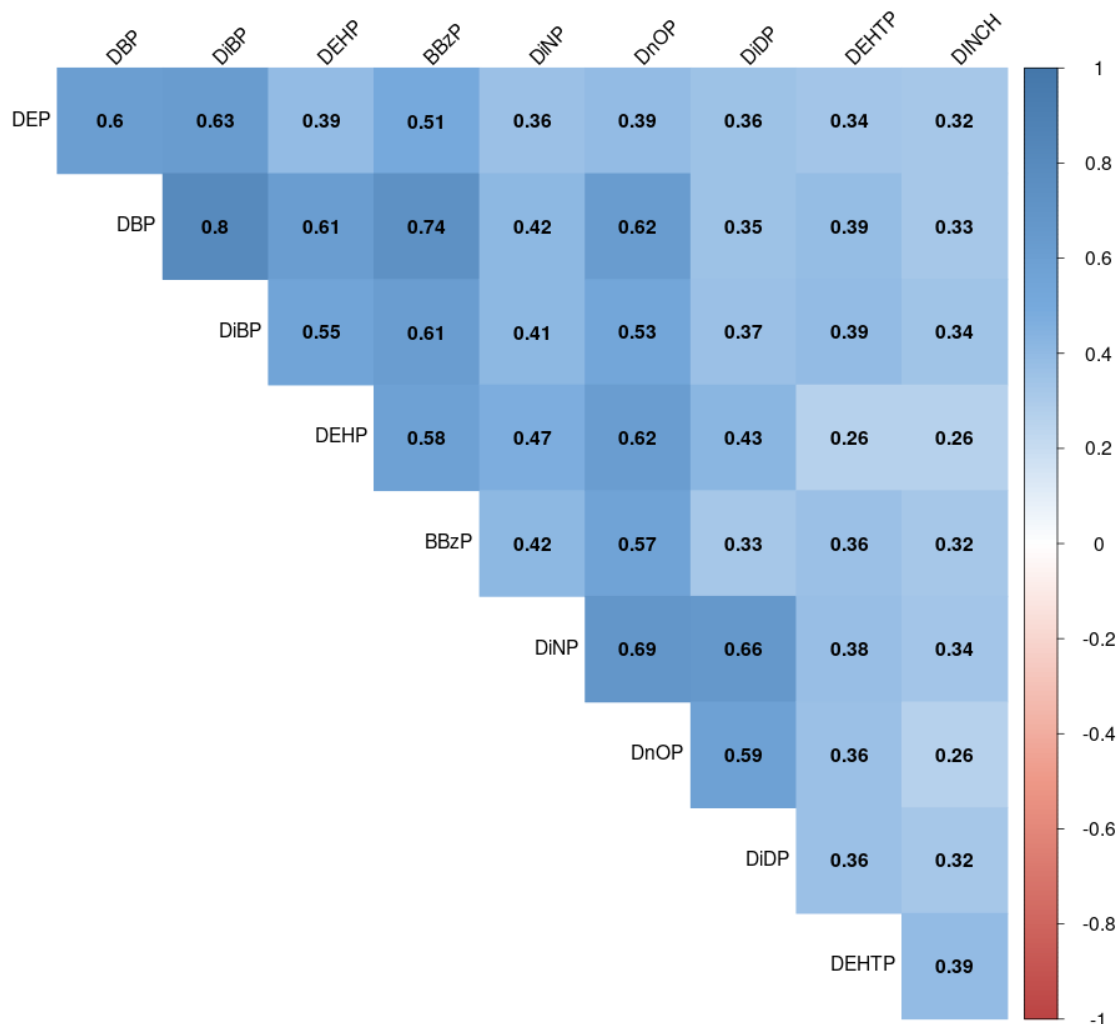


**Supplemental Figure.** Spearman correlation coefficients of parent phthalate concentrations in mid-childhood (age 6-10 years) in Project Viva (n = 830).



Abbreviations: DEP, diethyl phthalate; DBP, di-n-butyl phthalate; DiBP, di-iso-butyl phthalate; DEHP, di-ethylhexyl phthalate; BBzP, benzylbutyl phthalate; DiNP, di-isononyl phthalate; DnOP, di-n-octyl phthalate; DiDP, di-isodecyl phthalate; DEHTP, di-2-ethylhexyl terephthalate; DINCH, 1,2-Cyclohexane dicarboxylic acid, diisononyl ester.

**Supplemental Table 1.** Detectability of urinary phthalate and phthalate alternative metabolite concentrations in mid-childhood (age 6-10 years) in Project Viva (n = 830).

Parent compound	Urinary metabolite(s)	% >LOD
<i>Low molecular weight phthalates</i>		
DEP	MEP	99.5
DBP	MBP	99.9
	MHBP	96
	MiBP	99
	MHiBP	99
<i>High molecular weight phthalates</i>		
DEHP	MECPP	100
	MEHHP	100
	MEOHP	100
	MEHP	85
BBzP	MBzP	100
DiNP	MCOP	100
	MNP	44
	MONP	99
DnOP	MCPP	99
DiDP	MCNP	100
<i>Phthalate alternatives</i>		
DEHTP	MEHHTP	31
	MECPTP	94
DINCH	MHINCH	34
	MCOCH	17

Abbreviations: LOD, limit of detection; DEP, diethyl phthalate; DBP, di-n-butyl phthalate; DiBP, di-iso-butyl phthalate; DEHP, di-ethylhexyl phthalate; BBzP, benzylbutyl phthalate; DiNP, di-isononyl phthalate; DnOP, di-n-octyl phthalate; DiDP, di-isodecyl phthalate; DEHTP, di-2-ethylhexyl terephthalate; DINCH, 1,2-Cyclohexane dicarboxylic acid, diisononyl ester; MEP, monoethyl phthalate; MBP, mono-n-butyl phthalate; MHBP, mono-3-hydroxybutyl phthalate; MiBP, mono-isobutyl phthalate; MHiBP, mono-2-methyl-2-hydroxypropyl phthalate; MBzP, monobenzyl phthalate; MECPP, mono-2-ethyl-5-carboxypentyl phthalate; MEHHP, mono-2-ethyl-5-hydroxyhexyl phthalate; MEOHP, mono-2-ethyl-5-oxohexyl phthalate; MEHP, mono-2-ethylhexyl phthalate; MCOP, mono carboxyoctyl phthalate; MNP, mono isononyl phthalate; MONP, mono oxoisononyl phthalate; MCNP, mono carboxynonyl phthalate; MCPP, mono-3-carboxypropyl phthalate; MEHHTP, mono-2-ethyl-5-hydroxyhexyl terephthalate; MECPTP, mono-2-ethyl-5-carboxypentyl terephthalate; MHINCH, cyclohexane-1,2-dicarboxylic acid monohydroxy isononyl ester; MCOCH, cyclohexane-1,2- dicarboxylic acid mono carboxyoctyl ester

	Low molecular weight			High molecular weight				
	DEP	DBP <sup>a</sup>	DiBP	DEHP <sup>a</sup>	BBzP <sup>a</sup>	DiNP <sup>b</sup>	DnOP <sup>b</sup>	DiDP <sup>b</sup>
	% Change (95% CI)							
Sociodemographic characteristics								
Age (per year)	12.3 (-0.9, 27.2)	-0.4 (-9.2, 9.3)	-5.0 (-13.6, 4.4)	<b>-11.5 (-20.0, -2.1)</b>	-1.2 (-12.1, 10.9)	6.4 (-5.2, 19.4)	1.1 (-8.8, 12.0)	-1.2 (-11.9, 10.8)
Sex								
Female	<b>38.3 (19.8, 59.8)</b>	<b>26.6 (13.8, 40.8)</b>	<b>28.6 (15.3, 43.4)</b>	9.9 (-2.2, 23.5)	0.1 (-12.4, 14.4)	10.0 (-3.7, 25.7)	7.9 (-4.2, 21.4)	6.3 (-6.9, 21.3)
Male	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Maternal Education								
Less than college	<b>24.1 (2.7, 50.0)</b>	5.2 (-8.6, 21.1)	11.5 (-3.4, 28.7)	12.5 (-3.5, 31.1)	17.4 (-1.5, 40.0)	18.7 (-0.4, 41.5)	11.8 (-4.3, 30.7)	-3.6 (-18.9, 14.7)
College	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Race								
Black	<b>179.2 (122.0, 251.0)</b>	10.8 (-6.5, 31.3)	<b>26.5 (6.4, 50.4)</b>	1.6 (-15.6, 22.3)	4.3 (-15.7, 28.9)	1.9 (-17.6, 25.9)	<b>-21.0 (-34.5, -4.7)</b>	19.1 (-3.4, 46.9)
Hispanic	<b>71.2 (19.0, 146.2)</b>	<b>35.7 (3.6, 77.6)</b>	<b>39.6 (6.1, 83.8)</b>	5.2 (-21.6, 41.2)	19.8 (-14.5, 67.8)	-22.3 (-44.5, 8.7)	-17.3 (-38.6, 11.5)	2.4 (-26.6, 42.8)
Asian	-4.6 (-38.0, 46.7)	13.5 (-17.5, 56.2)	30.2 (-6.0, 80.4)	-14.4 (-39.6, 21.3)	-4.8 (-36.2, 41.9)	<b>-34.4 (-56.0, -2.3)</b>	<b>-32.9 (-52.9, -4.4)</b>	-24.3 (-49.0, 12.3)
Other or more than one race	<b>48.6 (18.1, 86.8)</b>	2.9 (-13.2, 22.0)	8.1 (-9.1, 28.5)	-7.5 (-23.2, 11.3)	-3.9 (-22.3, 18.8)	-11.4 (-28.3, 9.5)	-3.9 (-20.4, 16.0)	10.5 (-10.4, 36.3)
White	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Annual household income								
≤ \$40,000	<b>54.3 (19.0, 100.0)</b>	11.0 (-8.4, 34.6)	20.1 (-1.3, 46.1)	-2.9 (-21.3, 19.9)	27.0 (-0.1, 61.6)	-16.0 (-33.9, 6.8)	-9.2 (-26.6, 12.4)	-4.2 (-24.5, 21.5)
\$40,000-70,000	<b>31.6 (6.1, 63.3)</b>	3.3 (-12.0, 21.2)	11.4 (-5.4, 31.1)	13.3 (-4.9, 34.9)	8.5 (-11.1, 32.5)	4.1 (-14.7, 27.1)	1.1 (-15.3, 20.6)	-5.9 (-22.8, 14.6)
> \$70,000	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref

	DEP	DBP <sup>a</sup>	DiBP	DEHP <sup>a</sup>	BBzP <sup>a</sup>	DiNP <sup>b</sup>	DnOP <sup>b</sup>	DiDP <sup>b</sup>
	% Change (95% CI)							
Dietary intake								
≥ Daily intake (reference is less than daily intake) of:								
Vegetables	9.0 (-6.6, 27.4)	-5.3 (-15.6, 6.3)	-3.7 (-14.4, 8.3)	-4.1 (-15.4, 8.8)	-3.5 (-16.4, 11.5)	<b>-14.2 (-25.7, -1.0)</b>	-6.7 (-17.8, 6.0)	-0.9 (-14.0, 14.3)
Fruits	1.9 (-13.3, 19.7)	-4.8 (-15.5, 7.3)	-5.0 (-15.9, 7.3)	-7.8 (-19.1, 5.0)	-9.5 (-22.1, 5.1)	3.6 (-10.7, 20.2)	0.8 (-11.7, 15.0)	8.5 (-6.3, 25.8)
Baked goods	1.2 (-19.5, 27.1)	3.6 (-12.5, 22.7)	-2.8 (-18.2, 15.4)	10.7 (-8.0, 33.1)	23.3 (-0.2, 52.3)	9.9 (-11.0, 35.7)	10.2 (-8.6, 33.0)	13.2 (-8.1, 39.5)
Eggs	11.7 (-15.9, 48.4)	-3.3 (-21.6, 19.4)	6.0 (-14.4, 31.4)	19.4 (-5.1, 50.2)	-1.0 (-23.9, 28.8)	-6.7 (-28.3, 21.3)	-9.0 (-27.9, 14.9)	0.9 (-22.2, 30.9)
Meat	-8.3 (-28.1, 16.9)	-8.7 (-23.8, 9.3)	-8.7 (-24.0, 9.8)	4.6 (-14.1, 27.4)	0.0 (-20.2, 25.3)	7.6 (-14.1, 34.7)	-0.8 (-18.8, 21.2)	-4.9 (-23.9, 18.8)
Pasta/whole grains	-6.3 (-19.5, 9.1)	5.0 (-6.2, 17.5)	0.1 (-10.8, 12.3)	-3.3 (-14.5, 9.3)	0.2 (-12.9, 15.4)	<b>-14.0 (-25.3, -1.0)</b>	4.1 (-8.1, 18.0)	-5.0 (-17.4, 9.1)
Whole fat dairy	14.8 (-1.1, 33.2)	8.4 (-2.9, 21.1)	<b>12.2 (0.2, 25.5)</b>	8.3 (-4.0, 22.3)	<b>18.1 (2.9, 35.6)</b>	2.7 (-10.5, 17.9)	2.6 (-9.2, 15.9)	-7.6 (-19.4, 5.9)
Low fat dairy	-3.1 (-17.7, 14.0)	<b>-11.6 (-21.6, -0.3)</b>	-10.0 (-20.4, 1.8)	-12.0 (-22.9, 0.4)	0.3 (-13.8, 16.6)	-12.8 (-25.0, 1.3)	-12.5 (-23.4, 0.0)	<b>-15.8 (-27.4, -2.2)</b>
> Weekly (reference is weekly or less) intake of:								
Fish	7.4 (-12.8, 32.3)	-7.2 (-20.5, 8.3)	-3.3 (-17.4, 13.2)	-10.3 (-24.2, 6.1)	-4.0 (-20.9, 16.4)	-2.3 (-19.4, 18.5)	-6.9 (-21.5, 10.5)	0.3 (-17.1, 21.4)
Fried foods	-3.6 (-23.0, 20.8)	1.7 (-13.9, 20.2)	-0.8 (-16.4, 17.6)	-4.4 (-20.3, 14.8)	-1.5 (-20.1, 21.3)	1.1 (-17.9, 24.6)	-1.6 (-18.2, 18.4)	2.5 (-16.6, 26.0)
Fast food	34.0 (-0.5, 80.4)	8.6 (-12.9, 35.4)	-4.3 (-23.5, 19.9)	13.9 (-10.5, 44.9)	18.6 (-10.0, 56.2)	30.6 (-0.8, 72.0)	<b>31.0 (2.6, 67.3)</b>	23.0 (-6.3, 61.5)
Restaurant food	11.0 (-18.9, 51.9)	4.9 (-16.8, 32.4)	19.8 (-5.5, 51.9)	15.7 (-10.3, 49.2)	-3.7 (-28.0, 28.8)	29.8 (-2.9, 73.5)	11.0 (-14.2, 43.6)	-8.4 (-31.3, 22.0)
	DEP	DBP <sup>a</sup>	DiBP	DEHP <sup>a</sup>	BBzP <sup>a</sup>	DiNP <sup>b</sup>	DnOP <sup>b</sup>	DiDP <sup>b</sup>
	% Change (95% CI)							
Urine collection characteristics								
Time since last meal (per hour)	1.4 (0.0, 2.9)	0.8 (-0.3, 1.9)	0.6 (-0.5, 1.7)	-0.1 (-1.3, 1.0)	0.8 (-0.5, 2.1)	-0.6 (-1.9, 0.7)	0.1 (-1.1, 1.2)	-0.8 (-2.1, 0.5)
Time of urine collection								
Morning (6a-11a)	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Midday (11a-4p)	1.3 (-16.5, 23.0)	-9.3 (-21.5, 4.7)	-6.6 (-19.3, 8.2)	10.2 (-5.8, 29.0)	-11.0 (-25.7, 6.5)	3.6 (-13.4, 24.0)	-11.3 (-24.3, 4.0)	-1.2 (-17.3, 17.9)
Evening (4p-8p)	-13.4 (-40.1, 25.2)	12.1 (-14.7, 47.2)	-12.0 (-33.4, 16.2)	16.7 (-13.4, 57.2)	19.3 (-15.2, 67.9)	-11.9 (-37.3, 23.8)	21.7 (-10.0, 64.7)	-15.2 (-39.5, 18.8)

Year of urine collection

Year of urine collection	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
2007								
2008	-0.1 (-22.5, 28.9)	<b>-19.8 (-33.6, -3.2)</b>	5.3 (-13.1, 27.7)	-6.9 (-24.2, 14.4)	5.1 (-17.0, 33.1)	11.3 (-12.0, 40.8)	-18.6 (-33.9, 0.3)	8.7 (-13.8, 37.2)
2009	5.5 (-18.6, 36.7)	<b>-21.0 (-34.8, -4.2)</b>	17.6 (-3.3, 43.0)	<b>-33.2 (-45.9, -17.7)</b>	6.9 (-16.0, 35.9)	<b>52.0 (19.6, 93.1)</b>	-15.9 (-32.0, 4.0)	18.3 (-6.7, 49.9)
2010	4.3 (-25.9, 46.8)	-21.6 (-39.2, 1.0)	11.4 (-14.0, 44.2)	<b>-44.2 (-57.6, -26.4)</b>	5.0 (-23.5, 44.1)	<b>150.5 (82.7, 243.6)</b>	-11.6 (-33.2, 17.0)	30.1 (-4.8, 77.9)
<b>Model R<sup>2</sup></b>	0.47	0.48	0.46	0.44	0.37	0.35	0.39	0.25

<sup>a</sup> Prohibited in select children's products at concentrations > 0.1% per phthalate as of 2008 under the U.S. under the Consumer Product Safety Improvement Act.

<sup>b</sup> Interim prohibition in select children's products at concentrations > 0.1% per phthalate as of 2008 under the U.S. under the Consumer Product Safety Improvement Act.

Abbreviations: CI, confidence interval; DEP, diethyl phthalate; DBP, di-n-butyl phthalate; DiBP, di-iso-butyl phthalate; DEHP, di-ethylhexyl phthalate; BBzP, benzylbutyl phthalate; DiNP, di-isononyl phthalate; DnOP, di-n-octyl phthalate; DiDP, di-isodecyl phthalate; DEHTP, di-2-ethylhexyl terephthalate.