Supplemental Table 1: Weighted, adjusted geometric mean concentrations of biomarkers of exposure to tobacco & cannabis-related toxicants (n=5,859)

			Non-tobacco users (n=1,736)			E-cigarette-only users (n=181)			Cigarette-only smokers (n=2,412)			All exclusive cigar users (n=336)			Hookah-only smokers (n=402)			Dual users of tobacco cigarettes and e-cigarettes (n=792)		
Chemical Class	Urinary Biomarker (Parent Compound) (Unit)	P30D Cannabis Use	Geo Mean	95% CI Lower	95% CI Upper	Geo Mean	95% CI Lower	95% CI Upper	Geo Mean	95% CI Lower	95% CI Upper	Geo Mean	95% CI Lower	95% CI Upper	Geo Mean	95% CI Lower	95% CI Upper	Geo Mean	95% CI Lower	95% CI Upper
Nicotine	Total Nicotine Equivalent-2 (TNE-2) (Nicotine) (nmol/mL)	No	0.007	0.006	0.008	0.18	0.10	0.30	22.98	20.33	25.97	0.17	0.08	0.28	0.045	0.025	0.080	41.79	38.45	45.41
		Yes	0.008	0.003	0.023	0.56	0.17	1.80	24.19	20.77	28.16	**0.47***	**0.24**	**0.93**	0.092	0.036	0.236	34.24	27.12	43.22
Tobacco-specific nitrosamines (TSNAs)	NNAL (NNK) (ng/mL)	No	0.005	0.004	0.006	0.002	0.001	0.004	0.171	0.162	0.180	0.053	0.039	0.070	0.009	0.006	0.012	0.243	0.228	0.257
		Yes	0.007	0.005	0.010	0.004	0.002	0.007	0.163	0.149	0.177	0.046	0.036	0.059	0.008	0.005	0.013	0.232	0.202	0.266
Polycyclic aromatic hydrocarbons (PAHs)	1-Naphthol (Naphthalene) (ug/mL)	No	1.74	1.371	2.200	1.25	0.61	2.55	9.28	8.75	9.84	3.20	2.15	4.76	1.85	1.47	2.31	11.62	10.41	12.98
		Yes	3.03	0.79	11.59	**2.83***	**1.19**	**6.70**	10.49	8.78	12.52	3.39	2.34	4.91	2.12	1.62	2.76	**18.15***	**13.71**	**24.03**
	2-Naphthol (Naphthalene) (ug/mL)	No	6.45	5.29	7.87	5.12	3.39	7.72	13.04	12.51	13.58	6.52	5.29	8.01	7.79	6.73	9.01	13.38	12.76	14.02
		Yes	5.01	3.14	7.97	6.70	4.29	10.48	13.25	12.25	14.32	7.35	6.02	8.95	7.58	6.29	9.13	14.62	13.08	16.34
	3-Hydroxyfluorene (Fluorene) (ng/mL)	No	87.63	74.97	102.42	64.45	46.19	89.91	506.21	486.74	526.46	176.94	139.63	224.22	126.26	105.29	151.40	555.08	529.43	581.98
		Yes	81.11	54.57	120.54	**129.24***	**70.67**	**236.34**	**577.83***	**530.95**	**628.84**	230.05	178.30	296.84	**167.07***	**136.60**	**204.34**	**745.51***	**664.38**	**836.54**
	2-Hydroxyfluorene (Fluorene) (ng/mL)	No	237.59	207.12	272.54	164.59	121.80	222.42	902.02	870.76	934.40	371.66	305.96	451.47	288.12	245.35	338.33	1006.44	964.07	1050.68
		Yes	214.81	149.60	308.42	**291.41***	**184.63**	**459.92**	**1000.35***	**918.22**	**1089.83**	420.61	341.25	518.42	**352.84***	**299.53**	**415.63**	**1280.67***	**1143.40**	**1434.42**
	1-Hydroxyphenanthrene (Phenanthrene) (ng/mL)	No	158.24	140.07	178.77	98.89	70.67	138.37	168.98	160.66	177.73	138.19	116.42	164.02	154.71	135.03	177.26	178.03	169.44	187.06
		Yes	121.32	78.29	187.98	130.01	80.39	210.24	182.71	167.06	199.82	131.46	109.07	158.44	140.79	122.18	162.23	**220.92***	**194.67**	**250.70**
	1-Hydroxypyrene (Pyrene) (ng/mL)	No	166.99	148.35	187.96	130.17	104.02	162.88	283.57	269.81	298.04	199.91	169.28	236.09	209.93	178.80	246.47	305.18	291.53	319.47
		Yes	140.51	111.07	177.74	**233.62***	**156.22**	**349.36**	**335.14***	**301.43**	**372.61**	226.50	188.41	272.29	235.70	193.66	286.87	**436.52***	**379.90**	**501.58**
	2,3-Hydroxyphenanthrene (Phenanthrene) (ng/mL)	No	176.44	156.05	199.49	124.14	89.66	171.86	284.89	273.17	297.11	205.96	169.46	250.30	199.57	175.11	227.43	277.36	262.84	292.68
		Yes	134.72	88.89	204.18	185.11	120.06	285.39	**320.74***	**291.14**	**353.34**	212.42	168.73	267.40	200.75	169.81	237.32	**340.45***	**297.12**	**390.09**
Volatile organic compounds (VOCs)	N-Acetyl-S-(2-cyanoethyl)-L-cysteine (CYMA) (Acrylonitrile) (ng/mL)	No	2.59	1.97	3.41	2.29	1.50	3.48	99.75	95.75	103.92	21.65	16.35	28.65	4.37	3.22	5.93	127.19	121.04	133.65
		Yes	**8.68***	**4.04**	**18.62**	**12.91***	**5.83**	**28.61**	**138.98***	**128.46**	**150.36**	**59.14***	**41.51**	**86.34**	**17.10***	**11.18**	**26.14**	**177.46***	**154.88**	**203.31**
	N-Acetyl-S-(benzyl)-L-cysteine (BMA) (Toluene) (ng/mL)	No	7.46	6.24	8.91	6.46	4.56	9.14	6.49	6.05	6.97	7.57	6.10	9.40	8.56	7.18	10.19	6.67	6.10	7.29
		Yes	5.95	4.38	8.07	6.55	4.32	9.91	7.14	6.52	7.81	9.03	6.96	11.73	8.40	6.80	10.38	7.52	6.17	9.17
	N-Acetyl-S-(phenyl)-L-cysteine (PMA) (Benzene) (ng/mL)	No	1.12	0.94	1.33	1.29	0.89	1.87	1.06	1.00	1.11	1.16	0.94	1.43	1.10	0.94	1.29	0.98	0.92	1.04
		Yes	0.95	0.69	1.31	1.28	0.86	1.90	1.11	0.99	1.25	0.83	0.65	1.05	1.09	0.88	1.35	1.00	0.85	1.17
	N-Acetyl-S-(2-carboxyethyl)-L-cysteine (CEMA) (Acrolein) (ng/mL)	No	123.11	112.24	135.03	136.42	99.32	187.38	249.95	238.14	262.35	161.13	131.84	196.91	125.88	110.23	143.75	279.20	263.83	295.45
		Yes	116.62	84.64	160.69	130.91	95.36	179.72	249.93	229.31	272.39	137.18	114.89	163.80	110.32	92.84	130.64	283.02	248.12	322.83
	N-Acetyl-S-(2-carbamoylethyl)-L-cysteine (AAMA) (Acrylamide) (ng/mL)	No	63.91	52.92	77.17	59.12	46.36	75.41	125.36	118.94	132.12	86.67	71.90	104.46	78.10	66.85	91.25	123.75	118.34	129.40
		Yes	73.06	51.03	104.58	**110.63***	**75.21**	**162.72**	**174.59***	**162.94**	**187.07**	**131.40***	**112.67**	**153.23**	**114.10***	**94.66**	**137.52**	**195.78***	**168.07**	**228.06**
	N-Acetyl-S-(4-hydroxy-2-buten-1-yl)-L-cysteine (MHB3) (1,3 Butadiene) (ng/mL)	No	5.60	4.81	6.52	4.34	3.24	5.80	24.98	23.00	26.00	9.06	7.46	10.98	5.14	4.47	5.92	29.09	27.69	30.57
		Yes	4.86	3.60	6.55	4.73	3.11	7.19	24.98	22.00	26.11	7.65	6.11	9.58	5.49	4.79	6.29	29.27	25.20	34.00

Total Nicotine Equivalents (TNE-2) = molar sum of imputed values of cotinine and trans-3'-hydroxycotinine. All geometric means are adjusted for urinary creatinine, age, sex, race, education, secondhand smoke exposure, and cannabis use. Geometric mean values for tobacco use groups were also adjusted for frequency and time since last product use. Toxicant biomarker analyses adjusted fo
Bold values indicate statistically significant differences between non-cannabis users and past 30 day cannabis users ($p<0.05$).

"Non-tobacco users" = never users of tobacco or former cigarette smokers who reported quitting six months prior to their interview with urinary NNAL levels under 14.5 pg/mg creatinine. (Goniewicz and Smith, 2018)

All tobacco user groups were defined as current everyday or some day users of their tobacco product, with no current or some days use of any other tobacco product (tobacco product list: cigarettes, e-cigarettes, traditional cigars, cigarillos, filtered cigars, pipe tobacco, hookah, smokeless tobacco, snus, dissolvable tobacco.)

All groups included exclusions for past three-day use of nicotine replacement therapies (NRT).

E-cigarette user group excluded those with urinary NNAL levels exceeding 14.5 pg/mg creatinine (Goniewicz and Smith, 2018)

Cigarette users and dual users were included if they reported smoking at least 100 cigarettes during their lifetime.
All estimates are weighted using urine weights for the PATH biospecimen subsample