaction | 0.19 ( -0.49, 0.88) | 0.5721 | 0.09 ( -0.59, 0.76) | 0.7953 |
| Log(exhaled NO) | | | | |
| Atopic | **0.06 ( 0.01, 0.12)I\*** | **0.0302** | **0.07 ( 0.02, 0.13)I\*** | **0.0133** |
| Non-Atopic | **0.10 ( 0.02, 0.17)I\*** | **0.0113** | **0.11 ( 0.03, 0.18)I\*** | **0.0052** |
| Interaction | 0.03 ( -0.01, 0.07) | 0.0881 | 0.03 ( -0.01, 0.08) | 0.1481 |

Table 3.5. Atopy: O3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| FEV1 Pre-bronchodilator/ml | | | | |
| Atopic | 5.45 ( -16.52, 27.42) | 0.6181 | 25.77 ( -0.35, 51.90) | 0.0529 |
| Non-Atopic | -2.50 ( -26.07, 21.07) | 0.8309 | 1.77 ( -25.87, 29.40) | 0.8973 |
| Interaction | -7.95 ( -41.35, 25.45) | 0.6323 | -24.01 ( -60.97, 12.95) | 0.1954 |
| FEV1 Post-bronchodilator/ml | | | | |
| Atopic | 12.31 ( -14.06, 38.67) | 0.3503 | **30.04 ( 6.50, 53.59)I\*** | **0.0139** |
| Non-Atopic | 8.61 ( -11.70, 28.91) | 0.3958 | 11.21 ( -11.68, 34.09) | 0.3263 |
| Interaction | -3.70 ( -34.07, 26.67) | 0.8063 | -18.84 ( -53.12, 15.44) | 0.2716 |
| FVC Pre-bronchodilator | | | | |
| Atopic | 4.59 ( -21.56, 30.74) | 0.724 | **36.53 ( 10.99, 62.06)I\*** | **0.0064** |
| Non-Atopic | 13.19 ( -8.65, 35.04) | 0.2287 | 15.52 ( -10.88, 41.91) | 0.2401 |
| Interaction | 8.60 ( -21.13, 38.33) | 0.5611 | -21.01 ( -52.89, 10.87) | 0.1891 |
| FVC Post-bronchodilator/ml | | | | |
| Atopic | 5.68 ( -30.25, 41.61) | 0.7505 | **37.96 ( 11.09, 64.83)I\*** | **0.007** |
| Non-Atopic | 14.04 ( -13.94, 42.02) | 0.3157 | 24.88 ( -3.31, 53.07) | 0.0816 |
| Interaction | 8.36 ( -17.24, 33.97) | 0.5122 | -13.08 ( -41.09, 14.94) | 0.3492 |
| Change in FEV1 (%) Post-bronchodilator | | | | |
| Atopic | 0.26 ( -0.65, 1.16) | 0.5671 | 0.17 ( -1.03, 1.38) | 0.7709 |
| Non-Atopic | 0.50 ( -0.31, 1.31) | 0.22 | 0.43 ( -0.54, 1.40) | 0.3687 |
| Interaction | 0.24 ( -0.23, 0.71) | 0.3094 | 0.26 ( -0.48, 1.00) | 0.478 |
| FEV1/FVC Ratio Pre-bronchodilator (%) | | | | |
| Atopic | -0.03 ( -0.78, 0.72) | 0.9315 | -0.25 ( -0.98, 0.47) | 0.4777 |
| Non-Atopic | -0.40 ( -0.87, 0.07) | 0.0933 | -0.37 ( -0.89, 0.15) | 0.1574 |
| Interaction | -0.37 ( -1.21, 0.47) | 0.377 | -0.12 ( -0.94, 0.71) | 0.7744 |
| FEV1/FVC Ratio Post-bronchodilator(%) | | | | |
| Atopic | 0.22 ( -0.28, 0.72) | 0.3856 | -0.18 ( -0.75, 0.40) | 0.531 |
| Non-Atopic | -0.10 ( -0.61, 0.40) | 0.6833 | -0.34 ( -0.83, 0.16) | 0.1775 |
| Interaction | -0.32 ( -0.91, 0.27) | 0.2754 | -0.16 ( -0.92, 0.60) | 0.6775 |
| Log(exhaled NO) | | | | |
| Atopic | **-0.09 ( -0.13, -0.05)D\*** | **0.0001** | **-0.08 ( -0.13, -0.03)D\*** | **0.0015** |
| Non-Atopic | **-0.11 ( -0.17, -0.05)D\*** | **0.0007** | **-0.12 ( -0.19, -0.05)D\*** | **0.0017** |
| Interaction | -0.02 ( -0.07, 0.03) | 0.3446 | -0.04 ( -0.10, 0.02) | 0.2205 |

Table 3.6. Atopy: CO

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| FEV1 Pre-bronchodilator/ml | | | | |
| Atopic | 11.04 ( -8.31, 30.38) | 0.251 | **33.14 ( 7.32, 58.96)I\*** | 0.0139 |
| Non-Atopic | 6.59 ( -15.28, 28.45) | 0.5404 | 18.97 ( -2.22, 40.15) | 0.077 |
| Interaction | -4.45 ( -23.02, 14.13) | 0.6262 | -14.17 ( -44.90, 16.55) | 0.3512 |
| FEV1 Post-bronchodilator/ml | | | | |
| Atopic | 8.62 ( -9.73, 26.97) | 0.3423 | 23.81 ( -6.98, 54.59) | 0.1238 |
| Non-Atopic | -10.60 ( -27.26, 6.06) | 0.202 | -3.33 ( -26.69, 20.02) | 0.7712 |
| Interaction | **-19.2 ( -37.7, -0.71)D\*** | **0.0424** | -27.14 ( -59.51, 5.23) | 0.0965 |
| FVC Pre-bronchodilator | | | | |
| Atopic | 3.10 ( -18.39, 24.59) | 0.7691 | 17.46 ( -8.85, 43.77) | 0.1839 |
| Non-Atopic | -4.85 ( -21.78, 12.09) | 0.5608 | 2.35 ( -26.35, 31.05) | 0.8675 |
| Interaction | -7.94 ( -28.12, 12.23) | 0.4251 | -15.11 ( -47.78, 17.56) | 0.3498 |
| FVC Post-bronchodilator/ml | | | | |
| Atopic | 1.40 ( -16.20, 19.00) | 0.8711 | 11.93 ( -19.72, 43.57) | 0.4449 |
| Non-Atopic | **-19.7 ( -34.8, -4.56)D\*** | **0.0128** | -14.14 ( -41.90, 13.61) | 0.3039 |
| Interaction | **-21.1 ( -36.7, -5.41)D\*** | **0.0104** | -26.07 ( -55.51, 3.37) | 0.0801 |
| Change in FEV1 (%) Post-bronchodilator | | | | |
| Atopic | -0.05 ( -0.71, 0.60) | 0.8695 | -0.40 ( -1.22, 0.43) | 0.334 |
| Non-Atopic | **-0.89 ( -1.37, -0.40)D\*** | **0.0008** | **-1.11 ( -1.89, -0.33)D\*** | 0.0072 |
| Interaction | **-0.83 ( -1.28, -0.39)D\*** | **0.0007** | -0.72 ( -1.50, 0.07) | 0.0707 |
| FEV1/FVC Ratio Pre-bronchodilator (%) | | | | |
| Atopic | 0.23 ( -0.38, 0.84) | 0.4411 | 0.75 ( -0.04, 1.54) | 0.063 |
| Non-Atopic | 0.44 ( -0.27, 1.15) | 0.2114 | 0.66 ( -0.16, 1.48) | 0.1086 |
| Interaction | 0.21 ( -0.40, 0.82) | 0.4796 | -0.08 ( -0.98, 0.81) | 0.8473 |
| FEV1/FVC Ratio Post-bronchodilator(%) | | | | |
| Atopic | 0.33 ( -0.01, 0.67) | 0.0555 | 0.39 ( -0.16, 0.94) | 0.1584 |
| Non-Atopic | 0.25 ( -0.35, 0.85) | 0.3995 | 0.15 ( -0.58, 0.88) | 0.6757 |
| Interaction | -0.08 ( -0.70, 0.54) | 0.7944 | -0.24 ( -1.12, 0.64) | 0.58 |
| Log(exhaled NO) | | | | |
| Atopic | -0.04 ( -0.08, 0.00) | 0.0735 | -0.03 ( -0.11, 0.05) | 0.4386 |
| Non-Atopic | -0.04 ( -0.09, 0.01) | 0.1132 | -0.02 ( -0.10, 0.06) | 0.5825 |
| Interaction | -0.00 ( -0.02, 0.02) | 0.9282 | 0.01 ( -0.04, 0.06) | 0.691 |

Table 3.7. Atopy: SO2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| FEV1 Pre-bronchodilator/ml | | | | |
| Atopic | **-12.61 ( -22.52, -2.70)** | **0.0148** | **-16.38 ( -28.76, -4.00)** | **0.0122** |
| Non-Atopic | -0.77 ( -7.03, 5.49) | 0.8015 | -1.63 ( -11.47, 8.20) | 0.7318 |
| Interaction | **11.84 ( 5.10, 18.58)** | **0.0013** | **14.75 ( 8.23, 21.27)** | **0.0001** |
| FEV1 Post-bronchodilator/ml | | | | |
| Atopic | **-14.37 ( -21.87, -6.87)** | **0.0006** | **-18.95 ( -28.53, -9.38)** | **0.0005** |
| Non-Atopic | -0.12 ( -4.96, 4.71) | 0.958 | -1.83 ( -9.25, 5.59) | 0.6111 |
| Interaction | **14.25 ( 8.20, 20.30)** | **< 0.0001** | **17.12 ( 11.69, 22.56)** | **< 0.0001** |
| FVC Pre-bronchodilator | | | | |
| Atopic | **-25.08 ( -41.81, -8.35)** | **0.005** | **-31.14 ( -50.77, -11.52)** | **0.0035** |
| Non-Atopic | 1.53 ( -4.47, 7.53) | 0.6025 | -1.34 ( -8.08, 5.39) | 0.6813 |
| Interaction | **26.61 ( 11.83, 41.39)** | **0.0011** | **29.80 ( 12.37, 47.23)** | **0.002** |
| FVC Post-bronchodilator/ml | | | | |
| Atopic | **-20.56 ( -36.63, -4.48)** | **0.0144** | **-22.74 ( -42.02, -3.46)** | **0.0232** |
| Non-Atopic | 0.93 ( -3.46, 5.32) | 0.6658 | 1.09 ( -3.80, 5.99) | 0.6457 |
| Interaction | **21.48 ( 7.43, 35.54)** | **0.0043** | **23.83 ( 7.36, 40.30)** | **0.0069** |
| Change in FEV1 (%) Post-bronchodilator | | | | |
| Atopic | -0.10 ( -0.39, 0.19) | 0.4895 | -0.12 ( -0.55, 0.30) | 0.5577 |
| Non-Atopic | 0.03 ( -0.18, 0.24) | 0.7662 | -0.00 ( -0.32, 0.32) | 0.9762 |
| Interaction | 0.13 ( -0.05, 0.31) | 0.1492 | 0.12 ( -0.11, 0.34) | 0.285 |
| FEV1/FVC Ratio Pre-bronchodilator (%) | | | | |
| Atopic | **0.47 ( 0.10, 0.84)** | **0.0155** | **0.57 ( 0.14, 0.99)** | **0.0117** |
| Non-Atopic | -0.11 ( -0.34, 0.13) | 0.357 | -0.03 ( -0.29, 0.23) | 0.798 |
| Interaction | **-0.57 ( -0.88, -0.27)** | **0.0008** | **-0.60 ( -0.90, -0.30)** | **0.0004** |
| FEV1/FVC Ratio Post-bronchodilator(%) | | | | |
| Atopic | 0.23 ( -0.26, 0.72) | 0.3364 | 0.23 ( -0.40, 0.86) | 0.4505 |
| Non-Atopic | -0.04 ( -0.23, 0.15) | 0.6655 | -0.02 ( -0.26, 0.22) | 0.8667 |
| Interaction | -0.27 ( -0.69, 0.15) | 0.1957 | -0.25 ( -0.78, 0.28) | 0.3375 |
| Log(exhaled NO) | | | | |
| Atopic | -0.01 ( -0.03, 0.01) | 0.2620 | -0.01 ( -0.03, 0.01) | 0.2878 |
| Non-Atopic | **-0.01 ( -0.03, -0.00)** | **0.0446** | **-0.02 ( -0.03, -0.00)** | **0.0382** |
| Interaction | -0.00 ( -0.03, 0.02) | 0.6778 | -0.01 ( -0.03, 0.02) | 0.6842 |

# Lung Function Interaction Models: Gender

Table 4.1. Gender: Bsp

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| FEV1 Pre-bronchodilator/ml | | | | |
| Males | -2.25 ( -14.30, 9.80) | 0.7073 | 0.13 ( -32.89, 33.15) | 0.9937 |
| Females | **10.98 ( 0.01, 21.94)I\*** | **0.0497** | **34.58 ( 11.17, 57.98)I\*** | **0.0052** |
| Interaction | **13.23 ( 0.55, 25.90)I\*** | **0.0412** | 34.45 ( -3.00, 71.90) | 0.0699 |
| FEV1 Post-bronchodilator/ml | | | | |
| Males | -10.03 ( -23.29, 3.23) | 0.1339 | -21.54 ( -56.62, 13.53) | 0.2191 |
| Females | 3.43 ( -7.52, 14.39) | 0.5296 | 13.49 ( -12.89, 39.87) | 0.3042 |
| Interaction | **13.46 ( 2.12, 24.80)I\*** | **0.0212** | **35.03 ( 3.84, 66.22)I\*** | **0.029** |
| FVC Pre-bronchodilator | | | | |
| Males | -1.18 ( -16.09, 13.73) | 0.8735 | 7.53 ( -32.48, 47.54) | 0.703 |
| Females | -1.09 ( -15.03, 12.85) | 0.8748 | 11.97 ( -18.70, 42.64) | 0.431 |
| Interaction | 0.09 ( -17.88, 18.06) | 0.9921 | 4.44 ( -36.44, 45.33) | 0.8256 |
| FVC Post-bronchodilator/ml | | | | |
| Males | -9.92 ( -27.15, 7.31) | 0.251 | -17.18 ( -64.01, 29.66) | 0.4592 |
| Females | -5.87 ( -20.84, 9.11) | 0.4328 | 6.39 ( -30.23, 43.01) | 0.7237 |
| Interaction | 4.05 ( -10.99, 19.10) | 0.5886 | 23.57 ( -11.68, 58.82) | 0.1819 |
| Change in FEV1 (%) Post-bronchodilator | | | | |
| Males | -0.34 ( -0.80, 0.13) | 0.1508 | -0.87 ( -1.89, 0.14) | 0.0891 |
| Females | **-0.42 ( -0.83, -0.01)D\*** | **0.0436** | **-1.27 ( -2.13, -0.42)D\*** | **0.0048** |
| Interaction | -0.09 ( -0.42, 0.25) | 0.6034 | -0.40 ( -1.23, 0.43) | 0.333 |
| FEV1/FVC Ratio Pre-bronchodilator (%) | | | | |
| Males | -0.07 ( -0.39, 0.25) | 0.639 | -0.28 ( -0.94, 0.38) | 0.3941 |
| Females | **0.60 ( 0.27, 0.93)I\*** | **0.0006** | **1.16 ( 0.39, 1.93)I\*** | **0.0043** |
| Interaction | **0.68 ( 0.30, 1.06)I\*** | **0.0008** | **1.44 ( 0.49, 2.39)I\*** | **0.0042** |
| FEV1/FVC Ratio Post-bronchodilator(%) | | | | |
| Males | -0.04 ( -0.29, 0.22) | 0.761 | -0.35 ( -1.06, 0.36) | 0.3236 |
| Females | 0.29 ( -0.03, 0.62) | 0.0722 | 0.41 ( -0.40, 1.22) | 0.304 |
| Interaction | 0.33 ( -0.05, 0.71) | 0.0831 | 0.76 ( -0.17, 1.70) | 0.1065 |
| Log(exhaled NO) | | | | |
| Males | 0.00 ( -0.04, 0.04) | 0.9526 | 0.04 ( -0.01, 0.10) | 0.1359 |
| Females | -0.00 ( -0.04, 0.03) | 0.8615 | 0.01 ( -0.04, 0.07) | 0.6029 |
| Interaction | -0.00 ( -0.04, 0.03) | 0.7791 | -0.03 ( -0.10, 0.04) | 0.4138 |

Table 4.2. Gender: PM2.5

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| FEV1 Pre-bronchodilator/ml | | | | |
| Males | -20.26 ( -42.01, 1.49) | 0.0671 | -4.72 ( -22.68, 13.24) | 0.5897 |
| Females | 9.28 ( -15.55, 34.11) | 0.4555 | 15.90 ( -6.86, 38.65) | 0.1605 |
| Interaction | **29.54 ( 3.62, 55.46)I\*** | **0.0264** | 20.62 ( -3.04, 44.27) | 0.084 |
| FEV1 Post-bronchodilator/ml | | | | |
| Males | -22.39 ( -45.69, 0.91) | 0.0592 | **-35.29 ( -65.72, -4.86)D\*** | **0.0252** |
| Females | 0.74 ( -23.05, 24.53) | 0.9502 | -13.51 ( -41.18, 14.17) | 0.3208 |
| Interaction | **23.13 ( 1.21, 45.05)I\*** | **0.0391** | 21.78 ( -2.37, 45.94) | 0.0745 |
| FVC Pre-bronchodilator | | | | |
| Males | -23.85 ( -48.25, 0.55) | 0.0551 | -22.95 ( -47.52, 1.62) | 0.0654 |
| Females | -3.32 ( -32.76, 26.12) | 0.8212 | -18.52 ( -48.76, 11.72) | 0.2159 |
| Interaction | 20.53 ( -9.43, 50.48) | 0.1743 | 4.43 ( -16.30, 25.16) | 0.6607 |
| FVC Post-bronchodilator/ml | | | | |
| Males | **-30.89 ( -60.7, -1.08)D\*** | **0.0425** | **-53.58 (-103.77, -3.39)D\*** | **0.0376** |
| Females | -3.58 ( -37.79, 30.63) | 0.8338 | **-40.89 ( -78.95, -2.84)D\*** | **0.0365** |
| Interaction | 27.31 ( -3.83, 58.44) | 0.0841 | 12.69 ( -22.62, 47.99) | 0.4622 |
| Change in FEV1 (%) Post-bronchodilator | | | | |
| Males | -0.19 ( -1.13, 0.75) | 0.6864 | -1.27 ( -2.77, 0.24) | 0.094 |
| Females | -0.55 ( -1.39, 0.30) | 0.1978 | **-1.56 ( -2.47, -0.65)D\*** | **0.0018** |
| Interaction | -0.36 ( -1.07, 0.35) | 0.3127 | -0.30 ( -1.50, 0.90) | 0.6105 |
| FEV1/FVC Ratio Pre-bronchodilator (%) | | | | |
| Males | 0.15 ( -0.59, 0.90) | 0.6795 | 0.41 ( -0.52, 1.35) | 0.3695 |
| Females | 0.71 ( -0.14, 1.56) | 0.0984 | **1.55 ( 0.73, 2.36)I\*** | **0.0007** |
| Interaction | 0.56 ( -0.54, 1.65) | 0.3118 | **1.13 ( 0.09, 2.17)I\*** | **0.0342** |
| FEV1/FVC Ratio Post-bronchodilator(%) | | | | |
| Males | 0.43 ( -0.05, 0.90) | 0.0755 | 0.58 ( -0.13, 1.29) | 0.1014 |
| Females | 0.52 ( -0.23, 1.28) | 0.1673 | **1.10 ( 0.27, 1.92)I\*** | **0.0116** |
| Interaction | 0.10 ( -0.79, 0.99) | 0.8241 | 0.51 ( -0.62, 1.65) | 0.3579 |
| Log(exhaled NO) | | | | |
| Males | 0.02 ( -0.04, 0.09) | 0.4863 | Model did not fit |  |
| Females | -0.03 ( -0.09, 0.02) | 0.2315 |  |  |
| Interaction | **-0.06 ( -0.11, -0.01)D\*** | **0.0268** |  |  |

Table 4.3. Gender: PM10

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| FEV1 Pre-bronchodilator/ml | | | | |
| Males | **-26.69 ( -50.3, -3.08)D\*** | 0.0276 | -12.71 ( -34.44, 9.03) | 0.2446 |
| Females | -5.57 ( -32.69, 21.54) | 0.6806 | 13.93 ( -3.63, 31.48) | 0.1167 |
| Interaction | 21.12 ( -5.01, 47.24) | 0.1104 | **26.63 ( 3.51, 49.76)I\*** | **0.025** |
| FEV1 Post-bronchodilator/ml | | | | |
| Males | **-30.15 ( -57.1, -3.23)D\*** | 0.029 | -22.18 ( -46.16, 1.79) | 0.0688 |
| Females | -17.72 ( -44.81, 9.37) | 0.1943 | 0.45 ( -18.33, 19.22) | 0.9619 |
| Interaction | 12.43 ( -13.93, 38.78) | 0.3471 | **22.63 ( 3.25, 42.01)I\*** | **0.0232** |
| FVC Pre-bronchodilator | | | | |
| Males | -19.89 ( -54.04, 14.26) | 0.2467 | -3.76 ( -28.85, 21.34) | 0.7638 |
| Females | -26.58 ( -56.31, 3.15) | 0.0783 | -5.64 ( -27.59, 16.32) | 0.6068 |
| Interaction | -6.69 ( -37.92, 24.53) | 0.6678 | -1.88 ( -33.48, 29.72) | 0.9049 |
| FVC Post-bronchodilator/ml | | | | |
| Males | -36.90 ( -79.26, 5.47) | 0.2568 | -21.15 ( -53.95, 11.65) | 0.2001 |
| Females | **-38.96 ( -75.4, -2.54)D\*** | 0.0269 | -8.59 ( -35.25, 18.07) | 0.5187 |
| Interaction | -2.06 ( -34.10, 29.98) | 0.537 | 12.56 ( -17.53, 42.64) | 0.4041 |
| Change in FEV1 (%) Post-bronchodilator | | | | |
| Males | -0.10 ( -1.17, 0.98) | 0.8576 | -0.32 ( -1.16, 0.52) | 0.4449 |
| Females | -0.67 ( -1.69, 0.36) | 0.1952 | **-0.80 ( -1.55, -0.04)D\*** | **0.0391** |
| Interaction | -0.57 ( -1.41, 0.27) | 0.1795 | -0.48 ( -1.13, 0.18) | 0.1509 |
| FEV1/FVC Ratio Pre-bronchodilator (%) | | | | |
| Males | -0.71 ( -1.77, 0.36) | 0.1896 | -0.55 ( -1.35, 0.24) | 0.168 |
| Females | 0.95 ( -0.08, 1.97) | 0.0689 | **0.91 ( 0.26, 1.55)I\*** | **0.0071** |
| Interaction | **1.65 ( 0.54, 2.77)I\*** | 0.0045 | **1.46 ( 0.68, 2.24)I\*** | **0.0005** |
| FEV1/FVC Ratio Post-bronchodilator(%) | | | | |
| Males | 0.22 ( -0.61, 1.06) | 0.594 | -0.12 ( -0.74, 0.49) | 0.6844 |
| Females | **0.93 ( 0.03, 1.83)I\*** | 0.0438 | 0.46 ( -0.18, 1.10) | 0.1515 |
| Interaction | 0.71 ( -0.32, 1.74) | 0.1727 | 0.59 ( -0.09, 1.27) | 0.088 |
| Log(exhaled NO) | | | | |
| Males | **0.11 ( 0.03, 0.19)I\*** | 0.0085 | 0.05 ( -0.00, 0.11) | 0.0549 |
| Females | 0.07 ( -0.01, 0.14) | 0.0677 | 0.01 ( -0.05, 0.07) | 0.6679 |
| Interaction | -0.04 ( -0.10, 0.02) | 0.1801 | -0.04 ( -0.09, 0.01) | 0.1184 |

Table 4.4. Gender: NO2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| FEV1 Pre-bronchodilator/ml | | | | |
| Males | **-24.94 ( -42.6, -7.25)D\*** | **0.0067** | **-31.11 ( -50.54, -11.69)D\*** | **0.0023** |
| Females | -12.62 ( -35.35, 10.11) | 0.2695 | -16.98 ( -40.31, 6.35) | 0.1494 |
| Interaction | 12.32 ( -5.78, 30.43) | 0.1773 | 14.14 ( -4.58, 32.86) | 0.135 |
| FEV1 Post-bronchodilator/ml | | | | |
| Males | **-30.2 ( -49.8, -10.49)D\*** | **0.0034** | **-38.67 ( -59.40, -17.93)D\*** | **0.0005** |
| Females | -14.62 ( -36.77, 7.53) | 0.1906 | -18.92 ( -41.20, 3.36) | 0.0939 |
| Interaction | 15.55 ( -0.49, 31.60) | 0.0571 | **19.75 ( 3.62, 35.88)I\*** | **0.0176** |
| FVC Pre-bronchodilator | | | | |
| Males | **-27.82 ( -51.2, -4.44)D\*** | **0.0207** | **-36.71 ( -59.81, -13.62)D\*** | **0.0025** |
| Females | **-30.59 ( -52.9, -8.23)D\*** | **0.0084** | **-36.94 ( -58.68, -15.19)D\*** | **0.0013** |
| Interaction | -2.77 ( -22.07, 16.53) | 0.7738 | -0.22 ( -20.78, 20.33) | 0.9824 |
| FVC Post-bronchodilator/ml | | | | |
| Males | **-24.64 ( -41.7, -7.54)D\*** | **0.0056** | **-31.37 ( -56.36, -6.38)D\*** | **0.0151** |
| Females | -19.41 ( -43.46, 4.65) | 0.1113 | **-24.74 ( -54.43, 4.96)** | **0.1002** |
| Interaction | 5.23 ( -15.24, 25.70) | 0.6098 | 6.64 ( -16.70, 29.97) | 0.569 |
| Change in FEV1 (%) Post-bronchodilator | | | | |
| Males | -22.66 ( -45.51, 0.18) | 0.0517 | -0.25 ( -1.23, 0.73) | 0.6096 |
| Females | -20.50 ( -47.50, 6.50) | 0.1333 | -0.11 ( -1.06, 0.84) | 0.8122 |
| Interaction | 2.17 ( -18.47, 22.80) | 0.8335 | 0.14 ( -0.44, 0.71) | 0.6334 |
| FEV1/FVC Ratio Pre-bronchodilator (%) | | | | |
| Males | -0.18 ( -0.87, 0.51) | 0.6066 | -0.04 ( -0.69, 0.62) | 0.9045 |
| Females | 0.77 ( -0.00, 1.55) | 0.0508 | **0.77 ( 0.06, 1.49)I\*** | **0.0347** |
| Interaction | **0.95 ( 0.08, 1.82)I\*** | **0.0326** | 0.81 ( -0.02, 1.65) | 0.0566 |
| FEV1/FVC Ratio Post-bronchodilator(%) | | | | |
| Males | -0.14 ( -0.64, 0.37) | 0.5938 | -0.24 ( -0.75, 0.26) | 0.3359 |
| Females | 0.66 ( -0.03, 1.35) | 0.0603 | 0.53 ( -0.15, 1.20) | 0.1223 |
| Interaction | **0.79 ( 0.10, 1.49)I\*** | **0.0259** | **0.77 ( 0.06, 1.49)I\*** | **0.0352** |
| Log(exhaled NO) | | | | |
| Males | **0.09 ( 0.03, 0.15)I\*** | **0.0066** | **0.10 ( 0.04, 0.16)I\*** | **0.0018** |
| Females | **0.08 ( 0.00, 0.15)I\*** | **0.0386** | **0.08 ( 0.01, 0.15)I\*** | **0.0215** |
| Interaction | -0.01 ( -0.04, 0.02) | 0.4681 | -0.02 ( -0.05, 0.01) | 0.288 |

Table 4.5. Gender: O3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| FEV1 Pre-bronchodilator/ml | | | | |
| Males | 5.47 ( -11.21, 22.16) | 0.5105 | 11.89 ( -8.23, 32.00) | 0.2377 |
| Females | -3.17 ( -23.56, 17.22) | 0.7543 | 11.54 ( -11.95, 35.03) | 0.3249 |
| Interaction | -8.64 ( -29.00, 11.71) | 0.395 | -0.35 ( -20.64, 19.94) | 0.9723 |
| FEV1 Post-bronchodilator/ml | | | | |
| Males | 16.40 ( -1.94, 34.75) | 0.0781 | 21.70 ( -0.05, 43.45) | 0.0505 |
| Females | 4.53 ( -16.78, 25.85) | 0.6688 | **16.50 ( 0.26, 32.74)I\*** | **0.0465** |
| Interaction | -11.87 ( -29.97, 6.23) | 0.1921 | -5.20 ( -26.88, 16.48) | 0.6288 |
| FVC Pre-bronchodilator | | | | |
| Males | 4.55 ( -16.26, 25.35) | 0.6604 | 20.57 ( -4.06, 45.19) | 0.0987 |
| Females | 13.94 ( -9.16, 37.05) | 0.2291 | **27.61 ( 5.50, 49.72)I\*** | **0.0159** |
| Interaction | 9.40 ( -13.80, 32.59) | 0.4169 | 7.04 ( -15.83, 29.92) | 0.5354 |
| FVC Post-bronchodilator/ml | | | | |
| Males | 7.91 ( -24.43, 40.25) | 0.623 | 28.15 ( -3.68, 59.98) | 0.0811 |
| Females | 12.55 ( -17.58, 42.68) | 0.404 | **32.11 ( 9.40, 54.81)I\*** | **0.0069** |
| Interaction | 4.64 ( -18.25, 27.53) | 0.6837 | 3.96 ( -23.05, 30.97) | 0.7675 |
| Change in FEV1 (%) Post-bronchodilator | | | | |
| Males | 0.32 ( -0.47, 1.11) | 0.4128 | 0.39 ( -0.55, 1.32) | 0.4053 |
| Females | 0.44 ( -0.46, 1.34) | 0.328 | 0.27 ( -0.88, 1.42) | 0.6364 |
| Interaction | 0.12 ( -0.26, 0.49) | 0.5319 | -0.12 ( -0.66, 0.42) | 0.663 |
| FEV1/FVC Ratio Pre-bronchodilator (%) | | | | |
| Males | 0.16 ( -0.47, 0.78) | 0.617 | -0.10 ( -0.75, 0.55) | 0.7551 |
| Females | **-0.80 ( -1.30, -0.30)D\*** | **0.0026** | -0.60 ( -1.27, 0.07) | 0.0754 |
| Interaction | **-0.95 ( -1.72, -0.19)D\*** | **0.0155** | -0.50 ( -1.45, 0.45) | 0.292 |
| FEV1/FVC Ratio Post-bronchodilator(%) | | | | |
| Males | 0.40 ( -0.16, 0.95) | 0.1561 | -0.05 ( -0.62, 0.52) | 0.8579 |
| Females | **-0.51 ( -0.97, -0.04)D\*** | **0.0345** | **-0.58 ( -1.13, -0.03)D\*** | **0.0405** |
| Interaction | **-0.90 ( -1.57, -0.24)D\*** | **0.0092** | -0.53 ( -1.35, 0.29) | 0.2001 |
| Log(exhaled NO) | | | | |
| Males | **-0.10 ( -0.14, -0.06)D\*** | **<= 0.0001** | **-0.10 ( -0.15, -0.05)D\*** | **0.0001** |
| Females | **-0.10 ( -0.16, -0.05)D\*** | **0.001** | **-0.11 ( -0.17, -0.04)D\*** | **0.0021** |
| Interaction | -0.01 ( -0.04, 0.03) | 0.6876 | -0.00 ( -0.04, 0.03) | 0.8327 |

Table 4.6. Gender: CO

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| FEV1 Pre-bronchodilator/ml | | | | |
| Males | 7.31 ( -13.12, 27.74) | 0.4681 | **26.77 ( 6.47, 47.07)I\*** | **0.0118** |
| Females | 10.19 ( -9.31, 29.70) | 0.2921 | **25.14 ( 2.01, 48.28)I\*** | **0.0343** |
| Interaction | 2.88 ( -12.30, 18.07) | 0.6988 | -1.63 ( -26.30, 23.03) | 0.8926 |
| FEV1 Post-bronchodilator/ml | | | | |
| Males | -5.49 ( -23.60, 12.61) | 0.5376 | 9.39 ( -16.08, 34.87) | 0.4547 |
| Females | 2.92 ( -12.43, 18.26) | 0.6987 | 10.54 ( -13.48, 34.56) | 0.3748 |
| Interaction | 8.41 ( -6.33, 23.15) | 0.251 | 1.15 ( -20.57, 22.86) | 0.9143 |
| FVC Pre-bronchodilator | | | | |
| Males | -4.12 ( -24.58, 16.35) | 0.6822 | 9.12 ( -17.21, 35.46) | 0.4821 |
| Females | 1.86 ( -15.87, 19.59) | 0.8308 | 10.47 ( -17.39, 38.33) | 0.4461 |
| Interaction | 5.97 ( -13.69, 25.64) | 0.5372 | 1.35 ( -29.85, 32.55) | 0.9298 |
| FVC Post-bronchodilator/ml | | | | |
| Males | -11.16 ( -27.74, 5.42) | 0.0793 | -3.77 ( -32.64, 25.09) | 0.7899 |
| Females | -7.86 ( -24.30, 8.58) | 0.4308 | 1.43 ( -28.03, 30.90) | 0.9209 |
| Interaction | 3.30 ( -11.70, 18.30) | 0.2938 | 5.21 ( -20.06, 30.48) | 0.6749 |
| Change in FEV1 (%) Post-bronchodilator | | | | |
| Males | **-0.55 ( -1.03, -0.06)D\*** | **0.0704** | -0.67 ( -1.39, 0.05) | 0.0666 |
| Females | -0.41 ( -1.08, 0.27) | 0.5364 | **-0.83 ( -1.65, -0.01)D\*** | **0.0472** |
| Interaction | 0.14 ( -0.31, 0.59) | 0.0854 | -0.16 ( -0.75, 0.44) | 0.5868 |
| FEV1/FVC Ratio Pre-bronchodilator (%) | | | | |
| Males | 0.39 ( -0.26, 1.03) | 0.2296 | **0.76 ( 0.05, 1.48)I\*** | **0.0374** |
| Females | 0.48 ( -0.24, 1.21) | 0.1812 | 0.84 ( -0.05, 1.73) | 0.0634 |
| Interaction | 0.10 ( -0.48, 0.68) | 0.7315 | 0.08 ( -0.83, 0.99) | 0.8642 |
| FEV1/FVC Ratio Post-bronchodilator(%) | | | | |
| Males | 0.18 ( -0.32, 0.68) | 0.4695 | 0.28 ( -0.32, 0.89) | 0.3425 |
| Females | **0.55 ( 0.03, 1.06)I\*** | **0.0374** | 0.50 ( -0.07, 1.07) | 0.0805 |
| Interaction | 0.37 ( -0.19, 0.93) | 0.1903 | 0.22 ( -0.51, 0.95) | 0.5447 |
| Log(exhaled NO) | | | | |
| Males | -0.03 ( -0.07, 0.01) | 0.1208 | -0.01 ( -0.09, 0.07) | 0.7848 |
| Females | -0.04 ( -0.09, 0.00) | 0.0701 | -0.04 ( -0.12, 0.04) | 0.2883 |
| Interaction | -0.01 ( -0.03, 0.01) | 0.1804 | -0.03 ( -0.06, 0.00) | 0.0547 |

Table 4.7. Gender: SO2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| FEV1 Pre-bronchodilator/ml | | | | |
| Males | -5.69 ( -12.21, 0.82) | 0.0836 | -8.70 ( -18.89, 1.49) | 0.09 |
| Females | -4.43 ( -14.40, 5.54) | 0.3675 | -5.28 ( -18.77, 8.20) | 0.4224 |
| Interaction | 1.26 ( -7.79, 10.32) | 0.7754 | 3.42 ( -7.62, 14.46) | 0.5248 |
| FEV1 Post-bronchodilator/ml | | | | |
| Males | **-6.94 ( -11.86, -2.02)D\*** | **0.0077** | **-10.65 ( -18.73, -2.56)D\*** | **0.0126** |
| Females | -3.67 ( -11.55, 4.21) | 0.3455 | -5.49 ( -15.90, 4.93) | 0.284 |
| Interaction | 3.27 ( -4.66, 11.21) | 0.4018 | 5.16 ( -4.36, 14.68) | 0.2709 |
| FVC Pre-bronchodilator | | | | |
| Males | **-12.41 ( -19.7, -5.13)D\*** | **0.0018** | **-17.00 ( -25.94, -8.06)D\*** | **0.0008** |
| Females | -4.72 ( -17.96, 8.53) | 0.4689 | -8.26 ( -24.02, 7.50) | 0.2864 |
| Interaction | 7.70 ( -0.66, 16.05) | 0.0692 | 8.74 ( -0.54, 18.03) | 0.0634 |
| FVC Post-bronchodilator/ml | | | | |
| Males | **-11.95 ( -18.7, -5.17)D\*** | **0.0013** | **-13.35 ( -21.56, -5.13)D\*** | **0.003** |
| Females | -2.03 ( -13.41, 9.36) | 0.7162 | -1.94 ( -16.06, 12.18) | 0.7771 |
| Interaction | **9.92 ( 2.40, 17.44)I\*** | **0.0119** | **11.41 ( 2.09, 20.73)I\*** | **0.019** |
| Change in FEV1 (%) Post-bronchodilator | | | | |
| Males | -0.10 ( -0.34, 0.13) | 0.3642 | -0.12 ( -0.47, 0.23) | 0.4873 |
| Females | 0.07 ( -0.15, 0.29) | 0.5122 | 0.03 ( -0.30, 0.36) | 0.8626 |
| Interaction | **0.17 ( 0.05, 0.29)I\*** | **0.0063** | 0.15 ( -0.01, 0.31) | 0.0674 |
| FEV1/FVC Ratio Pre-bronchodilator (%) | | | | |
| Males | **0.31 ( 0.02, 0.59)I\*** | **0.0364** | 0.35 ( -0.01, 0.71) | 0.0547 |
| Females | -0.09 ( -0.36, 0.18) | 0.5013 | 0.01 ( -0.28, 0.31) | 0.9303 |
| Interaction | **-0.40 ( -0.56, -0.23)D\*** | **< 0.0001** | **-0.34 ( -0.52, -0.16)D\*** | **0.0008** |
| FEV1/FVC Ratio Post-bronchodilator(%) | | | | |
| Males | 0.22 ( -0.04, 0.48) | 0.0898 | 0.21 ( -0.14, 0.55) | 0.2274 |
| Females | -0.11 ( -0.39, 0.18) | 0.4369 | -0.09 ( -0.44, 0.26) | 0.614 |
| Interaction | **-0.33 ( -0.45, -0.21)D\*** | **< 0.0001** | **-0.29 ( -0.43, -0.15)D\*** | **0.0003** |
| Log(exhaled NO) | | | | |
| Males | **-0.01 ( -0.02, -0.00)D\*** | **0.0164** | **-0.01 ( -0.03, -0.00)D\*** | **0.0246** |
| Females | **-0.01 ( -0.02, -0.00)D\*** | **0.0355** | **-0.02 ( -0.03, -0.00)D\*** | **0.0378** |
| Interaction | -0.00 ( -0.01, 0.01) | 0.8719 | -0.00 ( -0.01, 0.01) | 0.8158 |

# Symptom Interaction Models: Atopy

Table 5.1. Atopy: Bsp

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| Ever had wheezing | | | | |
| Atopic | 0.97 ( 0.87, 1.09) | 0.6256 |  |  |
| Non-Atopic | 0.95 ( 0.78, 1.17) | 0.6326 |  |  |
| Interaction | 0.98 ( 0.87, 1.10) | 0.7142 |  |  |
| Ever had Asthma | | | | |
| Atopic | 1.04 ( 0.94, 1.16) | 0.4534 |  |  |
| Non-Atopic | 1.06 ( 0.89, 1.25) | 0.5275 |  |  |
| Interaction | 1.01 ( 0.92, 1.12) | 0.7785 |  |  |
| Ever had medication for asthma/wheezing | | | | |
| Atopic | 0.99 ( 0.86, 1.15) | 0.9257 |  |  |
| Non-Atopic | 0.97 ( 0.80, 1.18) | 0.7625 |  |  |
| Interaction | 0.98 ( 0.90, 1.06) | 0.5982 |  |  |
| Ever had rhinitis | | | | |
| Atopic | 1.01 ( 0.90, 1.13) | 0.8225 |  |  |
| Non-Atopic | 0.97 ( 0.86, 1.10) | 0.6759 |  |  |
| Interaction | 0.96 ( 0.92, 1.00) | 0.0685 |  |  |
| Recent wheeze  after exercise | | | | |
| Atopic | 1.06 ( 0.92, 1.23) | 0.3928 | 1.19 ( 0.89, 1.58) | 0.2331 |
| Non-Atopic | 1.15 ( 0.93, 1.42) | 0.1891 | 1.35 ( 0.81, 2.27) | 0.2536 |
| Interaction | 1.08 ( 0.98, 1.20) | 0.1277 | 1.14 ( 0.82, 1.57) | 0.4363 |
| Recent wheeze after exercise | | | | |
| Atopic | 1.14 ( 0.95, 1.38) | 0.1633 | **1.49 ( 1.03, 2.17)I\*** | **0.0366** |
| Non-Atopic | 1.17 ( 0.89, 1.55) | 0.2618 | 1.66 ( 0.89, 3.07) | 0.1097 |
| Interaction | 1.03 ( 0.91, 1.16) | 0.6582 | 1.11 ( 0.81, 1.53) | 0.5212 |
| Current asthma | | | | |
| Atopic | 1.08 ( 0.94, 1.25) | 0.2873 | **1.44 ( 1.05, 1.97)I\*** | **0.0251** |
| Non-Atopic | 1.16 ( 0.93, 1.44) | 0.1808 | **1.92 ( 1.18, 3.12)I\*** | **0.0084** |
| Interaction | 1.07 ( 0.95, 1.21) | 0.2686 | **1.34 ( 1.01, 1.76)I\*** | **0.0395** |
| Recent visit to GP/ED/hospital | | | | |
| Atopic | 1.00 ( 0.89, 1.12) | 0.9593 | 1.09 ( 0.81, 1.47) | 0.566 |
| Non-Atopic | 1.00 ( 0.85, 1.18) | 0.9991 | 1.16 ( 0.78, 1.75) | 0.4633 |
| Interaction | 1.00 ( 0.91, 1.11) | 0.9507 | 1.07 ( 0.85, 1.34) | 0.5757 |
| Recent use of beta-agonist (short-term) | | | | |
| Atopic | 1.06 ( 0.94, 1.20) | 0.3507 | 1.10 ( 0.85, 1.42) | 0.4601 |
| Non-Atopic | 1.09 ( 0.89, 1.34) | 0.3884 | 1.18 ( 0.76, 1.81) | 0.4606 |
| Interaction | 1.03 ( 0.90, 1.18) | 0.6533 | 1.07 ( 0.81, 1.41) | 0.6362 |
| Recent cough |  |  |  |  |
| Atopic | 0.96 ( 0.84, 1.10) | 0.5666 | 0.82 ( 0.64, 1.05) | 0.1199 |
| Non-Atopic | 0.98 ( 0.82, 1.18) | 0.871 | 0.79 ( 0.56, 1.11) | 0.1694 |
| Interaction | 1.02 ( 0.94, 1.12) | 0.6048 | 0.96 ( 0.80, 1.16) | 0.666 |
| Recent rhinitis |  |  |  |  |
| Atopic | 1.04 ( 0.93, 1.17) | 0.5104 | 1.00 ( 0.79, 1.26) | 0.9982 |
| Non-Atopic | 1.01 ( 0.89, 1.14) | 0.9137 | 0.98 ( 0.75, 1.27) | 0.8632 |
| Interaction | 0.97 ( 0.92, 1.02) | 0.2014 | 0.98 ( 0.86, 1.11) | 0.7277 |
| Recent itchy rash for 6 months | | | | |
| Atopic | 1.04 ( 0.92, 1.18) | 0.5105 | 1.23 ( 0.92, 1.64) | 0.1585 |
| Non-Atopic | 1.06 ( 0.94, 1.19) | 0.3357 | **1.40 ( 1.04, 1.89)I\*** | **0.0279** |
| Interaction | 1.02 ( 0.89, 1.16) | 0.7898 | 1.14 ( 0.85, 1.52) | 0.3844 |

Table 5.2. Atopy: PM2.5

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| Ever had wheezing | | | | |
| Atopic | 1.11 ( 0.95, 1.31) | 0.1904 |  |  |
| Non-Atopic | **1.36 ( 1.05, 1.76)I\*** | **0.0183** |  |  |
| Interaction | **1.22 ( 1.06, 1.41)I\*** | **0.007** |  |  |
| Ever had Asthma | | | | |
| Atopic | 1.06 ( 0.91, 1.23) | 0.4506 |  |  |
| Non-Atopic | **1.45 ( 1.19, 1.76)I\*** | **0.0001** |  |  |
| Interaction | **1.37 ( 1.21, 1.54)I\*** | **< 0.0001** |  |  |
| Ever had medication for asthma/wheezing | | | | |
| Atopic | 1.06 ( 0.87, 1.31) | 0.5553 |  |  |
| Non-Atopic | **1.34 ( 1.04, 1.72)I\*** | **0.021** |  |  |
| Interaction | **1.26 ( 1.11, 1.42)I\*** | **0.0002** |  |  |
| Ever had rhinitis | | | | |
| Atopic | 1.16 ( 0.94, 1.42) | 0.1626 |  |  |
| Non-Atopic | **1.32 ( 1.06, 1.64)I\*** | **0.0133** |  |  |
| Interaction | 1.14 ( 0.98, 1.32) | 0.0805 |  |  |
| Recent wheeze  after exercise | | | | |
| Atopic | 1.14 ( 0.92, 1.41) | 0.2353 | 1.11 ( 0.79, 1.56) | 0.5534 |
| Non-Atopic | 1.41 ( 0.92, 2.15) | 0.1144 | 1.16 ( 0.70, 1.92) | 0.5623 |
| Interaction | 1.24 ( 0.95, 1.62) | 0.1207 | 1.05 ( 0.84, 1.30) | 0.6897 |
| Recent wheeze after exercise | | | | |
| Atopic | 1.12 ( 0.84, 1.48) | 0.4441 | 0.94 ( 0.63, 1.39) | 0.7505 |
| Non-Atopic | 1.27 ( 0.76, 2.12) | 0.3596 | 0.81 ( 0.45, 1.45) | 0.4784 |
| Interaction | 1.14 ( 0.85, 1.52) | 0.3767 | 0.86 ( 0.65, 1.15) | 0.3133 |
| Current asthma | | | | |
| Atopic | 1.10 ( 0.86, 1.42) | 0.4395 | 1.25 ( 0.82, 1.89) | 0.3016 |
| Non-Atopic | **1.63 ( 1.13, 2.35)I\*** | **0.0082** | 1.61 ( 0.86, 2.99) | 0.1331 |
| Interaction | **1.48 ( 1.24, 1.76)I\*** | **< 0.0001** | 1.29 ( 0.99, 1.69) | 0.0586 |
| Recent visit to GP/ED/hospital | | | | |
| Atopic | 0.99 ( 0.79, 1.24) | 0.9237 | 1.04 ( 0.79, 1.37) | 0.7727 |
| Non-Atopic | 1.04 ( 0.77, 1.41) | 0.7876 | 1.04 ( 0.70, 1.54) | 0.8628 |
| Interaction | 1.05 ( 0.88, 1.26) | 0.5643 | 0.99 ( 0.78, 1.27) | 0.964 |
| Recent use of beta-agonist (short-term) | | | | |
| Atopic | 1.04 ( 0.86, 1.26) | 0.6561 | 1.04 ( 0.76, 1.42) | 0.8024 |
| Non-Atopic | **1.37 ( 1.05, 1.79)I\*** | **0.0218** | 1.07 ( 0.72, 1.61) | 0.7308 |
| Interaction | **1.31 ( 1.13, 1.52)I\*** | **0.0002** | 1.03 ( 0.85, 1.26) | 0.7527 |
| Recent cough |  |  |  |  |
| Atopic | 0.94 ( 0.73, 1.20) | 0.6095 | 0.88 ( 0.59, 1.34) | 0.5614 |
| Non-Atopic | 0.82 ( 0.62, 1.08) | 0.1623 | 0.90 ( 0.57, 1.43) | 0.6669 |
| Interaction | 0.87 ( 0.74, 1.03) | 0.1112 | 1.02 ( 0.83, 1.26) | 0.8409 |
| Recent rhinitis |  |  |  |  |
| Atopic | 1.20 ( 0.97, 1.48) | 0.0951 | 1.11 ( 0.81, 1.53) | 0.5034 |
| Non-Atopic | **1.33 ( 1.05, 1.69)I\*** | **0.0179** | 1.10 ( 0.77, 1.55) | 0.6034 |
| Interaction | 1.11 ( 0.97, 1.28) | 0.1413 | 0.98 ( 0.85, 1.15) | 0.8345 |
| Recent itchy rash for 6 months | | | | |
| Atopic | 1.05 ( 0.81, 1.34) | 0.5105 | 0.94 ( 0.69, 1.27) | 0.6846 |
| Non-Atopic | **1.39 ( 1.09, 1.77)I\*** | **0.3357** | 1.26 ( 0.86, 1.84) | 0.2355 |
| Interaction | **1.33 ( 1.07, 1.65)I\*** | **0.7898** | 1.34 ( 0.90, 1.99) | 0.1453 |

Table 5.3. Atopy: PM10

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| Ever had wheezing | | | | |
| Atopic | 0.88 ( 0.72, 1.07) | 0.1908 |  |  |
| Non-Atopic | 0.96 ( 0.71, 1.30) | 0.7948 |  |  |
| Interaction | 1.10 ( 0.94, 1.28) | 0.2324 |  |  |
| Ever had Asthma | | | | |
| Atopic | 0.95 ( 0.78, 1.16) | 0.608 |  |  |
| Non-Atopic | 1.05 ( 0.80, 1.39) | 0.7127 |  |  |
| Interaction | 1.11 ( 0.95, 1.30) | 0.1969 |  |  |
| Ever had medication for asthma/wheezing | | | | |
| Atopic | 0.93 ( 0.73, 1.18) | 0.5476 |  |  |
| Non-Atopic | 1.00 ( 0.74, 1.34) | 0.9907 |  |  |
| Interaction | 1.07 ( 0.93, 1.25) | 0.3402 |  |  |
| Ever had rhinitis | | | | |
| Atopic | 1.04 ( 0.84, 1.28) | 0.7162 |  |  |
| Non-Atopic | 1.07 ( 0.81, 1.39) | 0.6429 |  |  |
| Interaction | 1.02 ( 0.87, 1.21) | 0.7723 |  |  |
| Recent wheeze  after exercise | | | | |
| Atopic | 1.00 ( 0.77, 1.30) | 0.9952 | 1.08 ( 0.87, 1.35) | 0.4892 |
| Non-Atopic | 1.21 ( 0.76, 1.93) | 0.4184 | 1.28 ( 0.88, 1.86) | 0.1927 |
| Interaction | 1.21 ( 0.93, 1.58) | 0.146 | 1.19 ( 0.97, 1.45) | 0.0997 |
| Recent wheeze after exercise | | | | |
| Atopic | 1.13 ( 0.84, 1.52) | 0.41 | **1.30 ( 1.03, 1.64)I\*** | **0.0269** |
| Non-Atopic | 1.45 ( 0.83, 2.52) | 0.1878 | **1.60 ( 1.07, 2.40)I\*** | **0.0211** |
| Interaction | 1.28 ( 0.93, 1.76) | 0.1302 | 1.24 ( 1.00, 1.53) | 0.0542 |
| Current asthma | | | | |
| Atopic | 1.08 ( 0.84, 1.39) | 0.5587 | 1.25 ( 1.00, 1.56) | 0.051 |
| Non-Atopic | 1.42 ( 0.91, 2.21) | 0.1225 | **1.67 ( 1.13, 2.46)I\*** | **0.0097** |
| Interaction | **1.31 ( 1.01, 1.71)I\*** | **0.0403** | **1.34 ( 1.07, 1.68)I\*** | **0.0114** |
| Recent visit to GP/ED/hospital | | | | |
| Atopic | 0.78 ( 0.59, 1.02) | 0.0712 | 0.84 ( 0.69, 1.03) | 0.0963 |
| Non-Atopic | **0.65 ( 0.46, 0.91)D\*** | **0.0138** | 0.79 ( 0.61, 1.03) | 0.0829 |
| Interaction | 0.83 ( 0.68, 1.02) | 0.0817 | 0.94 ( 0.81, 1.09) | 0.4294 |
| Recent use of beta-agonist (short-term) | | | | |
| Atopic | 0.96 ( 0.77, 1.20) | 0.7307 | 1.05 ( 0.86, 1.28) | 0.6283 |
| Non-Atopic | 1.13 ( 0.75, 1.71) | 0.5513 | 1.16 ( 0.76, 1.76) | 0.497 |
| Interaction | 1.18 ( 0.91, 1.52) | 0.2079 | 1.10 ( 0.85, 1.42) | 0.4635 |
| Recent cough |  |  |  |  |
| Atopic | 0.79 ( 0.60, 1.04) | 0.0883 | **0.77 ( 0.63, 0.94)D\*** | **0.0097** |
| Non-Atopic | 0.71 ( 0.49, 1.03) | 0.0727 | **0.65 ( 0.50, 0.86)D\*** | **0.0021** |
| Interaction | 0.90 ( 0.72, 1.13) | 0.3681 | **0.85 ( 0.72, 1.00)D\*** | **0.0472** |
| Recent rhinitis |  |  |  |  |
| Atopic | 1.04 ( 0.82, 1.31) | 0.7606 | 0.98 ( 0.80, 1.22) | 0.8856 |
| Non-Atopic | 1.00 ( 0.74, 1.36) | 0.9858 | 0.96 ( 0.75, 1.22) | 0.7305 |
| Interaction | 0.97 ( 0.82, 1.14) | 0.6914 | 0.97 ( 0.86, 1.10) | 0.6497 |
| Recent itchy rash for 6 months | | | | |
| Atopic | 1.10 ( 0.86, 1.40) | 0.4463 | 1.18 ( 0.95, 1.46) | 0.1438 |
| Non-Atopic | 1.11 ( 0.78, 1.59) | 0.5638 | 1.21 ( 0.95, 1.54) | 0.1233 |
| Interaction | 1.01 ( 0.73, 1.39) | 0.9503 | 1.03 ( 0.80, 1.32) | 0.8198 |

Table 5.4. Atopy: NO2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| Ever had wheezing | | | | |
| Atopic | 1.02 ( 0.87, 1.20) | 0.7886 |  |  |
| Non-Atopic | 0.98 ( 0.80, 1.20) | 0.8092 |  |  |
| Interaction | 0.95 ( 0.86, 1.06) | 0.3747 |  |  |
| Ever had Asthma | | | | |
| Atopic | 1.03 ( 0.89, 1.20) | 0.6675 |  |  |
| Non-Atopic | 0.92 ( 0.76, 1.12) | 0.4173 |  |  |
| Interaction | 0.89 ( 0.79, 1.01) | 0.0805 |  |  |
| Ever had medication for asthma/wheezing | | | | |
| Atopic | 1.05 ( 0.89, 1.24) | 0.5501 |  |  |
| Non-Atopic | 0.99 ( 0.83, 1.19) | 0.9246 |  |  |
| Interaction | 0.94 ( 0.85, 1.05) | 0.2948 |  |  |
| Ever had rhinitis | | | | |
| Atopic | 0.93 ( 0.76, 1.13) | 0.4517 |  |  |
| Non-Atopic | 0.90 ( 0.70, 1.16) | 0.4105 |  |  |
| Interaction | 0.97 ( 0.86, 1.10) | 0.6436 |  |  |
| Recent wheeze  after exercise | | | | |
| Atopic | 1.03 ( 0.84, 1.26) | 0.778 | 1.17 ( 0.94, 1.45) | 0.1618 |
| Non-Atopic | 1.03 ( 0.74, 1.44) | 0.8655 | 1.31 ( 0.93, 1.85) | 0.1175 |
| Interaction | 1.00 ( 0.83, 1.21) | 0.9978 | 1.13 ( 0.95, 1.33) | 0.1599 |
| Recent wheeze after exercise | | | | |
| Atopic | **1.29 ( 1.05, 1.60)I\*** | **0.0171** | **1.48 ( 1.18, 1.87)I\*** | **0.0008** |
| Non-Atopic | 1.45 ( 0.99, 2.12) | 0.0571 | **1.86 ( 1.24, 2.80)I\*** | **0.0028** |
| Interaction | 1.12 ( 0.89, 1.40) | 0.3347 | 1.25 ( 0.99, 1.59) | 0.0647 |
| Current asthma | | | | |
| Atopic | 1.16 ( 0.91, 1.46) | 0.223 | 1.26 ( 0.99, 1.62) | 0.064 |
| Non-Atopic | 1.10 ( 0.75, 1.62) | 0.6132 | 1.29 ( 0.84, 1.98) | 0.2435 |
| Interaction | 0.95 ( 0.77, 1.18) | 0.6591 | 1.02 ( 0.82, 1.28) | 0.8553 |
| Recent visit to GP/ED/hospital | | | | |
| Atopic | 1.04 ( 0.81, 1.32) | 0.7845 | 1.11 ( 0.88, 1.40) | 0.3637 |
| Non-Atopic | 0.95 ( 0.70, 1.29) | 0.7396 | 1.06 ( 0.77, 1.45) | 0.7146 |
| Interaction | 0.92 ( 0.79, 1.07) | 0.2682 | 0.95 ( 0.80, 1.13) | 0.5734 |
| Recent use of beta-agonist (short-term) | | | | |
| Atopic | 1.04 ( 0.83, 1.30) | 0.7427 | 1.09 ( 0.88, 1.35) | 0.4404 |
| Non-Atopic | 0.99 ( 0.74, 1.31) | 0.9196 | 1.07 ( 0.79, 1.45) | 0.6647 |
| Interaction | 0.95 ( 0.83, 1.09) | 0.4497 | 0.98 ( 0.85, 1.13) | 0.8132 |
| Recent cough |  |  |  |  |
| Atopic | 1.03 ( 0.84, 1.25) | 0.8055 | 1.04 ( 0.83, 1.31) | 0.7372 |
| Non-Atopic | 1.05 ( 0.81, 1.35) | 0.7194 | 1.04 ( 0.80, 1.36) | 0.7606 |
| Interaction | 1.02 ( 0.85, 1.23) | 0.8276 | 1.00 ( 0.83, 1.21) | 0.9822 |
| Recent rhinitis |  |  |  |  |
| Atopic | 0.94 ( 0.77, 1.16) | 0.5722 | 0.92 ( 0.75, 1.14) | 0.4718 |
| Non-Atopic | 0.92 ( 0.70, 1.19) | 0.5103 | 0.94 ( 0.72, 1.22) | 0.6323 |
| Interaction | 0.97 ( 0.85, 1.11) | 0.6636 | 1.01 ( 0.90, 1.14) | 0.8173 |
| Recent itchy rash for 6 months | | | | |
| Atopic | 1.04 ( 0.83, 1.32) | 0.7149 | 1.12 ( 0.84, 1.48) | 0.4404 |
| Non-Atopic | 0.96 ( 0.74, 1.25) | 0.78 | 1.13 ( 0.86, 1.49) | 0.3833 |
| Interaction | 0.92 ( 0.75, 1.13) | 0.4309 | 1.01 ( 0.80, 1.28) | 0.9127 |

Table 5.5. Atopy: O3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| Ever had wheezing | | | | |
| Atopic | 0.96 ( 0.87, 1.06) | 0.3967 |  |  |
| Non-Atopic | 0.98 ( 0.85, 1.13) | 0.797 |  |  |
| Interaction | 1.03 ( 0.92, 1.15) | 0.6578 |  |  |
| Ever had Asthma | | | | |
| Atopic | **0.90 ( 0.81, 0.99)D\*** | **0.0322** |  |  |
| Non-Atopic | 1.01 ( 0.88, 1.17) | 0.8747 |  |  |
| Interaction | **1.13 ( 1.01, 1.26)I\*** | **0.032** |  |  |
| Ever had medication for asthma/wheezing | | | | |
| Atopic | 0.95 ( 0.86, 1.05) | 0.3116 |  |  |
| Non-Atopic | 1.01 ( 0.88, 1.16) | 0.8631 |  |  |
| Interaction | 1.06 ( 0.94, 1.21) | 0.3423 |  |  |
| Ever had rhinitis | | | | |
| Atopic | 1.04 ( 0.91, 1.19) | 0.5652 |  |  |
| Non-Atopic | 1.10 ( 0.92, 1.31) | 0.31 |  |  |
| Interaction | 1.05 ( 0.96, 1.15) | 0.2656 |  |  |
| Recent wheeze  after exercise | | | | |
| Atopic | 0.97 ( 0.80, 1.17) | 0.7484 | 0.91 ( 0.72, 1.14) | 0.4042 |
| Non-Atopic | 1.01 ( 0.71, 1.42) | 0.9721 | 0.83 ( 0.58, 1.20) | 0.3192 |
| Interaction | 1.04 ( 0.85, 1.27) | 0.7218 | 0.91 ( 0.76, 1.10) | 0.344 |
| Recent wheeze after exercise | | | | |
| Atopic | 0.85 ( 0.72, 1.01) | 0.069 | 0.89 ( 0.72, 1.10) | 0.2947 |
| Non-Atopic | 0.93 ( 0.66, 1.31) | 0.6788 | 0.89 ( 0.63, 1.26) | 0.5074 |
| Interaction | 1.09 ( 0.86, 1.38) | 0.4674 | 1.00 ( 0.79, 1.25) | 0.9817 |
| Current asthma | | | | |
| Atopic | 0.85 ( 0.68, 1.06) | 0.1502 | 0.88 ( 0.67, 1.17) | 0.386 |
| Non-Atopic | 0.90 ( 0.60, 1.34) | 0.5937 | 0.89 ( 0.55, 1.44) | 0.6408 |
| Interaction | 1.05 ( 0.85, 1.31) | 0.6343 | 1.01 ( 0.79, 1.29) | 0.9415 |
| Recent visit to GP/ED/hospital | | | | |
| Atopic | 1.09 ( 0.91, 1.29) | 0.3474 | 1.09 ( 0.88, 1.34) | 0.4281 |
| Non-Atopic | 1.14 ( 0.94, 1.39) | 0.1924 | 1.13 ( 0.88, 1.46) | 0.3271 |
| Interaction | 1.05 ( 0.93, 1.19) | 0.4213 | 1.04 ( 0.91, 1.20) | 0.5561 |
| Recent use of beta-agonist (short-term) | | | | |
| Atopic | 0.98 ( 0.84, 1.15) | 0.8467 | 1.00 ( 0.82, 1.22) | 0.9785 |
| Non-Atopic | 1.03 ( 0.80, 1.34) | 0.7986 | 0.99 ( 0.73, 1.35) | 0.9616 |
| Interaction | 1.05 ( 0.91, 1.21) | 0.4996 | 1.00 ( 0.85, 1.17) | 0.9545 |
| Recent cough |  |  |  |  |
| Atopic | 1.13 ( 0.95, 1.33) | 0.1711 | 1.11 ( 0.90, 1.36) | 0.3173 |
| Non-Atopic | 1.18 ( 0.95, 1.45) | 0.1295 | 1.14 ( 0.88, 1.48) | 0.3254 |
| Interaction | 1.04 ( 0.93, 1.17) | 0.4711 | 1.03 ( 0.89, 1.19) | 0.7222 |
| Recent rhinitis |  |  |  |  |
| Atopic | 1.02 ( 0.88, 1.18) | 0.7913 | 0.97 ( 0.83, 1.15) | 0.7526 |
| Non-Atopic | 1.08 ( 0.89, 1.31) | 0.4174 | 1.02 ( 0.82, 1.28) | 0.8403 |
| Interaction | 1.06 ( 0.96, 1.17) | 0.2234 | 1.05 ( 0.94, 1.17) | 0.3779 |
| Recent itchy rash for 6 months | | | | |
| Atopic | 0.95 ( 0.78, 1.15) | 0.5918 | 0.99 ( 0.80, 1.23) | 0.9521 |
| Non-Atopic | 0.93 ( 0.75, 1.15) | 0.484 | 0.93 ( 0.72, 1.20) | 0.5737 |
| Interaction | 0.98 ( 0.74, 1.28) | 0.8652 | 0.94 ( 0.69, 1.26) | 0.6616 |

Table 5.6. Atopy: CO

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| Ever had wheezing | | | | |
| Atopic | 0.95 ( 0.82, 1.11) | 0.5489 |  |  |
| Non-Atopic | 0.98 ( 0.84, 1.15) | 0.8243 |  |  |
| Interaction | 1.03 ( 0.97, 1.09) | 0.3621 |  |  |
| Ever had Asthma | | | | |
| Atopic | 0.96 ( 0.84, 1.08) | 0.4759 |  |  |
| Non-Atopic | 0.93 ( 0.83, 1.03) | 0.1621 |  |  |
| Interaction | 0.97 ( 0.87, 1.08) | 0.5774 |  |  |
| Ever had medication for asthma/wheezing | | | | |
| Atopic | 0.92 ( 0.80, 1.05) | 0.2175 |  |  |
| Non-Atopic | 0.93 ( 0.83, 1.05) | 0.2622 |  |  |
| Interaction | 1.02 ( 0.92, 1.12) | 0.7274 |  |  |
| Ever had rhinitis | | | | |
| Atopic | 0.93 ( 0.83, 1.04) | 0.2296 |  |  |
| Non-Atopic | 0.99 ( 0.85, 1.16) | 0.9366 |  |  |
| Interaction | 1.07 ( 0.97, 1.17) | 0.1932 |  |  |
| Recent wheeze  after exercise | | | | |
| Atopic | 0.95 ( 0.85, 1.08) | 0.4379 | 0.93 ( 0.75, 1.16) | 0.5341 |
| Non-Atopic | 1.06 ( 0.90, 1.24) | 0.5147 | 1.02 ( 0.71, 1.46) | 0.9253 |
| Interaction | 1.11 ( 0.96, 1.28) | 0.1661 | 1.09 ( 0.86, 1.38) | 0.4776 |
| Recent wheeze after exercise | | | | |
| Atopic | 0.94 ( 0.81, 1.11) | 0.4802 | 0.93 ( 0.68, 1.28) | 0.6562 |
| Non-Atopic | 1.03 ( 0.80, 1.33) | 0.8329 | 0.90 ( 0.56, 1.46) | 0.6799 |
| Interaction | 1.09 ( 0.92, 1.29) | 0.3279 | 0.97 ( 0.77, 1.23) | 0.8117 |
| Current asthma | | | | |
| Atopic | 1.06 ( 0.90, 1.25) | 0.5009 | 1.10 ( 0.88, 1.39) | 0.4045 |
| Non-Atopic | **1.21 ( 1.04, 1.41)I\*** | **0.0155** | 1.26 ( 0.91, 1.73) | 0.1594 |
| Interaction | **1.14 ( 1.05, 1.25)I\*** | **0.0029** | 1.14 ( 0.96, 1.35) | 0.1248 |
| Recent visit to GP/ED/hospital | | | | |
| Atopic | **0.79 ( 0.65, 0.97)D\*** | **0.0211** | **0.77 ( 0.61, 0.98)D\*** | **0.036** |
| Non-Atopic | 0.80 ( 0.61, 1.04) | 0.0968 | 0.76 ( 0.58, 1.00) | 0.0512 |
| Interaction | 1.00 ( 0.87, 1.15) | 0.9565 | 0.98 ( 0.85, 1.14) | 0.8279 |
| Recent use of beta-agonist (short-term) | | | | |
| Atopic | 0.89 ( 0.77, 1.03) | 0.1229 | 0.86 ( 0.72, 1.03) | 0.1049 |
| Non-Atopic | 0.89 ( 0.69, 1.15) | 0.3763 | 0.84 ( 0.62, 1.14) | 0.2526 |
| Interaction | 1.00 ( 0.86, 1.17) | 0.9833 | 0.97 ( 0.81, 1.16) | 0.7381 |
| Recent cough |  |  |  |  |
| Atopic | 0.91 ( 0.75, 1.11) | 0.348 | **0.77 ( 0.61, 0.97)D\*** | **0.0284** |
| Non-Atopic | 1.00 ( 0.76, 1.30) | 0.9718 | 0.88 ( 0.61, 1.26) | 0.484 |
| Interaction | 1.09 ( 0.97, 1.23) | 0.1539 | 1.14 ( 0.96, 1.37) | 0.1428 |
| Recent rhinitis |  |  |  |  |
| Atopic | 0.97 ( 0.86, 1.10) | 0.6549 | 0.96 ( 0.79, 1.16) | 0.651 |
| Non-Atopic | 1.06 ( 0.90, 1.25) | 0.4716 | 1.06 ( 0.82, 1.38) | 0.658 |
| Interaction | 1.09 ( 0.99, 1.20) | 0.0641 | 1.11 ( 0.98, 1.25) | 0.0901 |
| Recent itchy rash for 6 months | | | | |
| Atopic | 0.98 ( 0.91, 1.06) | 0.6128 | 1.03 ( 0.90, 1.19) | 0.6463 |
| Non-Atopic | 1.02 ( 0.89, 1.18) | 0.7287 | 1.06 ( 0.88, 1.28) | 0.5332 |
| Interaction | 1.05 ( 0.91, 1.20) | 0.5327 | 1.03 ( 0.83, 1.27) | 0.7954 |

Table 5.7. Atopy: SO2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| Ever had wheezing | | | | |
| Atopic | 0.98 ( 0.92, 1.04) | 0.5123 |  |  |
| Non-Atopic | **1.07 ( 1.01, 1.13)I\*** | **0.0233** |  |  |
| Interaction | **1.09 ( 1.03, 1.15)I\*** | **0.0014** |  |  |
| Ever had Asthma | | | | |
| Atopic | 0.96 ( 0.89, 1.04) | 0.3347 |  |  |
| Non-Atopic | **1.09 ( 1.04, 1.15)I\*** | **0.0004** |  |  |
| Interaction | **1.14 ( 1.09, 1.18)I\*** | **< 0.0001** |  |  |
| Ever had medication for asthma/wheezing | | | | |
| Atopic | 0.99 ( 0.92, 1.06) | 0.7902 |  |  |
| Non-Atopic | **1.08 ( 1.02, 1.15)I\*** | **0.0062** |  |  |
| Interaction | **1.09 ( 1.06, 1.14)I\*** | **< 0.0001** |  |  |
| Ever had rhinitis | | | | |
| Atopic | 1.02 ( 0.93, 1.12) | 0.646 |  |  |
| Non-Atopic | **1.08 ( 1.04, 1.12)I\*** | **0.0002** |  |  |
| Interaction | 1.06 ( 0.96, 1.16) | 0.255 |  |  |
| Recent wheeze  after exercise | | | | |
| Atopic | 1.01 ( 0.94, 1.08) | 0.8298 | 1.00 ( 0.92, 1.09) | 0.974 |
| Non-Atopic | **1.13 ( 1.03, 1.25)I\*** | **0.0138** | 1.13 ( 1.00, 1.28) | 0.0513 |
| Interaction | 1.12 ( 0.98, 1.30) | 0.1048 | 1.13 ( 0.95, 1.35) | 0.167 |
| Recent wheeze after exercise | | | | |
| Atopic | **0.90 ( 0.85, 0.95)D\*** | **0.0003** | **0.90 ( 0.85, 0.95)D\*** | **0.0001** |
| Non-Atopic | 0.96 ( 0.82, 1.13) | 0.6419 | 0.98 ( 0.83, 1.16) | 0.808 |
| Interaction | 1.07 ( 0.92, 1.25) | 0.3757 | 1.09 ( 0.92, 1.30) | 0.3273 |
| Current asthma | | | | |
| Atopic | 0.97 ( 0.88, 1.08) | 0.5807 | 0.97 ( 0.86, 1.10) | 0.6587 |
| Non-Atopic | **1.06 ( 1.00, 1.12)I\*** | **0.04** | **1.07 ( 1.01, 1.13)I\*** | **0.0318** |
| Interaction | 1.09 ( 0.97, 1.22) | 0.1373 | 1.10 ( 0.96, 1.26) | 0.1892 |
| Recent visit to GP/ED/hospital | | | | |
| Atopic | 1.00 ( 0.87, 1.15) | 0.9952 | 1.01 ( 0.84, 1.20) | 0.9562 |
| Non-Atopic | 1.04 ( 0.96, 1.12) | 0.3201 | 1.05 ( 0.95, 1.16) | 0.3839 |
| Interaction | 1.04 ( 0.96, 1.12) | 0.3396 | 1.04 ( 0.95, 1.14) | 0.3853 |
| Recent use of beta-agonist (short-term) | | | | |
| Atopic | 0.96 ( 0.91, 1.00) | 0.0518 | **0.95 ( 0.90, 0.99)D\*** | **0.0215** |
| Non-Atopic | 1.02 ( 0.95, 1.09) | 0.5882 | 1.02 ( 0.94, 1.10) | 0.6216 |
| Interaction | 1.07 ( 0.99, 1.15) | 0.0863 | 1.08 ( 0.99, 1.17) | 0.075 |
| Recent cough |  |  |  |  |
| Atopic | **1.07 ( 1.02, 1.13)I\*** | **0.0105** | **1.11 ( 1.05, 1.18)I\*** | **0.0003** |
| Non-Atopic | 1.01 ( 0.96, 1.07) | 0.655 | 1.04 ( 0.97, 1.11) | 0.2671 |
| Interaction | 0.95 ( 0.88, 1.02) | 0.153 | 0.93 ( 0.85, 1.03) | 0.1794 |
| Recent rhinitis |  |  |  |  |
| Atopic | 1.02 ( 0.95, 1.10) | 0.5075 | 1.04 ( 0.94, 1.15) | 0.4522 |
| Non-Atopic | **1.09 ( 1.05, 1.14)I\*** | **< 0.0001** | **1.11 ( 1.04, 1.18)I\*** | **0.0009** |
| Interaction | 1.07 ( 0.99, 1.15) | 0.0737 | 1.07 ( 0.98, 1.17) | 0.1532 |
| Recent itchy rash for 6 months | | | | |
| Atopic | 1.04 ( 0.96, 1.14) | 0.3409 | 1.08 ( 0.98, 1.20) | 0.1334 |
| Non-Atopic | **1.13 ( 1.09, 1.19)I\*** | **< 0.0001** | **1.18 ( 1.11, 1.25)I\*** | **< 0.0001** |
| Interaction | **1.09 ( 1.02, 1.16)I\*** | **0.0111** | **1.09 ( 1.02, 1.16)I\*** | **0.0106** |

# Symptom Interaction Models: Gender

Table 6.1. Gender: Bsp

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| Ever had wheezing | | | | |
| Male | 0.98 ( 0.88, 1.09) | 0.6728 |  |  |
| Female | 1.07 ( 0.92, 1.24) | 0.3758 |  |  |
| Interaction | **1.10 ( 1.01, 1.19)I\*** | **0.0348** |  |  |
| Ever had Asthma | | | | |
| Male | 1.04 ( 0.94, 1.15) | 0.4448 |  |  |
| Female | 1.10 ( 0.94, 1.29) | 0.2187 |  |  |
| Interaction | 1.06 ( 0.97, 1.16) | 0.2091 |  |  |
| Ever had medication for asthma/wheezing | | | | |
| Male | 0.99 ( 0.86, 1.15) | 0.9384 |  |  |
| Female | 1.00 ( 0.83, 1.21) | 0.9937 |  |  |
| Interaction | 1.01 ( 0.92, 1.10) | 0.8824 |  |  |
| Ever had rhinitis | | | | |
| Male | 1.02 ( 0.91, 1.14) | 0.7252 |  |  |
| Female | 1.01 ( 0.87, 1.17) | 0.8883 |  |  |
| Interaction | 0.99 ( 0.90, 1.09) | 0.8386 |  |  |
| Recent wheeze  after exercise | | | | |
| Male | 1.03 ( 0.91, 1.18) | 0.6279 | 1.12 ( 0.87, 1.45) | 0.3679 |
| Female | 1.16 ( 0.98, 1.37) | 0.0936 | 1.20 ( 0.88, 1.65) | 0.2485 |
| Interaction | **1.12 ( 1.03, 1.22)I\*** | **0.0116** | 1.07 ( 0.84, 1.37) | 0.5787 |
| Recent wheeze after exercise | | | | |
| Male | 1.14 ( 0.97, 1.33) | 0.1107 | **1.43 ( 1.05, 1.95)I\*** | **0.0247** |
| Female | **1.27 ( 1.05, 1.54)I\*** | **0.013** | **1.63 ( 1.05, 2.53)I\*** | **0.0307** |
| Interaction | **1.12 ( 1.03, 1.22)I\*** | **0.0101** | 1.14 ( 0.89, 1.46) | 0.311 |
| Current asthma | | | | |
| Male | 1.06 ( 0.92, 1.22) | 0.4209 | 1.27 ( 0.94, 1.70) | 0.1161 |
| Female | 1.18 ( 0.97, 1.44) | 0.1061 | 1.39 ( 0.89, 2.17) | 0.1462 |
| Interaction | 1.11 ( 0.99, 1.24) | 0.0613 | 1.10 ( 0.83, 1.46) | 0.5132 |
| Recent visit to GP/ED/hospital | | | | |
| Male | 1.00 ( 0.89, 1.11) | 0.9703 | 1.07 ( 0.80, 1.44) | 0.6274 |
| Female | 1.02 ( 0.87, 1.19) | 0.8106 | 1.15 ( 0.83, 1.59) | 0.4133 |
| Interaction | 1.02 ( 0.88, 1.19) | 0.7854 | 1.07 ( 0.77, 1.47) | 0.6958 |
| Recent use of beta-agonist (short-term) | | | | |
| Male | 1.05 ( 0.93, 1.19) | 0.4074 | 1.08 ( 0.85, 1.38) | 0.5164 |
| Female | 1.13 ( 0.96, 1.34) | 0.1364 | 1.28 ( 0.91, 1.80) | 0.1551 |
| Interaction | 1.08 ( 0.98, 1.18) | 0.1164 | 1.18 ( 0.93, 1.51) | 0.1714 |
| Recent cough |  |  |  |  |
| Male | 0.97 ( 0.84, 1.11) | 0.6181 | 0.82 ( 0.63, 1.05) | 0.1181 |
| Female | 0.96 ( 0.83, 1.11) | 0.5591 | 0.87 ( 0.64, 1.17) | 0.3481 |
| Interaction | 0.99 ( 0.90, 1.09) | 0.8812 | 1.06 ( 0.87, 1.30) | 0.5583 |
| Recent rhinitis |  |  |  |  |
| Male | 1.05 ( 0.93, 1.17) | 0.4434 | 1.01 ( 0.79, 1.27) | 0.962 |
| Female | 1.04 ( 0.90, 1.21) | 0.5735 | 0.97 ( 0.68, 1.38) | 0.8659 |
| Interaction | 1.00 ( 0.91, 1.09) | 0.9457 | 0.96 ( 0.78, 1.20) | 0.7428 |
| Recent itchy rash for 6 months | | | | |
| Male | 1.02 ( 0.89, 1.17) | 0.7232 | 1.19 ( 0.85, 1.66) | 0.319 |
| Female | 1.10 ( 0.94, 1.29) | 0.2478 | 1.25 ( 0.86, 1.82) | 0.2486 |
| Interaction | 1.07 ( 0.96, 1.20) | 0.2198 | 1.05 ( 0.81, 1.36) | 0.695 |

Table 6.2. Gender: PM2.5

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| Ever had wheezing | | | | |
| Male | 1.09 ( 0.94, 1.28) | 0.2598 |  |  |
| Female | 1.16 ( 0.94, 1.44) | 0.1686 |  |  |
| Interaction | 1.06 ( 0.94, 1.21) | 0.3504 |  |  |
| Ever had Asthma | | | | |
| Male | 1.01 ( 0.86, 1.18) | 0.9229 |  |  |
| Female | 1.13 ( 0.88, 1.45) | 0.3352 |  |  |
| Interaction | 1.12 ( 0.96, 1.30) | 0.1383 |  |  |
| Ever had medication for asthma/wheezing | | | | |
| Male | 1.05 ( 0.86, 1.28) | 0.6358 |  |  |
| Female | 1.08 ( 0.82, 1.42) | 0.5914 |  |  |
| Interaction | 1.03 ( 0.90, 1.17) | 0.6837 |  |  |
| Ever had rhinitis | | | | |
| Male | 1.13 ( 0.91, 1.40) | 0.2649 |  |  |
| Female | 1.04 ( 0.79, 1.35) | 0.7979 |  |  |
| Interaction | 0.92 ( 0.79, 1.07) | 0.2698 |  |  |
| Recent wheeze  after exercise | | | | |
| Male | 1.03 ( 0.85, 1.24) | 0.7781 | 1.09 ( 0.82, 1.46) | 0.5533 |
| Female | 1.02 ( 0.76, 1.37) | 0.8874 | 1.18 ( 0.82, 1.69) | 0.3802 |
| Interaction | 0.99 ( 0.81, 1.22) | 0.9587 | 1.08 ( 0.87, 1.33) | 0.4947 |
| Recent wheeze after exercise | | | | |
| Male | 1.04 ( 0.82, 1.31) | 0.7527 | 1.01 ( 0.71, 1.45) | 0.9469 |
| Female | 1.01 ( 0.70, 1.46) | 0.9696 | 0.97 ( 0.68, 1.37) | 0.8433 |
| Interaction | 0.97 ( 0.78, 1.21) | 0.7882 | 0.95 ( 0.73, 1.24) | 0.724 |
| Current asthma | | | | |
| Male | 0.93 ( 0.73, 1.19) | 0.5844 | 1.09 ( 0.78, 1.52) | 0.6316 |
| Female | 0.96 ( 0.66, 1.37) | 0.8055 | 1.15 ( 0.76, 1.75) | 0.4993 |
| Interaction | 1.02 ( 0.84, 1.25) | 0.824 | 1.06 ( 0.87, 1.30) | 0.5477 |
| Recent visit to GP/ED/hospital | | | | |
| Male | 0.97 ( 0.78, 1.21) | 0.8094 | 1.04 ( 0.78, 1.38) | 0.7856 |
| Female | 0.95 ( 0.70, 1.30) | 0.749 | 0.95 ( 0.71, 1.26) | 0.7115 |
| Interaction | 0.98 ( 0.76, 1.26) | 0.8546 | 0.91 ( 0.74, 1.12) | 0.3798 |
| Recent use of beta-agonist (short-term) | | | | |
| Male | 0.96 ( 0.80, 1.16) | 0.6646 | 1.03 ( 0.76, 1.39) | 0.8644 |
| Female | 1.05 ( 0.77, 1.43) | 0.7612 | 1.02 ( 0.70, 1.48) | 0.9291 |
| Interaction | 1.09 ( 0.91, 1.32) | 0.3489 | 0.99 ( 0.86, 1.14) | 0.8926 |
| Recent cough |  |  |  |  |
| Male | 0.92 ( 0.72, 1.18) | 0.5072 | 0.89 ( 0.59, 1.34) | 0.5758 |
| Female | 0.99 ( 0.73, 1.33) | 0.922 | 0.86 ( 0.58, 1.28) | 0.462 |
| Interaction | 1.07 ( 0.91, 1.26) | 0.4262 | 0.97 ( 0.78, 1.21) | 0.7895 |
| Recent rhinitis |  |  |  |  |
| Male | 1.17 ( 0.94, 1.45) | 0.1644 | 1.12 ( 0.81, 1.54) | 0.4904 |
| Female | 1.03 ( 0.77, 1.37) | 0.8622 | 1.10 ( 0.74, 1.64) | 0.629 |
| Interaction | 0.88 ( 0.74, 1.05) | 0.1474 | 0.98 ( 0.79, 1.23) | 0.8919 |
| Recent itchy rash for 6 months | | | | |
| Male | 1.00 ( 0.76, 1.31) | 0.986 | 0.84 ( 0.59, 1.20) | 0.3449 |
| Female | 1.04 ( 0.78, 1.38) | 0.8048 | 1.04 ( 0.80, 1.35) | 0.7894 |
| Interaction | 1.04 ( 0.87, 1.25) | 0.6767 | 1.23 ( 0.97, 1.56) | 0.0898 |

Table 6.3. Gender: PM10

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| Ever had wheezing | | | | |
| Male | 0.87 ( 0.72, 1.05) | 0.1517 |  |  |
| Female | 0.92 ( 0.71, 1.20) | 0.5369 |  |  |
| Interaction | 1.06 ( 0.88, 1.27) | 0.5449 |  |  |
| Ever had Asthma | | | | |
| Male | 0.94 ( 0.77, 1.13) | 0.4987 |  |  |
| Female | 1.02 ( 0.78, 1.35) | 0.8617 |  |  |
| Interaction | 1.10 ( 0.90, 1.33) | 0.3624 |  |  |
| Ever had medication for asthma/wheezing | | | | |
| Male | 0.92 ( 0.73, 1.17) | 0.5119 |  |  |
| Female | 0.92 ( 0.68, 1.24) | 0.5701 |  |  |
| Interaction | 0.99 ( 0.84, 1.18) | 0.9189 |  |  |
| Ever had rhinitis | | | | |
| Male | 1.04 ( 0.84, 1.28) | 0.7479 |  |  |
| Female | 1.11 ( 0.84, 1.46) | 0.4764 |  |  |
| Interaction | 1.07 ( 0.89, 1.29) | 0.4875 |  |  |
| Recent wheeze  after exercise | | | | |
| Male | 0.91 ( 0.74, 1.13) | 0.4065 | 1.00 ( 0.83, 1.19) | 0.9602 |
| Female | 0.93 ( 0.69, 1.24) | 0.6069 | 1.02 ( 0.81, 1.28) | 0.8906 |
| Interaction | 1.01 ( 0.81, 1.27) | 0.9111 | 1.02 ( 0.87, 1.20) | 0.8065 |
| Recent wheeze after exercise | | | | |
| Male | 0.98 ( 0.77, 1.25) | 0.8726 | 1.15 ( 0.95, 1.39) | 0.1532 |
| Female | 0.81 ( 0.54, 1.21) | 0.3009 | 1.03 ( 0.72, 1.48) | 0.8783 |
| Interaction | 0.83 ( 0.62, 1.11) | 0.1985 | 0.89 ( 0.68, 1.17) | 0.4185 |
| Current asthma | | | | |
| Male | 0.94 ( 0.74, 1.19) | 0.6116 | 1.08 ( 0.89, 1.32) | 0.4214 |
| Female | 0.86 ( 0.58, 1.28) | 0.4585 | 1.06 ( 0.75, 1.49) | 0.7416 |
| Interaction | 0.92 ( 0.71, 1.18) | 0.5013 | 0.98 ( 0.79, 1.22) | 0.8342 |
| Recent visit to GP/ED/hospital | | | | |
| Male | 0.81 ( 0.62, 1.07) | 0.1407 | 0.86 ( 0.70, 1.05) | 0.1465 |
| Female | 0.88 ( 0.65, 1.18) | 0.3958 | 0.96 ( 0.72, 1.27) | 0.7652 |
| Interaction | 1.08 ( 0.88, 1.33) | 0.4734 | 1.11 ( 0.89, 1.39) | 0.3481 |
| Recent use of beta-agonist (short-term) | | | | |
| Male | 0.91 ( 0.75, 1.11) | 0.3471 | 1.02 ( 0.87, 1.19) | 0.8008 |
| Female | 0.95 ( 0.70, 1.28) | 0.7284 | 1.14 ( 0.88, 1.50) | 0.3228 |
| Interaction | 1.04 ( 0.84, 1.30) | 0.7119 | 1.12 ( 0.95, 1.32) | 0.1687 |
| Recent cough |  |  |  |  |
| Male | 0.78 ( 0.58, 1.03) | 0.0809 | **0.76 ( 0.61, 0.93)D\*** | **0.0088** |
| Female | 0.80 ( 0.54, 1.18) | 0.2673 | **0.78 ( 0.61, 0.99)D\*** | **0.0441** |
| Interaction | 1.04 ( 0.83, 1.29) | 0.7517 | 1.03 ( 0.90, 1.18) | 0.6481 |
| Recent rhinitis |  |  |  |  |
| Male | 1.05 ( 0.83, 1.32) | 0.7105 | 0.99 ( 0.80, 1.23) | 0.9359 |
| Female | 1.08 ( 0.79, 1.48) | 0.6315 | 0.99 ( 0.76, 1.28) | 0.9378 |
| Interaction | 1.03 ( 0.85, 1.26) | 0.7413 | 1.00 ( 0.86, 1.16) | 0.9835 |
| Recent itchy rash for 6 months | | | | |
| Male | 1.07 ( 0.82, 1.38) | 0.6345 | 1.13 ( 0.88, 1.44) | 0.3434 |
| Female | 1.31 ( 0.97, 1.75) | 0.0748 | **1.37 ( 1.06, 1.78)I\*** | **0.0174** |
| Interaction | 1.23 ( 0.98, 1.53) | 0.0687 | **1.22 ( 1.01, 1.47)I\*** | **0.0373** |

Table 6.4. Gender: NO2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| Ever had wheezing | | | | |
| Male | 1.03 ( 0.88, 1.19) | 0.7377 |  |  |
| Female | 1.02 ( 0.88, 1.19) | 0.7922 |  |  |
| Interaction | 0.99 ( 0.88, 1.13) | 0.9338 |  |  |
| Ever had Asthma | | | | |
| Male | 1.06 ( 0.92, 1.22) | 0.4271 |  |  |
| Female | 1.10 ( 0.95, 1.27) | 0.2095 |  |  |
| Interaction | 1.04 ( 0.92, 1.17) | 0.5502 |  |  |
| Ever had medication for asthma/wheezing | | | | |
| Male | 1.06 ( 0.90, 1.24) | 0.5003 |  |  |
| Female | 1.06 ( 0.91, 1.24) | 0.4274 |  |  |
| Interaction | 1.01 ( 0.89, 1.14) | 0.9082 |  |  |
| Ever had rhinitis | | | | |
| Male | 0.93 ( 0.77, 1.12) | 0.4406 |  |  |
| Female | 0.85 ( 0.68, 1.07) | 0.1611 |  |  |
| Interaction | 0.92 ( 0.80, 1.05) | 0.2202 |  |  |
| Recent wheeze  after exercise | | | | |
| Male | 1.03 ( 0.86, 1.23) | 0.7453 | 1.09 ( 0.91, 1.32) | 0.3388 |
| Female | 1.03 ( 0.82, 1.30) | 0.7908 | 1.05 ( 0.81, 1.35) | 0.7264 |
| Interaction | 1.00 ( 0.87, 1.15) | 0.9843 | 0.96 ( 0.82, 1.11) | 0.5575 |
| Recent wheeze after exercise | | | | |
| Male | **1.23 ( 1.02, 1.48)I\*** | **0.0325** | **1.31 ( 1.07, 1.62)I\*** | **0.0102** |
| Female | 1.24 ( 0.94, 1.63) | 0.123 | 1.26 ( 0.95, 1.69) | 0.1113 |
| Interaction | 1.01 ( 0.85, 1.21) | 0.9111 | 0.96 ( 0.81, 1.15) | 0.6682 |
| Current asthma | | | | |
| Male | 1.19 ( 0.96, 1.48) | 0.108 | **1.25 ( 1.02, 1.53)I\*** | **0.0299** |
| Female | 1.25 ( 0.95, 1.64) | 0.1069 | 1.23 ( 0.94, 1.61) | 0.1248 |
| Interaction | 1.05 ( 0.93, 1.19) | 0.4479 | 0.99 ( 0.86, 1.13) | 0.84 |
| Recent visit to GP/ED/hospital | | | | |
| Male | 1.05 ( 0.83, 1.35) | 0.6735 | 1.12 ( 0.90, 1.41) | 0.3164 |
| Female | 1.04 ( 0.79, 1.38) | 0.7715 | 1.08 ( 0.83, 1.41) | 0.57 |
| Interaction | 0.99 ( 0.87, 1.13) | 0.8726 | 0.96 ( 0.84, 1.11) | 0.6013 |
| Recent use of beta-agonist (short-term) | | | | |
| Male | 1.06 ( 0.85, 1.31) | 0.6113 | 1.09 ( 0.89, 1.33) | 0.3938 |
| Female | 1.06 ( 0.82, 1.39) | 0.6431 | 1.04 ( 0.80, 1.35) | 0.7769 |
| Interaction | 1.01 ( 0.87, 1.16) | 0.9267 | 0.95 ( 0.82, 1.11) | 0.5233 |
| Recent cough |  |  |  |  |
| Male | 1.03 ( 0.84, 1.25) | 0.7947 | 1.04 ( 0.83, 1.30) | 0.7286 |
| Female | 0.95 ( 0.75, 1.19) | 0.6473 | 0.96 ( 0.75, 1.22) | 0.722 |
| Interaction | 0.92 ( 0.82, 1.04) | 0.2002 | 0.92 ( 0.81, 1.05) | 0.2038 |
| Recent rhinitis |  |  |  |  |
| Male | 0.94 ( 0.77, 1.15) | 0.5597 | 0.91 ( 0.75, 1.12) | 0.3843 |
| Female | 0.86 ( 0.67, 1.09) | 0.2166 | **0.76 ( 0.59, 0.98)D\*** | **0.0347** |
| Interaction | 0.91 ( 0.78, 1.06) | 0.2267 | **0.83 ( 0.71, 0.97)D\*** | **0.0183** |
| Recent itchy rash for 6 months | | | | |
| Male | 1.06 ( 0.83, 1.36) | 0.6268 | 1.12 ( 0.82, 1.52) | 0.4839 |
| Female | 1.01 ( 0.75, 1.36) | 0.9358 | 1.10 ( 0.80, 1.52) | 0.5659 |
| Interaction | 0.95 ( 0.78, 1.16) | 0.6295 | 0.99 ( 0.80, 1.21) | 0.8855 |

Table 6.5. Gender: O3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| Ever had wheezing | | | | |
| Male | 0.96 ( 0.87, 1.06) | 0.3975 |  |  |
| Female | 0.97 ( 0.83, 1.13) | 0.6722 |  |  |
| Interaction | 1.01 ( 0.90, 1.13) | 0.8698 |  |  |
| Ever had Asthma | | | | |
| Male | **0.89 ( 0.80, 0.98)D\*** | **0.022** |  |  |
| Female | 0.92 ( 0.77, 1.09) | 0.3085 |  |  |
| Interaction | 1.03 ( 0.92, 1.15) | 0.5942 |  |  |
| Ever had medication for asthma/wheezing | | | | |
| Male | 0.95 ( 0.87, 1.05) | 0.3185 |  |  |
| Female | 0.99 ( 0.86, 1.12) | 0.8356 |  |  |
| Interaction | 1.03 ( 0.94, 1.14) | 0.5119 |  |  |
| Ever had rhinitis | | | | |
| Male | 1.03 ( 0.91, 1.18) | 0.616 |  |  |
| Female | 1.04 ( 0.86, 1.27) | 0.6755 |  |  |
| Interaction | 1.01 ( 0.89, 1.14) | 0.9067 |  |  |
| Recent wheeze  after exercise | | | | |
| Male | 0.96 ( 0.82, 1.14) | 0.6522 | 0.95 ( 0.78, 1.16) | 0.646 |
| Female | 1.04 ( 0.83, 1.30) | 0.748 | 1.10 ( 0.81, 1.49) | 0.5558 |
| Interaction | 1.08 ( 0.94, 1.24) | 0.2877 | 1.15 ( 0.98, 1.34) | 0.0888 |
| Recent wheeze after exercise | | | | |
| Male | **0.82 ( 0.70, 0.98)D\*** | **0.0244** | 0.90 ( 0.72, 1.12) | 0.3391 |
| Female | 0.96 ( 0.75, 1.23) | 0.7538 | 1.15 ( 0.83, 1.59) | 0.3904 |
| Interaction | 1.17 ( 0.98, 1.38) | 0.0763 | **1.29 ( 1.06, 1.55)I\*** | **0.0091** |
| Current asthma | | | | |
| Male | 0.83 ( 0.69, 1.00) | 0.0546 | 0.89 ( 0.70, 1.12) | 0.3164 |
| Female | 0.82 ( 0.61, 1.11) | 0.2013 | 0.92 ( 0.63, 1.36) | 0.6877 |
| Interaction | 0.99 ( 0.85, 1.15) | 0.8713 | 1.04 ( 0.87, 1.25) | 0.6382 |
| Recent visit to GP/ED/hospital | | | | |
| Male | 1.08 ( 0.91, 1.28) | 0.392 | 1.09 ( 0.88, 1.34) | 0.43 |
| Female | 1.05 ( 0.84, 1.31) | 0.6867 | 1.18 ( 0.93, 1.51) | 0.1679 |
| Interaction | 0.97 ( 0.82, 1.14) | 0.7275 | 1.09 ( 0.93, 1.27) | 0.2827 |
| Recent use of beta-agonist (short-term) | | | | |
| Male | 0.98 ( 0.85, 1.12) | 0.761 | 1.01 ( 0.84, 1.21) | 0.9569 |
| Female | 1.08 ( 0.87, 1.34) | 0.5 | 1.23 ( 0.93, 1.62) | 0.1474 |
| Interaction | 1.10 ( 0.94, 1.29) | 0.2226 | **1.22 ( 1.02, 1.46)I\*** | **0.0269** |
| Recent cough |  |  |  |  |
| Male | 1.14 ( 0.96, 1.35) | 0.1456 | 1.12 ( 0.90, 1.38) | 0.3141 |
| Female | 1.27 ( 0.99, 1.63) | 0.0627 | **1.29 ( 1.02, 1.61)I\*** | **0.0301** |
| Interaction | 1.12 ( 0.93, 1.35) | 0.2483 | 1.15 ( 0.98, 1.35) | 0.0775 |
| Recent rhinitis |  |  |  |  |
| Male | 1.01 ( 0.88, 1.17) | 0.878 | 0.97 ( 0.82, 1.14) | 0.6977 |
| Female | 1.01 ( 0.80, 1.26) | 0.963 | 0.99 ( 0.77, 1.28) | 0.9653 |
| Interaction | 0.99 ( 0.86, 1.15) | 0.9366 | 1.03 ( 0.86, 1.23) | 0.7712 |
| Recent itchy rash for 6 months | | | | |
| Male | 0.96 ( 0.77, 1.19) | 0.6981 | 1.02 ( 0.80, 1.29) | 0.886 |
| Female | 0.91 ( 0.75, 1.11) | 0.3464 | 0.88 ( 0.70, 1.12) | 0.3127 |
| Interaction | 0.95 ( 0.82, 1.11) | 0.5157 | 0.87 ( 0.74, 1.03) | 0.1002 |

Table 6.6. Gender: CO

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| Ever had wheezing | | | | |
| Male | 0.96 ( 0.82, 1.11) | 0.554 |  |  |
| Female | 1.02 ( 0.90, 1.17) | 0.7295 |  |  |
| Interaction | 1.07 ( 0.97, 1.18) | 0.1627 |  |  |
| Ever had Asthma | | | | |
| Male | 0.97 ( 0.84, 1.12) | 0.6768 |  |  |
| Female | 1.06 ( 0.97, 1.17) | 0.1991 |  |  |
| Interaction | 1.10 ( 0.99, 1.22) | 0.0881 |  |  |
| Ever had medication for asthma/wheezing | | | | |
| Male | 0.92 ( 0.80, 1.06) | 0.2575 |  |  |
| Female | 1.00 ( 0.88, 1.13) | 0.9839 |  |  |
| Interaction | 1.08 ( 0.97, 1.21) | 0.1469 |  |  |
| Ever had rhinitis | | | | |
| Male | 0.91 ( 0.80, 1.03) | 0.1228 |  |  |
| Female | **0.82 ( 0.69, 0.97)D\*** | **0.0213** |  |  |
| Interaction | 0.90 ( 0.80, 1.01) | 0.0815 |  |  |
| Recent wheeze  after exercise | | | | |
| Male | 0.91 ( 0.79, 1.05) | 0.1841 | 0.89 ( 0.72, 1.10) | 0.2846 |
| Female | 0.94 ( 0.82, 1.07) | 0.3617 | 0.88 ( 0.69, 1.13) | 0.3147 |
| Interaction | 1.03 ( 0.93, 1.15) | 0.5278 | 0.99 ( 0.87, 1.13) | 0.9196 |
| Recent wheeze after exercise | | | | |
| Male | 0.92 ( 0.79, 1.07) | 0.2571 | 0.95 ( 0.72, 1.25) | 0.6981 |
| Female | 0.98 ( 0.79, 1.21) | 0.8221 | 1.00 ( 0.72, 1.39) | 0.9895 |
| Interaction | 1.07 ( 0.93, 1.22) | 0.3664 | 1.06 ( 0.89, 1.26) | 0.5247 |
| Current asthma | | | | |
| Male | 1.02 ( 0.85, 1.21) | 0.851 | 1.05 ( 0.84, 1.30) | 0.6714 |
| Female | 1.15 ( 0.95, 1.39) | 0.1635 | 1.20 ( 0.91, 1.58) | 0.193 |
| Interaction | **1.13 ( 1.04, 1.22)I\*** | **0.0026** | 1.14 ( 1.00, 1.31) | 0.052 |
| Recent visit to GP/ED/hospital | | | | |
| Male | **0.80 ( 0.66, 0.96)D\*** | **0.018** | 0.79 ( 0.62, 1.00) | 0.0507 |
| Female | 0.83 ( 0.67, 1.03) | 0.0959 | 0.93 ( 0.71, 1.21) | 0.5682 |
| Interaction | 1.04 ( 0.92, 1.19) | 0.5176 | 1.18 ( 0.99, 1.41) | 0.0664 |
| Recent use of beta-agonist (short-term) | | | | |
| Male | 0.90 ( 0.79, 1.02) | 0.1033 | 0.87 ( 0.74, 1.03) | 0.1022 |
| Female | 0.95 ( 0.79, 1.15) | 0.6061 | 0.89 ( 0.68, 1.16) | 0.397 |
| Interaction | 1.06 ( 0.92, 1.21) | 0.4162 | 1.02 ( 0.86, 1.20) | 0.8283 |
| Recent cough |  |  |  |  |
| Male | 0.92 ( 0.75, 1.12) | 0.4098 | 0.78 ( 0.61, 1.00) | 0.0516 |
| Female | 0.91 ( 0.75, 1.12) | 0.383 | 0.82 ( 0.61, 1.10) | 0.1932 |
| Interaction | 0.99 ( 0.92, 1.08) | 0.8852 | 1.05 ( 0.90, 1.23) | 0.5349 |
| Recent rhinitis |  |  |  |  |
| Male | 0.94 ( 0.83, 1.07) | 0.3723 | 0.93 ( 0.78, 1.11) | 0.4216 |
| Female | 0.87 ( 0.72, 1.04) | 0.1284 | 0.86 ( 0.68, 1.10) | 0.2272 |
| Interaction | 0.92 ( 0.82, 1.03) | 0.1352 | 0.93 ( 0.81, 1.06) | 0.2606 |
| Recent itchy rash for 6 months | | | | |
| Male | 0.97 ( 0.89, 1.07) | 0.5812 | 1.03 ( 0.85, 1.26) | 0.762 |
| Female | 0.88 ( 0.73, 1.06) | 0.182 | 0.99 ( 0.84, 1.16) | 0.8934 |
| Interaction | 0.91 ( 0.74, 1.11) | 0.3336 | 0.96 ( 0.77, 1.20) | 0.7098 |

Table 6.7. Gender: SO2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Lifetime exposure** | **P** | **Recent exposure** | **P** |
| Ever had wheezing | | | | |
| Male | 1.00 ( 0.94, 1.06) | 0.977 |  |  |
| Female | 1.04 ( 0.99, 1.10) | 0.1458 |  |  |
| Interaction | **1.04 ( 1.00, 1.08)I\*** | **0.0304** |  |  |
| Ever had Asthma | | | | |
| Male | 0.99 ( 0.93, 1.06) | 0.8267 |  |  |
| Female | 0.99 ( 0.94, 1.05) | 0.801 |  |  |
| Interaction | 1.00 ( 0.92, 1.08) | 0.9854 |  |  |
| Ever had medication for asthma/wheezing | | | | |
| Male | 1.02 ( 0.96, 1.08) | 0.4994 |  |  |
| Female | 1.04 ( 0.96, 1.14) | 0.3151 |  |  |
| Interaction | 1.02 ( 0.94, 1.11) | 0.602 |  |  |
| Ever had rhinitis | | | | |
| Male | 1.03 ( 0.96, 1.10) | 0.4348 |  |  |
| Female | 0.97 ( 0.90, 1.04) | 0.3491 |  |  |
| Interaction | **0.94 ( 0.90, 0.98)D\*** | **0.0023** |  |  |
| Recent wheeze  after exercise | | | | |
| Male | 1.01 ( 0.97, 1.06) | 0.5402 | 1.00 ( 0.95, 1.06) | 0.8737 |
| Female | 1.02 ( 0.90, 1.15) | 0.7664 | 1.01 ( 0.86, 1.18) | 0.9455 |
| Interaction | 1.00 ( 0.90, 1.12) | 0.9307 | 1.00 ( 0.87, 1.15) | 0.9892 |
| Recent wheeze after exercise | | | | |
| Male | **0.84 ( 0.76, 0.93)D\*** | **0.0004** | **0.84 ( 0.76, 0.92)D\*** | **0.0003** |
| Female | **0.76 ( 0.63, 0.92)D\*** | **0.0046** | **0.76 ( 0.64, 0.91)D\*** | **0.0027** |
| Interaction | 0.91 ( 0.82, 1.00) | 0.0585 | **0.91 ( 0.83, 0.99)D\*** | **0.0315** |
| Current asthma | | | | |
| Male | 0.96 ( 0.90, 1.03) | 0.2852 | 0.96 ( 0.89, 1.04) | 0.3467 |
| Female | 0.94 ( 0.85, 1.03) | 0.1984 | 0.93 ( 0.86, 1.01) | 0.1014 |
| Interaction | 0.98 ( 0.89, 1.07) | 0.5946 | 0.97 ( 0.88, 1.07) | 0.5235 |
| Recent visit to GP/ED/hospital | | | | |
| Male | 0.98 ( 0.92, 1.05) | 0.6025 | 0.99 ( 0.90, 1.09) | 0.8702 |
| Female | 0.92 ( 0.81, 1.04) | 0.1836 | 0.93 ( 0.82, 1.06) | 0.2845 |
| Interaction | 0.93 ( 0.79, 1.10) | 0.4021 | 0.94 ( 0.78, 1.14) | 0.5309 |
| Recent use of beta-agonist (short-term) | | | | |
| Male | 0.96 ( 0.92, 1.00) | 0.0583 | **0.95 ( 0.91, 0.99)D\*** | **0.0246** |
| Female | 0.99 ( 0.86, 1.14) | 0.8561 | 0.98 ( 0.84, 1.15) | 0.8347 |
| Interaction | 1.03 ( 0.90, 1.17) | 0.687 | 1.03 ( 0.89, 1.20) | 0.6895 |
| Recent cough |  |  |  |  |
| Male | **1.04 ( 1.00, 1.08)I\*** | **0.0333** | **1.07 ( 1.02, 1.12)I\*** | **0.003** |
| Female | 1.05 ( 0.97, 1.14) | 0.204 | 1.09 ( 0.99, 1.20) | 0.0758 |
| Interaction | 1.01 ( 0.93, 1.11) | 0.7697 | 1.02 ( 0.91, 1.13) | 0.7698 |
| Recent rhinitis |  |  |  |  |
| Male | 1.03 ( 0.98, 1.08) | 0.2693 | 1.05 ( 0.97, 1.13) | 0.2607 |
| Female | 0.95 ( 0.89, 1.02) | 0.1379 | 0.97 ( 0.89, 1.06) | 0.4676 |
| Interaction | **0.92 ( 0.87, 0.98)D\*** | **0.0098** | **0.93 ( 0.87, 0.99)D\*** | **0.017** |
| Recent itchy rash for 6 months | | | | |
| Male | **1.06 ( 1.00, 1.13)I\*** | **0.0463** | **1.10 ( 1.02, 1.20)I\*** | **0.0194** |
| Female | **1.09 ( 1.03, 1.16)I\*** | **0.0029** | **1.12 ( 1.03, 1.21)I\*** | **0.0054** |
| Interaction | 1.02 ( 0.99, 1.06) | 0.1315 | 1.02 ( 0.98, 1.05) | 0.3609 |