

**AUSTRALIAN CHILD HEALTH AND
AIR POLLUTION STUDY
(ACHAPS)**

**FINAL REPORT
APPENDICES FOR PART B**

December 17, 2010

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1. Lung function Models

Table 1.1: Bsp Models

	Single	Joint-PM_{2.5}	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 (-52.5,59.64) 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. PM_{2.5} Models

	Single	Joint-Bsp	Joint-PM ₁₀	Joint-NO ₂	Joint-O ₃	Joint-CO	Joint-SO ₂
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-PM_{2.5}	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-PM _{2.5}	Joint-PM ₁₀	Joint-O ₃	Joint-CO	Joint-SO ₂
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-PM _{2.5}	Joint-PM ₁₀	Joint-NO ₂	Joint-CO	Joint-SO ₂
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-PM_{2.5}	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-PM _{2.5}	Joint-PM ₁₀	Joint-NO ₂	Joint-O ₃	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

2. Symptom Models

Table 2.1.Lifetime Symptoms

LIFETIME Bsp	Single	Joint-PM _{2.5}	Joint-PM ₁₀	Joint-NO ₂	Joint-O ₃	Joint-CO	Joint-SO ₂
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 PM _{2.5}	Single	Joint-Bsp	Joint-PM ₁₀	Joint-NO ₂	Joint-O ₃	Joint-CO	Joint-SO ₂
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 PM ₁₀	Single	Joint-Bsp	Joint-PM _{2.5}	Joint-NO ₂	Joint-O ₃	Joint-CO	Joint-SO ₂
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 NO ₂	Single	Bsp	PM _{2.5}	PM ₁₀	O ₃	CO	SO ₂
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 O ₃	Single	Bsp	PM _{2.5}	PM ₁₀	NO ₂	CO	SO ₂
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	PM _{2.5}	PM ₁₀	NO ₂	O ₃	SO ₂
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 SO ₂	Single	Bsp	PM _{2.5}	PM ₁₀	NO ₂	O ₃	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-PM _{2.5}	Joint- M ₁₀	Joint-NO ₂	Joint-O ₃	Joint-CO	Joint-SO ₂
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. PM_{2.5} Models

LIFETIME PM _{2.5}	Single	Joint-Bsp	Joint-PM ₁₀	Joint-NO ₂	Joint-O ₃	Joint-CO	Joint-SO ₂
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 PM _{2.5}							
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 PM ₁₀	Single	Joint-Bsp	Joint-PM _{2.5}	Joint-NO ₂	Joint-O ₃	Joint-CO	Joint-SO ₂
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 PM ₁₀							
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 NO ₂	Single	Joint-Bsp	Joint-PM _{2.5}	Joint-PM ₁₀	Joint-O ₃	Joint-CO	Joint-SO ₂
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 NO ₂							
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 O ₃	Single	Joint-Bsp	Joint-PM _{2.5}	Joint-PM ₁₀	Joint-NO ₂	Joint-CO	Joint-SO ₂
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 O ₃							
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-PM _{2.5}	Joint-PM ₁₀	Joint-NO ₂	Joint-O ₃	Joint-SO ₂
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 SO ₂	Single	Joint-Bsp	Joint-PM _{2.5}	Joint-PM ₁₀	Joint-NO ₂	Joint-O ₃	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 SO ₂							
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

3. 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: PM_{2.5}

	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, -)	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, -)	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, -)	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

4. 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: PM_{2.5}

	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, -)	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, -	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, -	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, -	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, -	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, -	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, -	0.0207	-36.71 (-59.81, -13.62)D*	0.0025
Females	-30.59 (-52.9, -	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, -	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, -)	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, -)	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, -)	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

5. 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				
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: PM_{2.5}

	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				
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				
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				
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				
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				
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				
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

6. 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				
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				
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				
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				
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				
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				
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				
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

