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Supplemental Material

Associations between Repeated Measures of Maternal Urinary Phthalate Metabolites and Thyroid Hormone Parameters during Pregnancy

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Table S1. Cross-sectional analysis: percent change (95% CIs) in thyroid hormone concentrations in relation to interquartile range increase in urinary phthalate metabolite concentrations by study visit during gestation

Visit 1 : median 10 weeks of gestation										
Analyte	%Δ (95%CI)	p-value	%Δ (95%CI)	p-value	%Δ (95%CI)	p-value	%Δ (95%CI)	p-value	%Δ (95%CI)	p-value
	ln-TSH		Free T4		Total T3		Total T4		T3/T4 Ratio	
MEHP	-16.0 (-27.6, -2.55)	0.02*	8.24 (-1.06, 17.5)	0.08	-0.11 (-3.98, 3.77)	0.96	0.20 (-2.45, 2.85)	0.88	-0.26 (-2.89, 2.36)	0.84
MEHHP	-14.9 (-26.1, -1.90)	0.03*	3.22 (-6.00, 12.4)	0.49	0.76 (-3.22, 4.74)	0.71	0.04 (-2.72, 2.80)	0.98	1.00 (-1.70, 3.71)	0.46
MEOHP	-15.7 (-27.5, -2.01)	0.03*	5.84 (-2.94, 14.6)	0.19	1.19 (-2.62, 4.99)	0.54	0.42 (-2.21, 3.06)	0.75	0.87 (-1.72, 3.46)	0.51
MECPP	-17.8 (-30.6, -2.52)	0.02*	10.5 (0.86, 20.1)	0.03*	0.57 (-3.55, 4.70)	0.78	0.67 (-2.12, 3.45)	0.64	0.13 (-2.66, 2.91)	0.93
ΣDEHP	-17.7 (-29.8, -3.46)	0.02*	9.30 (-1.42, 20.0)	0.09	0.68 (-3.87, 5.23)	0.77	0.51 (-2.61, 3.62)	0.75	0.44 (-2.64, 3.52)	0.78
MBzP	-13.6 (-29.2, 5.57)	0.15	2.60 (-8.56, 13.8)	0.65	-0.14 (-4.94, 4.66)	0.95	0.62 (-2.59, 3.82)	0.71	-1.64 (-4.87, 1.59)	0.32
MBP	-8.99 (-24.0, 8.93)	0.30	-0.99 (-15.4, 13.4)	0.89	1.66 (-4.34, 7.66)	0.59	0.96 (-3.24, 5.17)	0.65	-0.06 (-4.17, 4.05)	0.98
MiBP	-11.0 (-27.9, 9.79)	0.27	-1.67 (-13.8, 10.5)	0.79	3.00 (-2.28, 8.27)	0.26	2.43 (-1.17, 6.04)	0.18	0.04 (-3.55, 3.64)	0.98
MEP	3.82 (-11.8, 22.1)	0.65	-3.68 (-10.9, 3.54)	0.32	2.36 (-0.76, 5.49)	0.14	0.51 (-1.59, 2.61)	0.63	1.18 (-0.94, 3.29)	0.27
MCCP	-22.0 (-31.9, -10.6)	0.00*	14.7 (3.41, 26.0)	0.01*	2.14 (-2.78, 7.05)	0.39	-0.24 (-3.57, 3.08)	0.89	2.14 (-1.16, 5.45)	0.20
Visit 2 : median 18 weeks of gestation										
	ln-TSH		Free T4		Total T3		Total T4		T3/T4 Ratio	
MEHP	3.77 (-6.10, 14.7)	0.47	4.42 (-2.7, 11.5)	0.22	1.79 (-1.56, 5.15)	0.29	1.81 (-0.52, 4.14)	0.13	-0.43 (-3.56, 2.69)	0.79
MEHHP	6.44 (-4.38, 18.5)	0.26	1.36 (-6.23, 8.94)	0.73	4.45 (0.90, 7.99)	0.01*	1.31 (-1.16, 3.77)	0.30	3.25 (-0.05, 6.55)	0.05
MEOHP	8.55 (-2.69, 21.1)	0.14	1.53 (-6.30, 9.37)	0.70	4.31 (0.65, 7.97)	0.02*	2.39 (-0.16, 4.93)	0.07	1.75 (-1.68, 5.18)	0.32
MECPP	11.3 (-0.03, 24.0)	0.05	0.89 (-6.50, 8.28)	0.81	3.41 (-0.05, 6.87)	0.05	3.27 (0.87, 5.67)	0.01*	0.01 (-3.24, 3.26)	0.99
ΣDEHP	9.93 (-1.62, 22.8)	0.09	1.79 (-6.54, 10.1)	0.67	4.11 (0.20, 8.02)	0.04*	2.89 (0.18, 5.60)	0.04*	1.04 (-2.63, 4.70)	0.58
MBzP	-12.6 (-23.5, -0.05)	0.049*	1.63 (-6.94, 10.2)	0.71	3.91 (-0.08, 7.90)	0.06	5.18 (2.42, 7.94)	0.00*	-0.6 (-4.32, 3.12)	0.75
MBP	-12.6 (-23.3, -0.37)	0.04*	9.62 (-1.61, 20.9)	0.09	3.42 (-1.60, 8.44)	0.18	2.49 (-1.37, 6.35)	0.21	1.65 (-3.27, 6.58)	0.51
MiBP	-15.1 (-26.9, -1.51)	0.03*	1.77 (-8.43, 12.0)	0.73	3.05 (-1.57, 7.68)	0.19	4.18 (0.68, 7.68)	0.02*	1.29 (-3.26, 5.85)	0.58
MEP	-4.99 (-18.0, 5.90)	0.28	0.95 (-5.32, 7.22)	0.77	1.44 (-1.46, 4.34)	0.33	0.89 (-1.17, 2.95)	0.40	1.54 (-1.16, 4.25)	0.26
MCCP	-2.65 (-12.7, 8.56)	0.63	6.34 (-5.39, 18.1)	0.29	3.05 (-2.38, 8.48)	0.27	-0.25 (-4.12, 3.63)	0.91	3.44 (-1.66, 8.55)	0.19
Visit 3 : median 26 weeks of gestation										
	ln-TSH		Free T4		Total T3		Total T4		T3/T4 Ratio	
MEHP	-6.31 (-13.9, 1.93)	0.13	-2.48 (-16.6, 11.7)	0.73	-0.13 (-4.02, 3.75)	0.95	0.22 (-2.83, 3.28)	0.89	0.65 (-3.37, 4.67)	0.75
MEHHP	-1.14 (-9.30, 7.74)	0.79	-7.35 (-20.8, 6.14)	0.28	-0.07 (-3.73, 3.59)	0.97	-0.17 (-3.04, 2.70)	0.91	0.82 (-2.97, 4.61)	0.67
MEOHP	-2.58 (-10.5, 6.08)	0.55	-4.18 (-18.8, 10.4)	0.57	0.65 (-3.28, 4.58)	0.75	1.46 (-1.64, 4.57)	0.35	0.46 (-3.62, 4.53)	0.83
MECPP	-2.92 (-11.1, 5.97)	0.51	-3.27 (-17.4, 10.9)	0.65	1.27 (-2.58, 5.13)	0.52	2.67 (-0.30, 5.63)	0.08	0.59 (-3.41, 4.58)	0.77
ΣDEHP	-2.91 (-10.8, 5.73)	0.50	-5.44 (-21.6, 10.7)	0.51	0.92 (-3.48, 5.33)	0.68	2.08 (-1.35, 5.51)	0.23	0.74 (-3.82, 5.30)	0.75
MBzP	-8.68 (-18.2, 1.88)	0.10	-2.26 (-18.3, 13.8)	0.78	1.08 (-3.31, 5.47)	0.63	3.75 (0.36, 7.14)	0.03*	-2.69 (-7.23, 1.85)	0.24
MBP	-6.71 (-15.4, 2.81)	0.16	-0.02 (-21.1, 21.1)	1.00	1.42 (-4.07, 6.90)	0.61	0.50 (-3.81, 4.80)	0.82	0.76 (-4.93, 6.45)	0.79

MiBP	-8.29 (-17.5, 1.91)	0.11	-2.98 (-21.0, 15.0)	0.74	-1.53 (-6.41, 3.36)	0.54	0.86 (-2.89, 4.60)	0.65	-0.27 (-5.35, 4.82)	0.92
MEP	-4.11 (-12.3, 4.85)	0.36	-2.07 (-12.5, 8.33)	0.70	2.12 (-0.56, 4.81)	0.12	0.74 (-1.38, 2.86)	0.49	1.83 (-0.96, 4.62)	0.20
M CPP	-6.92 (-14.5, 1.31)	0.10	-9.80 (-31.8, 12.2)	0.38	0.74 (-5.19, 6.67)	0.81	1.24 (-3.31, 5.78)	0.59	0.46 (-5.70, 6.62)	0.88

Visit 4 : median 35 weeks of gestation

	ln-TSH		Free T4		Total T3		Total T4		T3/T4 Ratio	
MEHP	-6.31 (-14.7, 2.86)	0.17	2.98 (-2.84, 8.80)	0.31	0.31 (-4.31, 4.93)	0.90	4.03 (1.19, 6.88)	0.01*	-6.18 (-10.9, -1.47)	0.01*
MEHHP	0.17 (-9.36, 10.7)	0.97	2.95 (-3.32, 9.21)	0.36	1.20 (-3.74, 6.13)	0.63	1.90 (-1.20, 4.99)	0.23	-4.30 (-9.39, 0.78)	0.10
MEOHP	-1.12 (-10.9, 9.78)	0.83	3.59 (3.00, 10.17)	0.28	1.34 (-3.81, 6.49)	0.61	3.01 (-0.23, 6.25)	0.07	-5.76 (-11.0, -0.48)	0.03*
M CPP	-0.74 (-11.5, 11.4)	0.90	4.32 (-2.94, 11.6)	0.24	1.68 (-3.86, 7.23)	0.55	4.23 (0.65, 7.80)	0.02*	-5.37 (-11.1, 0.33)	0.06
ΣDEHP	-2.03 (-12.3, 9.49)	0.72	4.43 (-2.55, 11.4)	0.21	1.71 (-3.75, 7.17)	0.54	3.99 (0.56, 7.42)	0.02*	-5.88 (-11.5, -0.28)	0.04*
MBzP	5.29 (-5.63, 17.5)	0.35	8.26 (1.34, 15.2)	0.02*	-2.84 (-8.03, 2.35)	0.28	0.42 (-3.03, 3.87)	0.81	-6.09 (-11.4, -0.77)	0.03*
MBP	-1.29 (-12.3, 11.1)	0.83	3.42 (-4.07, 10.9)	0.37	-0.51 (-6.00, 4.98)	0.85	0.02 (-3.67, 3.71)	0.99	-3.60 (-9.26, 2.06)	0.21
MiBP	-2.44 (-13.4, 9.96)	0.68	3.45 (-4.35, 11.2)	0.39	-1.23 (-6.94, 4.48)	0.67	0.37 (-3.56, 4.29)	0.85	-1.58 (-7.74, 4.58)	0.61
MEP	-2.04 (-11.8, 8.79)	0.70	2.97 (-3.82, 9.77)	0.39	3.34 (-1.59, 8.27)	0.18	0.61 (-2.78, 3.99)	0.73	3.01 (-2.19, 8.22)	0.26
M CPP	-5.15 (-14.3, 5.01)	0.31	8.55 (2.05, 15.1)	0.01*	1.64 (-3.11, 6.38)	0.50	0.51 (-2.74, 3.75)	0.76	-1.26 (-6.18, 3.66)	0.61

Linear regression models adjusted for urinary specific gravity, gestational age at time of sample collection, maternal age at enrollment, body mass index (BMI) at time of sample collection, and health insurance provider.

*p<0.05