

# Erratum: Maternal Peripartum Serum DDT/E and Urinary Pyrethroid Metabolite Concentrations and Child Infections at 2 Years in the VHEMBE Birth Cohort

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In this article, pyrethroid metabolite measurements were reported to be specific gravity-corrected. However, the statistical analyses were completed with uncorrected pyrethroid metabolite measurements. Authors refitted models using specific gravity-corrected concentrations and found that the results were largely consistent with those obtained using uncorrected values. This error affected the data in Tables S1, S2, S4, S6, and S8 and Figure S2 in the supplemental material and Tables 2 and 3 in the article, as well as associated text. The main tables and associated text, as well as the supplemental tables and figure, have been corrected in this erratum and the original article. This error does not affect the results with DDT/E serum measurements.

The corrected text is provided below:

In the “Maternal Exposure to DDT/E and Pyrethroids” section of the “Results” section, the second to last sentence of the first paragraph should read:

The 75th percentile of pyrethroid metabolites ranged from 0.74 to 1.84 µg/L in VHEMBE vs. 0.15 to 0.5 µg/L in NHANES (Castorina et al. 2010).

The third paragraph of the “Maternal Exposure to DDT/E and Pyrethroids” section of the “Results” section should read:

There was limited evidence that pyrethroid metabolite concentrations were associated with the studied outcomes (Table 3). When stratified by collection timing, *cis*-DCCA, *trans*-DCCA, and 3-PBA concentrations were positively associated with higher rates of persistent fevers (interaction *p*-values: 0.01, 0.02, 0.15) and severe sore throats (interaction *p*-values: 0.05, 0.02, 0.04) only among mothers whose urine was collected prior to delivery (i.e., most proximal to home exposures; see Table S6). However, confidence intervals of stratum-specific associations for some of these associations included the null. There was no strong evidence for interaction on ear infection outcomes (interaction *p*-values: 0.13–0.74; see Table S6). Overall, interpretation of true differences by collection timing was limited by reduced stratified sample sizes (see Table S6). Given the limited evidence of associations between pyrethroid metabolites and outcomes, we focused on associations between DDT/E and persistent fever in subsequent analyses.

The seventh sentence of the third paragraph of the “Discussion” section should read:

We found *cis*-DCCA, *trans*-DCCA, and 3-PBA to be positively associated with persistent fevers and, to a lesser extent, severe sore throats only among predelivery samples, which were more proximal to home exposure, whereas there was limited evidence for different *cis*-DBCA associations by collection timing (see Table S6).

The corrected tables are provided below:

**Table 2.** Maternal lipid-corrected concentrations of dichlorodiphenyltrichloroethane (DDT) and dichlorodiphenyldichloroethylene (DDE) in serum samples (ng/g lipid) and specific gravity-corrected concentrations of pyrethroid metabolites in urine samples (µg/L).

| Analyte                        | N   | % Detected <sup>a</sup> | % Quantified <sup>b</sup> | Geometric mean <sup>c</sup> | Min  | 10th %ile | 25th %ile | Median | 75th %ile | 90th %ile | Max     |
|--------------------------------|-----|-------------------------|---------------------------|-----------------------------|------|-----------|-----------|--------|-----------|-----------|---------|
| Serum DDT/E                    |     |                         |                           |                             |      |           |           |        |           |           |         |
| <i>o,p'</i> -DDT               | 674 | 90.5%                   | 44.5%                     | 9.18                        | <LOD | 1.5       | 3.5       | 7.5    | 23.3      | 74.8      | 2029.3  |
| <i>p,p'</i> -DDE               | 674 | 100%                    | 97.3%                     | 292.95                      | 3.98 | 45.3      | 92.3      | 254.4  | 878.6     | 2709.8    | 26301.3 |
| <i>p,p'</i> -DDT               | 674 | 98.1%                   | 90.5%                     | 70.04                       | <LOD | 7.7       | 18.6      | 56.9   | 261.3     | 994.8     | 15027.6 |
| Urinary pyrethroid metabolites |     |                         |                           |                             |      |           |           |        |           |           |         |
| <i>cis</i> -DBCA               | 666 | 100%                    | 99.5%                     | 0.35                        | 0.02 | 0.86      | 0.16      | 0.33   | 0.74      | 1.48      | 13.39   |
| <i>cis</i> -DCCA               | 666 | 100%                    | 99.8%                     | 0.48                        | 0.05 | 0.15      | 0.26      | 0.46   | 0.79      | 1.48      | 209.49  |
| <i>trans</i> -DCCA             | 666 | 100%                    | 99.5%                     | 0.55                        | 0.03 | 0.14      | 0.26      | 0.53   | 1.05      | 2.35      | 268.95  |
| 3-PBA                          | 665 | 100%                    | 100%                      | 1.12                        | 0.10 | 0.40      | 0.66      | 1.05   | 1.84      | 3.19      | 102.38  |

Note: %ile, percentile; DBCA, 3-(2,2-dibromovinyl)-2,2-dimethyl-cyclopropane carboxylic acid; DCCA, 3-(2,2-dichlorovinyl)-2,2-dimethyl-cyclopropane carboxylic acid; LOD, limit of detection; LOQ, limit of quantification; Max, maximum; Min, minimum; PBA, phenoxybenzoic acid.

<sup>a</sup>LODs: 0.01 ng/mL (*o,p'*-DDT, and *p,p'*-DDT); 0.03 ng/mL (*p,p'*-DDE); 0.0025 µg/L (*cis*-DBCA); 0.0045 µg/L (*cis*-DCCA); 0.0038 µg/L (*trans*-DCCA); and 0.0047 µg/L (3-PBA).

<sup>b</sup>LOQs: 0.05 ng/mL (*o,p'*-DDT, and *p,p'*-DDT); 0.15 ng/mL (*p,p'*-DDE); 0.0082 µg/L (*cis*-DBCA); 0.015 µg/L (*cis*-DCCA); 0.013 µg/L (*trans*-DCCA); and 0.016 µg/L (3-PBA).

<sup>c</sup>Geometric means for DDT/E include values below the LOD imputed at random based on log-normal probability distributions whose parameters were determined by maximum likelihood estimation.

**Table 3.** Associations between insecticide biomarker concentrations and rate of persistent fevers, ear infections, and severe sore throats in the second year of life.

| Exposure                                | Persistent fevers (lasting $\geq 4$ d) |              | Ear infections |              | Severe sore throat |              |
|---|--|--------------|----------------|--------------|--------------------|--------------|
|   | IRR                                    | (95% CI)     | IRR            | (95% CI)     | IRR                | (95% CI)     |
| DDT/E ( $n = 674$ )                     |  |              |                |              |                    |              |
| <i>o,p'</i> -DDT                        | 1.10                                   | (0.94, 1.30) | 0.83           | (0.60, 1.15) | 1.53               | (0.77, 3.03) |
| <i>p,p'</i> -DDE                        | 1.21                                   | (1.01, 1.46) | 1.03           | (0.75, 1.41) | 1.78               | (0.82, 3.84) |
| <i>p,p'</i> -DDT                        | 1.14                                   | (0.99, 1.32) | 1.06           | (0.80, 1.40) | 1.58               | (0.80, 3.14) |
| Pyrethroid metabolites<br>( $n = 666$ ) |  |              |                |              |                    |              |
| <i>cis</i> -DBCA                        | 1.16                                   | (0.83, 1.62) | 0.66           | (0.40, 1.08) | 0.78               | (0.19, 3.26) |
| <i>cis</i> -DCCA                        | 1.24                                   | (0.88, 1.74) | 0.90           | (0.48, 1.69) | 1.52               | (0.41, 5.64) |
| <i>trans</i> -DCCA                      | 1.22                                   | (0.94, 1.59) | 0.88           | (0.56, 1.37) | 1.13               | (0.37, 3.48) |
| 3-PBA                                   | 1.22                                   | (0.85, 1.73) | 0.72           | [0.38, 1.37] | 0.98               | (0.19, 5.09) |

Note: IRRs are given per 10-fold higher pesticide concentration. These were estimated by zero-inflated Poisson regression adjusted for maternal age, marital status, and parity at birth of index child, as well as low energy intake (daily intake <IOM recommendations for late pregnancy,  $\sim 12,000$  kJ), income below the mid-2013 South African food poverty threshold (monthly income <Rand 386 per household member), HIV status, and child sex. An offset (in days between last child visit and date of outcome assessment) was used to account for the difference in observation time between subjects. The inflation (i.e., excess zeroes) due to underreporting or lack of observation were modeled using maternal age, parity, whether the mother regularly lived with the child at the 2-y visit, number of individuals living in the same home as the index child at the 2-y visit, and the interviewer-rated score of the mother's quality of responses to child health questions. CI, confidence interval; IRR, incidence rate ratio.

The authors regret the errors.