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### **Supplemental Material**

#### **Air Toxics in Relation to Autism Diagnosis, Phenotype, and Severity in a U.S. Family-Based Study**

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Supplemental Material, Table S1. Results of air toxics and autism diagnosis in prior studies and current study<sup>1</sup>

	<u>Adjusted Odds Ratios and 95% Confidence Limits</u>					
	Windham et al. 2006 <sup>2</sup>	Kalkbrenner et al. 2010 <sup>4</sup>	Roberts et al. 2013 <sup>5</sup>	von Ehrenstein et al. 2014 <sup>7</sup>	Talbott et al. 2015 <sup>8</sup>	Current Study <sup>9</sup>
	19 air toxics	35 air toxics	14 <i>a priori</i> air toxics	24 air toxics	30 air toxics	155 air toxics
	San Francisco Bay Area, CA	North Carolina and West Virginia	180 in supplement US-wide	Los Angeles County, CA	S.W. Pennsylvania	US-wide
1,2,4-Trichlorobenzene	NA	NA	<b>1.58 (1.12, 2.21)</b> <sup>6</sup>	NA	NA	1.28 (0.98, 1.66)
1,3-Butadiene	NA	1.5 (0.7, 3.3)	1.57 (1.08, 2.28) <sup>6</sup>	<b>1.59 (1.18, 2.15)</b>	NA	0.98 (0.73, 1.32)
1,4-Dichlorobenzene	NA	NA	1.16 (0.73, 1.86) <sup>6</sup>	Ortho- 1.04 (0.96, 1.14)	NA	<b>0.25 (0.09, 0.66)</b>
1,4-Dioxane	NA	NA	1.10 (0.77, 1.57) <sup>6</sup>	Para- 0.96 (0.91, 1.01)	NA	<b>2.87 (1.43, 5.76)</b>
4,4'-Methylene diphenyl diisocyanate (MDI)	NA	NA	1.48 (0.97, 2.25) <sup>6</sup>	NA	NA	<b>0.54 (0.39, 0.76)</b>
Acetaldehyde	NA	1.1 (0.6, 2.3)	1.43 (0.96, 2.15) <sup>6</sup>	<b>1.20 (1.07, 1.34)</b>	NA	0.83 (0.61, 1.15)
Acetonitrile	NA	NA	<b>1.73 (1.16, 2.59)</b> <sup>6</sup>	NA	NA	1.05 (0.83, 1.15)
Benzene	NA <sup>3</sup>	0.9 (0.5, 1.6)	1.48 (1.01, 2.17) <sup>6</sup>	<b>1.46 (1.11, 1.89)</b>	1.08 (0.62, 1.90)	1.13 (0.81, 1.57)
Benzidine	NA	NA	0.57 (0.13, 2.43) <sup>6</sup>	NA	NA	<b>0.41 (0.25, 0.68)</b>
Beryllium compounds	NA	0.9 (0.4, 2.1)	<b>1.77 (1.22, 2.57)</b> <sup>6</sup>	NA	NA	0.74 (0.55, 1.02)
Bromoform	NA	NA	1.15 (0.68, 1.97) <sup>6</sup>	NA	NA	<b>3.94 (1.68, 9.21)</b>
Carbon disulfide	NA	NA	1.26 (0.83, 1.93) <sup>6</sup>	NA	1.28 (0.74, 2.24)	1.46 (0.85, 2.53)

Cadmium compounds	<b>1.54 (1.08, 2.20)</b>	1.1 (0.6, 2.0)	1.46 (1.00, 2.13) <sup>6</sup>	NA	0.93 (0.53, 1.64)	0.93 (0.70, 1.24)
Chlorobenzene	NA	NA	1.21 (0.76, 1.93) <sup>6</sup>	NA	NA	1.35 (0.86, 2.14)
Chromium compounds	1.12 (0.79, 1.58)	1.2 (0.6, 2.5)	1.36 (0.93, 1.98) <sup>6</sup>	1.01 (0.97, 1.06)	<b>1.52 (0.87, 2.66)</b>	1.00 (0.74, 1.35)
Copper compounds	NA	NA	NA	<b>1.09 (1.02, 1.16)</b>	NA	NA
Dibenzofurans	NA	NA	2.06 (0.54, 7.77) <sup>6</sup>	NA	NA	<b>2.53 (1.35, 4.74)</b>
Diesel particulate matter	<b>1.44 (1.03-2.02)</b>	1.1 (0.8, 1.5)	<b>2.01 (1.02, 3.97)</b>	NA	1.04 (0.59, 1.84)	1.44 (1.06, 1.97)
Ethylbenzene	NA <sup>3</sup>	0.7 (0.2, 2.6)	1.43 (0.98, 2.09) <sup>6</sup>	<b>1.48 (1.25, 1.75)</b>	1.16 (0.66, 2.03)	1.55 (1.08, 2.32)
Ethyl carbamate (Urethane)	NA	NA	1.13 (0.82, 1.57) <sup>6</sup>	NA	NA	<b>0.30 (0.16, 0.57)</b>
Ethylene dichloride	NA	NA	<b>2.14 (1.26, 3.62)</b> <sup>6</sup>	NA	NA	1.37 (0.97, 1.93)
Formaldehyde	NA	0.9 (0.6, 1.4)	1.43 (0.87, 9.43) <sup>6</sup>	<b>1.34 (1.17, 1.52)</b>	NA	1.00 (0.73, 1.36)
Glycol ethers	NA	NA	1.22 (0.77, 1.92) <sup>6</sup>	NA	NA	<b>2.05 (1.39, 3.02)</b>
Lead	1.07 (0.76, 1.51)	0.7 (0.4, 1.1)	<b>1.57 (1.09, 2.27)</b>	<b>1.49 (1.23, 1.81)</b>	1.10 (0.63, 1.94)	1.17 (0.89, 1.53)
Manganese	1.09 (0.75, 1.59)	0.8 (0.4, 1.4)	<b>1.54 (1.07, 2.23)</b>	1.03 (0.98, 1.07)	1.10 (0.64, 1.90)	0.75 (0.60, 0.95)
Mercury	<b>1.92 (1.36, 2.71)</b>	1.2 (0.7, 2.1)	1.37 (0.99, 2.15) <sup>6</sup>	NA	0.60 (0.34, 1.06)	1.78 (1.11, 2.84)
Methyl tert butyl ether (MTBE)	NA	0.9 (0.5, 1.5)	1.23 (0.87, 1.76) <sup>6</sup>	NA	NA	<b>2.33 (1.31, 4.15)</b>
Methylene Chloride	1.37 (0.96, 1.96)	<b>1.4 (0.7, 2.5)</b>	1.46 (0.99, 2.15) <sup>6</sup>	1.08 (0.93, 1.26)	1.07 (0.61, 1.85)	1.09 (0.80, 1.49)
Nickel	<b>1.46 (1.04, 2.06)</b>	1.1 (0.6, 1.9)	<b>1.65 (1.10, 2.47)</b>	0.97 (0.89, 1.05)	0.76 (0.44, 1.31)	1.08 (0.77, 1.51)
Propionaldehyde	NA	1.5 (0.6-3.6)	1.24 (0.85, 1.83) <sup>6</sup>	NA	NA	<b>1.92 (1.33, 2.77)</b>
Quinoline	NA	<b>1.4 (1.0, 2.2)</b>	1.02 (0.73, 1.43)	NA	NA	0.81 (0.68, 0.96)
Styrene	NA <sup>3</sup>	<b>1.8 (1.0, 3.1)</b>	1.40 (0.95, 2.07)	NA	<b>2.04 (1.17, 3.56)</b>	1.16 (0.83, 1.62)
Tetrachloroethylene (Perchloroethylene)	1.11 (0.78, 1.59)	1.1 (0.7, 1.7)	1.60 (1.07, 2.41) <sup>6</sup>	<b>1.40 (1.09, 1.80)</b>	0.92 (0.52, 1.63)	0.90 (0.67, 1.19)
Toluene	NA <sup>3</sup>	0.4 (0.1, 1.3)	1.56 (1.06, 2.30) <sup>6</sup>	<b>1.37 (1.12, 1.67)</b>	0.98 (0.55, 1.72)	1.05 (0.71, 1.55)
Trichloroethylene	<b>1.47 (1.03, 2.08)</b>	1.0 (0.8, 1.3)	1.32 (0.86, 2.02)	<b>1.14 (1.03, 1.27)</b>	1.04 (0.59, 1.84)	1.18 (0.86, 1.61)

Vanadium	NA	NA	NA	<b>0.67 (0.54, 0.83)</b>	NA	NA
Vinyl chloride	<b>1.75 (1.25, 2.43)</b>	0.9 (0.4, 2.0)	1.17 (0.75, 1.81)	NA	1.18 (0.67, 2.07)	1.44 (0.94, 2.32)
Xylenes	NA <sup>3</sup>	1.1 (0.4, 3.4)	1.34 (0.92, 1.94) <sup>6</sup> (isomers and mixtures)	Ortho- <b>1.42 (1.19, 1.70)</b> Meta/para- <b>1.51 (1.26, 1.82)</b>	1.04 (0.59, 1.83)	1.49 (1.04, 2.14)

1. We included air toxics with increased or decreased risk of ASD diagnosis or autism severity as emphasized by the authors or if adjusted associations were statistically significant (bolded), in at least one prior publication or our study. Studies included were those with individual data on autism and a peri-natal address for air toxics linkage, see table 1.
2. Windham et al. results are for the 4<sup>th</sup> quartile of air toxics compared to the 1<sup>st</sup> and 2<sup>nd</sup> quartiles combined (e.g. median and below).
3. Although not included as an individual air toxic in Windham et al., these aromatic solvents were combined and examined as a group: aOR =1.15 (0.80, 1.65) for 4<sup>th</sup> vs. 1<sup>st</sup> - 2<sup>nd</sup> quartiles.
4. Kalkbrenner et al. results are from a multi-pollutant semi-Bayes model comparing the 80<sup>th</sup> percentile of air toxic to the 20<sup>th</sup> percentile.
5. Roberts et al. results compare the 5<sup>th</sup> quintile of air toxics compared to the 1<sup>st</sup>.
6. These air toxic results are from Roberts supplementary material, not *a priori* selection; for these a p-value<0.01 (bolded) was considered of note by the authors because of the many associations examined.
7. von Ehrenstein et al. results are per interquartile-range increase of measured air toxic (pregnancy average) among participants residing within 5 km of the monitor.
8. Talbott et al. results shown are for the 4<sup>th</sup> quartile of air toxics compared to the 1<sup>st</sup> quartile for exposure during pregnancy, using the interviewed control group; chromium is bolded because its estimate using an alternate control group was significant and chromium was emphasized by the authors.
9. Results from the current study predict ASD diagnosis with log-transformed air toxics, from a mixed model with a random effect for family and adjusting for the family mean air toxic level, comparing the 75% of the air toxic to the 25%, with results passing the false discovery rate in bold, as in Table 2.
10. Abbreviations: NA = not assessed.

Supplemental Material, Table S2. Air Toxics Concentrations for AGRE Participants <sup>1</sup> and Reason when Excluded from Analysis

Air Toxic	Units	CAS Number <sup>2</sup>	Mean	SD	25 %	50 %	75%	Exclude <sup>3</sup>
1,1,1-Trichloroethane (Methyl Chloroform)	ug/m <sup>3</sup>	71556	1.4	1.9	0.28	0.96	1.42	
1,1,2,2-Tetrachloroethane	ng/m <sup>3</sup>	79345	24.0	34.2	2.81	4.00	46.82	
1,1,2-Trichloroethane	pg/m <sup>3</sup>	79005	502.2	5436.5	0.22	1.08	14.24	
1,1-Dimethyl hydrazine	fg/m <sup>3</sup>	57147	10987.6	249588.8	0.00	0.00	0.14	
1,2,3,4,5,6-Hexachlorocyclohexane	fg/m <sup>3</sup>	319846	762.3	5581.2	0.00	0.00	0.00	Det.
1,2,4-Trichlorobenzene	pg/m <sup>3</sup>	120821	415.8	3380.3	6.74	18.96	62.88	
1,2-Dibromo-3-chloropropane	pg/m <sup>3</sup>	96128	2.8	7.2	0.00	1.30	1.60	
1,2-Diphenylhydrazine	fg/m <sup>3</sup>	122667	32.9	474.8	0.00	0.00	0.00	Det.
1,2-Epoxybutane	pg/m <sup>3</sup>	106887	158.4	1131.8	0.00	0.00	0.98	
1,2-Propylenimine	fg/m <sup>3</sup>	75558	419.0	6971.4	0.00	0.00	0.42	
1,3-Butadiene	ng/m <sup>3</sup>	106990	109.8	121.9	52.19	87.56	129.74	
1,3-Dichloropropene	ng/m <sup>3</sup>	542756	88.6	101.0	18.05	62.21	116.30	
1,3-Propane sultone	fg/m <sup>3</sup>	1120714	4.1	67.7	0.00	0.00	0.00	Det.
1,4-Dichlorobenzene (p-Dichlorobenzene)	ng/m <sup>3</sup>	106467	74.3	102.9	0.00	45.99	114.90	
1,4-Dioxane	pg/m <sup>3</sup>	123911	1632.1	7650.3	0.00	8.80	154.08	
2-Acetylaminofluorene	fg/m <sup>3</sup>	53963	41.8	401.2	0.00	0.00	0.00	Det.
2,2,4-Trimethylpentane	ng/m <sup>3</sup>	540841	750.5	676.2	301.26	601.38	1001.45	
2,4,5-Trichlorophenol	fg/m <sup>3</sup>	95954	223.2	2301.2	0.00	0.00	0.00	Det.
2,4,6-Trichlorophenol <sup>4</sup>	fg/m <sup>3</sup>	88062	357.7	2803.0	0.00	0.00	0.00	
2,4-D, salts and esters	pg/m <sup>3</sup>	94757	561.4	3018.0	0.00	0.02	67.08	

<b>Air Toxic</b>	<b>Units</b>	<b>CAS Number<sup>2</sup></b>	<b>Mean</b>	<b>SD</b>	<b>25 %</b>	<b>50 %</b>	<b>75%</b>	<b>Exclude<sup>3</sup></b>
2,4-Dinitrophenol	fg/m <sup>3</sup>	51285	397.2	1985.8	0.00	0.00	0.04	
2,4-Dinitrotoluene	pg/m <sup>3</sup>	121142	40.9	357.3	1.64	7.52	17.09	
2,4-Toluene diamine	fg/m <sup>3</sup>	95807	160.2	2406.6	0.00	0.00	0.00	Det.
2,4-Toluene diisocyanate	pg/m <sup>3</sup>	584849	1023.9	2768.9	26.35	78.60	519.80	
2-Chloroacetophenone	fg/m <sup>3</sup>	532274	86.9	209.7	0.00	0.00	57.09	
2-Nitropropane	pg/m <sup>3</sup>	79469	20.0	179.4	0.12	0.95	2.22	
3,3-Dichlorobenzidene	fg/m <sup>3</sup>	91941	155.6	970.2	0.00	0.00	0.04	
3,3-Dimethoxybenzidine	fg/m <sup>3</sup>	119904	2.3	37.1	0.00	0.00	0.00	Det.
3,3-Dimethyl benzidine	fg/m <sup>3</sup>	119937	15.9	191.1	0.00	0.00	0.00	Det.
4,4'-Methylene bis(2-chloroaniline) <sup>4</sup>	pg/m <sup>3</sup>	101144	1.6	26.0	0.00	0.00	0.00	
4,4'-Methylenedianiline	fg/m <sup>3</sup>	101779	17937.5	82941.9	0.00	0.24	81.52	
4,4'-Methylene diphenyl diisocyanate (MDI)	pg/m <sup>3</sup>	101688	486.9	3117.8	26.27	151.93	406.71	
4,6-Dinitro-o-cresol, and salts	fg/m <sup>3</sup>	534521	3519.6	36647.6	0.00	0.00	0.48	
4-Aminobiphenyl	fg/m <sup>3</sup>	92671	10.1	352.1	0.00	0.00	0.00	Det.
4-Dimethylaminoazobenzene	ag/m <sup>3</sup>	60117	1381.3	20779.4	0.00	0.00	0.00	Det.
4-Nitrobiphenyl	ag/m <sup>3</sup>	92933	1079.5	17357.4	0.00	0.00	0.00	Det.
4-Nitrophenol	pg/m <sup>3</sup>	100027	2212.3	19357.0	0.01	24.37	79.99	
Acetaldehyde	ug/m <sup>3</sup>	75070	1.6	0.8	0.97	1.48	2.04	
Acetamide	fg/m <sup>3</sup>	60355	53.6	158.1	0.00	23.92	56.02	
Acetonitrile	pg/m <sup>3</sup>	75058	1124.2	6971.8	27.87	86.12	346.80	
Acetophenone	pg/m <sup>3</sup>	98862	211.1	1689.1	13.68	34.62	109.10	
Acrolein	ng/m <sup>3</sup>	107028	112.7	112.0	47.53	81.36	136.60	

<b>Air Toxic</b>	<b>Units</b>	<b>CAS Number<sup>2</sup></b>	<b>Mean</b>	<b>SD</b>	<b>25 %</b>	<b>50 %</b>	<b>75%</b>	<b>Exclude<sup>3</sup></b>
Acrylamide	fg/m <sup>3</sup>	79061	6755.8	81322.2	0.00	3.61	296.50	
Acrylic acid	pg/m <sup>3</sup>	79107	141.6	1880.0	0.00	0.91	14.82	
Acrylonitrile	ng/m <sup>3</sup>	107131	8.3	15.2	1.05	3.05	10.61	
Allyl chloride	pg/m <sup>3</sup>	107051	22.5	167.3	0.94	3.42	8.01	
Aniline	pg/m <sup>3</sup>	62533	399.7	12469.0	0.00	0.00	2.88	
o-Anisidine	ag/m <sup>3</sup>	90040	55082.6	820199.7	0.00	0.00	435.30	
Antimony Compounds	pg/m <sup>3</sup>		139.9	735.4	2.12	21.19	116.96	
Arsenic Compounds	pg/m <sup>3</sup>		350.6	536.9	54.06	188.90	464.70	
Asbestos	fg/m <sup>3</sup>		21062.0	379335.1	0.00	0.00	2146.80	
Benzene	ug/m <sup>3</sup>	71432	1.3	0.8	0.80	1.14	1.59	
Benzidine	fg/m <sup>3</sup>	92875	93.2	521.7	0.00	9.90	10.72	
Benzotrichloride	fg/m <sup>3</sup>	98077	320.1	7358.3	0.00	0.00	12.33	
Benzyl chloride	pg/m <sup>3</sup>	100447	59.3	534.4	1.43	5.77	29.63	
Beryllium Compounds	pg/m <sup>3</sup>		79.7	207.5	8.79	25.71	58.87	
beta-Propriolactone	ag/m <sup>3</sup>	57578	0.0	0.0	0.00	0.00	0.00	Det.
Biphenyl	pg/m <sup>3</sup>	92524	430.6	2036.2	32.25	72.95	258.96	
Bis(2-ethylhexyl)phthalate	ng/m <sup>3</sup>	117817	651.2	783.4	5.56	7.08	1600.02	
Bis(chloromethyl)ether	ag/m <sup>3</sup>	542881	19300.2	167339.4	0.00	0.00	2023.00	
Bromoform	pg/m <sup>3</sup>	75252	8477.2	10307.1	0.00	2.00	21000.00	
Cadmium Compounds	pg/m <sup>3</sup>		195.6	399.7	45.23	98.96	220.19	
Calcium cyanamide	pg/m <sup>3</sup>	156627	0.7	10.6	0.00	0.00	0.00	Det.
Captan	pg/m <sup>3</sup>	133062	109.8	527.0	0.00	0.00	1.74	
Carbaryl	fg/m <sup>3</sup>	63252	68303.7	265374.7	0.00	0.00	7789.00	

<b>Air Toxic</b>	<b>Units</b>	<b>CAS Number<sup>2</sup></b>	<b>Mean</b>	<b>SD</b>	<b>25 %</b>	<b>50 %</b>	<b>75%</b>	<b>Exclude<sup>3</sup></b>
Carbon disulfide	ng/m <sup>3</sup>	75150	26.8	82.1	0.70	2.68	49.10	
Carbon tetrachloride	ng/m <sup>3</sup>	56235	340.2	255.6	0.97	271.13	610.12	
Carbonyl sulfide	ng/m <sup>3</sup>	463581	6.5	27.4	0.02	0.13	1.40	
Catechol	fg/m <sup>3</sup>	120809	31196.9	362470.2	0.00	0.00	0.68	
Chlordane	fg/m <sup>3</sup>	57749	4014.3	4871.7	0.00	0.00	9900.16	
Chlorine	ng/m <sup>3</sup>	7782505	23.0	65.5	0.05	0.57	22.24	
Chloroacetic acid	fg/m <sup>3</sup>	79118	13218.2	246976.2	0.00	0.00	35.57	
Chlorobenzene	ng/m <sup>3</sup>	108907	33.1	47.1	1.00	16.57	45.95	
Chlorobenzilate <sup>4</sup>	ag/m <sup>3</sup>	510156	493.9	5993.7	0.00	0.00	0.00	
Chloroform	ng/m <sup>3</sup>	67663	73.8	90.5	7.30	71.17	97.76	
Chloromethyl methyl ether	pg/m <sup>3</sup>	107302	613.4	7982.6	0.00	0.00	0.02	
Chloroprene	pg/m <sup>3</sup>	126998	151.7	3738.5	2.01	5.44	14.34	
Chromium Compounds	ng/m <sup>3</sup>		2.3	3.3	0.38	1.26	2.96	
Cobalt Compounds	pg/m <sup>3</sup>		231.2	743.3	5.84	24.31	123.91	
Coke Oven Emissions <sup>4</sup>	ng/m <sup>3</sup>		2.1	25.7	0.00	0.00	0.00	
Cresols/Cresylic acid	ng/m <sup>3</sup>	1319773	22.4	29.9	3.92	10.36	30.26	
Cumene	ng/m <sup>3</sup>	98828	4.9	16.1	0.59	1.56	3.71	
Cyanide Compounds	ng/m <sup>3</sup>		60.9	83.4	13.74	39.63	76.53	
DDE (1,1-Dichloro-2,2-Bis(P-Chlorophenyl) Ethylene)	ag/m <sup>3</sup>	72559	0.0	0.0	0.00	0.00	0.00	Det.
Diazomethane	fg/m <sup>3</sup>	334883	705.1	19189.8	0.00	0.00	0.00	Det.
Dibenzofurans	pg/m <sup>3</sup>	132649	30.7	202.0	0.00	0.08	7.20	
Dibutylphthalate	ng/m <sup>3</sup>	84742	7.8	60.4	0.04	0.12	0.41	



<b>Air Toxic</b>	<b>Units</b>	<b>CAS Number<sup>2</sup></b>	<b>Mean</b>	<b>SD</b>	<b>25 %</b>	<b>50 %</b>	<b>75%</b>	<b>Exclude<sup>3</sup></b>
Dichloroethyl ether (Bis(2-Chloroethyl) Ether)	fg/m <sup>3</sup>	111444	538.2	5339.9	0.00	0.00	2.73	
Dichlorvos	fg/m <sup>3</sup>	62737	14.4	388.7	0.00	0.00	0.90	
Diesel Particulate Matter	ug/m <sup>3</sup>		1.3	1.6	0.65	1.09	1.62	
Diethanolamine	pg/m <sup>3</sup>	111422	270.1	3900.5	0.01	3.29	21.75	
Diethyl sulfate	fg/m <sup>3</sup>	64675	957.9	12484.3	0.00	0.00	13.04	
Dimethyl formamide	ng/m <sup>3</sup>	68122	3.2	5.0	0.37	1.72	4.08	
Dimethyl phthalate	pg/m <sup>3</sup>	131113	207.0	1077.8	1.29	15.95	64.18	
Dimethyl sulfate	pg/m <sup>3</sup>	77781	3.4	20.7	0.08	0.40	1.65	
Dimethyl carbamoyl chloride	pg/m <sup>3</sup>	79447	4.4	47.4	0.00	0.00	0.00	Det.
Epichlorohydrin	pg/m <sup>3</sup>	106898	168.0	897.7	0.44	1.56	26.21	
Ethyl acrylate	pg/m <sup>3</sup>	140885	158.0	924.1	0.23	1.03	20.77	
Ethyl carbamate (Urethane)	fg/m <sup>3</sup>	51796	108527.1	227748.8	0.00	0.00	154339.38	
Ethyl chloride	ng/m <sup>3</sup>	75003	9.4	26.0	1.21	3.19	6.69	
Ethyl benzene	ng/m <sup>3</sup>	100414	456.4	399.2	183.85	345.66	592.15	
Ethylene dibromide (Dibromomethane)	ng/m <sup>3</sup>	106934	8.8	14.8	0.02	0.32	16.71	
Ethylene dichloride	ng/m <sup>3</sup>	107062	15.7	23.6	2.09	3.50	31.44	
Ethylene glycol	ng/m <sup>3</sup>	107211	157.0	211.8	21.74	78.17	225.79	
Ethylene oxide	ng/m <sup>3</sup>	75218	5.4	7.3	1.11	3.09	7.05	
Ethylene thiourea <sup>4</sup>	pg/m <sup>3</sup>	96457	1.3	19.3	0.00	0.00	0.00	
Ethylene imine (Aziridine)	fg/m <sup>3</sup>	151564	17.3	367.1	0.00	0.00	0.00	Det.
Ethylidene dichloride (1,1-Dichloroethane)	ng/m <sup>3</sup>	75343	3.9	15.4	0.16	1.35	3.74	
Fine Mineral Fibers	fg/m <sup>3</sup>		66.2	742.0	0.00	0.00	0.00	Det.

<b>Air Toxic</b>	<b>Units</b>	<b>CAS Number<sup>2</sup></b>	<b>Mean</b>	<b>SD</b>	<b>25 %</b>	<b>50 %</b>	<b>75%</b>	<b>Exclude<sup>3</sup></b>
Formaldehyde	ug/m <sup>3</sup>	50000	1.9	1.2	1.10	1.66	2.35	
Glycol ethers	ng/m <sup>3</sup>		134.2	312.0	1.45	15.81	98.92	
Heptachlor	ag/m <sup>3</sup>	76448	7078.5	67756.0	0.00	0.00	111.20	
Hexachlorobenzene	fg/m <sup>3</sup>	118741	1753.2	25987.5	14.56	73.85	311.80	
Hexachlorobutadiene	pg/m <sup>3</sup>	87683	734.0	896.9	0.04	0.30	1800.12	
Hexachlorocyclopentadiene	fg/m <sup>3</sup>	77474	10022.7	172109.7	19.31	101.30	242.70	
Hexachloroethane	ng/m <sup>3</sup>	67721	2.0	2.4	0.00	0.00	4.80	
Hexamethylene-1,6-diisocyanate	fg/m <sup>3</sup>	822060	34441.2	312687.8	0.00	0.00	293.01	
Hexamethylphosphoramide	fg/m <sup>3</sup>	680319	675.2	22573.8	0.00	0.00	0.00	Det.
Hexane	ng/m <sup>3</sup>	110543	725.4	763.5	259.55	493.32	905.76	
Hydrazine	pg/m <sup>3</sup>	302012	32.5	418.3	0.03	0.13	2.67	
Hydrochloric acid	ng/m <sup>3</sup>	7647010	256.5	1040.1	30.55	70.69	166.42	
Hydrofluoric acid	ng/m <sup>3</sup>	7664393	27.3	127.7	1.94	6.31	16.76	
Hydroquinone	pg/m <sup>3</sup>	123319	81.9	868.2	0.00	0.09	8.95	
Isophorone	pg/m <sup>3</sup>	78591	520.1	1815.4	22.12	206.40	514.16	
Lead Compounds	ng/m <sup>3</sup>		4.9	9.3	1.37	2.60	5.10	
Lindane	ng/m <sup>3</sup>	58899	0.3	0.0	0.25	0.25	0.25	Var.
Maleic anhydride	ng/m <sup>3</sup>	108316	2.1	27.6	0.00	0.00	0.04	
Manganese Compounds	ng/m <sup>3</sup>		3.3	7.4	0.71	1.37	2.96	
Mercury Compounds	pg/m <sup>3</sup>		667.8	849.0	51.41	214.41	1515.92	
Methanol	ng/m <sup>3</sup>	67561	625.6	609.8	224.85	446.27	782.70	
Methoxychlor	pg/m <sup>3</sup>	72435	3.4	64.2	0.00	0.00	0.00	Det.
Methyl bromide (Bromomethane)	ng/m <sup>3</sup>	74839	153.9	153.9	51.32	114.17	191.50	

<b>Air Toxic</b>	<b>Units</b>	<b>CAS Number<sup>2</sup></b>	<b>Mean</b>	<b>SD</b>	<b>25 %</b>	<b>50 %</b>	<b>75%</b>	<b>Exclude<sup>3</sup></b>
Methyl chloride (Chloroethane)	ug/m <sup>3</sup>	74873	1.2	0.0	1.20	1.20	1.21	Var.
Methyl Ethyl Keytone (2-butanone) (MEK)	ng/m <sup>3</sup>	78933	231.9	411.5	0.00	0.00	339.26	
Methyl iodide (Iodomethane)	pg/m <sup>3</sup>	74884	10.9	113.4	0.00	0.03	0.69	
Methyl isobutyl ketone	ng/m <sup>3</sup>	108101	178.1	224.8	39.66	103.08	229.47	
Methyl isocyanate	fg/m <sup>3</sup>	624839	304.1	3292.8	0.00	0.00	26.20	
Methyl methacrylate	ng/m <sup>3</sup>	80626	1.3	4.9	0.10	0.31	0.95	
Methyl tert butyl ether	ng/m <sup>3</sup>	1634044	1110.9	1617.6	53.98	352.17	1545.50	
Methylene chloride (Dichloromethane)	ng/m <sup>3</sup>	75092	545.7	557.0	224.82	399.34	627.78	
Methyl hydrazine	fg/m <sup>3</sup>	60344	4053.2	47125.8	0.00	0.06	1483.00	
N,N-Dimethyl aniline	pg/m <sup>3</sup>	121697	409.2	2815.1	8.14	40.74	104.07	
Naphthalene	ng/m <sup>3</sup>	91203	77.6	74.2	30.42	55.73	92.40	
Nickel Compounds	ng/m <sup>3</sup>		1.9	5.4	0.38	0.87	1.88	
Nitrobenzene	pg/m <sup>3</sup>	98953	30.4	423.1	0.50	1.39	4.26	
Nitrosodimethylamine <sup>4</sup>	fg/m <sup>3</sup>	62759	26.5	419.4	0.00	0.00	0.00	
Nitroso_methylurea	fg/m <sup>3</sup>	684935	4.8	57.6	0.00	0.00	0.00	Det.
N-Nitrosomorpholine	fg/m <sup>3</sup>	59892	512.4	11644.1	0.00	0.00	0.00	Det.
o-Toluidine	fg/m <sup>3</sup>	95534	2019.2	18323.9	11.71	66.83	297.90	
Parathion	fg/m <sup>3</sup>	56382	2.7	44.6	0.00	0.00	0.00	Det.
Pentachloronitrobenzene	fg/m <sup>3</sup>	82688	9166.6	59188.6	0.00	0.00	6.95	
Pentachlorophenol	pg/m <sup>3</sup>	87865	1.2	10.6	0.00	0.11	0.53	
Phenol	ng/m <sup>3</sup>	108952	9.2	19.4	1.42	3.61	10.05	
Phosgene	fg/m <sup>3</sup>	75445	5520.8	113305.8	0.00	0.00	21.30	

<b>Air Toxic</b>	<b>Units</b>	<b>CAS Number<sup>2</sup></b>	<b>Mean</b>	<b>SD</b>	<b>25 %</b>	<b>50 %</b>	<b>75%</b>	<b>Exclude<sup>3</sup></b>
Phosphine	pg/m <sup>3</sup>	7803512	26.8	60.6	0.00	5.87	24.16	
Phosphorous	pg/m <sup>3</sup>	7723140	437.8	1894.0	0.00	4.04	92.35	
Phthalic anhydride	pg/m <sup>3</sup>	85449	632.5	6606.5	0.00	2.90	122.39	
Polychlorinated biphenyls (PCBs)	pg/m <sup>3</sup>	1336363	126.9	192.0	0.00	3.53	380.02	
Polycyclic aromatic hydrocarbons (PAH)	pg/m <sup>3</sup>		2833.2	4469.0	0.33	596.39	3972.40	
Polycyclic organic matter (POM)	ng/m <sup>3</sup>		47.8	88.1	7.53	15.27	49.83	
p-Phenylenediamine	fg/m <sup>3</sup>	106503	11898.3	404516.0	0.00	0.00	3.52	
Propionaldehyde	ng/m <sup>3</sup>	123386	228.8	204.1	82.25	187.64	315.93	
Propoxur	fg/m <sup>3</sup>	114261	30.7	755.3	0.00	0.00	0.00	Det.
Propylene dichloride	ng/m <sup>3</sup>	78875	8.0	11.7	0.50	0.99	16.70	
Propylene oxide	ng/m <sup>3</sup>	75569	1.2	5.8	0.08	0.23	0.68	
Quinoline	pg/m <sup>3</sup>	91225	76.9	261.4	0.20	0.88	2.67	
Quinone (p-Benzoquinone)	fg/m <sup>3</sup>	106514	2916.4	14160.9	0.00	2.96	264.10	
Selenium Compounds	pg/m <sup>3</sup>		356.9	1210.1	45.93	135.36	307.28	
Styrene	ng/m <sup>3</sup>	100425	75.1	259.0	20.44	40.05	74.99	
Styrene oxide	ag/m <sup>3</sup>	96093	1633.9	28887.8	0.00	0.00	26.11	
Tetrachloroethylene (Perchloroethylene)	ng/m <sup>3</sup>	127184	208.2	321.6	68.55	104.85	237.60	
Titanium tetrachloride	fg/m <sup>3</sup>	7550450	23855.8	434249.8	0.00	0.00	64.03	
Toluene	ug/m <sup>3</sup>	108883	3.6	2.7	1.73	2.85	4.59	
Toxaphene	fg/m <sup>3</sup>	8001352	48.0	1578.6	0.00	0.00	0.00	Det.
Trichloroethylene	ng/m <sup>3</sup>	79016	101.5	236.2	33.67	75.72	117.84	
Triethylamine	ng/m <sup>3</sup>	121448	1.6	7.6	0.16	0.42	0.91	
Trifluralin	pg/m <sup>3</sup>	1582098	117.6	551.1	0.00	0.00	17.84	

<b>Air Toxic</b>	<b>Units</b>	<b>CAS Number<sup>2</sup></b>	<b>Mean</b>	<b>SD</b>	<b>25 %</b>	<b>50 %</b>	<b>75%</b>	<b>Exclude<sup>3</sup></b>
Vinyl acetate	ng/m <sup>3</sup>	108054	6.0	17.2	0.12	0.42	2.09	
Vinyl bromide	fg/m <sup>3</sup>	593602	346.8	12126.3	0.00	0.00	5.34	
Vinyl chloride	ng/m <sup>3</sup>	75014	26.8	41.6	0.55	4.30	44.61	
Vinylidene chloride (1,1-Dichloroethylene)	pg/m <sup>3</sup>	75354	556.8	2696.2	61.45	145.38	374.50	
Xylenes	ug/m <sup>3</sup>	1330207	2.1	1.8	0.85	1.54	2.62	

1. Distributions are for AGRE participants with non-missing ASD diagnosis information (with and without ASD).
2. CAS number = Chemical Abstract Services number, a unique numerical chemical identifier.
3. Air toxics were excluded from further analysis if they were detected in < 10% of participants (Det.) or had limited variability defined as the 95%/5% < 2 (Var.).
4. When the 75% value was 0, statistical models relating the air toxic and autism outcomes used a contrast of the 95% to 0 instead of the 75% to the 25%: 2,4,6-Trichlorophenol (1051.4 fg/m<sup>3</sup>), 4,4'-Methylene bis(2-chloroaniline) (0.4 pg/m<sup>3</sup>), Chlorobenzilate (101.4 ag/m<sup>3</sup>), Coke Oven Emissions (2.4 ng/m<sup>3</sup>), Ethylene thiourea (1.9 pg/m<sup>3</sup>), Nitrosodimethylamine (35.83 fg/ m<sup>3</sup>).

Supplemental Material, Table S3. Adjusted Associations<sup>1</sup> between Log-Transformed Air Toxics and ASD Diagnosis for All Participants and Restricted by Birth Year

	Odds Ratio (95% Confidence Interval)		Difference in ORs <sup>3</sup>
	Restricted Birth Years <sup>2</sup> (1996, 1997, 1999, 2000, 2002, 2003, 2005, 2006)	All Birth Years (1994 – 2007) as in Table 2	
1,4-Dichlorobenzene (p-Dichlorobenzene)	0.12 (0.03, 0.42)	0.25 (0.09, 0.66) <sup>4</sup>	-0.1
Bis(2-ethylhexyl)phthalate	8.12 (0.17, 386.73)	6.62 (0.35, 124.22)	1.5
Bromoform	5.59 (1.80, 17.35)	3.94 (1.68, 9.21) <sup>4</sup>	1.7
Captan	1.13 (0.47, 2.74)	1.08 (0.56, 2.06)	0.1
Carbaryl	1.52 (0.63, 3.72)	1.15 (0.60, 2.22)	0.4
Carbon tetrachloride	1.12 (0.33, 3.87)	1.52 (0.55, 4.19)	-0.4
Chlordane	1.43 (0.17, 12.06)	0.91 (0.17, 4.76)	0.5
Hexachloroethane	2.31 (0.49, 10.85)	1.45 (0.49, 4.30)	0.9
Methyl ethyl ketone (2-butanone)	1.20 (0.32, 4.55)	1.30 (0.49, 3.44)	-0.1
2,4-Dinitrotoluene	1.12 (0.93, 1.35)	0.99 (0.87, 1.13)	0.1
Cyanide compounds	1.14 (0.89, 1.44)	1.04 (0.88, 1.22)	0.1
Dimethyl sulfate	1.36 (0.93, 1.98)	1.11 (0.85, 1.43)	0.3
N,N-Dimethyl aniline	1.13 (0.94, 1.37)	1.01 (0.88, 1.15)	0.1
Diesel Particulate Matter	1.38 (0.86, 2.23)	1.44 (1.06, 1.97)	0.0
Ethyl benzene	1.76 (1.01, 3.07)	1.55 (1.08, 2.23)	0.3
Hexane	1.58 (0.87, 2.85)	1.30 (0.89, 1.91)	0.3
Methanol	0.74 (0.40, 1.38)	0.99 (0.67, 1.45)	-0.2
Naphthalene	1.01 (0.45, 2.26)	0.96 (0.56, 1.65)	0.0
Toluene	1.13 (0.66, 1.94)	1.05 (0.71, 1.55)	0.1
Xylenes (isomers and mixture)	1.80 (1.04, 3.10)	1.49 (1.04, 2.14)	0.4
1,3-Butadiene	0.88 (0.58, 1.35)	0.98 (0.73, 1.32)	-0.1
2,2,4-Trimethylpentane	1.71 (0.84, 3.49)	1.79 (1.12, 2.87)	0.0
Benzene	1.03 (0.64, 1.66)	1.13 (0.81, 1.57)	-0.1
Carbon disulfide	1.47 (0.67, 3.22)	1.46 (0.85, 2.53)	0.0
Mercury compounds	2.31 (1.22, 4.38)	1.78 (1.11, 2.84)	0.6
Vinyl chloride	1.22 (0.66, 2.25)	1.44 (0.94, 2.23)	-0.2
1,1,1-Trichloroethane (Methyl Chloroform)	2.16 (1.02, 4.57)	1.88 (1.04, 3.38)	0.4

1,4-Dioxane	3.55 (1.31, 9.58)	2.87 (1.43, 5.76) <sup>4</sup>	0.7
4,4'-Methylenedianiline	1.24 (0.55, 2.80)	1.24 (0.67, 2.27)	0.0
Pentachloronitrobenzene	2.16 (0.99, 4.69)	2.22 (1.23, 4.04)	0.0
1,1,2,2-Tetrachloroethane	1.02 (0.60, 1.75)	1.37 (0.94, 1.98)	-0.3
Ethylene dibromide (Dibromomethane)	0.51 (0.23, 1.17)	0.97 (0.54, 1.74)	-0.5
Ethylene dichloride	1.02 (0.62, 1.69)	1.37 (0.97, 1.93)	-0.3
Propylene dichloride	1.25 (0.70, 2.25)	1.58 (1.04, 2.41)	-0.2
1,1-Dimethyl hydrazine	1.93 (0.79, 4.68)	1.51 (0.82, 2.78)	0.4
3,3-Dichlorobenzidene	1.18 (0.53, 2.60)	1.04 (0.59, 1.84)	0.1
4,6-Dinitro-o-cresol, and salts	1.82 (0.87, 3.78)	1.07 (0.63, 1.83)	0.7
o-Anisidine	2.02 (0.87, 4.72)	2.13 (1.11, 4.06)	-0.1
Benzotrichloride	1.10 (0.37, 3.27)	1.03 (0.48, 2.22)	0.1
Bis(chloromethyl)ether	0.68 (0.26, 1.81)	0.89 (0.42, 1.86)	-0.2
Chloromethyl methyl ether	1.90 (0.76, 4.73)	1.15 (0.59, 2.24)	0.7
Dichloroethyl ether (Bis(2-Chloroethyl) Ether)	1.34 (0.57, 3.14)	1.18 (0.63, 2.18)	0.2
Dichlorvos	1.13 (0.41, 3.08)	1.19 (0.56, 2.51)	-0.1
Diethyl sulfate	1.32 (0.55, 3.14)	1.22 (0.63, 2.37)	0.1
Heptachlor	1.57 (0.66, 3.74)	1.64 (0.83, 3.23)	-0.1
Methyl isocyanate	2.14 (0.92, 4.96)	1.99 (1.06, 3.75)	0.2
Phosgene	1.08 (0.47, 2.49)	1.27 (0.70, 2.32)	-0.2
p-Phenylenediamine	1.61 (0.73, 3.55)	1.50 (0.83, 2.74)	0.1
Styrene oxide	0.80 (0.23, 2.76)	1.24 (0.52, 2.93)	-0.4
Vinyl bromide	0.74 (0.23, 2.38)	1.00 (0.42, 2.39)	-0.3
Acetaldehyde	0.76 (0.50, 1.17)	0.83 (0.61, 1.15)	-0.1
Formaldehyde	0.93 (0.61, 1.41)	1.00 (0.73, 1.36)	-0.1
Methylene chloride (Dichloromethane)	1.09 (0.72, 1.66)	1.09 (0.80, 1.49)	0.0
Acrolein	2.40 (1.31, 4.39)	1.65 (1.11, 2.43)	0.8
Cresols_Cresylic acid (isomers and mixture)	2.50 (1.04, 5.96)	1.42 (0.78, 2.57)	1.1
Propionaldehyde	1.79 (1.08, 2.97)	1.92 (1.33, 2.77) <sup>4</sup>	-0.1
Aniline	1.25 (0.54, 2.86)	1.22 (0.68, 2.21)	0.0
Chloroacetic acid	2.43 (1.12, 5.27)	1.47 (0.84, 2.57)	1.0
Titanium tetrachloride	1.59 (0.70, 3.62)	1.43 (0.79, 2.59)	0.2
1,2,4-Trichlorobenzene	1.57 (1.05, 2.35)	1.28 (0.98, 1.66)	0.3
o-Toluidine	1.40 (0.91, 2.16)	1.46 (1.09, 1.97)	0.0

1,2-Dibromo-3-chloropropane	0.35 (0.19, 0.64)	0.60 (0.37, 0.97)	-0.3
4-Nitrophenol	0.24 (0.12, 0.49)	0.50 (0.30, 0.84)	-0.3
2,4-Dinitrophenol	2.23 (1.13, 4.39)	1.49 (0.93, 2.38)	0.7
Dibenzofurans	3.78 (1.60, 8.97)	2.53 (1.35, 4.74) <sup>4</sup>	1.3
2-Chloroacetophenone	0.89 (0.37, 2.12)	0.80 (0.41, 1.58)	0.1
Methyl hydrazine	2.39 (0.81, 7.03)	1.10 (0.51, 2.39)	1.3
2-Nitropropane	1.29 (0.98, 1.70)	1.17 (0.95, 1.43)	0.1
Nitrobenzene	1.16 (0.97, 1.38)	1.09 (0.98, 1.23)	0.1
4,4'-Methylene diphenyl diisocyanate (MDI)	0.37 (0.22, 0.63)	0.54 (0.39, 0.76) <sup>4</sup>	-0.1
Ethylene glycol	0.42 (0.21, 0.85)	0.61 (0.37, 1.00)	-0.2
Acetonitrile	1.22 (0.87, 1.72)	1.05 (0.83, 1.33)	0.2
Allyl chloride	1.14 (0.96, 1.36)	1.03 (0.91, 1.17)	0.1
Antimony compounds	1.24 (0.64, 2.39)	1.13 (0.74, 1.74)	0.1
Cobalt compounds	1.66 (0.96, 2.87)	1.12 (0.77, 1.61)	0.5
Chlorobenzene	2.58 (1.33, 4.99)	1.35 (0.86, 2.14)	1.2
Methyl bromide (Bromomethane)	2.28 (1.13, 4.59)	1.08 (0.65, 1.79)	1.2
Chromium compounds	1.26 (0.81, 1.97)	1.00 (0.74, 1.35)	0.3
Nickel compounds	0.93 (0.56, 1.56)	1.08 (0.77, 1.51)	-0.1
Dimethyl formamide	1.10 (0.85, 1.43)	1.18 (0.98, 1.43)	-0.1
Ethyl chloride	0.96 (0.66, 1.40)	1.06 (0.80, 1.39)	-0.1
Epichlorohydrin	1.37 (0.89, 2.11)	1.25 (0.96, 1.64)	0.1
Ethyl acrylate	1.93 (1.05, 3.55)	1.28 (0.93, 1.75)	0.7
Hexachlorobutadiene	1.85 (1.15, 2.99)	1.28 (0.89, 1.84)	0.6
Hexachlorocyclopentadiene	1.19 (1.02, 1.39)	1.06 (0.94, 1.18)	0.1
Hydrochloric acid	1.10 (0.59, 2.04)	1.16 (0.78, 1.73)	-0.1
Hydrofluoric acid	1.01 (0.59, 1.75)	1.24 (0.89, 1.73)	-0.2
Maleic anhydride	1.71 (0.63, 4.69)	1.82 (0.90, 3.72)	-0.1
Phthalic anhydride	0.84 (0.29, 2.42)	0.89 (0.41, 1.91)	-0.1
1,1,2-Trichloroethane	0.94 (0.56, 1.55)	1.10 (0.79, 1.53)	-0.2
1,2-Epoxybutane	0.55 (0.25, 1.22)	0.67 (0.38, 1.19)	-0.1
1,2-Propylenimine	1.34 (0.62, 2.87)	1.19 (0.69, 2.06)	0.1
1,3-Dichloropropene	1.08 (0.99, 1.17)	1.00 (0.95, 1.05)	0.1
2,4,6-Trichlorophenol	3.96 (0.83, 18.92)	1.64 (0.57, 4.70)	2.3
2,4-D, salts and esters	1.50 (0.61, 3.71)	1.40 (0.71, 2.78)	0.1



2,4-Toluene diisocyanate	1.42 (0.77, 2.60)	1.64 (1.11, 2.44)	-0.2
4,4'-Methylene bis(2-chloroaniline)	0.57 (0.13, 2.61)	1.93 (0.66, 5.64)	-1.4
Acetamide	2.24 (1.01, 4.97)	1.02 (0.52, 2.01)	1.2
Acetophenone	0.97 (0.53, 1.76)	1.12 (0.75, 1.68)	-0.2
Acrylamide	1.91 (0.81, 4.46)	1.47 (0.82, 2.63)	0.4
Acrylic acid	1.65 (0.90, 3.06)	1.39 (0.89, 2.15)	0.3
Acrylonitrile	0.73 (0.42, 1.28)	0.97 (0.66, 1.42)	-0.2
Arsenic compounds	0.69 (0.44, 1.09)	0.94 (0.68, 1.30)	-0.2
Asbestos	1.70 (0.01, 446.57)	7.02 (0.32, 151.73)	-5.3
Benzidine	0.31 (0.16, 0.61)	0.41 (0.25, 0.68) <sup>4</sup>	-0.1
Benzyl chloride	1.46 (0.76, 2.81)	1.12 (0.74, 1.68)	0.3
Beryllium compounds	0.49 (0.31, 0.77)	0.74 (0.55, 1.02)	-0.2
Biphenyl	0.96 (0.54, 1.69)	0.88 (0.57, 1.35)	0.1
Cadmium compounds	0.65 (0.43, 0.98)	0.93 (0.70, 1.24)	-0.3
Carbonyl sulfide	1.01 (0.49, 2.09)	1.29 (0.80, 2.10)	-0.3
Catechol	1.30 (0.65, 2.62)	0.95 (0.58, 1.56)	0.4
Chlorine	1.24 (0.65, 2.37)	1.22 (0.78, 1.91)	0.0
Chlorobenzilate	1.14 (0.41, 3.18)	0.78 (0.25, 2.39)	0.4
Chloroform	0.93 (0.59, 1.47)	1.01 (0.62, 1.64)	-0.1
Chloroprene	1.17 (0.99, 1.39)	1.11 (0.99, 1.26)	0.1
Coke oven emissions	0.72 (0.16, 3.32)	0.70 (0.22, 2.23)	0.0
Cumene	0.62 (0.32, 1.21)	0.73 (0.47, 1.14)	-0.1
Dibutylphthalate	0.68 (0.44, 1.07)	1.08 (0.77, 1.50)	-0.4
Diethanolamine	1.10 (0.71, 1.70)	1.19 (0.86, 1.65)	-0.1
Dimethyl phthalate	0.47 (0.30, 0.73)	0.76 (0.57, 1.00)	-0.3
Ethyl carbamate (Urethane)	0.34 (0.15, 0.79)	0.30 (0.16, 0.57) <sup>4</sup>	0.0
Ethylene oxide	0.73 (0.45, 1.19)	0.85 (0.62, 1.18)	-0.1
Ethylene thiourea	2.76 (0.39, 19.62)	6.33 (1.50, 26.66)	-3.6
Ethylidene dichloride (1,1-Dichloroethane)	0.51 (0.30, 0.88)	0.62 (0.43, 0.89)	-0.1
Glycol ethers	2.02 (1.17, 3.49)	2.05 (1.39, 3.02) <sup>4</sup>	0.0
Hexachlorobenzene	1.11 (0.84, 1.46)	1.08 (0.90, 1.30)	0.0
Hexamethylene-1,6-diisocyanate	0.53 (0.26, 1.09)	0.65 (0.39, 1.09)	-0.1
Hydrazine	0.65 (0.43, 0.98)	0.90 (0.67, 1.21)	-0.3
Hydroquinone	2.84 (1.01, 7.99)	1.52 (0.76, 3.03)	1.3

Isophorone	1.50 (1.15, 1.97)	1.24 (1.03, 1.50)	0.3
Lead compounds	0.92 (0.62, 1.37)	1.17 (0.89, 1.53)	-0.3
Manganese compounds	0.75 (0.54, 1.03)	0.75 (0.60, 0.95)	0.0
Methyl iodide (Iodomethane)	1.22 (0.52, 2.86)	1.32 (0.72, 2.41)	-0.1
Methyl isobutyl ketone	0.47 (0.25, 0.90)	0.84 (0.54, 1.31)	-0.4
Methyl methacrylate	1.09 (0.56, 2.14)	1.31 (0.84, 2.05)	-0.2
Methyl tert butyl ether (MTBE)	2.69 (1.08, 6.74)	2.33 (1.31, 4.15) <sup>4</sup>	0.4
Nitrosodimethylamine	2.03 (0.29, 14.02)	0.42 (0.11, 1.53)	1.6
Pentachlorophenol	1.61 (0.43, 6.08)	0.71 (0.30, 1.71)	0.9
Phenol	1.03 (0.53, 1.98)	0.79 (0.51, 1.23)	0.2
Phosphine	1.53 (0.61, 3.84)	1.74 (0.92, 3.29)	-0.2
Phosphorous	0.99 (0.21, 4.64)	0.67 (0.24, 1.82)	0.3
Polychlorinated biphenyls (PCBs)	1.20 (0.83, 1.74)	1.42 (1.00, 2.00)	-0.2
Polycyclic aromatic hydrocarbons (PAH)	0.97 (0.60, 1.56)	0.77 (0.54, 1.11)	0.2
Polycyclic organic matter (POM)	1.03 (0.56, 1.93)	0.95 (0.63, 1.42)	0.1
Propylene oxide	1.01 (0.72, 1.43)	1.08 (0.89, 1.30)	-0.1
Quinoline	0.72 (0.56, 0.92)	0.81 (0.68, 0.96)	-0.1
Quinone (p-Benzoquinone)	2.31 (1.03, 5.16)	1.37 (0.77, 2.43)	0.9
Selenium Compounds	0.96 (0.55, 1.67)	1.08 (0.72, 1.60)	-0.1
Styrene	1.30 (0.80, 2.10)	1.16 (0.83, 1.62)	0.1
Tetrachloroethylene (Perchloroethylene)	0.86 (0.60, 1.22)	0.90 (0.67, 1.19)	0.0
Trichloroethylene	1.23 (0.80, 1.89)	1.18 (0.86, 1.61)	0.0
Triethylamine	1.47 (0.85, 2.55)	1.25 (0.86, 1.81)	0.2
Trifluralin	1.80 (0.76, 4.27)	1.30 (0.69, 2.46)	0.5
Vinyl acetate	0.98 (0.51, 1.91)	0.88 (0.55, 1.40)	0.1
Vinylidene chloride (1,1-Dichloroethylene)	0.96 (0.55, 1.70)	1.17 (0.80, 1.72)	-0.2

1. All models include the single log-transformed air toxic, contrasting the levels of air toxics listed in Supplemental Table S2 (usually 75% vs. 25%), with a random effect for family, and adjust for the mean air toxic level in the family, birth year, and the census block group population density, education level, and median rent.
2. Restricted birth years were those where the pregnancy may have overlapped years of NATA air toxic models. The sample size varies by air toxic but was about 60% of the full sample. For air toxics estimated in all NATA years this included 940 participants with ASD and 283 without ASD from 772 families.
3. The difference in odds ratios was calculated as the OR for restricted birth years – the OR for all birth years.

4. Association from the full sample considered statistically significantly different from the null after correcting for multiple comparisons using the false discovery rate (set at 0.1) (as in Table ).

Supplemental Material, Table S4. Adjusted Associations<sup>1</sup> between Log-Transformed Air Toxics and ASD Diagnosis by Child Sex

	Male	Female	P Value <sup>2</sup>
1,1,1-Trichloroethane (Methyl Chloroform)	1.85 (0.95, 3.59)	1.51 (0.81, 2.84)	0.33
1,1,2,2-Tetrachloroethane	1.20 (0.80, 1.80)	1.28 (0.84, 1.95)	0.70
1,1,2-Trichloroethane	1.18 (0.80, 1.73)	1.09 (0.76, 1.56)	0.59
1,1-Dimethyl hydrazine	1.42 (0.70, 2.89)	1.39 (0.72, 2.71)	0.93
1,2,4-Trichlorobenzene	1.47 (1.08, 2.00)	1.23 (0.92, 1.65)	0.08 <sup>3</sup>
1,2-Dibromo-3-chloropropane	0.71 (0.41, 1.24)	0.63 (0.37, 1.07)	0.56
1,2-Epoxybutane	0.71 (0.38, 1.36)	0.54 (0.29, 1.01)	0.22
1,2-Propylenimine	1.17 (0.62, 2.21)	1.12 (0.62, 2.04)	0.87
1,3-Butadiene	1.00 (0.72, 1.38)	0.94 (0.67, 1.30)	0.61
1,3-Dichloropropene	1.00 (0.94, 1.07)	0.99 (0.93, 1.05)	0.63
1,4-Dichlorobenzene (p-Dichlorobenzene) <sup>4</sup>	0.35 (0.12, 1.03)	0.34 (0.12, 0.95)	0.89
1,4-Dioxane <sup>4</sup>	2.59 (1.18, 5.65)	2.52 (1.18, 5.39)	0.92
2,2,4-Trimethylpentane	1.94 (1.15, 3.25)	1.55 (0.92, 2.62)	0.19
2,4,6-Trichlorophenol	3.27 (0.99, 10.82)	1.56 (0.49, 4.95)	0.06 <sup>3</sup>
2,4-D, salts and esters	1.43 (0.66, 3.10)	1.11 (0.53, 2.34)	0.36
2,4-Dinitrophenol	1.57 (0.92, 2.70)	1.54 (0.91, 2.61)	0.92
2,4-Dinitrotoluene	1.01 (0.87, 1.18)	0.97 (0.84, 1.12)	0.49
2,4-Toluene diisocyanate	1.80 (1.12, 2.91)	1.26 (0.82, 1.94)	0.06 <sup>3</sup>
2-Chloroacetophenone	0.87 (0.41, 1.86)	0.89 (0.42, 1.86)	0.94
2-Nitropropane	1.17 (0.92, 1.49)	1.14 (0.92, 1.42)	0.77
3,3-Dichlorobenzidene	1.26 (0.67, 2.37)	1.08 (0.58, 2.01)	0.48
4,4'-Methylene bis(2-chloroaniline)	3.30 (0.93, 11.65)	1.88 (0.58, 6.08)	0.16
4,4'-Methylenedianiline	1.33 (0.68, 2.62)	1.10 (0.57, 2.13)	0.41
4,4'-Methylene diphenyl diisocyanate (MDI) <sup>4</sup>	0.58 (0.40, 0.86)	0.57 (0.39, 0.83)	0.90
4,6-Dinitro-o-cresol, and salts	1.23 (0.67, 2.27)	0.91 (0.51, 1.64)	0.21
4-Nitrophenol	0.66 (0.36, 1.21)	0.47 (0.27, 0.83)	0.16
Acetaldehyde	0.87 (0.62, 1.24)	0.85 (0.59, 1.20)	0.80

Acetamide	0.96 (0.44, 2.08)	0.92 (0.43, 1.96)	0.90
Acetonitrile	1.13 (0.85, 1.50)	0.96 (0.74, 1.26)	0.15
Acetophenone	1.16 (0.73, 1.84)	0.96 (0.61, 1.51)	0.27
Acrolein	1.71 (1.12, 2.61)	1.47 (0.97, 2.24)	0.26
Acrylamide	1.53 (0.77, 3.03)	1.23 (0.64, 2.34)	0.40
Acrylic acid	1.41 (0.86, 2.33)	1.26 (0.77, 2.05)	0.53
Acrylonitrile	0.96 (0.62, 1.49)	1.04 (0.69, 1.59)	0.61
Allyl chloride	1.03 (0.89, 1.19)	0.99 (0.86, 1.14)	0.46
Aniline	1.04 (0.53, 2.07)	1.09 (0.57, 2.09)	0.87
o-Anisidine	2.22 (1.06, 4.66)	1.94 (0.96, 3.90)	0.59
Antimony Compounds	1.13 (0.69, 1.84)	1.02 (0.63, 1.64)	0.53
Arsenic Compounds	1.03 (0.70, 1.51)	1.02 (0.71, 1.46)	0.94
Asbestos	4.74 (0.22, 102.16)	3.58 (0.17, 77.28)	0.51
Benzene	1.22 (0.84, 1.76)	1.02 (0.71, 1.47)	0.18
Benzidine <sup>4</sup>	0.50 (0.28, 0.88)	0.47 (0.27, 0.81)	0.79
Benzotrichloride	1.11 (0.47, 2.61)	0.99 (0.43, 2.24)	0.66
Benzyl chloride	1.20 (0.76, 1.89)	0.95 (0.60, 1.50)	0.14
Beryllium Compounds	0.81 (0.57, 1.14)	0.73 (0.52, 1.03)	0.46
Biphenyl	1.00 (0.63, 1.61)	0.81 (0.50, 1.30)	0.21
Bis(2-ethylhexyl)phthalate	3.25 (0.15, 68.52)	3.05 (0.15, 63.75)	0.82
Bis(chloromethyl)ether	0.98 (0.42, 2.26)	0.83 (0.38, 1.84)	0.53
Bromoform <sup>4</sup>	4.01 (1.55, 10.41)	3.49 (1.39, 8.75)	0.66
Cadmium Compounds	0.97 (0.70, 1.35)	0.97 (0.71, 1.32)	0.97
Captan	1.06 (0.51, 2.19)	1.01 (0.50, 2.06)	0.86
Carbaryl	1.20 (0.57, 2.53)	1.02 (0.50, 2.10)	0.57
Carbon disulfide	1.40 (0.75, 2.60)	1.19 (0.65, 2.18)	0.48
Carbon tetrachloride	1.75 (0.59, 5.18)	1.78 (0.61, 5.18)	0.94
Carbonyl sulfide	1.27 (0.74, 2.16)	1.39 (0.83, 2.34)	0.61
Catechol	1.11 (0.63, 1.97)	0.87 (0.50, 1.50)	0.23
Chlordane	0.68 (0.12, 3.87)	0.62 (0.11, 3.48)	0.74
Chlorine	1.19 (0.72, 1.96)	1.27 (0.78, 2.08)	0.69
Chloroacetic acid	1.49 (0.78, 2.85)	1.22 (0.66, 2.26)	0.43
Chlorobenzene	1.27 (0.75, 2.14)	1.37 (0.83, 2.27)	0.69
Chlorobenzilate	1.06 (0.32, 3.50)	0.75 (0.22, 2.52)	0.32

Chloroform	1.02 (0.60, 1.73)	1.02 (0.60, 1.73)	0.99
Chloromethyl methyl ether	1.16 (0.54, 2.47)	1.07 (0.52, 2.20)	0.76
Chloroprene	1.13 (0.97, 1.30)	1.09 (0.95, 1.25)	0.57
Chromium Compounds	1.10 (0.78, 1.56)	1.10 (0.79, 1.52)	0.98
Cobalt Compounds	1.06 (0.70, 1.60)	1.07 (0.72, 1.60)	0.91
Coke Oven Emissions	0.74 (0.23, 2.34)	0.83 (0.24, 2.87)	0.76
Cresols/Cresylic acid	1.53 (0.80, 2.91)	1.25 (0.65, 2.39)	0.30
Cumene	0.82 (0.51, 1.33)	0.67 (0.41, 1.08)	0.20
Cyanide Compounds	1.05 (0.88, 1.26)	1.01 (0.84, 1.20)	0.53
Dibenzofurans <sup>4</sup>	2.40 (1.18, 4.90)	2.15 (1.08, 4.28)	0.68
Dibutylphthalate	1.16 (0.80, 1.67)	0.89 (0.62, 1.27)	0.05 <sup>3</sup>
Dichloroethyl ether (Bis(2-Chloroethyl) Ether)	1.18 (0.57, 2.43)	1.02 (0.53, 1.99)	0.57
Dichlorvos	1.37 (0.60, 3.09)	1.31 (0.58, 2.93)	0.86
Diesel Particulate Matter	1.48 (1.04, 2.09)	1.20 (0.85, 1.70)	0.08 <sup>3</sup>
Diethanolamine	1.26 (0.87, 1.82)	1.14 (0.80, 1.64)	0.45
Diethyl sulfate	1.14 (0.54, 2.41)	1.15 (0.56, 2.36)	0.96
Dimethyl formamide	1.18 (0.93, 1.50)	1.14 (0.92, 1.42)	0.77
Dimethyl phthalate	0.76 (0.55, 1.06)	0.81 (0.60, 1.10)	0.64
Dimethyl sulfate	1.13 (0.84, 1.52)	1.08 (0.81, 1.43)	0.67
Epichlorohydrin	1.22 (0.89, 1.69)	1.23 (0.92, 1.65)	0.98
Ethyl acrylate	1.34 (0.94, 1.93)	1.25 (0.88, 1.75)	0.54
Ethyl carbamate (Urethane) <sup>4</sup>	0.31 (0.15, 0.64)	0.33 (0.16, 0.67)	0.79
Ethyl chloride	1.05 (0.77, 1.42)	1.01 (0.74, 1.38)	0.81
Ethyl benzene	1.62 (1.08, 2.42)	1.31 (0.88, 1.95)	0.12
Ethylene dibromide (Dibromomethane)	0.94 (0.51, 1.73)	0.93 (0.50, 1.75)	0.99
Ethylene dichloride	1.28 (0.87, 1.88)	1.27 (0.86, 1.87)	0.97
Ethylene glycol	0.73 (0.42, 1.27)	0.60 (0.35, 1.05)	0.36
Ethylene oxide	0.92 (0.63, 1.35)	0.80 (0.56, 1.16)	0.35
Ethylene thiourea	8.94 (1.84, 43.45)	5.76 (1.26, 26.28)	0.31
Ethylidene dichloride (1,1-Dichloroethane)	0.46 (0.30, 0.72)	0.75 (0.50, 1.11)	0.01 <sup>3</sup>
Formaldehyde	1.01 (0.72, 1.42)	0.98 (0.69, 1.38)	0.77
Glycol ethers <sup>4</sup>	2.09 (1.34, 3.27)	1.66 (1.07, 2.57)	0.14

Heptachlor	1.69 (0.78, 3.70)	1.50 (0.72, 3.13)	0.63
Hexachlorobenzene	1.17 (0.95, 1.44)	0.97 (0.79, 1.19)	0.02 <sup>3</sup>
Hexachlorobutadiene	1.25 (0.82, 1.91)	1.22 (0.82, 1.81)	0.86
Hexachlorocyclopentadiene	1.05 (0.92, 1.20)	1.04 (0.92, 1.18)	0.87
Hexachloroethane	1.61 (0.50, 5.18)	1.37 (0.43, 4.36)	0.58
Hexamethylene-1,6-diisocyanate	0.66 (0.38, 1.16)	0.70 (0.40, 1.23)	0.78
Hexane	1.30 (0.86, 1.97)	1.17 (0.77, 1.78)	0.44
Hydrazine	0.93 (0.66, 1.31)	0.91 (0.66, 1.26)	0.88
Hydrochloric acid	1.24 (0.80, 1.92)	0.96 (0.62, 1.49)	0.09 <sup>3</sup>
Hydrofluoric acid	1.39 (0.94, 2.06)	1.14 (0.79, 1.64)	0.14
Hydroquinone	1.25 (0.58, 2.70)	1.37 (0.64, 2.93)	0.74
Isophorone	1.19 (0.95, 1.48)	1.21 (0.98, 1.49)	0.84
Lead Compounds	1.20 (0.88, 1.63)	1.21 (0.90, 1.63)	0.92
Maleic anhydride	1.81 (0.82, 3.96)	1.65 (0.76, 3.55)	0.74
Manganese Compounds	0.80 (0.60, 1.06)	0.83 (0.64, 1.07)	0.73
Mercury Compounds	1.58 (0.93, 2.68)	1.49 (0.89, 2.52)	0.79
Methanol	1.06 (0.70, 1.62)	0.92 (0.6, 1.42)	0.37
Methyl bromide (Bromomethane)	0.97 (0.54, 1.72)	1.15 (0.66, 2.00)	0.41
Methyl chloride (Chloroethane)	1.38 (0.69, 2.77)	0.93 (0.48, 1.82)	0.14
Methyl Ethyl Keytone (2-butanone) (MEK)	1.46 (0.50, 4.25)	1.42 (0.50, 3.98)	0.91
Methyl isobutyl ketone	0.92 (0.56, 1.49)	0.74 (0.45, 1.21)	0.24
Methyl isocyanate	2.10 (1.02, 4.30)	1.93 (0.97, 3.86)	0.76
Methyl methacrylate	1.29 (0.79, 2.09)	1.42 (0.86, 2.32)	0.55
Methyl tert butyl ether (MTBE) <sup>4</sup>	2.19 (1.18, 4.07)	1.94 (1.05, 3.60)	0.49
Methylene chloride (Dichloromethane)	1.07 (0.75, 1.54)	1.01 (0.72, 1.43)	0.65
Methyl hydrazine	1.16 (0.48, 2.76)	1.08 (0.46, 2.52)	0.82
N,N-Dimethyl aniline	1.03 (0.88, 1.20)	0.98 (0.84, 1.14)	0.46
Naphthalene	0.98 (0.55, 1.73)	0.92 (0.52, 1.66)	0.73
Nickel Compounds	1.23 (0.83, 1.82)	1.12 (0.78, 1.62)	0.52
Nitrobenzene	1.14 (0.99, 1.31)	1.08 (0.95, 1.22)	0.34
Nitrosodimethylamine	0.75 (0.18, 3.10)	0.40 (0.10, 1.62)	0.19
o-Toluidine	1.52 (1.06, 2.17)	1.43 (1.03, 1.97)	0.63
Pentachloronitrobenzene	2.37 (1.20, 4.66)	1.83 (0.97, 3.45)	0.25

Pentachlorophenol	0.97 (0.37, 2.50)	0.53 (0.21, 1.36)	0.05 <sup>3</sup>
Phenol	1.00 (0.60, 1.66)	0.75 (0.46, 1.21)	0.08 <sup>3</sup>
Phosgene	1.16 (0.57, 2.34)	1.01 (0.53, 1.94)	0.60
Phosphine	1.63 (0.81, 3.26)	1.75 (0.89, 3.46)	0.69
Phosphorous	0.63 (0.20, 1.99)	0.66 (0.22, 2.00)	0.89
Phthalic anhydride	0.98 (0.42, 2.29)	0.73 (0.32, 1.70)	0.34
Polychlorinated biphenyls (PCBs)	1.34 (0.90, 2.00)	1.36 (0.92, 2.00)	0.93
Polycyclic aromatic hydrocarbons (PAH)	0.90 (0.59, 1.36)	0.76 (0.51, 1.13)	0.29
Polycyclic organic matter (POM)	1.04 (0.64, 1.68)	0.90 (0.58, 1.41)	0.45
p-Phenylenediamine	1.75 (0.89, 3.45)	1.29 (0.67, 2.48)	0.23
Propionaldehyde <sup>4</sup>	2.11 (1.39, 3.19)	1.72 (1.15, 2.56)	0.13
Propylene dichloride	1.48 (0.93, 2.36)	1.49 (0.94, 2.38)	0.96
Propylene oxide	1.12 (0.87, 1.45)	1.10 (0.90, 1.34)	0.83
Quinoline	0.87 (0.71, 1.07)	0.82 (0.67, 1.00)	0.50
Quinone (p-Benzoquinone)	1.27 (0.66, 2.46)	1.32 (0.70, 2.49)	0.90
Selenium Compounds	1.10 (0.71, 1.70)	1.08 (0.69, 1.69)	0.93
Styrene	1.30 (0.89, 1.90)	1.15 (0.79, 1.65)	0.37
Styrene oxide	1.37 (0.53, 3.52)	1.27 (0.51, 3.16)	0.76
Tetrachloroethylene (Perchloroethylene)	0.85 (0.62, 1.16)	0.84 (0.61, 1.17)	0.94
Titanium tetrachloride	1.51 (0.77, 2.98)	1.32 (0.69, 2.53)	0.58
Toluene	1.15 (0.75, 1.76)	0.98 (0.65, 1.49)	0.27
Trichloroethylene	1.29 (0.90, 1.85)	1.09 (0.78, 1.54)	0.22
Triethylamine	1.27 (0.83, 1.93)	1.14 (0.76, 1.72)	0.49
Trifluralin	1.25 (0.61, 2.56)	1.19 (0.59, 2.40)	0.87
Vinyl acetate	0.94 (0.56, 1.57)	0.90 (0.55, 1.48)	0.79
Vinyl bromide	1.24 (0.49, 3.11)	1.11 (0.44, 2.78)	0.69
Vinyl chloride	1.22 (0.75, 1.97)	1.14 (0.70, 1.85)	0.72
Vinylidene chloride (1,1-Dichloroethylene)	1.09 (0.71, 1.66)	1.13 (0.75, 1.70)	0.81
Xylenes	1.59 (1.07, 2.39)	1.27 (0.85, 1.89)	0.09 <sup>3</sup>

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1. All models include the single log-transformed air toxic, contrasting the levels of air toxics listed in Table S2 (usually 75% vs. 25%), with a random effect for family, and



adjust for the mean air toxic level in the family, birth year, and the census block group population density, education level, and median rent.

2. P value is from a Wald test of the cross-product term between the individual air toxic concentration and child sex.
3. P values  $< a\ prior$  alpha of 0.10.
4. Air toxics which were found to be associated in primary analyses after correcting for the false discovery rate (as in Table 2).