Supplemental Table 1: Summary statistics of bone lead levels of EG, corresponding uncertainty, and demographic variables age and BMI

Variable	N	Median	Min	Max	Geometric Mean	95% CI	
						Lower	Upper
Cal Pb	263	5.34	-10.70	287.03	9.40[1]	6.68[1]	12.13[1]
Cal Un[3]	263	4.86	2.97	66.94	5.16	4.95	5.38
Ti Pb	263	2.85	-18.93	19.49	2.72[1]	1.95[1]	3.49[1]
Ti Un[3]	263	4.06	1.88	34.18	4.39	4.17	4.62
Age	263	33.12	1.31	83.75	32.98[2]	30.48[2]	35.48[2]
BMI	237	23.29	10.40	85.01	23.63[2]	22.75[2]	24.51[2]

[1] For Tibia (Ti) and Calcaneus (Cal) Pb levels the arithmetic mean was reported in place of the geometric mean due to negative values. Ti lead was normally distributed therefore no transformation was required. When Cal lead was used in the analysis then the transformation $log(x+11)$ was used to normalize the data.
[2] Arithmetic means and corresponding confidence intervals were reported for age and body mass index (BMI)
[3] "Un" Stands for uncertainty values, and Pb for lead levels

Supplemental Table 2: Summary statistics of bone lead levels of Smelter Employees, corresponding uncertainty, and demographic variable age

Variable	N	Median	Min	Max	Geometric Mean	95% CI	
						Lower	Upper
Cal Pb	497	19.69	-4.92	180.05	30.08[1]	27.66[1]	32.50[1]
Cal Un	497	2.40	0.880	4.62	2.72	2.67	2.77
Ti Pb	497	13.08	-6.12	100.18	19.90[1]	18.28[1]	21.52[1]
Ti Un	497	1.57	0.640	5.29	2.735	2.30	2.40
Age	497	50.10	21.21	85.00	47.65[2]	46.80[2]	48.50[2]

[1] For Tibia (Ti) and Calcaneus (Cal) Pb levels, the arithmetic mean was reported in place of the geometric mean due to negative values. Ti lead and Cal lead were not normally distributed; therefore, the transformation $log(x+7)$ was used to normalize the data.
[2] Arithmetic means and corresponding confidence intervals were reported for age

Supplemental Table 3: Two way ANOVA results for calcaneus and tibia uncertainties for demographic variables BMI by Sex (with children <11 removed)

Analyte (units)	Demographic Variable		N	p-value[1]	GM (95%CI)[2]
Calcaneus	Sex			0.4249[a]	
	BMI			**0.0069**[a]	
	Sex*BMI			0.5818[a]	
	[3]Males:BMI	BMI <18.5	5		4.93 (3.96, 6.13)
		18.5 ≤BMI< 25	41		4.52 (4.19, 4.88)
		25 ≤BMI< 30	37		4.95 (4.57, 5.37)
		BMI≥ 30	11		5.27 (4.55, 6.11)
	[3]Females:BMI	BMI <18.5	10		4.45 (3.81, 5.19)
		18.5 ≤BMI< 25	50		4.54 (4.24, 4.87)
		25 ≤BMI< 30	28		4.62 (4.21, 5.07)
		BMI≥ 30	13		5.56 (4.85, 6.36)
Tibia	Sex			0.0077	
	BMI			**0.0163**	
	Sex*BMI			0.6724	
	[3]Males:BMI	BMI <18.5	5		4.42 (3.17, 6.17)
		18.5 ≤BMI< 25	41		3.39 (3.01, 3.80)
		25 ≤BMI< 30	37		3.97 (3.52, 4.49)
		BMI≥ 30	11		3.68 (2.94, 4.61)
	[3]Females:BMI	BMI <18.5	10		4.47 (3.53, 5.66)
		18.5 ≤BMI< 25	50		4.14 (3.73, 4.60)
		25 ≤BMI< 30	28		5.17 (4.49, 5.95)
		BMI≥ 30	13		4.96 (4.03, 6.10)

[1] p-value for overall group effect
[2] Geometric Mean (GM) and corresponding 95% confidence interval (CI): the 95% CI for the geometric mean were corrected for multiple comparisons using Tukey correction

[3] Analysis includes those who are 11 years of age and older
[a] the analysis is based on the non-parametric two way ANOVA model

Table 4: Simultaneous regression models relating age or BMI, and lead levels to uncertainty levels for each sex

Effect	Males PE (SE)[1]	Females PE (SE) [1]	Coincidence $a_1=b_1=c_1=0$	p-value for equal Effect[2]
Dependent Variable: Tibia Uncertainty, Adjusted R^2=9.2%				
Intercept	1.36 (0.04)****	1.58 (0.04) ****	< 0.0001	0.0006
Age	-0.01 (0.00) ****	0.00 (0.00)		0.0030
Lead[3]	0.01 (0.01)	-0.01 (0.01) *		0.0237
Dependent Variable: Tibia Uncertainty, Adjusted R^2=8.4%, including only age≥11				
Intercept	1.28 (0.05)****	1.56 (0.04)****	0.0001	<0.0001
Age	0.00 (0.00)	0.00 (0.00)		0.1506
Lead[3]	0.01 (0.01)	-0.01 (0.01)*		0.1359
Dependent Variable: Calcaneus Uncertainty, Adjusted R^2=29.4%				
Intercept	0.98 (0.09) ****	1.18 (0.09) ****	0.0697	
Age	-0.01 (0.00) ****	-0.00 (0.00) **		
Lead[3]	0.25 (0.03) ****	0.16 (0.03) ****		
Dependent Variable: Calcaneus Uncertainty, Adjusted R^2=15.5%, including only age≥11				
Intercept	1.18 (0.08) ****	1.25 (0.08) ****	0.5182	
Age	0.00 (0.00)	0.00 (0.00)		
Lead[3]	0.15 (0.03) ****	0.11 (0.03) ***		
Dependent Variable: Tibia Uncertainty, Adjusted R^2=7.20%, including only age≥11				
Intercept	1.29 (0.05) ****	1.54 (0.04) ****	0.0014	<0.0001
BMI	0.00 (0.01)	0.01 (0.00)		1.0000
Lead[3]	0.00 (0.01)	-0.01 (0.01)		0.4557
Dependent Variable: Calcaneus Uncertainty, Adjusted R^2=18.2%, including only age≥11				
Intercept	1.19 (0.08) ****	1.22 (0.09) ****	0.6482	
BMI	0.01 (0.01) *	0.01 (0.00) *		
Lead[3]	0.14 (0.03) ****	0.12 (0.03) ****		

[1] PE=Parameter Estimate, SE=Standard Error of the parameter estimate
[2] If the test of coincidence is rejected, i.e., the two lines do not coincide, then test for equal intercept and/or equal slopes are carried out, otherwise no further tests are carried out. Bonferroni corrections were applied for multiple tests on the same data set.
[3] Tibia lead levels used in Tibia uncertainty models were not log transformed as they were normally distributed. Calcaneus lead levels used in Calcaneus uncertainty models were transformed using log(x+11) to satisfy the normality assumption.
Significance of parameter estimates is as follows: * p<0.05, ** p<0.01, *** p<0.001, **** p<0.0001