

Supplementary Table S1 Linear multiple regression: log₁₀ B-Pb (μg/dl) as predictor of birth outcomes

	R² (%)	B (SE)	95% CI for B	p value
Birth weight (g)				
Univariate	0.6	-274.18 (31.21)	-383.92 to -164.44	<0.001
Multivariate ^a	38.7	-120.19 (48.37)	-215.02 to -25.36	0.013
Head circumference (cm)				
Univariate	0.2	-0.48 (0.16)	-0.80 to -0.16	0.003
Multivariate ^a	30.9	-0.35 (0.15)	-0.63 to -0.06	0.019
Crown-heel (cm)				
Univariate	0.4	-0.95 (0.25)	-1.47 to -0.45	<0.001
Multivariate ^a	32.1	-0.50 (0.23)	-0.95 to -0.05	0.031

^aAdjusted for maternal height, maternal prepregnancy weight, maternal educational attainment, parity, no of cigarettes per day, sex of baby, gestational age at delivery or death.

All models overall p<0.001.

Supplementary Table S2 Summary of studies on associations between maternal B-Pb and pregnancy outcomes

Authors	Location of study	n	Mean maternal B-Pb ($\mu\text{g}/\text{dl}$)	Pregnancy outcome(s) studied	Results	Comments
Low exposure^a						
Xie et al., 2013 ¹	China	252	1.00–11.91, median 3.2	Birth length BW HC	Association of B-Pb with BW No association with HC or birth length	
Vigeh et al., 2011 ²	Tehran, Iraq	348	3.8 (1.0–20.5), geometric mean 3.5	Preterm delivery	B-Pb higher in women who delivered preterm babies Association of B-Pb with preterm delivery	
Gundacker et al., 2010 ³	Vienna, Austria	53	2.5	BW Birth length Head circumference	Association of B-Pb with birth weight No association with length of gestation or head circumference	
Vigeh et al., 2010 ⁴	Tehran, Iraq	332	PROM: 4.61 \pm 2.37 (n=36) Not PROM: 3.69 \pm 1.85 (n=296)	PROM	B-Pb higher in women who delivered babies with PROM Association of B-Pb with PROM	
High exposure^b						
Rahman et al., 2012 ⁵	Kuwait	194	5.77	BW Crown–heel length Head circumference APGAR score Gestational age Placental weight	No associations with B-Pb Cord B-Pb associated with APGAR score in boys only	
Zhu et al., 2010 ⁶	New York	45,000	Selected those with B-Pb <10	Preterm birth SGA LBW	Small risk of decreased BW with increasing B-Pb No association with preterm birth or SGA	State database
Mirghani, 2010 ⁷	Saudi Arabia (Aseer region)	128	<20 (n=86) >20 (n=41)	BW Gestational age PROM	No associations	
Chen et al., 2006 ⁸	Taiwan	1611	10.1 \pm 10.4	SGA	Association of B-Pb >20 with SGA	Occupational exposure database
Rahman and Hakeem, 2003 ⁹	Karachi, Pakistan	73	9.91 \pm 4.44 (2.28–36.35)	Gestational age BW Recumbent length Head circumference	No associations Mothers of boys had higher B-Pb than mothers of girls	

Bjerregaard and Hansen, 2000 ¹⁰	Disko Bay, Greenland	180	3.57±4.15	BW Length	No associations	High consumption of marine meat and blubber
Factor-Litvak et al., 1999 ¹¹	Kosovo, Yugoslavia	401	Exposed to smelter: 19.1±7.9 Not exposed: 5.6±1.9	Length of gestation BW Preterm birth	No associations	
Borja-Aburto et al., 1999 ¹²	Mexico City	668	Cases: 12.03 Controls: 10.09	Spontaneous abortion	Increased risk of spontaneous abortion	
Gonzales-Cossio et al., 1997 ¹³	Mexico	272	8.9±4.1 (median 8.1) Tibia and patella lead levels	BW	Association of tibia lead with BW No associations for maternal B-Pb or patella lead	
West et al., 1994 ¹⁴	USA	349	6.36±0.19 (2.7–12.0)	Gestational age LBW BW	Association of gestation age with B-Pb No association for BW No association for LBW unless excluded women with genital infections.	African-American women
McMichael et al., 1986 ¹⁵	Port Pirie, South Australia	749	Smelter community: 10.6 Non-smelter community: 7.6	Preterm delivery Miscarriage LBW at term IUGR PROM Congenital anomalies	Association of preterm delivery with B-Pb No other associations	
Miscellaneous^c						
Atabek et al., 2007 ¹⁶	Turkey	54	14.4 ±0.89 (5.1–35.5) (cord blood)	BW Other anthropometric variable	Association of B-Pb with BW No association with any other variables	
Berkowitz et al., 2006 ¹⁷	Idaho, USA	169,878	–	Preterm birth SGA LBW BW	Associations of living in accident area at time of accident with BW, SGA and BW No association with preterm birth	Mothers living in area of smelter which had accident in 1973 resulting in high air lead levels for 6 months
Zentner et al., 2006 ^{18 d}	Brazil	55	– (cord blood)	BW Length	Associations of B-Pb with BW and length	
Wang et al., 2004 ¹⁹	China	89	Cord blood levels Rural: 7.4 ^a (3.52–24.6) Industrial: 6.59 ^a (2.0–17.2) Urban: 5.43 ^a (2.79–18.7)	BW Birth length	No associations	

Falcon et al., 2003 ²⁰	Spain	89	113.4±58.0 mg/g dry weight (placenta lead)	BW Head circumference Abdominal circumference Length	No associations	
Yao and Huang, 2003 ^{21 d}	Beijing, China	1151	4.34	BW Length HC Chest circumference Abdomen circumference Neurobehavioural development at 42 days Pregnancy complications APGAR score	No associations	
Sowers et al., 2002 ^{22 d}	USA	705	1.2±0.03	BW Gestational age SGA	No associations	
Durska, 2001 ^{23 d}	Szczecin, Poland	83	1.33	BW Length HC Chest circumference	No associations	
Osman et al., 2000 ²⁴	Sweden	106	26 (0–630) nmol/kg (placenta lead) 54 nmol/l (cord blood; equivalent to 1.12 µg/dl)	BW Head circumference Length	Association of cord B-Pb with birth length, head circumference and BW	
Richter et al., 1999 ^{25 d}	Czech Republic	Control group: 50 IUGR group: 43	–	IUGR	Lower B-Pb in IUGR group	
Irgens et al., 1998 ²⁶	Norway	Maternal (n=1886) or paternal (n=35,802) occupational lead exposure vs no exposure	–	LBW Gestational age Preterm birth Neural tube defects and other birth defects Perinatal mortality Down's syndrome	Increased risk of LBW and neural tube defects in occupationally exposed mothers Decreased risk of LBW and preterm birth for occupationally exposed fathers	
Phillion et al., 1997 ²⁷	Canada	9329	Living in smelter city vs not	SGA	No association of exposure on SGA	Birth records 1961–

						1990
Fagher et al., 1993 ^{28 d}	Sweden/Poland	Preterm delivery: 17 Term delivery: 13	Polish women: 3.79 Swedish women: 1.12	Preterm delivery	No effect of lead causing increase in myometrial activity	
Bellinger et al., 1991 ²⁹	Australia	4354	7.0±3.3 (cord blood)	Length of gestation BW SGA	No adverse effects on fetal growth at levels <15, but may be modest effects >15	

Adapted with permission from Taylor et al. (2014).³⁰

^aMean or median maternal B-Pb <5 µg/dl; ^bmean or median maternal B-Pb ≥5 µg/dl.

^cCategorised as miscellaneous because: (1) measurement of lead in tissue other than maternal blood; (2) measure of lead level not reported; (3) abstract only retrieved.

^dAbstract only retrieved.

B-Pb, blood lead level; BW, birth weight; IUGR, intrauterine growth retardation; LBW, low birth weight; PROM, premature rupture of the membranes; SGA, small for gestational age.

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