**Supplementary Table 1. Percentiles and geometric means (95% confidence intervals, CIs) for whole blood metal concentrations in NHANES 2015-2016 (N = 4,987).** Blood metals were measured in all participants 1-11 years old (N= 1,813) and in a one-half random subsample of participants 12 years and older (N=3,174).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Metal** | **N** | **10th** | **90th** | **Median (25th, 75th)** | **Geometric mean (95% CI)** | **LOD** | **N (%) < LOD** |
| Pb (µg/dL) | 4987 | 0.35 | 2.14 | 0.78 (0.5, 1.32) | 0.82 (0.78, 0.87) | 0.07 | 5 (0.1%) |
| Cd (µg/L) | 4987 | 0.07 | 0.81 | 0.22 (0.13, 0.4) | 0.24 (0.23, 0.25) | 0.10 | 1277 (25.6%) |
| Mn (µg/L) | 4987 | 6.36 | 14.82 | 9.52 (7.7, 11.95) | 9.59 (9.38, 9.80) | 0.99 | 0 (0%) |
| Hg (µg/L) |  |  |  |  |  |  |  |
| *Total* | 4987 | 0.20 | 2.54 | 0.60 (0.33, 1.26) | 0.68 (0.62, 0.74) | 0.28 | 1270 (25.5%) |
| *Methyl* | 4937 | 0.08 | 2.30 | 0.38 (0.14, 1.03) | 0.41 (0.37, 0.47) | 0.12 | 1343 (27.2%) |
| *Inorganic* † | 4937 | - | - | - | - | 0.27 | 4201 (85.1%) |
| *Ethyl* † | 4937 | - | - | - | - | 0.16 | 4882 (98.9%) |

Abbreviations: Pb, lead; Cd, cadmium; Mn, manganese; Hg, mercury; LOD, limit of detection.
The LOD values are all in µg/L, except for Pb which is in µg/dL.
†Not evaluated in this analysis due to the high % of values < LOD.
Analyses were conducted in R using the ‘survey’ package to account for NHANES complex sampling design and weights.

**Supplementary Table 2. Number and percentage of samples below the LOD for a given metal, sex, and age group.** Values for the LOD are shown in Supplementary Table 1.

|  |  |  |
| --- | --- | --- |
|  |  | **N (%) < LOD** |
| **Sex** | **Life Stage** | **Pb** | **Cd** | **Mn** | **Total Hg** | **MeHg** |
| Male | Child | 1 (0.11%) | 515 (55.6%) | 0 (0%) | 415 (44.8%) | 410 (44.3%) |
| Female | Child | 0 (0%) | 486 (54.8%) | 0 (0%) | 370 (41.7%) | 378 (44.6%) |
| Male | Adolescent | 0 (0%) | 83 (26.9%) | 0 (0%) | 106 (34.3%) | 99 (32.0%) |
| Female | Adolescent | 2 (0.65%) | 66 (21.5%) | 0 (0%) | 96 (31.3%) | 112 (36.5%) |
| Male | Adult | 1 (0.10%) | 77 (8.0%) | 0 (0%) | 106(11.0%) | 125 (12.9%) |
| Female | Adult | 1 (0.10%) | 42 (4.1%) | 0 (0%) | 101 (10.0%) | 139 (13.7%) |
| Male | Elderly | 0 (0%) | 5 (1.7%) | 0 (0%) | 38 (13.2%) | 41 (14.3%) |
| Female | Elderly | 0 (0%) | 3 (1.0%) | 0 (0%) | 38 (13.1%) | 39 (13.4%) |

Abbreviations: Pb, lead; Cd, cadmium; Mn, manganese; Hg, mercury; MeHg, methyl mercury; LOD, limit of detection. The LOD values are all in µg/L, except for Pb which is in µg/dL.
The life stages are defined as follows: child, age < 12 years; adolescent, age 12-21 years; adult, age 22-65 years; elderly, age > 65 years.

**Supplementary Table 3. Geometric means (95% confidence intervals, CIs) of whole blood metal concentrations stratified by sex, NHANES 2015-2016.** Blood metals were measured in all participants 1-11 years old (N= 1,813) and in a one-half random subsample of participants 12 years and older (N=3,174).

|  |  |  |  |
| --- | --- | --- | --- |
|   | **Males** | **Females** |   |
| **Metal** | **N(%)** | **Geometric mean (95% CI)** | **N(%)** | **Geometric mean (95% CI)** | **p-value‡** |
| Pb (µg/dL) | 2488 (48.80%) | 0.92 (0.87, 0.98) | 2499 (51.20%) | 0.74 (0.68, 0.79) | 2.58E-05 |
| Cd (µg/L) | 2488 (48.80%) | 0.22 (0.20, 0.23) | 2499 (51.20%) | 0.26 (0.25, 0.28) | 1.77E-05 |
| Mn (µg/L) | 2488 (48.80%) | 8.99 (8.76, 9.23) | 2499 (51.20%) | 10.20 (9.97, 10.43) | 1.40E-08 |
| Hg, total (µg/L) | 2488 (48.80%) | 0.68 (0.63, 0.74) | 2499 (51.20%) | 0.68 (0.61, 0.75) | 0.95 |
| Hg, methyl (µg/L) | 2460 (48.76%) | 0.43 (0.38, 0.48) | 2477 (51.24%) | 0.40 (0.34, 0.46) | 0.22 |

Abbreviations: Pb, lead; Cd, cadmium; Mn, manganese; Hg, mercury.
‡p-value determined using design-based t-test comparing blood metal levels of males and females.
All percentages are weighted to account for NHANES complex sampling design and survey weights.

**Supplementary Table 4. Geometric means (95% confidence intervals, CIs) of whole blood metal concentrations stratified by sex and age group, NHANES 2015-2016.** Blood metals were measured in all participants 1-11 years old (N= 1,813) and in a one-half random subsample of participants 12 years and older (N=3,174).

|  |  |  |
| --- | --- | --- |
|   |   | **Geometric Mean (95% CI)** |
| **Sex** | **Life Stage** | **Pb** | **Cd** | **Mn** | **Total Hg** | **N** | **MeHg** | **N** |
| Male | Child | 0.67 (0.60, 0.74) | 0.092 (0.088, 0.096) | 10.22 (9.86, 10.58) | 0.33 (0.31, 0.36) | 926 | 0.16 (0.15, 0.18) | 902 |
| Female | Child | 0.62 (0.57, 0.67) | 0.094 (0.09, 0.10) | 10.94 (10.57, 11.32) | 0.33 (0.30, 0.36) | 887 | 0.16 (0.14, 0.18) | 869 |
| Male | Adolescent | 0.55 (0.52, 0.58) | 0.13 (0.12, 0.15) | 9.73 (9.44, 10.02) | 0.42 (0.37, 0.48) | 309 | 0.23 (0.19, 0.27) | 309 |
| Female | Adolescent | 0.40 (0.37, 0.43) | 0.15 (0.13, 0.16) | 11.09 (10.41, 11.80) | 0.38 (0.34, 0.42) | 307 | 0.20 (0.17, 0.23) | 307 |
| Male | Adult | 0.98 (0.92, 1.05) | 0.25 (0.23, 0.28) | 8.74 (8.44, 9.05) | 0.82 (0.76, 0.89) | 966 | 0.55 (0.49, 0.61) | 962 |
| Female | Adult | 0.74 (0.68, 0.80) | 0.32 (0.30, 0.34) | 10.27 (10.06, 10.48) | 0.83 (0.75, 0.91) | 1014 | 0.50 (0.43, 0.58) | 1012 |
| Male | Elderly | 1.60 (1.46, 1.74) | 0.34 (0.30, 0.39) | 8.46 (7.97, 8.98) | 0.85 (0.72, 1.01) | 287 | 0.60 (0.48, 0.74) | 287 |
| Female | Elderly | 1.29 (1.20, 1.39) | 0.37 (0.35, 0.41) | 8.93 (8.45, 9.43) | 0.80 (0.68, 0.94) | 291 | 0.52 (0.42, 0.65) | 289 |
|   |   |   |   |   |   | 4987 |   | 4937 |

Abbreviations: Pb, lead; Cd, cadmium; Mn, manganese; Hg, mercury; MeHg, methyl mercury.
Geometric means are all in µg/L, except for Pb which is in µg/dL.
The life stages are defined as follows: child, age < 12 years; adolescent, age 12-21 years; adult, age 22-65 years; elderly, age > 65 years.