

Supplemental Table 1. Distribution of urinary concentrations of metabolites of phthalates and phthalate alternatives ( $\mu\text{g/g}$  creatinine) at baseline, 20 months, and 40 months.

| Metabolite | Baseline (n=754) |        |                        | 20 months (n=554) |        |                        | 40 months (n=425) |        |                        | ICC (95% CI) <sup>a</sup> |
|------------|------------------|--------|------------------------|-------------------|--------|------------------------|-------------------|--------|------------------------|---------------------------|
|            | % detected       | Median | 90 <sup>th</sup> ptile | % detected        | Median | 90 <sup>th</sup> ptile | % detected        | Median | 90 <sup>th</sup> ptile |                           |
| MBP        | 99.9             | 16.0   | 38.7                   | 99.6              | 12.5   | 28.8                   | 100.0             | 11.3   | 27.3                   | 0.29 (0.23, 0.36)         |
| MHBP       | 93.6             | 1.2    | 2.8                    | 90.1              | 0.9    | 2.2                    | 84.5              | 0.8    | 1.9                    | 0.26 (0.20, 0.33)         |
| MiBP       | 99.3             | 11.2   | 26.7                   | 99.5              | 10.7   | 26.0                   | 99.5              | 9.4    | 27.7                   | 0.30 (0.24, 0.37)         |
| MHiBP      | 99.2             | 3.0    | 7.8                    | 98.9              | 2.8    | 6.7                    | 97.2              | 2.6    | 7.5                    | 0.29 (0.23, 0.36)         |
| MEP        | 100.0            | 59.4   | 251.6                  | 100.0             | 45.2   | 278.8                  | 100.0             | 53.2   | 278.2                  | 0.31 (0.25, 0.38)         |
| MBzP       | 99.7             | 6.5    | 20.7                   | 99.8              | 5.7    | 21.2                   | 99.1              | 4.0    | 17.1                   | 0.47 (0.41, 0.53)         |
| MCNP       | 99.7             | 2.8    | 8.6                    | 99.8              | 2.9    | 9.3                    | 99.8              | 2.2    | 7.4                    | 0.07 (0.03, 0.16)         |
| MNP        | 71.3             | 1.1    | 9.3                    | 69.5              | 1.1    | 10.1                   | 54.8              | 0.8    | 7.6                    | 0.07 (0.01, 0.26)         |
| MCOP       | 100.0            | 19.9   | 116.8                  | 100.0             | 21.6   | 108.6                  | 100.0             | 12.6   | 89.8                   | 0.08 (0.04, 0.17)         |
| M CPP      | 98.0             | 2.2    | 17.3                   | 96.9              | 1.8    | 10.9                   | 92.0              | 1.2    | 7.2                    | 0.10 (0.06, 0.18)         |
| MECPP      | 99.9             | 15.1   | 41.2                   | 99.8              | 12.2   | 32.8                   | 100.0             | 9.4    | 26.6                   | 0.22 (0.16, 0.29)         |
| MEHHP      | 99.7             | 11.8   | 31.2                   | 99.8              | 8.8    | 27.0                   | 99.5              | 7.1    | 18.8                   | 0.18 (0.12, 0.25)         |
| MEHP       | 91.5             | 2.3    | 7.4                    | 87.6              | 1.7    | 6.0                    | 85.2              | 1.7    | 5.7                    | 0.28 (0.22, 0.34)         |
| MEOHP      | 99.7             | 7.3    | 20.2                   | 99.8              | 5.5    | 16.4                   | 99.5              | 4.1    | 11.3                   | 0.21 (0.15, 0.28)         |
| MHiNCH     | 24.3             | 0.2    | 0.6                    | 29.4              | 0.2    | 0.7                    | 54.4              | 0.3    | 2.2                    | 0.12 (0.07, 0.20)         |
| MCOCH      | 9.0              | 0.2    | 0.5                    | 12.6              | 0.2    | 0.5                    | 41.9              | 0.3    | 1.4                    | 0.12 (0.07, 0.19)         |

<sup>a</sup> Calculated for the 390 women with urinary concentrations measured at all three time points.

Supplemental Table 2. Percentage difference in baseline urinary phthalate concentrations by demographic, li

| Correlate   | MBP                | MHBP               | MiBP                |
|---|--------------------|--------------------|---------------------|
| <b>Age (5-year increase)</b>                      |                    |                    |                     |
| Unadjusted  | -1.0 (-8.4, 6.9)   | 2.9 (-4.8, 11.2)   | -4.7 (-11.8, 2.9)   |
| Age- and education-adjusted                       | -0.5 (-8.0, 7.5)   | 3.1 (-4.7, 11.5)   | -4.8 (-11.9, 2.9)   |
| Fully-adjusted                                    | 0.1 (-7.9, 8.9)    | 2.4 (-5.9, 11.5)   | -6.1 (-13.6, 2.1)   |
| Random subcohort, fully-adjusted                  | -1.7 (-10.6, 8.2)  | 1.1 (-8.1, 11.3)   | -4.6 (-13.3, 5.0)   |
| <b>Education (vs. Bachelor's degree)</b>          |                    |                    |                     |
| Unadjusted  |                    |                    |                     |
| <High school                                      | 4.8 (-18.2, 34.2)  | 9.8 (-14.7, 41.2)  | -3.8 (-25.0, 23.4)  |
| High school/GED                                   | 1.3 (-15.5, 21.4)  | -5.2 (-21.1, 14.1) | -3.5 (-19.6, 15.8)  |
| Some college                                      | -0.6 (-13.8, 14.7) | 2.6 (-11.3, 18.6)  | -2.6 (-15.6, 12.3)  |
| Advanced degree                                   | -16.8 (-33.3, 3.9) | -2.5 (-22.2, 22.1) | -11.2 (-28.9, 10.8) |
| Age- and education-adjusted                       |                    |                    |                     |
| <High school                                      | 4.8 (-18.2, 34.3)  | 10.0 (-14.6, 41.5) | -4.1 (-25.2, 23.1)  |
| High school/GED                                   | 1.3 (-15.5, 21.5)  | -4.7 (-20.8, 14.6) | -4.1 (-20.1, 15.2)  |
| Some college                                      | -0.5 (-13.8, 14.8) | 2.7 (-11.2, 18.8)  | -2.9 (-15.8, 12.1)  |
| Advanced degree                                   | -16.9 (-33.6, 3.9) | -3.8 (-23.4, 20.8) | -9.6 (-27.7, 13.1)  |
| Fully-adjusted                                    |                    |                    |                     |
| <High school                                      | -2.6 (-26.3, 28.8) | 6.0 (-20.2, 41.0)  | -11.3 (-33.1, 17.5) |
| High school/GED                                   | -1.6 (-20.3, 21.3) | -3.6 (-22.2, 19.3) | -11.2 (-28.2, 9.8)  |
| Some college                                      | -1.8 (-16.0, 14.8) | 4.1 (-11.3, 22.1)  | -7.7 (-21.1, 8.0)   |
| Advanced degree                                   | -18.0 (-34.7, 3.1) | -4.6 (-24.3, 20.3) | -7.3 (-26.3, 16.6)  |
| Random subcohort, fully-adjusted                  |                    |                    |                     |
| <High school                                      | -5.0 (-29.6, 28.2) | 2.9 (-24.1, 39.4)  | -9.1 (-32.8, 23.0)  |
| High school/GED                                   | 3.0 (-18.7, 30.5)  | -3.3 (-23.9, 22.7) | -5.9 (-25.8, 19.5)  |
| Some college                                      | -4.7 (-20.1, 13.6) | 2.7 (-14.1, 22.9)  | -4.3 (-19.9, 14.2)  |
| Advanced degree                                   | -19.4 (-37.0, 3.1) | -3.3 (-24.6, 23.9) | -11.9 (-31.2, 12.9) |
| <b>Annual household income (vs. &gt;\$50,000)</b> |                    |                    |                     |
| Unadjusted  |                    |                    |                     |
| <\$20,000   | 3.5 (-11.1, 20.5)  | -6.4 (-19.8, 9.2)  | 9.4 (-6.1, 27.4)    |
| \$20,000-\$50,000                                 | -9.1 (-22.3, 6.4)  | -13.6 (-26.5, 1.4) | 5.0 (-10.3, 22.9)   |
| Age- and education-adjusted                       |                    |                    |                     |
| <\$20,000   | 0.9 (-15.5, 20.6)  | -7.0 (-22.3, 11.4) | 11.0 (-7.2, 32.7)   |
| \$20,000-\$50,000                                 | -10.4 (-24.0, 5.7) | -14.6 (-27.9, 1.1) | 6.0 (-10.3, 25.1)   |
| Fully-adjusted                                    |                    |                    |                     |
| <\$20,000   | 0.1 (-16.6, 20.1)  | -7.4 (-23.0, 11.2) | 9.6 (-8.8, 31.6)    |
| \$20,000-\$50,000                                 | -10.5 (-24.2, 5.6) | -14.8 (-28.1, 1.0) | 5.1 (-11.0, 24.2)   |
| Random subcohort, fully-adjusted                  |                    |                    |                     |
| <\$20,000   | 2.1 (-16.8, 25.2)  | -6.1 (-23.6, 15.2) | 1.9 (-17.1, 25.2)   |
| \$20,000-\$50,000                                 | -13.4 (-28.1, 4.2) | -16.9 (-31.2, 0.4) | -1.7 (-18.5, 18.6)  |
| <b>BMI (5-kg/m<sup>2</sup> increase)</b>          |                    |                    |                     |
| Unadjusted  | 0.5 (-0.1, 1.1)    | -0.2 (-0.8, 0.4)   | 0.1 (-0.5, 0.6)     |
| Age- and education-adjusted                       | 0.5 (-0.1, 1.0)    | -0.3 (-4.5, 11.8)  | 0.1 (-0.5, 0.7)     |
| Fully-adjusted                                    | 0.4 (-0.1, 1.0)    | -0.2 (-0.8, 0.4)   | 0.2 (-0.4, 0.7)     |
| Random subcohort, fully-adjusted                  | 0.5 (-0.1, 1.1)    | -0.1 (-0.8, 0.5)   | 0.1 (-0.5, 0.8)     |

|   |                    |                     |                     |
|---|--------------------|---------------------|---------------------|
| Smoking (1 cigarette/day increase)                      |                    |                     |                     |
| Unadjusted  | 0.4 (-1.1, 2.0)    | 0.2 (-1.3, 1.8)     | -0.7 (-2.2, 0.9)    |
| Age- and education-adjusted                             | 0.2 (-1.4, 1.9)    | 0.3 (-1.4, 2.0)     | -0.7 (-2.3, 0.9)    |
| Fully-adjusted  | 0.3 (-1.4, 2.0)    | 0.5 (-1.2, 2.3)     | -0.9 (-2.6, 0.8)    |
| Random subcohort, fully-adjusted                        | 0.3 (-1.6, 2.2)    | 0.5 (-1.4, 2.5)     | -1.1 (-3.0, 0.8)    |
| Alcohol (per each additional drink/day)                 |                    |                     |                     |
| Unadjusted  | 0.0 (-0.8, 0.7)    | -0.5 (-1.3, 0.2)    | 0.4 (-0.4, 1.1)     |
| Age- and education-adjusted                             | -0.1 (-0.9, 0.7)   | -0.6 (-1.3, 0.2)    | 0.4 (-0.4, 1.1)     |
| Fully-adjusted  | -0.1 (-0.9, 0.6)   | -0.5 (-1.3, 0.3)    | 0.5 (-0.3, 1.3)     |
| Random subcohort, fully-adjusted                        | -0.1 (-1.0, 0.8)   | -0.5 (-1.4, 0.4)    | 0.5 (-0.4, 1.4)     |
| Parous vs. nulliparous                                  |                    |                     |                     |
| Unadjusted  | 0.3 (-10.1, 12.0)  | 7.8 (-3.6, 20.5)    | 9.3 (-2.1, 22.0)    |
| Age- and education-adjusted                             | -1.4 (-12.5, 11.1) | 7.4 (-4.8, 21.3)    | 13.4 (0.7, 27.7)    |
| Fully-adjusted  | -1.3 (-13.0, 12.1) | 5.4 (-7.3, 19.9)    | 13.9 (0.3, 29.4)    |
| Random subcohort, fully-adjusted                        | -5.2 (-17.7, 9.2)  | 3.3 (-10.4, 19.2)   | 11.7 (-3.1, 28.8)   |
| Current contraceptive use (vs. non-use of each product) |                    |                     |                     |
| Vaginal ring use  |                    |                     |                     |
| Unadjusted  | 1.0 (-33.9, 54.5)  | -0.7 (-35.4, 52.7)  | -11.4 (-42.0, 35.4) |
| Age- and education-adjusted                             | 3.1 (-32.8, 58.1)  | 0.4 (-34.9, 55.0)   | -12.8 (-43.1, 33.7) |
| Fully-adjusted  | 4.4 (-32.4, 61.3)  | 0.4 (-35.4, 55.8)   | -7.3 (-40.0, 43.2)  |
| Random subcohort, fully-adjusted                        | -5.8 (-41.4, 51.5) | -14.7 (-47.0, 37.4) | -30.0 (-56.6, 12.9) |
| Oral contraceptive use                                  |                    |                     |                     |
| Unadjusted  | -9.1 (-23.1, 7.5)  | -7.5 (-22.0, 9.6)   | -2.6 (-17.6, 15.1)  |
| Age- and education-adjusted                             | -8.2 (-22.5, 8.7)  | -7.5 (-22.1, 10.0)  | -3.3 (-18.3, 14.6)  |
| Fully-adjusted  | -6.3 (-21.2, 11.3) | -5.8 (-20.9, 12.3)  | -2.2 (-17.7, 16.3)  |
| Random subcohort, fully-adjusted                        | -7.5 (-23.6, 11.9) | -7.7 (-23.9, 11.9)  | -1.8 (-18.9, 18.9)  |
| DMPA use  |                    |                     |                     |
| Unadjusted  | 7.7 (-13.6, 34.1)  | 11.3 (-10.9, 39.1)  | 13.0 (-9.2, 40.8)   |
| Age- and education-adjusted                             | 6.6 (-14.6, 33.0)  | 12.3 (-10.3, 40.5)  | 12.3 (-10.0, 40.1)  |
| Fully-adjusted  | 8.3 (-13.8, 36.2)  | 10.3 (-12.5, 39.0)  | 6.8 (-15.1, 34.3)   |
| Random subcohort, fully-adjusted                        | 10.5 (-13.9, 41.9) | 11.6 (-13.2, 43.5)  | 1.0 (-21.5, 29.9)   |
| IUD use   |                    |                     |                     |
| Unadjusted  | 1.7 (-14.2, 20.6)  | 5.8 (-11.0, 25.8)   | 0.5 (-15.2, 19.2)   |
| Age- and education-adjusted                             | 1.9 (-14.2, 21.0)  | 5.3 (-11.5, 25.4)   | 0.4 (-15.4, 19.2)   |
| Fully-adjusted  | 4.2 (-13.1, 24.9)  | 5.1 (-12.5, 26.3)   | -4.1 (-20.0, 15.0)  |
| Random subcohort, fully-adjusted                        | 11.8 (-8.2, 36.2)  | 9.7 (-10.0, 33.8)   | -4.2 (-21.4, 16.9)  |
| Product use in past 24 hours (vs. non-use)              |                    |                     |                     |
| Vaginal product use                                     |                    |                     |                     |
| Unadjusted  | -6.9 (-18.0, 5.6)  | -9.1 (-20.0, 3.3)   | 1.4 (-10.6, 15.1)   |
| Age- and education-adjusted                             | -7.3 (-18.3, 5.2)  | -9.2 (-20.1, 3.3)   | 1.6 (-10.5, 15.3)   |
| Fully-adjusted  | -8.5 (-19.5, 3.9)  | -9.7 (-20.6, 2.7)   | 1.1 (-11.1, 14.8)   |
| Random subcohort, fully-adjusted                        | -8.1 (-20.3, 5.8)  | -6.6 (-19.0, 7.7)   | 1.9 (-11.6, 17.5)   |
| Hair product use  |                    |                     |                     |
| Unadjusted  | -2.6 (-12.9, 8.9)  | -1.2 (-11.8, 10.7)  | -3.8 (-14.0, 7.6)   |
| Age- and education-adjusted                             | -3.1 (-13.5, 8.4)  | -1.7 (-12.4, 10.3)  | -3.3 (-13.6, 8.2)   |
| Fully-adjusted  | -3.7 (-14.1, 8.0)  | -1.7 (-12.5, 10.5)  | -4.7 (-15.0, 6.9)   |
| Random subcohort, fully-adjusted                        | -7.1 (-18.3, 5.6)  | -4.7 (-16.2, 8.4)   | -8.2 (-19.3, 4.5)   |

|   |                    |                    |                    |
|---|--------------------|--------------------|--------------------|
| Nail product use  |                    |                    |                    |
| Unadjusted  | 18.9 (2.1, 38.5)   | 18.0 (1.0, 37.9)   | -4.6 (-18.1, 11.2) |
| Age- and education-adjusted                                   | 18.9 (2.1, 38.5)   | 18.1 (1.0, 38.1)   | -4.5 (-18.0, 11.3) |
| Fully-adjusted  | 19.3 (2.2, 39.2)   | 19.8 (2.4, 40.3)   | -4.0 (-17.8, 12.0) |
| Random subcohort, fully-adjusted                              | 24.5 (4.6, 48.2)   | 25.0 (4.8, 49.0)   | -2.3 (-18.0, 16.4) |
| Make up, perfume, or cream use                                |                    |                    |                    |
| Unadjusted  | -5.3 (-21.5, 14.2) | -8.1 (-24.1, 11.1) | 13.5 (-5.9, 37.0)  |
| Age- and education-adjusted                                   | -4.7 (-21.2, 15.1) | -8.1 (-24.1, 11.3) | 13.6 (-5.9, 37.2)  |
| Fully-adjusted  | -3.1 (-20.0, 17.3) | -7.5 (-23.7, 12.3) | 15.0 (-5.1, 39.3)  |
| Random subcohort, fully-adjusted                              | -4.6 (-24.0, 19.8) | -15.2 (-32.5, 6.6) | 21.5 (-3.4, 52.8)  |
| Total personal care product use (per each additional product) |                    |                    |                    |
| Unadjusted  | -1.2 (-4.9, 2.6)   | -1.2 (-4.9, 2.7)   | -0.3 (-4.0, 3.5)   |
| Age- and education-adjusted                                   | -1.3 (-5.0, 2.5)   | -1.3 (-5.1, 2.6)   | -0.2 (-3.9, 3.6)   |
| Fully-adjusted  | -1.3 (-5.0, 2.5)   | -1.1 (-4.9, 2.9)   | -0.2 (-4.0, 3.7)   |
| Random subcohort, fully-adjusted                              | -1.6 (-5.7, 2.8)   | -1.9 (-6.1, 2.4)   | 0.5 (-3.8, 4.9)    |

festyle, reproductive, and personal care product variables, SELF.

|                    |                     |                     |                      | Percentage difference |
|--------------------|---------------------|---------------------|----------------------|-----------------------|
| MHiBP              | MEP                 | MBzP                | MCNP                 | MNP                   |
| -2.3 (-9.2, 5.1)   | 2.8 (-8.0, 14.9)    | -13.1 (-20.5, -5.0) | 10.4 (1.4, 20.2)     | 10.7 (-3.0, 26.4)     |
| -2.0 (-9.0, 5.5)   | 2.5 (-8.4, 14.6)    | -11.1 (-18.7, -2.8) | 8.9 (0.0, 18.6)      | 8.8 (-4.7, 24.3)      |
| -3.3 (-10.7, 4.7)  | 3.4 (-8.4, 16.6)    | -12.3 (-20.4, -3.4) | 3.3 (-5.6, 13.1)     | 13.3 (-1.9, 30.8)     |
| -1.8 (-10.3, 7.5)  | 4.9 (-9.0, 20.9)    | -13.3 (-22.3, -3.2) | 6.3 (-4.5, 18.3)     | 19.6 (1.4, 40.9)      |
| 5.2 (-17.1, 33.6)  | -22.1 (-45.5, 11.2) | 21.1 (-8.9, 61.0)   | -14.6 (-34.9, 12.0)  | -30.7 (-54.4, 5.5)    |
| -1.2 (-17.0, 17.6) | -12.8 (-32.9, 13.3) | 26.8 (2.8, 56.5)    | -23.8 (-37.9, -6.5)  | -24.8 (-45.2, 3.2)    |
| 5.8 (-7.8, 21.4)   | -2.9 (-21.0, 19.2)  | 19.9 (1.7, 41.5)    | -9.8 (-23.0, 5.7)    | 0.3 (-21.4, 28.0)     |
| -3.3 (-21.8, 19.6) | -17.5 (-40.1, 13.6) | -27.8 (-44.2, -6.6) | 3.4 (-19.1, 32.2)    | 23.7 (-15.5, 81.0)    |
| 5.1 (-17.2, 33.5)  | -22.0 (-45.4, 11.5) | 20.4 (-9.4, 60.0)   | -14.2 (-34.6, 12.5)  | -30.4 (-54.2, 5.9)    |
| -1.5 (-17.3, 17.3) | -12.4 (-32.7, 13.9) | 25.0 (1.4, 54.3)    | -22.9 (-37.1, -5.4)  | -24.0 (-44.7, 4.3)    |
| 5.7 (-7.9, 21.2)   | -2.8 (-20.9, 19.5)  | 19.3 (1.1, 40.7)    | -9.3 (-22.6, 6.2)    | 0.7 (-21.1, 28.6)     |
| -2.5 (-21.3, 20.8) | -18.8 (-41.2, 12.3) | -24.6 (-41.8, -2.3) | -0.2 (-22.1, 27.9)   | 19.8 (-18.5, 76.1)    |
| 3.2 (-21.3, 35.4)  | -19.3 (-45.9, 20.4) | 8.1 (-21.4, 48.8)   | -14.9 (-36.9, 14.7)  | -14.6 (-46.6, 36.5)   |
| -2.4 (-20.4, 19.7) | -9.0 (-32.8, 23.1)  | 14.6 (-10.1, 46.0)  | -19.5 (-36.0, 1.4)   | -8.5 (-36.4, 31.7)    |
| 4.5 (-10.3, 21.6)  | 1.6 (-18.8, 27.1)   | 11.8 (-6.6, 34.0)   | -6.6 (-21.2, 10.7)   | 13.4 (-13.1, 48.0)    |
| 0.2 (-19.6, 24.8)  | -22.6 (-44.3, 7.5)  | -23.8 (-41.5, -0.7) | -3.6 (-24.7, 23.6)   | 12.0 (-24.3, 65.7)    |
| 6.3 (-20.3, 41.8)  | -21.8 (-50.0, 22.2) | 12.8 (-20.1, 59.4)  | -13.4 (-38.2, 21.4)  | -10.0 (-46.1, 50.1)   |
| 1.2 (-19.3, 26.8)  | -12.8 (-38.7, 24.1) | 25.3 (-4.6, 64.5)   | -19.5 (-38.3, 5.1)   | -8.9 (-39.2, 36.6)    |
| 8.7 (-8.2, 28.7)   | -1.0 (-23.8, 28.7)  | 12.4 (-8.2, 37.6)   | -5.0 (-22.1, 15.8)   | 12.6 (-16.6, 52.0)    |
| -3.4 (-23.6, 22.2) | -26.4 (-49.0, 6.2)  | -22.7 (-41.7, 2.7)  | 0.4 (-23.8, 32.5)    | 21.8 (-20.1, 85.7)    |
| 6.4 (-8.1, 23.1)   | -13.7 (-31.0, 7.8)  | 32.4 (10.7, 58.4)   | -29.6 (-40.5, -16.7) | -28.6 (-45.6, -6.2)   |
| 4.2 (-10.7, 21.5)  | -5.8 (-25.3, 18.7)  | 7.6 (-10.6, 29.5)   | -18.5 (-31.5, -3.1)  | -3.9 (-27.5, 27.5)    |
| 5.0 (-11.5, 24.6)  | -13.8 (-33.6, 11.9) | 12.0 (-9.0, 37.9)   | -25.3 (-38.7, -9.1)  | -22.0 (-43.2, 7.1)    |
| 2.9 (-12.5, 21.1)  | -7.0 (-27.2, 18.7)  | -1.7 (-19.0, 19.4)  | -16.8 (-30.6, -0.2)  | -1.7 (-27.0, 32.2)    |
| 5.4 (-11.5, 25.5)  | -15.5 (-35.2, 10.3) | 10.9 (-10.3, 37.1)  | -26.8 (-40.0, 10.8)  | -19.1 (-41.5, 11.9)   |
| 2.5 (-13.0, 20.7)  | -6.3 (-26.7, 19.6)  | -2.6 (-19.8, 18.3)  | -16.5 (-30.2, 0.0)   | 0.9 (-25.1, 35.9)     |
| -0.8 (-18.4, 20.5) | -11.3 (-34.9, 20.8) | 7.3 (-15.4, 36.1)   | -18.2 (-35.0, 2.9)   | -12.6 (-39.3, 25.9)   |
| -2.4 (-18.6, 17.1) | -1.7 (-25.9, 30.5)  | 0.3 (-19.4, 24.7)   | -13.3 (-29.7, 6.9)   | 6.2 (-24.6, 49.4)     |
| -0.5 (-1.0, 0.1)   | 0.4 (-0.4, 1.3)     | 0.5 (-0.2, 1.1)     | 0.1 (-0.5, 0.8)      | 0.0 (-0.9, 1.0)       |
| -0.5 (-1.1, 0.0)   | 0.5 (-0.3, 1.3)     | 0.2 (-0.4, 0.9)     | 0.3 (-0.3, 0.9)      | 0.2 (-0.8, 1.2)       |
| -0.4 (-1.0, 0.1)   | 0.6 (-0.3, 1.4)     | 0.3 (-0.3, 1.0)     | 0.4 (-0.2, 1.1)      | 0.2 (-0.8, 1.2)       |
| -0.4 (-1.0, 0.2)   | 0.6 (-0.3, 1.6)     | 0.4 (-0.4, 1.1)     | 0.3 (-0.4, 1.0)      | 0.2 (-0.9, 1.2)       |

|                     |                     |                     |                     |                     |
|---------------------|---------------------|---------------------|---------------------|---------------------|
| -0.7 (-2.2, 0.8)    | 1.5 (-0.7, 3.8)     | -0.1 (-1.9, 1.7)    | -0.1 (-1.8, 1.7)    | 0.0 (-2.6, 2.7)     |
| -0.8 (-2.3, 0.8)    | 2.2 (-0.2, 4.7)     | -1.2 (-3.0, 0.7)    | 0.8 (-1.0, 2.7)     | 1.5 (-1.4, 4.4)     |
| -0.8 (-2.4, 0.9)    | 2.7 (0.3, 5.3)      | -1.1 (-3.0, 0.9)    | 1.2 (-0.6, 3.1)     | 2.1 (-0.8, 5.1)     |
| -1.2 (-3.0, 0.6)    | 2.9 (-0.1, 5.9)     | -0.9 (-3.1, 1.3)    | 0.7 (-1.5, 2.9)     | 2.4 (-0.9, 5.8)     |
| -0.4 (-1.1, 0.3)    | -0.1 (-1.2, 0.9)    | 0.0 (-0.9, 0.9)     | -0.5 (-1.3, 0.4)    | -0.1 (-1.5, 1.2)    |
| -0.4 (-1.1, 0.3)    | 0.0 (-1.1, 1.1)     | -0.3 (-1.2, 0.6)    | -0.3 (-1.1, 0.6)    | 0.2 (-1.1, 1.6)     |
| -0.2 (-1.0, 0.5)    | -0.5 (-1.6, 0.7)    | -0.2 (-1.1, 0.7)    | -0.2 (-1.0, 0.7)    | 0.1 (-1.3, 1.5)     |
| -0.3 (-1.1, 0.6)    | -0.8 (-2.1, 0.5)    | -0.3 (-1.3, 0.7)    | -0.3 (-1.3, 0.7)    | 0.1 (-1.5, 1.6)     |
| 13.6 (2.3, 26.1)    | -15.3 (-27.8, -0.8) | 19.0 (4.6, 35.3)    | 9.4 (-3.2, 23.7)    | -22.6 (-35.9, -6.5) |
| 16.1 (3.6, 30.0)    | -17.4 (-30.4, -1.8) | 18.1 (2.9, 35.5)    | 13.5 (-0.5, 29.5)   | -23.4 (-37.5, -6.0) |
| 14.2 (1.2, 29.0)    | -17.4 (-31.2, -0.8) | 15.8 (0.0, 34.1)    | 20.3 (4.8, 38.1)    | -22.4 (-37.6, -3.6) |
| 14.1 (-0.3, 30.7)   | -16.3 (-32.2, 3.4)  | 9.4 (-7.1, 28.8)    | 19.5 (1.9, 40.1)    | 21.0 (-38.0, 0.6)   |
| -12.7 (-41.8, 30.9) | 36.1 (-26.4, 151.7) | -26.7 (-55.5, 20.7) | 71.6 (7.2, 174.8)   | 128.0 (10.0, 372.4) |
| -12.6 (-41.9, 31.5) | 34.6 (-27.5, 149.9) | -22.4 (-52.7, 27.4) | 66.0 (3.7, 165.8)   | 116.3 (4.3, 348.7)  |
| -9.4 (-40.2, 37.2)  | 31.9 (-29.5, 146.7) | -14.7 (-48.4, 41.0) | 59.7 (-0.2, 155.5)  | 97.6 (-5.8, 314.3)  |
| -33.4 (-57.6, 4.4)  | 25.5 (-38.1, 154.5) | -20.1 (-53.7, 38.1) | 48.1 (-13.1, 152.3) | 49.8 (-33.2, 236.0) |
| -1.3 (-15.9, 15.8)  | -13.2 (-31.9, 10.5) | -3.0 (-20.3, 18.1)  | -6.3 (-22.2, 12.9)  | 20.9 (-9.3, 61.2)   |
| -1.4 (-16.1, 15.9)  | -14.8 (-33.3, 8.9)  | 0.4 (-17.5, 22.1)   | -9.0 (-24.5, 9.7)   | 15.7 (-13.4, 54.6)  |
| -0.9 (-16.0, 16.8)  | -12.2 (-31.5, 12.6) | 2.8 (-15.9, 25.5)   | -8.3 (-23.9, 10.5)  | 17.2 (-12.7, 57.3)  |
| -0.1 (-16.6, 19.8)  | -8.1 (-30.8, 22.1)  | -1.1 (-20.6, 23.1)  | -15.6 (-31.9, 4.5)  | 9.6 (-20.8, 51.7)   |
| 13.0 (-8.4, 39.5)   | 6.4 (-22.6, 46.3)   | 32.6 (2.5, 71.6)    | -11.5 (-30.7, 13.0) | -10.3 (-38.7, 31.1) |
| 12.8 (-8.7, 39.5)   | 9.0 (-20.9, 50.2)   | 25.5 (-2.9, 62.1)   | -7.2 (-27.3, 18.5)  | -4.0 (-34.4, 40.6)  |
| 5.3 (-15.4, 31.2)   | 22.2 (-12.1, 69.9)  | 20.3 (-7.7, 56.8)   | -7.5 (-27.8, 18.5)  | 12.4 (-24.0, 66.3)  |
| -3.6 (-24.0, 22.3)  | 30.3 (-10.2, 89.1)  | 31.6 (-1.3, 75.6)   | -11.9 (-33.5, 16.6) | 23.9 (-19.1, 89.9)  |
| 1.6 (-13.7, 19.6)   | 4.2 (-18.6, 33.5)   | 4.6 (-14.4, 27.9)   | 4.6 (-13.5, 26.5)   | 4.2 (-22.3, 39.8)   |
| 0.9 (-14.3, 18.9)   | 2.6 (-19.9, 31.6)   | 4.5 (-14.3, 27.5)   | 3.3 (-14.5, 24.9)   | 0.9 (-24.8, 35.3)   |
| -3.4 (-18.8, 14.9)  | 11.1 (-14.5, 44.3)  | 2.0 (-17.3, 25.9)   | -6.3 (-23.0, 14.1)  | 12.8 (-17.3, 53.7)  |
| -8.1 (-23.8, 10.8)  | 11.9 (-16.6, 50.1)  | 0.9 (-19.6, 26.6)   | -6.9 (-25.4, 16.2)  | 25.2 (-10.5, 75.3)  |
| -3.3 (-14.3, 9.0)   | 7.0 (-10.9, 28.4)   | -7.7 (-20.4, 7.0)   | 20.0 (4.4, 38.0)    | 4.9 (-15.6, 30.4)   |
| -3.3 (-14.3, 9.1)   | 7.7 (-10.3, 29.3)   | -9.0 (-21.4, 5.3)   | 21.6 (5.8, 39.7)    | 7.0 (-13.9, 33.0)   |
| -2.9 (-14.0, 9.6)   | 5.4 (-12.2, 26.7)   | -9.6 (-22.0, 4.7)   | 22.6 (6.8, 40.7)    | 6.8 (-14.0, 32.7)   |
| 0.4 (-12.2, 14.8)   | 2.9 (-16.7, 27.1)   | -10.6 (-24.1, 5.2)  | 21.5 (3.6, 42.4)    | 2.9 (-19.1, 30.9)   |
| -2.0 (-12.0, 9.1)   | 9.0 (-7.3, 28.2)    | 4.4 (-8.4, 19.1)    | -18.6 (-28.0, -7.9) | -16.8 (-31.4, 0.8)  |
| -2.1 (-12.2, 9.1)   | 9.4 (-7.0, 28.8)    | 3.2 (-9.4, 17.6)    | -18.3 (-27.8, -7.6) | -16.1 (-30.9, 1.8)  |
| -2.7 (-12.8, 8.6)   | 8.0 (-8.5, 27.3)    | 2.9 (-9.8, 17.5)    | -18.7 (-28.2, -8.0) | -15.8 (-30.8, 2.4)  |
| -5.3 (-16.2, 7.0)   | 2.4 (-15.4, 23.9)   | -5.9 (-18.8, 9.0)   | -20.7 (-31.4, -8.5) | -21.4 (-36.9, -2.0) |

|                    |                    |                    |                    |                    |
|--------------------|--------------------|--------------------|--------------------|--------------------|
| -1.1 (-14.6, 14.6) | 22.0 (-2.2, 52.1)  | 2.0 (-14.8, 22.1)  | 14.3 (-3.5, 35.5)  | 0.0 (-23.3, 30.5)  |
| -0.9 (-14.5, 14.9) | 22.3 (-2.0, 52.6)  | 2.2 (-14.4, 22.1)  | 14.5 (-3.3, 35.5)  | 0.6 (-22.8, 31.0)  |
| 0.3 (-13.5, 16.4)  | 18.8 (-4.9, 48.4)  | 2.8 (-14.1, 22.9)  | 18.4 (0.2, 40.0)   | 2.0 (-21.8, 32.9)  |
| 1.1 (-14.4, 19.4)  | 12.4 (-13.3, 45.7) | 6.2 (-13.1, 29.8)  | 19.4 (-1.8, 45.2)  | -8.3 (-32.0, 23.6) |
| 7.6 (-10.2, 28.9)  | 21.9 (-7.1, 59.9)  | -0.5 (-20.3, 24.1) | 7.3 (-13.0, 32.2)  | 9.8 (-20.5, 51.7)  |
| 7.9 (-10.0, 29.4)  | 21.1 (-7.8, 59.0)  | 2.7 (-17.5, 27.8)  | 5.0 (-14.7, 29.3)  | 6.7 (-22.8, 47.3)  |
| 8.7 (-9.6, 30.6)   | 17.6 (-10.7, 54.8) | 4.2 (-16.5, 30.1)  | 7.6 (-12.5, 32.3)  | 10.1 (-20.5, 52.4) |
| 10.6 (-11.1, 37.4) | 21.5 (-13.3, 70.5) | 4.9 (-19.3, 36.2)  | -2.5 (-24.4, 25.8) | 5.9 (-28.1, 55.9)  |
| -0.7 (-4.2, 3.0)   | 10.7 (4.8, 16.9)   | -1.3 (-5.6, 3.2)   | 1.7 (-2.5, 6.1)    | 0.2 (-6.2, 7.0)    |
| -0.7 (-4.2, 3.0)   | 10.7 (4.8, 16.9)   | -1.4 (-5.7, 3.0)   | 1.7 (-2.5, 6.1)    | 0.3 (-6.1, 7.1)    |
| -0.3 (-3.9, 3.4)   | 10.6 (4.7, 16.8)   | -1.1 (-5.4, 3.4)   | 2.0 (-2.1, 6.4)    | 0.1 (-6.3, 6.8)    |
| 0.1 (-3.9, 4.3)    | 10.3 (3.5, 17.5)   | -2.1 (-6.8, 2.9)   | 1.9 (-2.9, 7.0)    | -1.8 (-8.8, 5.7)   |

| (95% confidence interval) |                      |                      |                     |                     |
|---------------------------|----------------------|----------------------|---------------------|---------------------|
| MCOP                      | $\Sigma$ DINP        | MCP                  | MECPP               | MEHHP               |
| 13.7 (0.6, 28.5)          | 12.9 (0.1, 27.5)     | 22.2 (7.3, 39.3)     | 2.9 (-4.6, 11.0)    | 5.0 (-3.4, 14.2)    |
| 10.7 (-2.0, 25.1)         | 10.0 (-2.6, 24.2)    | 20.0 (5.3, 36.8)     | 2.7 (-4.8, 10.9)    | 4.9 (-3.6, 14.1)    |
| 10.6 (-3.0, 26.0)         | 10.3 (-3.1, 25.6)    | 20.6 (5.1, 38.6)     | 3.6 (-4.6, 12.4)    | 6.5 (-2.7, 16.7)    |
| 15.6 (-0.3, 34.0)         | 15.4 (-0.3, 33.7)    | 26.0 (7.1, 48.2)     | 7.5 (-2.2, 18.2)    | 10.9 (-0.2, 23.3)   |
| -38.8 (-58.4, -10.1)      | -37.7 (-57.5, -8.6)  | -30.4 (-54.0, 5.2)   | -7.1 (-27.3, 18.8)  | -17.3 (-36.9, 8.3)  |
| -31.8 (-48.8, -9.0)       | -31.6 (-48.6, -8.9)  | -20.1 (-41.1, 8.5)   | -5.4 (-21.0, 13.2)  | -1.3 (-19.0, 20.3)  |
| -13.7 (-30.9, 7.9)        | -12.9 (-30.2, 8.6)   | 12.2 (-11.7, 42.7)   | -4.2 (-16.8, 10.3)  | -5.4 (-19.1, 10.5)  |
| 22.1 (-13.7, 72.7)        | 22.2 (-13.4, 72.4)   | 79.3 (23.5, 160.2)   | -8.9 (-26.7, 13.3)  | -11.2 (-30.2, 12.9) |
| -38.5 (-58.2, -9.6)       | -37.4 (-57.3, -8.1)  | -29.8 (-53.5, 6.0)   | -6.9 (-27.2, 19.0)  | -17.0 (-36.6, 8.7)  |
| -30.9 (-48.2, -7.8)       | -30.8 (-48.0, -7.8)  | -18.3 (-39.8, 10.9)  | -5.0 (-20.6, 13.7)  | -0.5 (-18.4, 21.3)  |
| -13.2 (-30.6, 8.4)        | -12.5 (-29.9, 9.1)   | 13.2 (-10.9, 43.8)   | -4.0 (-16.6, 10.5)  | -5.2 (-18.8, 10.8)  |
| 17.3 (-17.3, 66.5)        | 17.7 (-16.8, 66.7)   | 67.8 (15.3, 144.2)   | -10.1 (-27.9, 12.0) | -13.3 (-32.0, 10.5) |
| -22.5 (-49.6, 19.1)       | -21.3 (-48.6, 20.7)  | -13.6 (-45.3, 36.6)  | -0.5 (-24.4, 30.9)  | -14.2 (-36.6, 16.1) |
| -16.0 (-39.4, 16.5)       | -15.9 (-39.3, 16.4)  | 0.0 (-29.3, 41.4)    | 2.3 (-16.8, 25.9)   | 4.3 (-17.1, 31.1)   |
| -2.9 (-23.7, 23.6)        | -2.0 (-22.9, 24.5)   | 25.5 (-3.1, 62.6)    | 1.1 (-13.4, 18.0)   | -1.8 (-17.2, 16.4)  |
| 5.8 (-25.7, 50.7)         | 6.7 (-25.0, 51.6)    | 48.5 (1.9, 116.4)    | -14.7 (-31.7, 6.5)  | -16.7 (-34.9, 6.7)  |
| -28.6 (-55.1, 13.7)       | -26.9 (-53.9, 16.0)  | -17.5 (-50.3, 37.1)  | -4.3 (-28.9, 28.9)  | -23.8 (-45.3, 6.1)  |
| -21.2 (-45.4, 13.8)       | -21.0 (-45.1, 13.6)  | 0.1 (-32.9, 49.4)    | 0.8 (-20.3, 27.4)   | 2.7 (-20.9, 33.4)   |
| -7.3 (-29.4, 21.8)        | -6.2 (-28.5, 22.9)   | 26.9 (-5.8, 70.9)    | -4.7 (-19.9, 13.5)  | -11.0 (-26.7, 8.1)  |
| 19.0 (-18.7, 74.3)        | 20.1 (-17.8, 75.4)   | 77.6 (17.1, 169.3)   | -18.7 (-36.3, 3.7)  | -23.1 (-41.3, 0.9)  |
| -42.2 (-54.5, -26.6)      | -41.0 (-53.5, -25.2) | -43.5 (-56.4, -26.9) | -13.2 (-25.4, 1.0)  | -8.6 (-22.7, 8.0)   |
| -17.9 (-36.0, 5.2)        | -16.8 (-35.0, 6.6)   | -24.9 (-42.3, -2.1)  | -10.2 (-23.0, 4.9)  | -7.6 (-22.1, 9.5)   |
| -35.1 (-50.8, -14.4)      | -33.9 (-49.9, -12.9) | -38.5 (-54.4, -17.1) | -14.7 (-28.6, 2.0)  | -7.9 (-24.3, 12.1)  |
| -14.1 (-33.8, 11.4)       | -13.0 (-32.9, 12.8)  | -24.3 (-42.6, -0.2)  | -11.2 (-24.6, 4.6)  | -7.5 (-22.7, 10.7)  |
| -34.3 (-50.5, -12.7)      | -33.0 (-49.5, -11.2) | -36.1 (-52.8, -13.4) | -13.8 (-28.2, 3.6)  | -7.0 (-24.0, 13.8)  |
| -12.3 (-32.5, 13.9)       | -11.1 (-31.5, 15.3)  | -21.9 (-40.7, 2.9)   | -10.1 (-23.7, 6.0)  | -6.7 (-22.1, 11.8)  |
| -22.9 (-43.9, 6.1)        | -21.6 (-42.9, 35.7)  | -30.1 (-50.7, -1.0)  | -10.2 (-26.8, 10.1) | -3.5 (-23.1, 21.1)  |
| 0.4 (-25.3, 34.9)         | 1.2 (-24.6, 35.7)    | -20.7 (-42.3, 9.0)   | -9.6 (-24.9, 8.8)   | -6.0 (-23.4, 15.4)  |
| 0.5 (-0.3, 1.4)           | 0.5 (-0.4, 1.4)      | 1.5 (0.5, 2.4)       | 0.4 (-0.1, 1.0)     | 0.6 (0.0, 1.2)      |
| 0.9 (0.0, 1.8)            | 0.8 (-0.1, 1.7)      | 1.7 (0.7, 2.7)       | 0.4 (-0.1, 1.0)     | 0.6 (0.0, 1.2)      |
| 1.1 (0.2, 2.0)            | 1.0 (0.1, 1.9)       | 1.8 (0.8, 2.8)       | 0.4 (-0.1, 1.0)     | 0.5 (-0.1, 1.1)     |
| 1.0 (0.0, 2.0)            | 0.9 (0.0, 1.9)       | 1.9 (0.8, 3.0)       | 0.4 (-0.3, 1.0)     | 0.4 (-0.3, 1.1)     |



|                     |                     |                     |                     |                     |
|---------------------|---------------------|---------------------|---------------------|---------------------|
| -1.3 (-3.7, 1.1)    | -1.3 (-3.7, 1.1)    | -2.1 (-4.6, 0.5)    | 0.3 (-1.2, 1.9)     | 0.3 (-1.4, 2.0)     |
| 0.3 (-2.3, 2.9)     | 0.3 (-2.3, 2.9)     | -0.8 (-3.5, 2.0)    | 0.5 (-1.1, 2.1)     | 0.4 (-1.4, 2.2)     |
| 1.7 (-1.0, 4.4)     | 1.6 (-1.0, 4.3)     | 0.7 (-2.1, 3.5)     | 0.7 (-0.9, 2.4)     | 0.4 (-1.5, 2.2)     |
| 1.8 (-1.2, 4.9)     | 1.7 (-1.2, 4.8)     | 1.0 (-2.2, 4.4)     | 0.1 (-1.8, 2.0)     | -0.2 (-2.3, 2.0)    |
| -1.3 (-2.5, -0.2)   | -1.2 (-2.4, -0.1)   | -1.4 (-2.6, -0.1)   | -0.1 (-0.8, 0.7)    | 0.3 (-0.6, 1.1)     |
| -1.0 (-2.1, 0.2)    | -0.9 (-2.0, 0.3)    | -1.0 (-2.3, 0.3)    | 0.0 (-0.8, 0.7)     | 0.3 (-0.5, 1.1)     |
| -1.0 (-2.3, 0.2)    | -1.0 (-2.1, 0.3)    | -1.2 (-2.4, 0.1)    | -0.1 (-0.9, 0.7)    | 0.2 (-0.7, 1.1)     |
| -1.1 (-2.5, 0.3)    | -1.0 (-2.3, 0.4)    | -1.2 (-2.7, 0.3)    | -0.2 (-1.1, 0.7)    | 0.3 (-0.7, 1.3)     |
| -17.2 (-30.4, -1.6) | -17.4 (-30.5, -1.9) | -18.5 (-32.4, -1.7) | -8.0 (-17.4, 2.5)   | -10.0 (-20.1, 1.5)  |
| -14.7 (-29.2, 2.8)  | -14.9 (-29.3, 2.4)  | -21.1 (-35.4, -3.6) | -9.8 (-19.7, 1.4)   | -12.9 (-23.4, -0.9) |
| -13.9 (-29.3, 4.8)  | -14.3 (-29.6, 4.2)  | -17.6 (-33.2, 1.6)  | -7.7 (-18.4, 4.5)   | -9.7 (-21.3, 3.6)   |
| -16.0 (-32.5, 4.6)  | -15.9 (-32.4, 4.5)  | -18.6 (-36.0, 3.6)  | -6.5 (-18.8, 7.6)   | -7.0 (-20.5, 8.8)   |
| 131.2 (18.5, 351.0) | 128.9 (17.9, 344.5) | 161.6 (27.4, 437.4) | 58.3 (4.6, 139.5)   | 28.4 (-18.9, 103.3) |
| 112.7 (9.2, 314.2)  | 110.7 (8.7, 308.5)  | 152.5 (23.4, 416.8) | 59.1 (4.8, 141.6)   | 29.6 (-18.4, 105.9) |
| 86.6 (-4.6, 265.8)  | 85.8 (-4.7, 262.1)  | 128.1 (11.3, 367.7) | 50.6 (-1.3, 130.0)  | 24.3 (-22.4, 98.9)  |
| 34.2 (-35.6, 179.8) | 34.5 (-35.1, 179.0) | 66.1 (-25.9, 272.3) | 43.7 (-10.3, 130.0) | 25.2 (-26.0, 112.0) |
| 11.7 (-14.2, 45.5)  | 12.1 (-13.8, 45.7)  | 17.0 (-12.0, 55.5)  | -5.8 (-20.0, 10.9)  | -0.1 (-16.6, 19.8)  |
| 5.4 (-19.1, 37.3)   | 5.7 (-18.7, 37.5)   | 12.1 (-15.7, 48.9)  | -6.1 (-20.5, 10.8)  | 0.0 (-16.7, 20.2)   |
| 5.3 (-19.3, 37.5)   | 6.0 (-18.7, 38.1)   | 13.0 (-15.0, 50.3)  | -5.1 (-19.8, 12.3)  | 0.0 (-17.0, 20.5)   |
| 1.4 (-24.5, 36.1)   | 1.9 (-24.0, 36.5)   | 7.6 (-22.2, 48.7)   | -7.4 (-23.4, 11.8)  | -1.0 (-19.9, 22.2)  |
| 5.2 (-25.7, 48.9)   | 7.6 (-23.8, 51.9)   | -12.8 (-40.0, 26.9) | -6.4 (-24.5, 16.1)  | -15.2 (-33.2, 7.5)  |
| 14.4 (-19.1, 61.7)  | 16.8 (-17.2, 64.7)  | -4.0 (-33.9, 39.4)  | -5.6 (-24.0, 17.2)  | -14.4 (-32.7, 8.8)  |
| 35.7 (-4.7, 93.3)   | 38.1 (-2.8, 96.3)   | 17.7 (-19.4, 71.9)  | -0.4 (-20.3, 24.5)  | -10.0 (-29.8, 15.3) |
| 35.2 (-8.2, 99.1)   | 39.6 (-5.0, 104.9)  | 18.6 (-22.5, 81.4)  | 2.2 (-20.2, 30.9)   | -3.6 (-26.9, 27.2)  |
| 4.8 (-20.0, 37.3)   | 4.8 (-19.9, 36.9)   | 8.3 (-19.0, 44.9)   | 1.2 (-14.3, 19.6)   | -2.9 (-19.3, 16.8)  |
| 2.3 (-21.8, 33.7)   | 2.2 (-21.7, 33.4)   | 4.0 (-22.1, 38.8)   | 1.1 (-14.6, 19.6)   | -3.0 (-19.5, 16.8)  |
| 8.1 (-18.4, 43.1)   | 8.5 (-17.9, 43.4)   | 12.7 (-16.5, 52.2)  | 3.2 (-13.5, 23.2)   | -0.1 (-18.0, 21.5)  |
| 21.0 (-10.9, 64.2)  | 21.8 (-10.1, 64.9)  | 18.0 (-15.6, 65.1)  | 0.7 (-17.2, 22.4)   | -1.7 (-21.0, 22.3)  |
| 4.4 (-14.5, 27.5)   | 4.4 (-14.4, 27.3)   | 9.4 (-11.7, 35.6)   | 11.6 (-1.4, 26.3)   | 9.6 (-4.4, 25.7)    |
| 7.0 (-12.3, 30.4)   | 6.9 (-12.2, 30.2)   | 11.8 (-9.6, 38.3)   | 11.8 (-1.2, 26.6)   | 9.7 (-4.3, 25.9)    |
| 8.4 (-11.0, 32.0)   | 8.1 (-11.1, 31.5)   | 12.9 (-8.6, 39.3)   | 11.4 (-1.6, 26.1)   | 9.3 (-4.8, 25.4)    |
| 7.7 (-13.5, 34.1)   | 7.1 (-13.8, 33.2)   | 12.5 (-11.6, 43.1)  | 8.7 (-5.5, 25.1)    | 5.1 (-10.2, 22.9)   |
| -16.3 (-29.8, -0.1) | -16.7 (-30.1, -0.8) | -13.3 (-28.3, 4.8)  | -10.4 (-19.7, -0.1) | -9.1 (-19.4, 2.6)   |
| -14.8 (-28.6, 1.6)  | -15.3 (-28.9, 0.8)  | -13.3 (-28.2, 4.8)  | -10.7 (-20.0, -0.3) | -9.6 (-19.9, 2.2)   |
| -12.4 (-26.7, 4.5)  | -13.2 (-27.2, 3.6)  | -11.2 (-26.5, 7.3)  | -11.1 (-20.5, -0.6) | -10.2 (-20.7, 1.6)  |
| -15.3 (-30.5, 3.3)  | -16.3 (-31.3, 1.9)  | -15.6 (-32.1, 4.9)  | -9.5 (-20.3, 2.8)   | -11.0 (-22.8, 2.6)  |

|                     |                     |                    |                   |                   |
|---------------------|---------------------|--------------------|-------------------|-------------------|
| -8.2 (-27.9, 16.8)  | -7.8 (-27.4, 17.3)  | 12.5 (-13.3, 46.0) | 6.7 (-8.1, 24.0)  | 9.0 (-7.6, 28.7)  |
| -8.0 (-27.6, 16.9)  | -7.5 (-27.1, 17.4)  | 13.1 (-12.6, 46.3) | 6.7 (-8.1, 24.0)  | 9.0 (-7.7, 28.6)  |
| -7.2 (-26.9, 17.9)  | -6.6 (-26.3, 18.4)  | 13.3 (-12.2, 46.3) | 7.0 (-7.9, 24.4)  | 8.8 (-8.0, 28.6)  |
| -13.3 (-33.8, 13.5) | -12.8 (-33.3, 14.0) | 10.9 (-17.5, 49.1) | 10.6 (-6.9, 31.5) | 9.3 (-9.9, 32.6)  |
| 9.5 (-18.6, 47.4)   | 10.0 (-18.1, 47.7)  | 8.4 (-21.2, 49.3)  | 9.7 (-8.8, 31.8)  | 3.8 (-15.3, 27.3) |
| 5.1 (-21.7, 25.1)   | 5.6 (-21.2, 41.6)   | 4.9 (-23.6, 44.0)  | 9.4 (-9.1, 31.6)  | 3.6 (-15.6, 27.1) |
| 8.9 (-18.9, 46.3)   | 9.5 (-18.4, 46.8)   | 9.3 (-20.3, 49.9)  | 11.7 (-7.3, 34.6) | 5.4 (-14.3, 29.7) |
| 5.2 (-26.0, 49.6)   | 5.6 (-25.5, 49.8)   | -2.6 (-33.8, 43.3) | 5.7 (-15.6, 32.5) | 0.6 (-21.8, 29.5) |
| -1.3 (-7.0, 4.8)    | -1.1 (-6.8, 4.9)    | 1.3 (-5.0, 8.1)    | 1.4 (-2.3, 5.2)   | 1.3 (-2.8, 5.6)   |
| -1.1 (-6.8, 5.0)    | -0.9 (-6.6, 5.1)    | 1.2 (-5.1, 7.8)    | 1.3 (-2.4, 5.2)   | 1.2 (-2.9, 5.5)   |
| -0.8 (-6.5, 5.2)    | -0.7 (-6.4, 5.3)    | 1.5 (-4.7, 8.2)    | 1.3 (-2.4, 5.2)   | 1.0 (-3.1, 5.3)   |
| -1.8 (-8.1, 5.0)    | -1.7 (-8.0, 5.0)    | 1.2 (-5.9, 8.9)    | 1.3 (-2.9, 5.7)   | -0.1 (-4.8, 4.8)  |

| MEHP                | MEOHP               | $\Sigma$ DEHP       |
|---------------------|---------------------|---------------------|
| 6.6 (-3.1, 17.2)    | 4.7 (-3.5, 13.6)    | 4.3 (-3.3, 12.6)    |
| 5.7 (-4.0, 16.3)    | 4.5 (-3.8, 13.5)    | 4.1 (-3.6, 12.5)    |
| 8.3 (-2.3, 20.2)    | 5.5 (-3.5, 15.3)    | 5.2 (-3.2, 14.3)    |
| 14.4 (1.2, 29.4)    | 9.5 (-1.3, 21.5)    | 9.4 (-0.7, 20.4)    |
| -20.1 (-41.2, 8.5)  | -13.3 (-33.5, 12.9) | -11.4 (-30.8, 13.4) |
| -20.6 (-36.8, -0.3) | -4.0 (-21.0, 16.5)  | -3.9 (-19.8, 15.2)  |
| -13.5 (-27.6, 3.4)  | -4.1 (-17.7, 11.7)  | -5.3 (-17.9, 9.2)   |
| -21.9 (-40.8, 3.0)  | -8.6 (-27.8, 15.7)  | -9.9 (-27.7, 12.2)  |
| -19.8 (-40.9, 8.9)  | -13.1 (-33.3, 13.2) | -11.2 (-30.6, 13.7) |
| -19.9 (-36.2, 0.7)  | -3.4 (-20.4, 17.4)  | -3.2 (-19.3, 16.1)  |
| -13.2 (-27.4, 3.8)  | -3.8 (-17.5, 12.1)  | -5.0 (-17.7, 9.5)   |
| -24.1 (-42.6, 0.3)  | -10.5 (-29.5, 13.6) | -11.7 (-29.3, 10.2) |
| -11.1 (-36.8, 25.1) | -7.8 (-31.4, 23.9)  | -6.3 (-28.9, 23.5)  |
| -10.7 (-31.3, 16.3) | 4.1 (-16.8, 30.3)   | 3.4 (-16.1, 27.6)   |
| -5.4 (-22.1, 15.0)  | 0.6 (-15.0, 18.9)   | -0.5 (-14.9, 16.3)  |
| -27.8 (-45.6, -4.2) | -15.6 (-33.7, 7.4)  | -15.9 (-32.8, 5.4)  |
| -4.6 (-35.1, 40.1)  | -13.9 (-37.9, 19.3) | -12.6 (-35.4, 18.2) |
| -6.6 (-31.1, 26.5)  | 3.6 (-19.9, 34.0)   | 2.6 (-19.2, 30.2)   |
| -10.4 (-28.5, 12.3) | -6.3 (-22.6, 13.5)  | -7.6 (-22.6, 10.3)  |
| -33.2 (-51.3, -8.4) | -19.8 (-38.6, 4.8)  | -20.5 (-38.0, 1.8)  |
| -14.1 (-29.2, 4.2)  | -12.8 (-26.0, 2.7)  | -11.7 (-24.3, 2.9)  |
| -8.9 (-25.3, 11.1)  | -12.5 (-26.0, 3.4)  | -9.7 (-22.7, 5.6)   |
| -8.5 (-27.2, 15.1)  | -12.9 (-28.2, 5.7)  | -12.1 (-26.7, 5.3)  |
| -6.5 (-24.3, 15.4)  | -13.0 (-27.1, 3.9)  | -10.1 (-23.8, 6.1)  |
| -5.6 (-25.2, 19.1)  | -10.9 (-26.9, 8.6)  | -11.0 (-26.1, 7.2)  |
| -5.3 (-23.2, 16.9)  | -11.9 (-26.2, 5.2)  | -9.1 (-23.0, 7.3)   |
| -7.3 (-28.8, 20.7)  | -7.7 (-26.1, 15.3)  | -7.7 (-25.0, 13.5)  |
| -10.0 (-29.2, 14.3) | -10.9 (-27.1, 8.9)  | -8.6 (-24.2, 10.3)  |
| -0.7 (-1.4, 0.0)    | 0.6 (0.0, 1.2)      | 0.4 (-0.1, 1.0)     |
| -0.7 (-1.4, 0.0)    | 0.7 (0.1, 1.3)      | 0.4 (-0.1, 1.0)     |
| -0.8 (-1.5, -0.1)   | 0.6 (0.0, 1.2)      | 0.4 (-0.2, 1.0)     |
| -1.0 (-1.8, -0.1)   | 0.5 (-0.1, 1.2)     | 0.3 (-0.3, 1.0)     |

|                     |                     |                     |
|---------------------|---------------------|---------------------|
| 1.2 (-0.7, 3.2)     | -0.2 (-1.9, 1.4)    | 0.3 (-1.2, 1.9)     |
| 1.9 (-0.1, 4.1)     | -0.1 (-1.9, 1.6)    | 0.5 (-1.2, 2.1)     |
| 1.6 (-0.5, 3.8)     | 0.0 (-1.8, 1.8)     | 0.5 (-1.2, 2.2)     |
| 0.9 (-1.6, 3.5)     | -0.6 (-2.7, 1.5)    | 0.0 (-2.0, 1.9)     |
| 0.3 (-0.7, 1.2)     | -0.1 (-0.9, 0.7)    | 0.1 (-0.6, 0.9)     |
| 0.4 (-0.6, 1.4)     | 0.0 (-0.8, 0.8)     | 0.2 (-0.6, 0.9)     |
| 0.3 (-0.7, 1.3)     | -0.1 (-0.9, 0.8)    | 0.1 (-0.7, 0.9)     |
| 0.2 (-0.9, 1.4)     | 0.0 (-1.0, 0.9)     | 0.1 (-0.8, 1.0)     |
| -12.5 (-23.7, 0.4)  | -8.0 (-18.2, 3.4)   | -8.4 (-17.8, 2.2)   |
| -13.6 (-25.5, 0.3)  | -10.3 (-20.9, 1.8)  | -10.7 (-20.6, 0.5)  |
| -11.6 (-24.5, 3.5)  | -6.1 (-17.9, 7.4)   | -7.5 (-18.4, 4.8)   |
| -11.3 (-26.1, 6.4)  | -3.8 (-17.6, 12.2)  | -5.6 (-18.2, 8.8)   |
| 35.5 (-20.2, 130.3) | 37.0 (-12.6, 115.0) | 42.1 (-6.6, 116.0)  |
| 32.8 (-22.1, 126.2) | 37.9 (-12.4, 117.0) | 43.1 (-6.1, 118.3)  |
| 27.7 (-25.5, 118.8) | 33.7 (-15.5, 111.7) | 37.1 (-10.7, 110.4) |
| 29.1 (-29.9, 137.8) | 36.2 (-18.8, 128.3) | 35.3 (-16.2, 118.3) |
| 13.0 (-8.3, 39.2)   | 8.3 (-9.3, 29.4)    | -0.2 (-15.4, 17.8)  |
| 11.3 (-9.8, 37.5)   | 8.4 (-9.5, 29.7)    | -0.2 (-15.6, 18.0)  |
| 11.2 (-10.2, 37.7)  | 8.3 (-9.8, 29.9)    | 0.2 (-15.4, 18.8)   |
| 6.0 (-17.1, 35.4)   | 8.0 (-12.2, 32.9)   | -1.6 (-18.8, 19.3)  |
| -28.5 (-45.6, -6.0) | -17.2 (-34.4, 4.6)  | -13.5 (-30.3, 7.5)  |
| -26.5 (-44.2, -3.3) | -16.2 (-33.8, 6.0)  | -12.7 (-29.8, 8.7)  |
| -25.7 (-44.0, -1.3) | -12.3 (-31.2, 11.7) | -8.6 (-27.1, 14.5)  |
| -24.2 (-45.0, 4.6)  | -8.0 (-29.9, 20.7)  | -4.6 (-25.9, 22.7)  |
| -3.1 (-21.7, 19.9)  | -4.0 (-19.9, 15.1)  | -1.8 (-17.0, 16.3)  |
| -3.9 (-22.4, 19.0)  | -4.3 (-20.3, 14.8)  | -1.8 (-17.2, 16.3)  |
| 0.5 (-19.8, 25.8)   | -2.1 (-19.2, 18.7)  | 0.3 (-16.1, 19.9)   |
| -1.6 (-23.6, 26.9)  | -4.4 (-22.9, 18.5)  | -1.7 (-19.5, 19.9)  |
| 15.9 (-1.0, 35.6)   | 10.9 (-3.0, 26.8)   | 12.0 (-1.1, 26.9)   |
| 16.8 (-0.2, 36.7)   | 11.2 (-2.8, 27.1)   | 12.2 (-1.0, 27.1)   |
| 16.4 (-0.6, 36.3)   | 11.2 (-2.8, 27.3)   | 11.8 (-1.4, 26.8)   |
| 16.0 (-3.3, 39.2)   | 9.0 (-6.5, 27.2)    | 8.8 (-5.7, 25.5)    |
| -4.1 (-16.6, 10.2)  | -10.3 (-20.3, 1.0)  | -9.7 (-19.1, 0.9)   |
| -3.8 (-16.4, 10.7)  | -10.7 (-20.8, 0.6)  | -10.1 (-19.6, 0.5)  |
| -5.6 (-18.1, 8.8)   | -11.4 (-21.5, 0.0)  | -10.8 (-20.3, -0.1) |
| -5.2 (-19.6, 11.8)  | -11.1 (-22.7, 2.3)  | -10.3 (-21.2, 2.1)  |

|                    |                   |                   |
|--------------------|-------------------|-------------------|
| 5.0 (-13.2, 27.1)  | 10.3 (-6.3, 29.7) | 8.7 (-6.6, 26.4)  |
| 5.1 (-13.2, 27.2)  | 10.3 (-6.3, 29.7) | 8.6 (-6.6, 26.4)  |
| 5.2 (-13.1, 27.5)  | 10.6 (-6.0, 30.3) | 8.9 (-6.5, 26.8)  |
| 1.7 (-18.7, 27.3)  | 11.9 (-7.4, 35.3) | 10.2 (-7.5, 31.4) |
| 15.3 (-8.8, 45.8)  | 8.6 (-11.1, 32.6) | 8.0 (-10.4, 30.1) |
| 13.9 (-10.0, 44.1) | 8.3 (-11.4, 32.3) | 7.7 (-10.6, 29.9) |
| 13.3 (-10.6, 43.7) | 11.2 (-9.2, 36.3) | 9.7 (-9.2, 32.5)  |
| 11.4 (-16.9, 49.3) | 4.5 (-18.4, 33.9) | 4.4 (-17.0, 31.3) |
| 2.8 (-1.9, 7.8)    | 1.3 (-2.7, 5.5)   | 1.8 (-2.0, 5.7)   |
| 2.9 (-1.9, 7.9)    | 1.3 (-2.7, 5.5)   | 1.7 (-2.0, 5.6)   |
| 2.6 (-2.2, 7.6)    | 1.3 (-2.8, 5.5)   | 1.6 (-2.2, 5.5)   |
| 2.2 (-3.3, 8.0)    | 0.3 (-4.3, 5.1)   | 1.0 (-3.3, 5.5)   |

Supplemental Table 3. Prevalence ratios (PR) comparing the prevalence of detectable concentrations of urinary 1,2-cyclohexane dicarboxylic acid-diisononyl ester (DINCH) metabolites across categories of demographic, lifestyle, and reproductive characteristics, and personal care product use.

| Correlate                                      | MHiNCH<br>PR (95% CI) | MCOCH<br>PR (95% CI) |
|--|-----------------------|----------------------|
| Age (5-year increase)                          |                       |                      |
| Unadjusted                                     | 0.93 (0.77, 1.11)     | 0.85 (0.64, 1.12)    |
| Education-adjusted                             | 0.95 (0.80, 1.14)     | 0.91 (0.68, 1.20)    |
| Random subcohort <sup>a</sup>                  | 0.97 (0.77, 1.23)     | 0.91 (0.65, 1.27)    |
| Education (vs. Bachelor's degree)              |                       |                      |
| Unadjusted                                     |                       |                      |
| <High school                                   | 1.23 (0.71, 2.14)     | 1.71 (0.67, 4.36)    |
| High school/GED                                | 1.22 (0.80, 1.86)     | 2.51 (1.27, 4.97)    |
| Some college                                   | 1.17 (0.83, 1.65)     | 1.68 (0.90, 3.15)    |
| Advanced degree                                | 0.36 (0.15, 0.88)     | 0.43 (0.10, 1.89)    |
| Age-adjusted                                   |                       |                      |
| <High school                                   | 1.23 (0.71, 2.13)     | 1.69 (0.66, 4.33)    |
| High school/GED                                | 1.21 (0.80, 1.85)     | 2.48 (1.25, 4.91)    |
| Some college                                   | 1.17 (0.83, 1.65)     | 1.68 (0.90, 3.14)    |
| Advanced degree                                | 0.36 (0.15, 0.89)     | 0.44 (0.10, 1.96)    |
| Random subcohort <sup>a</sup>                  |                       |                      |
| <High school                                   | 1.31 (0.66, 2.61)     | 1.40 (0.40, 4.87)    |
| High school/GED                                | 1.43 (0.82, 2.51)     | 2.91 (1.21, 7.00)    |
| Some college                                   | 1.22 (0.79, 1.88)     | 2.09 (0.97, 4.50)    |
| Advanced degree                                | 0.39 (0.16, 0.96)     | 0.54 (0.12, 2.49)    |
| Annual household income (vs. >\$50,000)        |                       |                      |
| Unadjusted                                     |                       |                      |
| <\$20,000                                      | 1.25 (0.86, 1.81)     | 1.58 (0.85, 2.92)    |
| \$20,000-\$50,000                              | 0.94 (0.62, 1.41)     | 1.04 (0.52, 2.07)    |
| Age- and education-adjusted                    |                       |                      |
| <\$20,000                                      | 1.03 (0.67, 1.56)     | 0.97 (0.49, 1.93)    |
| \$20,000-\$50,000                              | 0.83 (0.54, 1.27)     | 0.80 (0.39, 1.62)    |
| Random subcohort <sup>a</sup>                  |                       |                      |
| <\$20,000                                      | 0.98 (0.61, 1.59)     | 1.08 (0.48, 2.44)    |
| \$20,000-\$50,000                              | 0.75 (0.47, 1.20)     | 0.99 (0.44, 2.22)    |
| Body mass index (5-kg/m <sup>2</sup> increase) |                       |                      |
| Unadjusted                                     | 1.00 (0.99, 1.02)     | 1.02 (1.00, 1.03)    |
| Age- and education-adjusted                    | 1.00 (0.99, 1.01)     | 1.01 (0.99, 1.03)    |
| Random subcohort <sup>a</sup>                  | 1.00 (0.98, 1.01)     | 1.00 (0.98, 1.02)    |
| Smoking (1 cigarette/day increase)             |                       |                      |
| Unadjusted                                     | 0.99 (0.96, 1.03)     | 1.00 (0.94, 1.06)    |
| Age- and education-adjusted                    | 0.98 (0.94, 1.02)     | 0.97 (0.91, 1.03)    |
| Random subcohort <sup>a</sup>                  | 0.96 (0.91, 1.01)     | 0.96 (0.89, 1.03)    |
| Alcohol (per each additional drink/day)        |                       |                      |
| Unadjusted                                     | 0.99 (0.97, 1.01)     | 1.01 (0.98, 1.03)    |

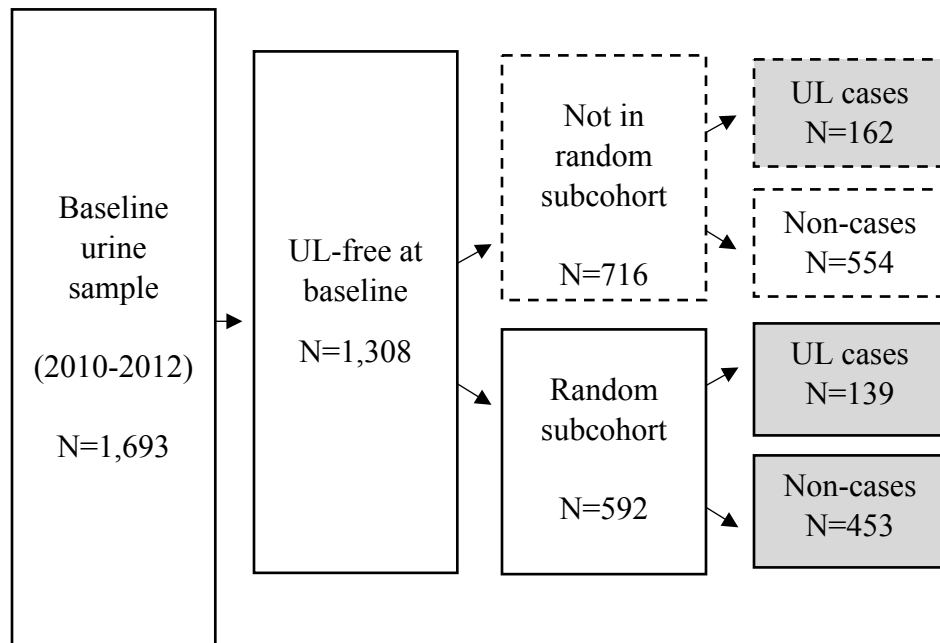
|   |                   |                   |
|---|-------------------|-------------------|
| Age- and education-adjusted                                   | 0.99 (0.97, 1.01) | 1.00 (0.97, 1.02) |
| Random subcohort <sup>a</sup>                                 | 0.99 (0.97, 1.02) | 1.01 (0.98, 1.03) |
| Parous vs. nulliparous  |                   |                   |
| Unadjusted  | 1.25 (0.95, 1.63) | 1.26 (0.83, 1.91) |
| Age- and education-adjusted                                   | 1.19 (0.89, 1.59) | 1.09 (0.70, 1.71) |
| Random subcohort <sup>a</sup>                                 | 1.19 (0.83, 1.70) | 1.00 (0.62, 1.63) |
| Current contraceptive use (vs. non-use of each product)       |                   |                   |
| Vaginal ring use vs. not current                              |                   |                   |
| Unadjusted  | 1.03 (0.38, 2.77) | -- <sup>b</sup>   |
| Age- and education-adjusted                                   | 1.08 (0.40, 2.90) | -- <sup>b</sup>   |
| Random subcohort <sup>a</sup>                                 | 0.82 (0.23, 2.89) | -- <sup>b</sup>   |
| Oral contraceptive use vs. not current                        |                   |                   |
| Unadjusted  | 1.06 (0.72, 1.56) | 0.98 (0.53, 1.82) |
| Age- and education-adjusted                                   | 1.14 (0.77, 1.68) | 1.11 (0.60, 2.06) |
| Random subcohort <sup>a</sup>                                 | 0.91 (0.55, 1.51) | 1.13 (0.58, 2.18) |
| Depo medroxyprogesterone acetate use vs. not current          |                   |                   |
| Unadjusted  | 0.78 (0.43, 1.42) | 1.28 (0.63, 2.62) |
| Age- and education-adjusted                                   | 0.73 (0.40, 1.34) | 1.12 (0.55, 2.28) |
| Random subcohort <sup>a</sup>                                 | 0.83 (0.45, 1.54) | 1.26 (0.60, 2.66) |
| Intrauterine device use vs. not current                       |                   |                   |
| Unadjusted  | 1.12 (0.76, 1.64) | 0.81 (0.41, 1.61) |
| Age- and education-adjusted                                   | 1.13 (0.77, 1.14) | 0.85 (0.42, 1.69) |
| Random subcohort <sup>a</sup>                                 | 1.18 (0.77, 1.81) | 0.98 (0.48, 2.03) |
| Product use in past 24 hours                                  |                   |                   |
| Vaginal product use   |                   |                   |
| Unadjusted  | 1.18 (0.89, 1.56) | 1.37 (0.89, 2.09) |
| Age- and education-adjusted                                   | 1.17 (0.88, 1.55) | 1.30 (0.85, 1.98) |
| Random subcohort <sup>a</sup>                                 | 1.08 (0.78, 1.50) | 1.30 (0.82, 2.05) |
| Hair product use  |                   |                   |
| Unadjusted  | 0.91 (0.70, 1.20) | 0.95 (0.63, 1.44) |
| Age- and education-adjusted                                   | 0.88 (0.67, 1.16) | 0.88 (0.59, 1.34) |
| Random subcohort <sup>a</sup>                                 | 0.81 (0.58, 1.11) | 0.83 (0.52, 1.31) |
| Nail product use  |                   |                   |
| Unadjusted  | 0.88 (0.60, 1.29) | 0.95 (0.54, 1.69) |
| Age- and education-adjusted                                   | 0.86 (0.59, 1.27) | 0.95 (0.54, 1.20) |
| Random subcohort <sup>a</sup>                                 | 0.89 (0.57, 1.41) | 1.09 (0.60, 1.98) |
| Make up, perfume, or cream use                                |                   |                   |
| Unadjusted  | 0.94 (0.61, 1.45) | 0.86 (0.45, 1.62) |
| Age- and education-adjusted                                   | 0.97 (0.63, 1.49) | 0.91 (0.48, 1.72) |
| Random subcohort <sup>a</sup>                                 | 1.27 (0.71, 2.24) | 1.09 (0.50, 2.38) |
| Total personal care product use (per each additional product) |                   |                   |
| Unadjusted  | 0.97 (0.88, 1.06) | 1.05 (0.91, 1.20) |
| Age- and education-adjusted                                   | 0.96 (0.88, 1.05) | 1.03 (0.90, 1.18) |
| Random subcohort <sup>a</sup>                                 | 0.98 (0.88, 1.08) | 1.06 (0.91, 1.23) |

DINCH=1,2-cyclohexane dicarboxylic acid-diisononyl ester; GED=General Educational Development; MCOCH=1,2-cyclohexane dicarboxylic acid-monocarboxy isooctyl ester; MHiNCH=1,2-cyclohexane dicarboxylic acid-monohydroxy isononyl ester; PR=prevalence ratio

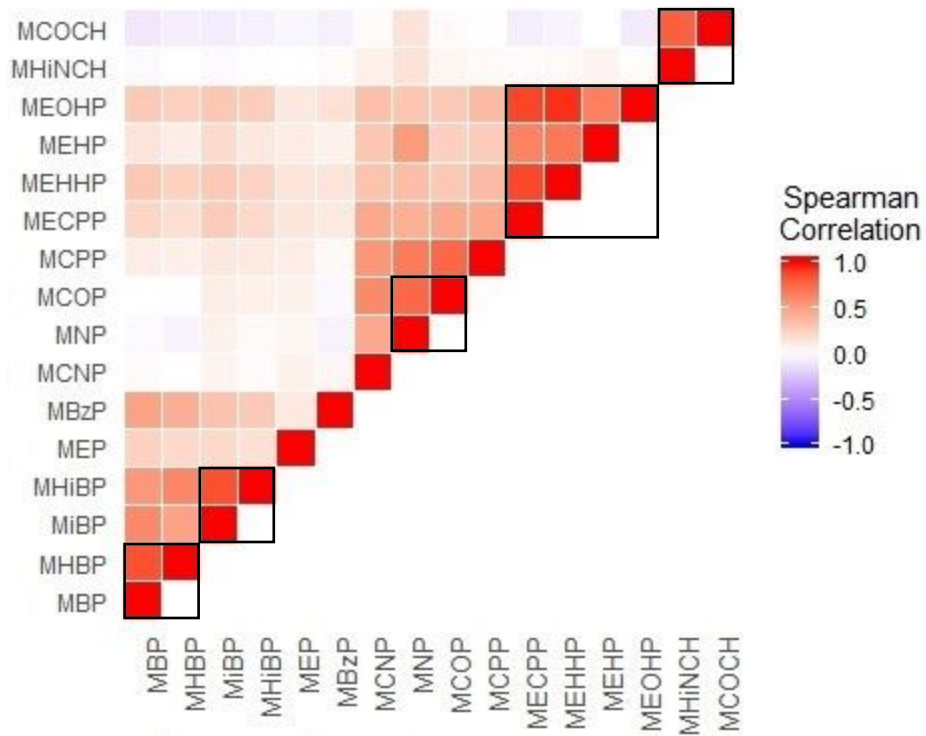
<sup>a</sup> Adjusted for all other correlates.

<sup>b</sup> Not estimable because there were no vaginal ring users with detectable concentrations of MCOCH.





Supplemental Figure 1. Case-cohort study design within the Study of Environment, Lifestyle, and Fibroids. Dashed boxes reflect individuals outside of the random subcohort. Shaded boxes reflect the 754 individuals included in the present analysis: those selected for the random subcohort and those outside of the random subcohort who developed UL over 60 months of follow-up.



Supplemental Figure 2. Spearman correlation coefficient matrix showing the correlations between urinary concentrations of individual phthalate and phthalate alternative metabolites. Black boxes indicate metabolites from the same parent compound.

Corresponding Author Name: \_\_\_\_\_

Manuscript Number: \_\_\_\_\_

## Reporting Checklist

This checklist is used to ensure good reporting standards and to improve the reproducibility of published results. **Please respond completely to all questions relevant to your manuscript.** For more information, please read the journal's Guide to Authors.

Check here to confirm that the following information is available in the Material & Methods section:

- the **exact sample size (*n*)** for each experimental group/condition, given as a number, not a range;
- a **description of the sample collection** allowing the reader to understand whether the samples represent **technical or biological replicates** (including how many animals, litters, culture, etc.);
- a **statement of how many times the experiment shown was replicated in the laboratory**;
- **definitions of statistical methods and measures:** (For small sample sizes ( $n < 5$ ) descriptive statistics are not appropriate, instead plot individual data points)
  - very common tests, such as *t*-test, simple  $\chi^2$  tests, Wilcoxon and Mann-Whitney tests, can be unambiguously identified by name only, but more complex techniques should be described in the methods section;
  - are tests one-sided or two-sided?
  - are there adjustments for multiple comparisons?
  - **statistical test results**, e.g., ***P* values**;
  - definition of '**center values**' as **median or mean**;
  - definition of **error bars as s.d. or s.e.m. or c.i.**

Please ensure that the answers to the following questions are reported **in the manuscript itself**. We encourage you to include a specific subsection in the methods section for statistics, reagents and animal models. Below, provide the page number or section and paragraph number.

### Statistics and general methods

1. How was the sample size chosen to ensure adequate power to detect a pre-specified effect size? (Give section/paragraph or page #)

For animal studies, include a statement about sample size estimate even if no statistical methods were used.

2. Describe inclusion/exclusion criteria if samples or animals were excluded from the analysis. Were the criteria pre-established? (Give section/paragraph or page #)

3. If a method of randomization was used to determine how samples/animals were allocated to experimental groups and processed, describe it. (Give section/paragraph or page #)

For animal studies, include a statement about randomization even if no randomization was used.

### Reported in section/paragraph or page #

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4. If the investigator was blinded to the group allocation during the experiment and/or when assessing the outcome, state the extent of blinding. (Give section/paragraph or page #)

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For animal studies, include a statement about blinding even if no blinding was done.

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5. For every figure, are statistical tests justified as appropriate?

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Do the data meet the assumptions of the tests (e.g., normal distribution)?

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Is there an estimate of variation within each group of data?

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Is the variance similar between the groups that are being statistically compared? (Give section/paragraph or page #)

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**Reagents**

**Reported in section/paragraph or page #**

6. Report the source of antibodies (vendor and catalog number)

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7. Identify the source of cell lines and report if they were recently authenticated (e.g., by STR profiling) and tested for mycoplasma contamination

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**Animal Models**

**Reported in section/paragraph or page #**

8. Report species, strain, sex and age of animals

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9. For experiments involving live vertebrates, include a statement of compliance with ethical regulations and identify the committee(s) approving the experiments.

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10. We recommend consulting the ARRIVE guidelines ([PLoS Biol. 8\(6\), e1000412,2010](https://doi.org/10.1371/journal.pbio.1000412)) to ensure that other relevant aspects of animal studies are adequately reported.

**Human subjects****Reported in section/paragraph or page #**

11. Identify the committee(s) approving the study protocol.

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12. Include a statement confirming that informed consent was obtained from all subjects.

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13. For publication of patient photos, include a statement confirming that consent to publish was obtained.

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14. Report the clinical trial registration number (at [ClinicalTrials.gov](http://ClinicalTrials.gov) or equivalent).

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15. For phase II and III randomized controlled trials, please refer to the [CONSORT statement](#) and submit the CONSORT checklist with your submission.

16. For tumor marker prognostic studies, we recommend that you follow the [REMARK reporting guidelines](#).

**Data deposition****Reported in section/paragraph or page #**

17. Provide accession codes for deposited data.

Data deposition in a public repository is mandatory for:

- a. Protein, DNA and RNA sequences
- b. Macromolecular structures
- c. Crystallographic data for small molecules
- d. Microarray data

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Deposition is strongly recommended for many other datasets for which structured public repositories exist; more details on our data policy are available in the Guide to Authors. We encourage the provision of other source data in supplementary information or in unstructured repositories such as [Figshare](#) and [Dryad](#). We encourage publication of Data Descriptors (see [Scientific Data](#)) to maximize data reuse.

18. If computer code was used to generate results that are central to the paper's conclusions, include a statement in the Methods section under "**Code availability**" to indicate whether and how the code can be accessed. Include version information as necessary and any restrictions on availability.

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