Supplementary Tables

S1. Median concentrations of pesticides biomarkers (µg/g creatinine) (N=449) in 7–12 year-old Green Housing Study children (N=162) compared to NHANES children 6–11 years

	Median (95% CI)				
	Boston (N=136)	Cincinnati (N=110)	New Orleans (N=203)	All sites (N=449)	NHANES 2013-2014
TCPy*	1.24 (1.05-1.42)**	1.54 (1.27-1.80)	1.20 (0.99-1.41)**	1.28 (1.16-1.40)**	1.77 (1.49-1.95) [a]
PNP*	0.97 (0.86-1.08)	0.82 (0.66-0.97)**	0.70 (0.63-0.77)**	0.82 (0.75-0.89)**	1.08 (.93-1.30)
3-PBA*	0.37 (0.26-0.48)**	0.95 (0.71 -1.19)	0.65 (0.53-0.78)**	0.64 (0.55-0.73)**	0.97 (.73-1.27)
2,4-D*	0.19 (0.14-0.25)**	0.21 (0.13-0.30)**	0.32 (0.29-0.36)**	0.28 (0.25-0.30)**	0.50 (0.42-0.66)

* differences between sites significant ($p<0.05$ Kruskal Wallis Test)
** significantly different from NHANES concentration ($p<0.05$ Sign Test)
a. Data from NHANES 2009-2010
IMPY, trans-DCCA, and 4-F3PBA concentrations were below LOD for all sites and NHANES
N= 386 for TCPy; N=411 for PNP; N=408 for 3-PBA ; N=421 for 2,4-D

S2. Bivariate associations between covariates and asthma outcomes.

	Asthma Attack (no.)				**HCU (Y v N)**				**FeNO (ln)**			
	β	95% CI		p	OR	95% CI		p	β	95% CI		p
Sex				0.59				0.45				**0.08**
Male	-0.14	-0.64	0.36	0.59	0.7	0.27	1.78		0.18	-0.01	0.38	0.07
Female												
Race/Ethnicity				0.78				0.96				**0.01**
Black/AA	-0.09	-0.76	0.57		1.03	0.31	3.43		-0.33	-0.57	-0.10	
Other												
BMI				0.36				**0.03**				0.89
Underweight	1.33	0.70	1.96		0.35	0.04	2.88		-0.02	-0.33	0.27	
Healthy												
Overweight	-0.16	-0.49	0.17		0.3	0.06	1.38		-0.06	-0.34	0.21	
Obese	-0.03	-0.60	0.54		0.11	0.01	0.87		-0.10	-0.38	0.17	
Annual HH Income				0.23				-				**0.06**
<$25,000	0.53	-0.01	1.06						-0.48	-0.93	-0.03	
≥$25,000												
Caregiver Education				0.25				0.76				0.98
High School	-0.31	-0.96	0.33		0.84	0.26	2.73		-0.02	-0.26	0.21	
< High School	-0.49	-0.98	0.002		1.31	0.42	4.1		0.002	-0.26	0.27	
> High School												
Daily Medication Use				**0.01***				**<0.001**				0.36
Yes	0.71	0.32	1.10		14.49	6.24	33.64	0	0.10	-0.12	0.34	
No												
Sensitization												
Dog	0.17	-0.43	0.76	0.61	1.46	0.54	3.94	0.48	0.28	0.06	0.51	**0.01**
Dust mite (Der f)	0.52	0.05	0.98	**0.09**	1.79	0.71	4.52	0.23	0.27	0.07	0.47	**<0.01**
Dust mite (Der p)	0.45	0.02	0.94	**0.09**	2.06	0.82	5.17	0.15	0.41	0.21	0.60	**<.001**
HDM	0.45	-0.01	0.90	**0.11**	1.94	0.76	4.96	**0.18**	0.36	0.16	0.55	**<.001**
Cockroach	0.48	-0.03	0.99	**0.13**	1.84	0.72	4.74	0.23	0.19	-0.01	0.40	**0.06**
Cat	0.4	-0.24	1.03	0.31	1.22	0.41	3.62	0.74	0.36	0.11	0.61	**<.001**
Mouse	-0.02	-0.49	0.46	0.94	2.43	0.82	7.15	0.21	0.26	-0.06	0.59	**0.12**
Site				0.69				0.28				**<.0001**
Cincinnati	-0.26	-0.76	0.25		1.74	0.57	5.37		-0.28	-0.57	0.01	
New Orleans	-0.16	-0.88	0.55		0.67	0.21	2.11		-0.66	-0.89	-0.43	
Boston												
Season				0.37				**0.17**				**0.13**
Spring	0.07	-0.58	0.71		0.28	0.1	0.82		0.01	-0.20	0.23	
Summer	0.34	-0.01	0.69		0.49	0.17	1.39		0.15	-0.06	0.38	
Fall	-0.05	-0.63	0.54		0.59	0.23	1.51		0.20	-0.02	0.43	
Winter												
Age	-0.14	-0.26	-0.01	0.09	0.81	0.63	1.04	**0.09**	0.11	0.05	0.16	**<.001**

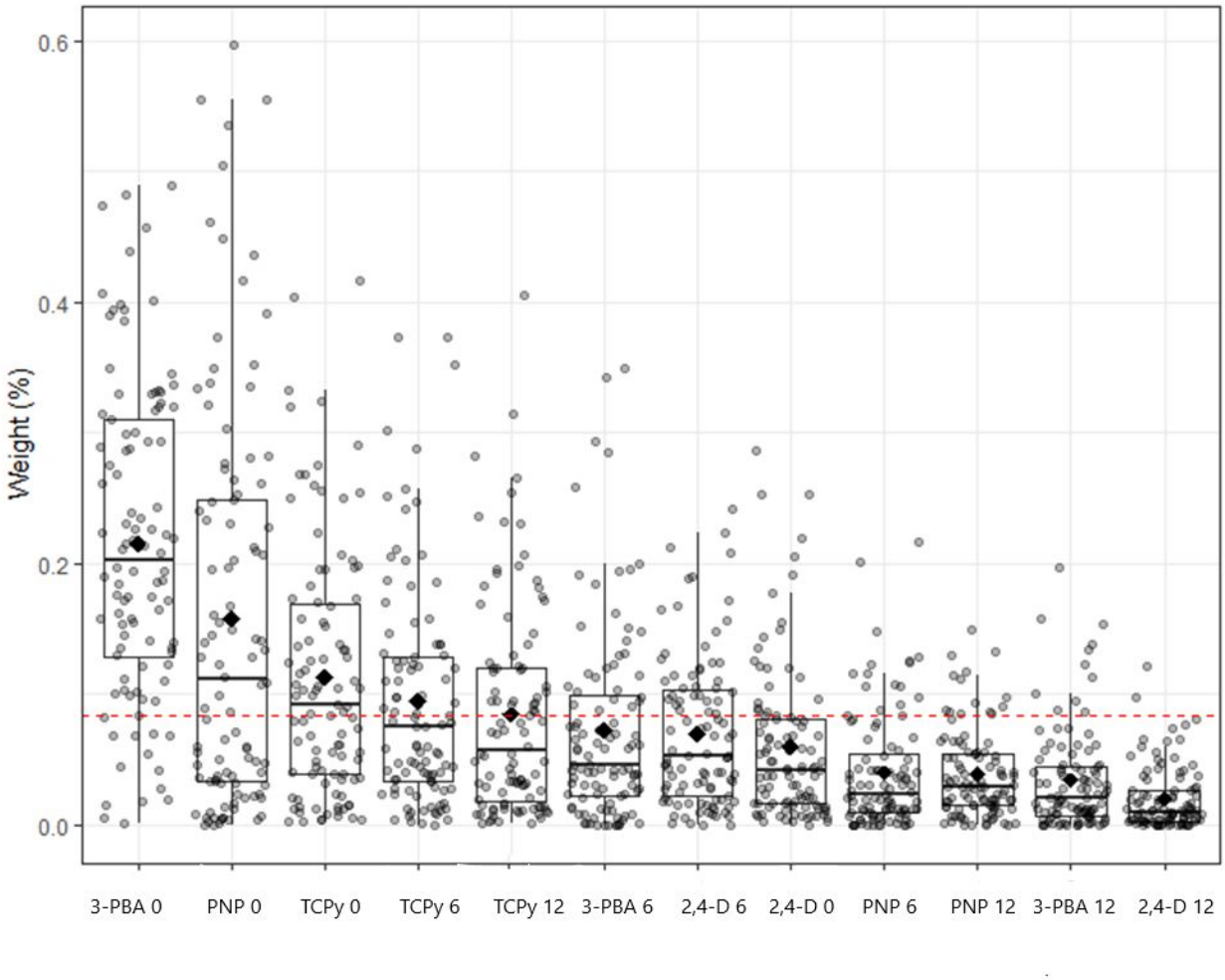
$PM_{2.5}$	$-2x10^{-3}$	-0.01	0.002	0.32	1.00	0.99	1.01	0.93	0.0003	-0.002	0.003	0.83
Cotinine	$-2x10^{-3}$	-0.01	0.002	0.26	1.00	0.99	1.01	0.33	0.001	-0.001	0.02	0.41

* Daily medication use was not included in final models of asthma attacks due to being associated with HDM

Der f = *Dermatophagoides farinae*, Der p = *Dermatophagoides pteronyssinus*
HDM : either house dust mite AA=African American

Supplementary figures

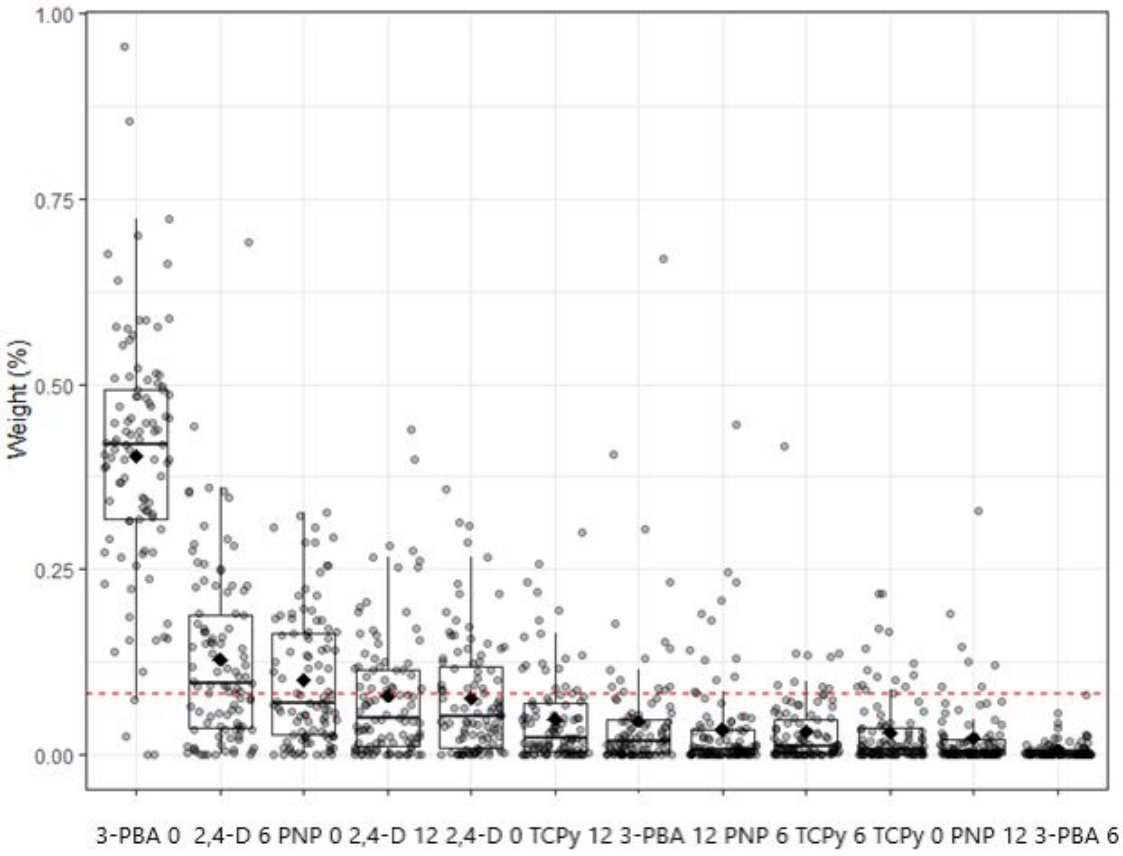
Figure S1. Adjusted weights of each metabolite at each time point for asthma attacks of 100 repeated hold out samples



TCPy: 3,5,6-trichloro-2-pyridinol (TCPy)
2-isopropyl-4-methyl-6-hydroxypyrimidine (IMPY)
para-nitrophenol (PNP)
3-phenoxybenzoic acid (3-PBA)
4-fluoro-3-phenoxybenzoic acid (4F-3PBA)
trans-3-(2,2-dichlorovinyl)-2,2-dimethyl-cyclopropane-1-carboxylic (*trans*-DCCA)
2,4-dichlorophenoxyacetic acid (2,4-D)

0: Month 0 (baseline)
6: Month 6
12: Month 12

Figure S2. Adjusted weights of each metabolite at each time point for Health Care Utilization of 100 repeated hold out samples



TCPy: 3,5,6-trichloro-2-pyridinol (TCPy)
2-isopropyl-4-methyl-6-hydroxypyrimidine (IMPY)
para-nitrophenol (PNP)
3-phenoxybenzoic acid (3-PBA)
4-fluoro-3-phenoxybenzoic acid (4F-3PBA)
trans-3-(2,2-dichlorovinyl)-2,2-dimethyl-cyclopropane-1-carboxylic (*trans*-DCCA)
2,4-dichlorophenoxyacetic acid (2,4-D)

0: Month 0 (baseline)
6: Month 6
12: Month 12

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Reporting Checklist

This checklist is used to ensure the quality, transparency, and reproducibility of published results. We require authors attest that these components have been considered and addressed.

Exposure Assessment Guiding Principle	**Yes/No/Not Applicable**
Has the method to estimate exposure been described clearly?	Yes
Has the exposure assessment method been validated/evaluated as a proxy for exposure and is its validity or agreement with other methods described?	Yes
Is the time period over which the exposure assessment method is considered to be a proxy for exposure appropriate for the research question?	Yes
If exposure is modeled or measured, were all critical potential routes and sources of exposure considered?	Yes
If exposure is modeled, how does it vary over space and time and are necessary historical data incorporated?	NA
If biomarkers are used as indicators of exposure, could the biomarker measurement have been affected by the outcome (i.e., reverse causality)?	No
Are the strengths and weaknesses of the exposure approach detailed and discussed?	Yes