



Correction to New Look at BTEX: Are Ambient Levels a Problem?

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Errors were found in Tables 3–7 of the published paper, “New look at BTEX: Are Ambient Levels a Problem?” In the published tables some effect sizes were unlabeled and a few were reported incorrectly. These values have now been labeled and correctly reported in the following tables.

Table 3. Health Effects of Ambient Exposure to Benzene^a

health outcome	N	exposure concentrations	effect size (OR; 95%CI) ^b	citation
Development				
biparietal diameter	81	$\geq 2.6 \mu\text{g}/\text{m}^3$	$\beta = (-1.3; -2.6 \text{ to } -0.1)^c$	Slama et al. ⁸⁵
birth weight	1 601 703	$1.975\text{--}4.929 \mu\text{g}/\text{m}^3$	$(1.82; 1.64 \text{ to } 2.02)^c$	Zahran et al. ⁸⁷
	270	$< 1.4 \geq 2.6 \mu\text{g}/\text{m}^3$	$\beta = (-68; -135 \text{ to } -1)^d$	Slama et al. ⁸⁵
	2337	$1.6 \mu\text{g}/\text{m}^3$	$\beta = (16.2; -24.6 \text{ to } 56.9)$	Estarlich et al. ⁸⁶
low birth weight	354 688	1.1 ppbV	$(1.03; 1.00 \text{ to } 1.05)^d$	Ghosh et al. ⁸⁸
head circumference	85	$\geq 2.6 \mu\text{g}/\text{m}^3$	$\beta = (-3.7; -7.3 \text{ to } 0.0)^d$	Slama et al. ⁸⁵
	2337	$1.6 \mu\text{g}/\text{m}^3$	$\beta = (0.04; -0.09 \text{ to } 0.17)$	Estarlich et al. ⁸⁶
preterm birth	785	$> 2.7 \mu\text{g}/\text{m}^3$	$(6.46; 1.58 \text{ to } 26.35)^c$	Llop et al. ⁸⁴
spina bifida	4531	$> 2.86\text{--}7.44 \mu\text{g}/\text{m}^3$	$(1.77; 1.04 \text{ to } 3.00)^c$	Lupo et al. ⁸³
Immune Function				
atopy	1629	per $1 \mu\text{g}/\text{m}^3$ increase	$(0.98; 0.88 \text{ to } 1.09)$	Hirsch et al. ^{92,g}
	86	$6.32\text{--}12.59 \mu\text{g}/\text{m}^3$	$\beta = 0.32^c$	Choi et al. ⁹³
alveolar macrophages	321	6.4 mg/L	$(1.32; 1.1 \text{ to } 2.32)^c$	Dutta et al. ⁹⁵
CD4+/CD25+ t-cells	56	$3.3 \mu\text{g}/\text{m}^3$	$\beta = (-0.92; -1.00 \text{ to } -1.81)^d$	Baiz et al. ³⁴
dysplasia	321	6.4 mg/L	$(1.71; 1.26 \text{ to } 4.22)^c$	Dutta et al. ⁹⁵
eczema		$2.41 \mu\text{g}/\text{m}^3$	$(1.48; 1.24 \text{ to } 1.75)^c$	Zhou et al. ⁹⁰
in last year		$1.5\text{--}3.3 \mu\text{g}/\text{m}^3$	$(1.11; 1.0 \text{ to } 1.28)^d$	Penard-Morand et al. ⁹¹
eosinophils	321	6.4 mg/L	$(1.75; 1.19 \text{ to } 4.22)^c$	Dutta et al. ⁹⁵
IL-3 eosinophil/basophils	40	dnr	$r = 0.432^c$	Junge et al. ⁹⁷
IL-5 eosinophil/basophils	40	dnr	$r = 0.371^c$	Junge et al. ⁹⁷
lymphocytes	321	6.4 mg/L	$(1.45; 1.21 \text{ to } 3.44)^c$	Dutta et al. ⁹⁵
metaplasia	321	6.4 mg/L	$(1.67; 1.22 \text{ to } 5.45)^c$	Dutta et al. ⁹⁵
miR-223	316	$1.01 \mu\text{g}/\text{m}^3$	$(1.17; 1.07 \text{ to } 1.29)^c$	Herberth et al. ⁹⁶
MLH1	140	7.96 mg/L	$(1.44; 1.02 \text{ to } 2.10)^c$	Mukherjee et al. ⁹⁴
MSH2	140	7.96 mg/L	$(1.64; 1.04 \text{ to } 2.36)^c$	Mukherjee et al. ⁹⁴
neutrophils	321	6.4 mg/L	$(1.22; 1.05 \text{ to } 3.19)^c$	Dutta et al. ⁹⁵
sensitization to pollen	4907	$1.5\text{--}3.3 \mu\text{g}/\text{m}^3$	$(1.24; 1.0 \text{ to } 1.52)^d$	Penard-Morand et al. ⁹¹
WBC count	20	$369 \mu\text{g}/\text{g Cr}$	$r = -0.51^c$	Pelallo-Martinez et al. ⁹⁸
Metabolic Function				
HOMA-IR (insulin resistance)	505	$0.032 \text{ mg}/\text{g Cr}$	$(2.00; 1.16 \text{ to } 3.46)^{c,h}$	Choi et al. ¹¹³
Reproductive Function				
asthenospermic	32	$170\text{--}430 \text{ ng}/\text{mL}$	$(\text{nES})^c$	Ducci et al. ⁸⁹
normospermic	32	$170\text{--}430 \text{ ng}/\text{mL}$	$(\text{nES})^c$	Ducci et al. ⁸⁹
oligospermic	32	$170\text{--}430 \text{ ng}/\text{mL}$	$(\text{nES})^c$	Ducci et al. ⁸⁹
teratospermic	32	$170\text{--}430 \text{ ng}/\text{mL}$	$(\text{nES})^c$	Ducci et al. ⁸⁹
sperm concentration	32	$170\text{--}430 \text{ ng}/\text{mL}$	$r = -0.62^c$	Ducci et al. ⁸⁹
% normal sperm	32	$170\text{--}430 \text{ ng}/\text{mL}$	$r = -0.41^c$	Ducci et al. ⁸⁹
% viable sperm	32	$170\text{--}430 \text{ ng}/\text{mL}$	$r = -0.89^c$	Ducci et al. ⁸⁹

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Table 3. continued

health outcome	N	exposure concentrations	effect size (OR; 95%CI) ^b	citation
Respiratory Function				
asthma	192	per 10 $\mu\text{g}/\text{m}^3$ increase	(2.922; 2.25 to 3.795) ^c	Rumchev et al. ⁹⁹
		n/a	(4.95; 0.91 to 27.4)	Rive et al. ¹⁰⁵
	111	0.3–53.5 $\mu\text{g}/\text{m}^3$	(1.3; 0.4 to 3.8)	Hulin et al. ¹⁰⁶
	1012	2.0 $\mu\text{g}/\text{m}^3$	(1.43; 0.65 to 4.75)	Billionnet et al. ¹⁰⁷
in the last year	4907	1.5– 3.3 $\mu\text{g}/\text{m}^3$	(1.36; 1.0 to 1.96) ^d	Penard-Morand et al. ⁹¹
lifetime	4907	1.5– 3.3 $\mu\text{g}/\text{m}^3$	(1.25; 1.08 to 1.43) ^c	Penard-Morand et al. ⁹¹
	2104	1.50–6.95 $\mu\text{g}/\text{m}^3$	(0.72; 0.48 to 1.07)	Bentayeb et al. ¹⁰⁸
exercise-induced	4907	1.5– 3.3 $\mu\text{g}/\text{m}^3$	(1.32; 1.03 to 1.82) ^c	Penard-Morand et al. ⁹¹
	1228	3–9 ppb	(1.28; 0.76 to 2.13)	Gordian et al. ¹⁰²
	1039	>9 ppb	(1.48; 0.81 to 2.73)	Gordian et al. ¹⁰²
current	3233	4.74– > 7.27 $\mu\text{g}/\text{m}^3$	(2.045; 1.227 to 3.407) ^c	Nicolai et al. ¹⁰⁰
current+	1255	4.74– > 7.27 $\mu\text{g}/\text{m}^3$	(2.047; 1.235 to 4.692) ^c	Nicolai et al. ¹⁰⁰
physician-diagnosed	550	1.21 $\mu\text{g}/\text{m}^3$	(1.33; 1.13 to 1.56) ^c	Arif and Shah ¹⁰¹
	1228	3–9 ppb	(1.04; 0.67 to 1.63)	Gordian et al. ¹⁰²
	1039	>9 ppb	(1.06; 0.61 to 1.85)	Gordian et al. ¹⁰²
	4209	2.41 $\mu\text{g}/\text{m}^3$	(0.97; 0.81 to 1.15)	Zhou et al. ⁹⁰
	2203	per 1 $\mu\text{g}/\text{m}^3$ increase	(1.21; 1.01 to 1.45) ^c	Hirsch et al. ^{92,g}
severe asthma	1228	3–9 ppb	(1.34; 0.70 to 2.54)	Gordian et al. ¹⁰²
	1039	>9 ppb	(2.49; 1.22 to 5.07) ^c	Gordian et al. ¹⁰²
symptoms	80	5.67 ng/L	(5.93; 1.64 to 21.4) ^c	Delfino et al. ¹⁰³
	74	1.82 ppb	(1.23; 1.02 to 1.48) ^{c,e}	Delfino et al. ¹⁰⁴
bronchitis	2114	per 1 $\mu\text{g}/\text{m}^3$ increase	(1.16; 1.04 to 1.29) ^c	Hirsch et al. ^{92,g}
obstructive bronchitis	192	> 3.6 $\mu\text{g}/\text{m}^3$	(10; 1.57 to 63.34) ^c	Rolle-Kampczyk et al. ¹¹⁶
cough	2211	per 1 $\mu\text{g}/\text{m}^3$ increase	(1.21; 1.04 to 1.40) ^c	Hirsch et al. ⁹²
	3206	4.74– > 7.27 $\mu\text{g}/\text{m}^3$	(1.423; 1.01 to 2.005) ^c	Nicolai et al. ¹⁰⁰
	2104	1.50–6.95 $\mu\text{g}/\text{m}^3$	(0.78; 0.56 to 1.09)	Bentayeb et al. ¹⁰⁸
EBC pH	51	1.0–10.7 $\mu\text{g}/\text{m}^3/\text{wk}^g$	$\beta = (-0.24; -0.42 \text{ to } -0.06)^c$	Martins et al. ¹¹⁰
FEV in 1 s	51	1.0–10.7 $\mu\text{g}/\text{m}^3/\text{wk}^g$	$\beta = (-4.33; -7.13 \text{ to } -1.53)^c$	Martins et al. ¹¹⁰
	72	2.80 $\mu\text{g}/\text{m}^3$	mc = (-4.7; -18.8 to 9.5)	Smargiassi et al. ¹¹¹
FEV in 1 s < 85% predicted	992	per 1 $\mu\text{g}/\text{m}^3$ increase	(1.17; 0.81 to 1.67)	Hirsch et al. ⁹²
FEF 25–75% of FVC	51	1.0–10.7 $\mu\text{g}/\text{m}^3/\text{wk}^g$	$\beta = (-5.89; -10.16 \text{ to } -1.62)^c$	Martins et al. ¹¹⁰
	72	2.80 $\mu\text{g}/\text{m}^3$	mc = (-3.5; -34.2 to 27.1)	Smargiassi et al. ¹¹¹
FEF 25–75% < 70% predicted	981	per 1 $\mu\text{g}/\text{m}^3$ increase	(1.17; 0.92 to 1.50)	Hirsch et al. ⁹²
FEV in 1 s/FVC	51	1.0–10.7 $\mu\text{g}/\text{m}^3/\text{wk}^g$	$\beta = (-1.71; -3.24 \text{ to } -0.18)^c$	Martins et al. ¹¹⁰
oxidative stress (8OHdG)	154	0.08 mg/L	$\beta = 8.23^c$	Yoon et al. ¹¹²
pulmonary infections	256	> 5.6 $\mu\text{g}/\text{m}^3$	(2.4; 1.3 to 4.5) ^c	Diez et al. ¹⁰⁹
wheeze	3192	4.74– > 7.27 $\mu\text{g}/\text{m}^3$	(1.646; 1.062 to 2.552) ^c	Nicolai et al. ¹⁰⁰
	2218	per 1 $\mu\text{g}/\text{m}^3$ increase	(1.08; 0.90 to 1.29)	Hirsch et al. ⁹²
	6634	3.57 $\mu\text{g}/\text{m}^3$	(1.08; 1.02 to 1.13) ^c	Buchdahl et al. ¹¹⁷
	4209	2.41 $\mu\text{g}/\text{m}^3$	(0.99; 0.84 to 1.15)	Zhou et al. ⁹⁰
Other Physiological Effects				
hematocrit	20	369 $\mu\text{g}/\text{g}$ Cr	$r = -0.64^c$	Pelallo-Martinez et al. ⁹⁸
hemoglobin	20	369 $\mu\text{g}/\text{g}$ Cr	$r = -0.60^c$	Pelallo-Martinez et al. ⁹⁸
RBC count	20	369 $\mu\text{g}/\text{g}$ Cr	$r = -0.42^c$	Pelallo-Martinez et al. ⁹⁸

^adnr, data not reported; nES, no effect size reported; mc, mean change; 8-OHdG, 8-oxo-2'-deoxyguanosine; IL-3, interleukin-3; IL-4, interleukin-4; IL-5, interleukin-5; MIR-223, microRNA-223; MLH1, mutL homologue 1; MSH2, mutS homologue 2; RBC, red blood cell; WBC, white blood cell; HOMA-IR, homeostasis model assessment scores- insulin resistance; EBC, exhaled breath condensate; FEF 25–75%, forced expiratory flow between 25 and 75% of FVC; FEV1, forced expiratory volume in 1 s; FVC, forced vital capacity; wk, week. ^bExcept where indicated otherwise. ^c $p < 0.05$. ^d $p = 0.05$. + children exposed to ETS. ^eLag 0. ^fExposure at home and school. ^gMean range across 4 visits. ^hFor second quartile only.

Table 4. Health Effects of Ambient Exposure to Toluene^a

health outcome	N	exposure concentration	effect size (OR; 95%CI) ^b	reference
Development				
low birth weight	354 688	3.0 ppbV	(1.02; 1.00 to 1.05) ^d	Ghosh et al. ⁸⁸
Immune Function				
any symptom	317	325.5 $\mu\text{g}/\text{m}^3$	(4.17; 1.45 to 12.0) ^c	Saijo et al. ¹¹⁴
atopy	86	33.74–41.75 $\mu\text{g}/\text{m}^3$	$\beta = 0.34^c$	Choi et al. ⁹³
eczema	39	> 30.14 $\mu\text{g}/\text{g}$ Cr	(9.00; 1.24 to 65.1) ^c	Rolle-Kampczyk et al. ¹¹⁶
elevated IgE	200	13.30 $\mu\text{g}/\text{m}^3$	(3.3; 1.1 to 9.8) ^c	Lehmann et al. ¹¹⁵
miR-223	316	6.95 $\mu\text{g}/\text{m}^3$	(1.09; 1.02 to 1.17) ^c	Herberth et al. ⁹⁶
sensitization to egg white	200	13.30 $\mu\text{g}/\text{m}^3$	(3.3; 1.0 to 11.1) ^d	Lehmann et al. ¹¹⁵
sensitization to milk	200	13.30 $\mu\text{g}/\text{m}^3$	(11.2; 2.1 to 60.2) ^c	Lehmann et al. ¹¹⁵
skin symptoms	317	325.5 $\mu\text{g}/\text{m}^3$	(5.57; 1.38 to 22.6) ^c	Saijo et al. ¹¹⁴
Respiratory Function				
asthma	192	per 10 $\mu\text{g}/\text{m}^3$ increase	(1.842; 1.405 to 2.414) ^c	Rumchev et al. ⁹⁹
	111	21.3 $\mu\text{g}/\text{m}^3$	(2.73; 1.28 to 5.83) ^c	Hulin et al. ¹⁰⁶
	1012	11.9 $\mu\text{g}/\text{m}^3$	(1.42; 0.63 to 4.47)	Billonnet et al. ¹⁰⁷
physician-diagnosed	550	14.33 $\mu\text{g}/\text{m}^3$	(1.21; 0.93 to 1.58)	Arif and Shah ¹⁰¹
symptoms	80	26.9 ng/L	(4.96; 1.38 to 17.8) ^c	Delfino et al. ¹⁰³
	74	7.17 ppb	(1.35; 0.99 to 1.84)	Delfino et al. ¹⁰⁴
breathlessness	144	11.62 $\mu\text{g}/\text{m}^3$	(3.36; 1.13 to 9.98) ^c	Bentayeb et al. ¹¹⁸
FEF 25–75% of FVC	154	0.53 mg/mL	$\beta = -65.00^c$	Yoon et al. ¹¹²
	51	13.4–32.8 $\mu\text{g}/\text{m}^3/\text{wk}^c$	$\beta = (-1.14; -2.49 \text{ to } 0.29)$	Martins et al. ¹¹⁰
FEV in 1 s	154	0.53 mg/mL	$\beta = -18.23^c$	Yoon et al. ¹¹²
	51	13.4–32.8 $\mu\text{g}/\text{m}^3/\text{wk}^c$	$\beta = (-1.10; -1.97 \text{ to } -0.23)^c$	Martins et al. ¹¹⁰
oxidative stress (MDA, 8OHdG)	154	0.53 mg/mL	$\beta = 0.51^c$ (MDA) $\beta = 3.92^c$ (8OHdG)	Yoon et al. ¹¹²
wheeze	6634	9.26 $\mu\text{g}/\text{m}^3$	(1.07; 1.01 to 1.13) ^c	Buchdahl et al. ¹¹⁷
Other Physiological Effects				
cardiovascular disease	419	0.751 ng/mL	(2.30; 1.2 to 4.23) ^c (3.49; 1.81 to 6.73) ^c	Xu et al. ³³

^a8-OHdG, 8-oxo-2'-deoxyguanosine; MIR-223, microRNA-223; FEF 25–75%, forced expiratory flow between 25 and 75% of FVC; FEV1, forced expiratory volume in 1 s; FVC, forced vital capacity; MDA, malondialdehyde; IgE, immunoglobulin E; wk, week. ^bExcept where indicated otherwise.

^c $p < 0.05$. ^d $p = 0.05$. ^eMean range across four visits.

Table 5. Health Effects of Ambient Ethylbenzene Exposure^a

health outcome	N	exposure concentration	effect size (OR; 95%CI) ^b	reference
Developmental				
low birth weight	354 688	0.4 ppbV	(1.01; 1.00 to 1.03) ^d	Ghosh et al. ⁸⁸
Immune Function				
atopy	86	2.01–5.61 $\mu\text{g}/\text{m}^3$	$\beta = 0.32^c$	Choi et al. ⁹³
sensitization to milk	200	1.77 $\mu\text{g}/\text{m}^3$	(5.0; 1.1 to 21.6) ^c	Lehmann et al. ¹¹⁵
rhinitis	1012	2.2 $\mu\text{g}/\text{m}^3$	(1.48; 1.09 to 2.02) ^c	Billionnet et al. ¹⁰⁷
Respiratory Function				
asthma	192	per 10 $\mu\text{g}/\text{m}^3$ increase	(2.541; 1.160 to 5.567) ^c	Rumchev et al. ⁹⁹
	1012	2.2 $\mu\text{g}/\text{m}^3$	(1.63; 0.11 to 5.20)	Billionnet et al. ¹⁰⁷
	111	2.9 $\mu\text{g}/\text{m}^3$	(1.9; 0.7 to 4.9)	Hulin et al. ¹⁰⁶
physician-diagnosed	550	2.55 $\mu\text{g}/\text{m}^3$	(1.34; 1.01 to 1.78) ^c	Arif and Shah ¹⁰¹
symptoms	74	0.59 ppb	(1.38; 1.09 to 1.75) ^c	Delfino et al. ¹⁰⁴
EBC pH	51	1.7–19.8 $\mu\text{g}/\text{m}^3/\text{wk}^e$	$\beta = (-0.14; -0.23 \text{ to } -0.04)^c$	Martins et al. ¹¹⁰
FVC	433	1.5 $\mu\text{g}/\text{m}^3$	pc = (-4.53; -6.26 to -2.82) ^c	Wallner et al. ¹¹⁹
FEV in 1 s	433	1.5 $\mu\text{g}/\text{m}^3$	pc = (-4.49; -6.55 to -2.48) ^c	Wallner et al. ¹¹⁹
	51	1.7–19.8 $\mu\text{g}/\text{m}^3$	$\beta = (-1.79; -3.32 \text{ to } -0.25)^c$	Martins et al. ¹¹⁰
	154	0.08 mg/mL	$\beta = -15.10$	Yoon et al. ¹¹²
FEF 25–75% of FVC	51	1.7–19.8 $\mu\text{g}/\text{m}^3^e$	$\beta = (-2.48; -4.81 \text{ to } -0.16)^c$	Martins et al. ¹¹⁰
	154	0.08 mg/mL	$\beta = -67.67$	Yoon et al. ¹¹²
oxidative stress (MDA, 8-OHdG)	154	0.08 mg/mL	$\beta = 2.20^c$ (MDA) $\beta = 13.77^c$ (8OHdG)	Yoon et al. ¹¹²
wheeze	6634	2.06 $\mu\text{g}/\text{m}^3$	(1.08; 1.03 to 1.14) ^c	Buchdahl et al. ¹¹⁷
Other Physiological Effects				
cardiovascular disease	262	0.135 ng/mL	(3.10; 1.40 to 6.86) ^c	Xu et al. ³³

^apc, percent change; 8-OHdG, 8-oxo-2'-deoxyguanosine; FEF 25–75%, forced expiratory flow between 25 and 75% of FVC; FEV1, forced expiratory volume in 1 s; FVC, forced vital capacity; MDA, malondialdehyde; IL-4, interleukin-4; EBC, exhaled breath condensate; wk, week.

^bExcept where indicated otherwise. ^c $p < 0.05$. ^d $p = 0.05$. ^eMean range across four visits.

Table 6. Health Effects of Ambient Xylene Exposure^a

health outcome	N	exposure concentration	effect size (OR; 95%CI) ^b	reference
Developmental				
low birth weight	354 688	1.5 ppbV (<i>m+p-X</i>) 0.5 ppbV (<i>o-X</i>)	(1.03; 1.01 to 1.06) ^c (1.03; 1.01 to 1.05) ^c	Ghosh et al. ⁸⁸
Immune Function				
rhinitis	1012	5.4 $\mu\text{g}/\text{m}^3$ (<i>m+p-X</i>) 2.2 $\mu\text{g}/\text{m}^3$ (<i>o-X</i>)	(1.46; 1.07 to 2.00) ^c (1.43; 1.03 to 1.99) ^c	Billionnet et al. ¹⁰⁷
sensitization to milk	200	7.23 $\mu\text{g}/\text{m}^3$ (<i>m+p-X</i>) 1.56 $\mu\text{g}/\text{m}^3$ (<i>o-X</i>)	(8.0; 1.9 to 34.2) ^c (6.0; 1.5 to 24.2) ^c	Lehmann et al. ¹¹⁵
eye symptoms	317	26.0 $\mu\text{g}/\text{m}^3$	(2.18; 1.03 to 4.59) ^c	Saijo et al. ¹¹⁴
throat and respiratory symptoms	317	26.0 $\mu\text{g}/\text{m}^3$	(2.22; 1.1 to 4.46) ^c	Saijo et al. ¹¹⁴
Respiratory Function				
asthma	1012	5.4 $\mu\text{g}/\text{m}^3$ (<i>m+p-X</i>) 2.2 $\mu\text{g}/\text{m}^3$ (<i>o-X</i>)	(1.50; 0.41 to 4.71) (1.65; 0.09 to 5.37)	Billionnet et al. ¹⁰⁷ Billionnet et al. ¹⁰⁷
	192	per 10 $\mu\text{g}/\text{m}^3$ increase (<i>p-X</i>) per 10 $\mu\text{g}/\text{m}^3$ increase (<i>m-X</i>)	(1.485; 0.988 to 2.231) (1.608; 1.102 to 2.347) ^c	Rumchev et al. ⁹⁹ Rumchev et al. ⁹⁹
	112	10.3 $\mu\text{g}/\text{m}^3$	(1.7; 0.7–4.1)	Hulin et al. ¹⁰⁶
physician-diagnosed	550	5.97 $\mu\text{g}/\text{m}^3$ (<i>m+p-X</i>) 2.16 $\mu\text{g}/\text{m}^3$ (<i>o-X</i>)	(1.33; 1.08 to 1.64) ^c (1.32; 1.04 to 1.67) ^c	Arif and Shah ¹⁰¹ Arif and Shah ¹⁰¹
symptoms	80	13.3 ng/L (<i>o-X</i>)	(3.61; 1.13 to 11.6) ^c	Delfino et al. ¹⁰³
	80	4.16 ng/L (<i>o-X</i>)	(2.29; 0.89 to 5.89)	
	74	3.07 ppb (<i>m+p-X</i>)	(1.35; 1.01 to 1.80) ^c	Delfino et al. ¹⁰⁴
	74	0.94 ppb (<i>o-X</i>)	(1.28; 1.00 to 1.66) ^d	
breathlessness	144	5.18 $\mu\text{g}/\text{m}^3$ (<i>m+p-X</i>)	(1.61; 0.60 to 4.31)	Bentayeb et al. ¹¹⁸
	144	2.07 $\mu\text{g}/\text{m}^3$ (<i>o-X</i>)	(2.85; 1.06 to 7.68) ^c	
obstructive bronchitis	192	> 11.1 $\mu\text{g}/\text{m}^3$	(10; 1.045 to 161.7) ^c	Rolle-Kampczyk et al. ¹¹⁶
FVC	433	4.1 $\mu\text{g}/\text{m}^3$ (<i>m+p-X</i>) 1.5 $\mu\text{g}/\text{m}^3$ (<i>o-X</i>)	pc = (−4.88; −6.68 to −3.12) ^c pc = (−4.74; −6.50 to −3.01) ^c	Wallner et al. ¹¹⁹
FEV in 1 s	154	0.10 mg/mL	β = −65.70	Yoon et al. ¹¹²
	433	4.1 $\mu\text{g}/\text{m}^3$ (<i>m+p-X</i>) 1.5 $\mu\text{g}/\text{m}^3$ (<i>o-X</i>)	pc = (−4.78; −6.91 to −2.48) ^c pc = (−4.64; −6.72 to −2.59) ^c	Wallner et al. ¹¹⁹
	51	6.7–12.9 $\mu\text{g}/\text{m}^3/\text{wk}$ ^e	β = (−0.25; −1.07 to 0.56)	Martins et al. ¹¹⁰
FEV in 1 s/FVC	154	0.08 mg/mL	β = −2.44 ^c	Yoon et al. ¹¹²
eye symptoms	317	26.0 $\mu\text{g}/\text{m}^3$	(2.18; 1.03 to 4.59) ^c	Saijo et al. ¹¹⁴
oxidative stress (MDA, 8OHdG)	154	0.08 mg/mL	β = 0.84 ^c (MDA) β = 8.20 ^c (8OHdG)	Yoon et al. ¹¹²
wheeze	6634	5.14 $\mu\text{g}/\text{m}^3$ (<i>m+p-X</i>) 2.06 $\mu\text{g}/\text{m}^3$ (<i>o-X</i>)	(1.08; 1.03 to 1.14) ^c (1.08; 1.03 to 1.14) ^c	Buchdahl et al. ¹¹⁷
Other Physiological Effects				
cardiovascular disease	426	0.478 ng/mL (<i>m+p-X</i>)	(2.36; 1.19 to 4.67) ^c	Xu et al. ³³
cardiovascular disease	199	0.143 ng/mL (<i>o-X</i>)	(2.68; 1.14 to 6.25) ^c	Xu et al. ³³

^a*m*-, *p*-, and *o*-X, *m*-, *p*-, and *o*-xylene; pc, percent change; 8-OHdG, 8-oxo-2'-deoxyguanosine; FEV1, forced expiratory volume in 1 s; FVC, forced vital capacity; MDA, malondialdehyde; wk, week. ^bExcept where indicated otherwise. ^c $p < 0.05$. ^d $p = 0.05$. ^eMean range across four visits.

Table 7. Health Effects of Ambient BTEX Combined Exposure^a

health outcome	N	exposure concentration	effect size (OR; 95%CI) ^b	reference
Developmental				
biparietal diameter	562	2.27–30.31 $\mu\text{g}/\text{m}^3$	pmc = (−4.82; −9.12 to −0.45) ^c	Aguilera et al. ¹²¹
birth weight	570	14.49 $\mu\text{g}/\text{m}^3$	mc = (−76.6; −146.3 to −7.0) ^c	Aguilera et al. ¹²⁰
Respiratory Function				
asthma	550	B, 1.21 $\mu\text{g}/\text{m}^3$; T, 14.33 $\mu\text{g}/\text{m}^3$; E, 2.55 $\mu\text{g}/\text{m}^3$; o-X) 2.16 $\mu\text{g}/\text{m}^3$; m+p-X) 5.97 $\mu\text{g}/\text{m}^3$	(1.63; 1.17 to 2.27) ^c	Arif and Shah ¹⁰¹
wheezing attacks	550	B, 1.21 $\mu\text{g}/\text{m}^3$; T, 14.33 $\mu\text{g}/\text{m}^3$; E, 2.55 $\mu\text{g}/\text{m}^3$; o-X) 2.16 $\mu\text{g}/\text{m}^3$; m- + p-X) 5.97 $\mu\text{g}/\text{m}^3$	(1.68; 1.08 to 2.61) ^c	Arif and Shah ¹⁰¹

^aB: benzene; T: toluene; E: ethylbenzene; m- + p-X, m- + p- xylene; o-X, o- xylene; pmc, percent mean change; mc, mean change. ^bExcept where indicated otherwise. ^c $p < 0.05$.

AUTHOR INFORMATION

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