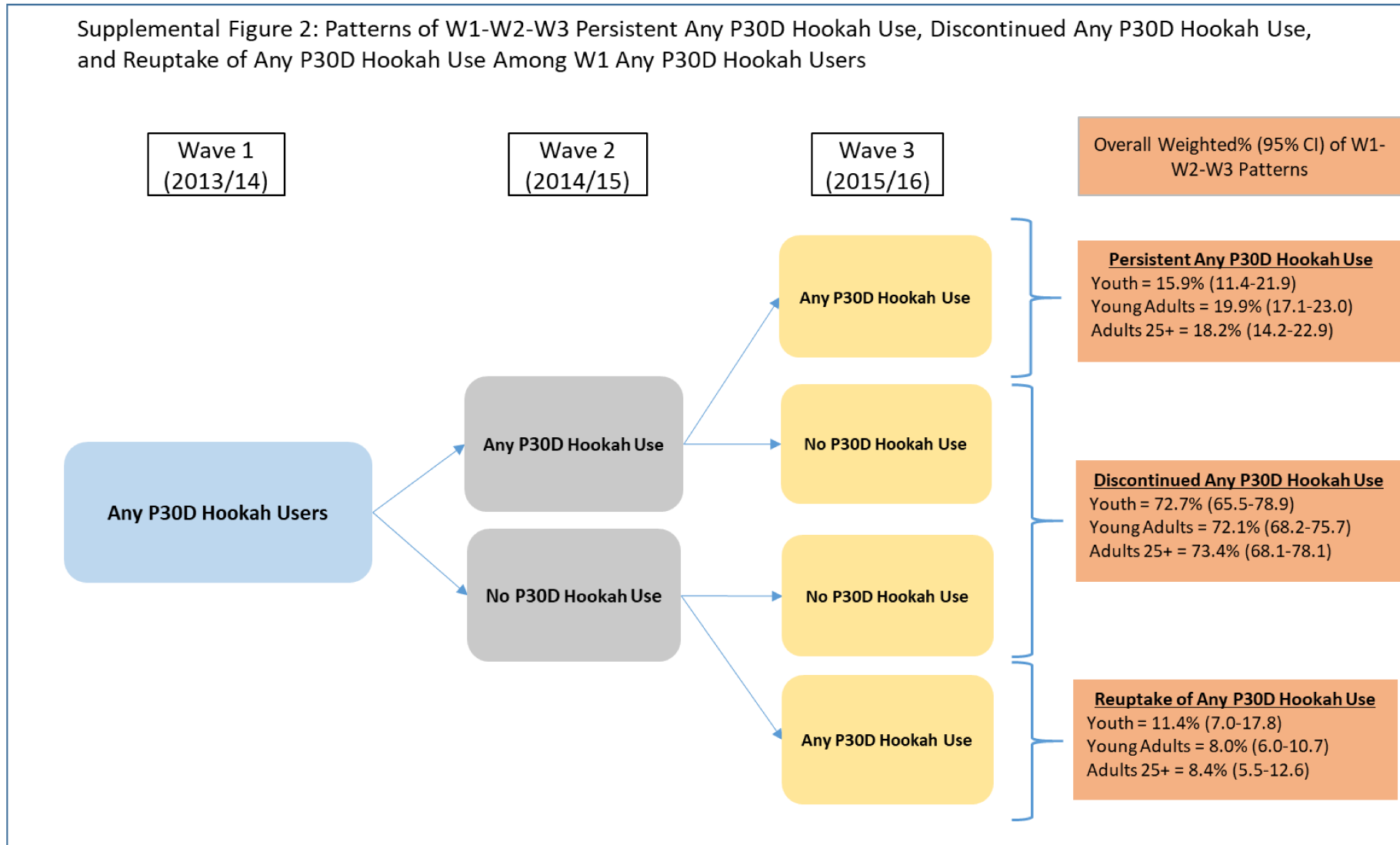


Notes:

Supplemental Figure 1 shows the full Wave 1 sample respondents who have data at Waves 1, 2, and 3. There are 2,605 Wave 1 youth (ages 12-17) and 8,650 Wave 1 adult (ages 18 and older) respondents excluded at W2 and W3 because they do not have data at all three waves. The figure illustrates Wave 1 youth and young adults (ages 18-24) who aged-up at Wave 2 and Wave 2 youth and young adults who aged-up at Wave 3. The boxes at each wave show the total sample size for each age group at each wave.

Supplemental Figure 2: Patterns of W1-W2-W3 Persistent Any P30D Hookah Use, Discontinued Any P30D Hookah Use, and Reuptake of Any P30D Hookah Use Among W1 Any P30D Hookah Users



Notes:

Abbreviations: W1 = Wave 1; W2 = Wave 2; W3 = Wave 3; P30D = past 30-day; CI = confidence interval

Wave 1 any P30D hookah use weighted percentages (95% CI) out of total U.S. population: youth (ages 12-17) = 1.6% (1.3-1.9); young adults (ages 18-24) = 11.1% (9.9-12.4); adults 25+ (ages 25 and older) = 0.9% (0.7-1.0)

Analysis included W1 youth, young adults, and adults 25+ P30D Hookah users with data at all three waves. Respondent age was calculated based on age at W1. W3 longitudinal (all-waves) weights were used to calculate estimates. These rates vary slightly from those reported in Figure 1 or Supplemental Table 1 because this analytic sample in Figure 2 includes only those with data at each of the three waves to examine weighted longitudinal use and non-use pathways.

Any P30D hookah use was defined as any hookah use within the past 30 days. Respondent could be missing data on other P30D tobacco product use and still be categorized into the following three groups:

- 1) Persistent any P30D hookah use: Defined as exclusive or hookah polytobacco use at W2 and W3.
- 2) Discontinued any P30D hookah use: Defined as any non-hookah use or no tobacco use at either W2 and W3 or just W3.
- 3) Reuptake of any P30D hookah use: Defined as discontinued hookah use at W2 and any hookah use at W3.

^adenotes significant difference at $p < 0.0167$ (Bonferroni corrected for three comparisons) between youth and young adults

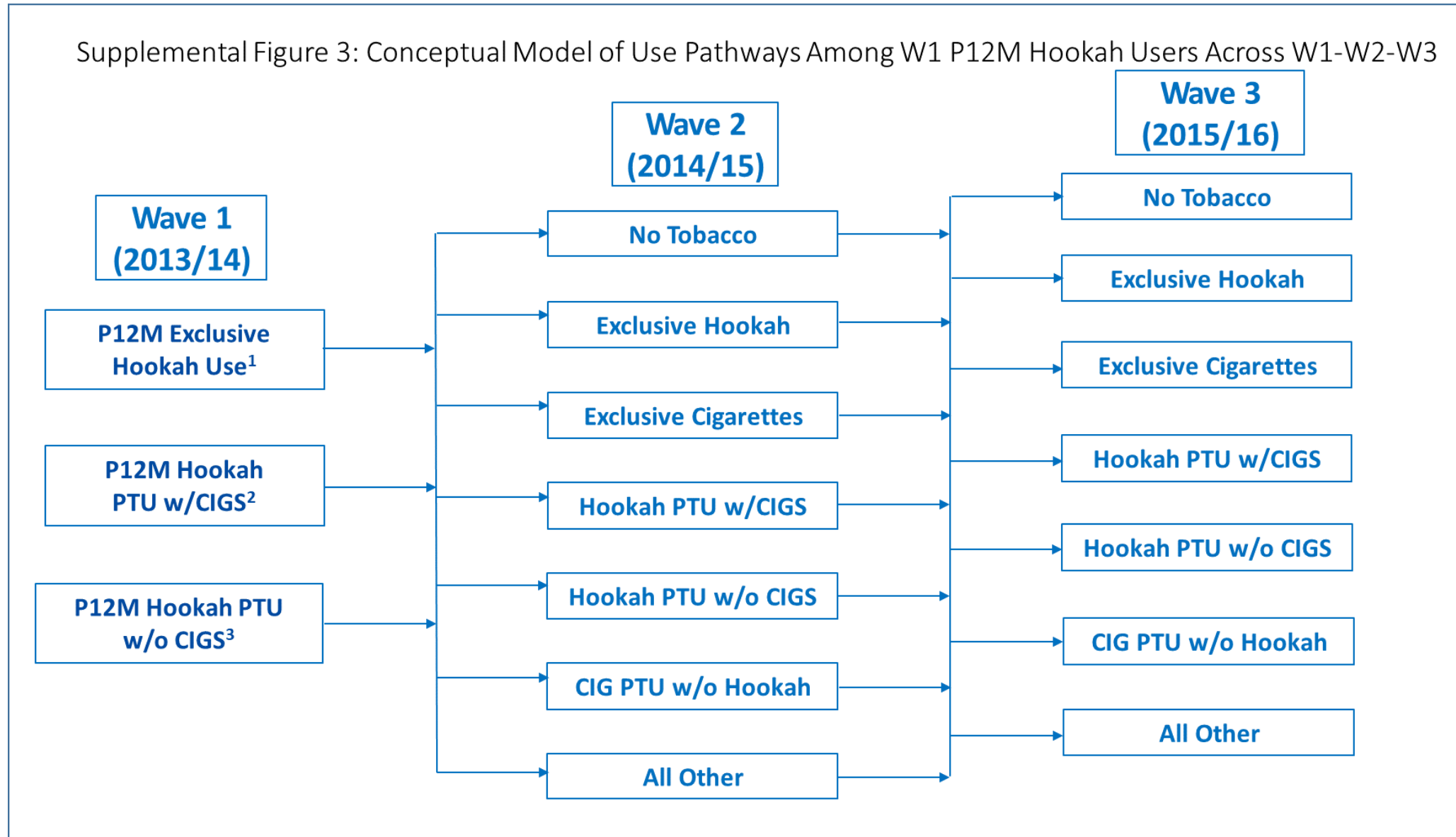
^bdenotes significant difference at $p < 0.0167$ (Bonferroni corrected for three comparisons) between youth and adults 25+

^cdenotes significant difference at $p < 0.0167$ (Bonferroni corrected for three comparisons) between young adults and adults 25+

The logit-transformation method was used to calculate the 95% CIs.

Analyses were run on the W1, W2, and W3 Public Use Files (<https://doi.org/10.3886/ICPSR36498.v8>).

Supplemental Figure 3: Conceptual Model of Use Pathways Among W1 P12M Hookah Users Across W1-W2-W3



Notes:

Abbreviations: W1 = Wave 1; W2 = Wave 2; W3 = Wave 3; P12M = past 12-month; PTU = polytobacco use; w/ = with; CIG(S) = cigarette(s); w/o = without

¹Weighted percentages (95% confidence interval) and unweighted sample sizes of W1 P12M exclusive hookah users among any P12M hookah users: youth (ages 12-17), 26.1% (22.4-30.2), N=164/611; young adults (ages 18-24), 19.6% (18.0-21.4), N=467/2,547; adults 25+ (ages 25 and older) 16.8% (14.5-19.4), N=218/1,314

²Weighted percentages (95% confidence interval) and unweighted sample sizes of W1 P12M hookah PTU w/CIGS among any P12M hookah users: youth, 49.4% (44.9-53.9), N=297/611; young adults, 59.4% (57.0-61.8), N=1,565/2,547; adults 25+, 63.2% (59.7-66.5), N=859/1,314

³Weighted percentages (95% confidence interval) and unweighted sample sizes of W1 P12M hookah PTU w/o CIGS among any P12M hookah users: youth, 24.5% (21.3-28.0), N=261/611; young adults, 21.0% (19.2-22.9), N=515/2,547; adults 25+, 20.0% (17.4-23.0), N=237/1,314

1) No tobacco: Defined as no use of any tobacco products within the past 12 months.

2) Exclusive hookah: Defined as use of only hookah within the past 12 months.

3) Exclusive cigarettes: Defined as use of only cigarettes within the past 12 months.

4) Hookah PTU w/CIGS: Defined as use of hookah and cigarettes within the past 12 months and possibly one or more of the following: traditional cigars, cigarillos, filtered cigars, electronic nicotine delivery systems (ENDS*), pipe, or any smokeless tobacco.

5) Hookah PTU w/o CIGS: Defined as use of hookah and one or more of the following within the past 12 months: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but not cigarettes.

6) CIG PTU w/o hookah: Defined as use of cigarettes and one or more of the following within the past 12 months: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but not Hookah.

7) All other: Use of one or more of the following in the past 12 months: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but without cigarettes or hookah.

*Respondents were asked about P12M use of “e-cigarettes” at W1 and W2 and “e-products” (e-cigarettes, e-cigars, e-pipes, and e-hookah) at W3.

These pathways are enumerated in Supplemental Tables 1a-1c.

The logit-transformation method was used to calculate the 95% confidence intervals.

Analyses were run on the W1, W2, and W3 Public Use Files (<https://doi.org/10.3886/ICPSR36498.v8>).

Supplemental Table 1: Transitions in P30D Product Use at W2 (2014/15) and W3 (2015/16) Among W1 (2013/14) P30D Hookah Users.

Mutually Exclusive Pathways	Youth						Young Adults						Adults 25+					
	W1 Exclusive Hookah Use		W1 Hookah PTU w/CIGS		W1 Hookah PTU w/o CIGS		W1 Exclusive Hookah Use		W1 Hookah PTU w/CIGS		W1 Hookah PTU w/o CIGS		W1 Exclusive Hookah Use		W1 Hookah PTU w/CIGS		W1 Hookah PTU w/o CIGS	
	Weighted %	95% CI	Weighted %	95% CI	Weighted %	95% CI	Weighted %	95% CI	Weighted %	95% CI	Weighted %	95% CI	Weighted %	95% CI	Weighted %	95% CI	Weighted %	95% CI
Persistent hookah use type at all waves Continuing the same W1 use type (exclusive, PTU w/CIGS, or PTU w/o CIGS) at each wave	N/A	N/A	16.9† ^a	(8.6-30.8)	N/A	N/A	4.4† ^a	(2.1-8.9)	14.1 ^a	(10.4-18.9)	6.8†	(3.3-13.5)	7.7†	(3.5-16.2)	9.4	(6.0-14.4)	8.2†	(3.1-19.8)
Hookah use type reuptake The same broad use type (exclusive or PTU) at W1 and W3 (but a different tobacco use at W2)	4.0†	(1.0-15.0)	13.8	(8.1-22.5)	16.3†	(6.7-34.3)	2.3† ^{a,b}	(1.0-5.3)	11.6 ^a	(8.7-15.5)	13.4 ^b	(8.7-20.1)	N/A	N/A	10.0	(6.2-15.9)	27.0†	(14.2-45.1)
Hookah use type transition Transition from W1 exclusive use to PTU by W3, or transition from W1 PTU to exclusive use by W3 (without discontinuing all tobacco use at W2)	11.8†	(5.7-22.6)	2.5†	(0.3-17.3)	N/A	N/A	12.8 ^a	(8.6-18.6)	2.0† ^{a,c}	(0.9-4.4)	9.7 ^c	(5.6-16.4)	8.3†	(3.9-16.8)	3.4†	(1.1-10.2)	13.4†	(4.7-32.7)
Switch or discontinue hookah use, but continue other tobacco use W1 exclusive user who switches to another tobacco product by W3 or W1 polytobacco user that discontinues hookah use by W3 but uses another tobacco product (without discontinuing all tobacco use at W2)	26.6	(15.8-41.2)	47.5	(35.0-60.4)	33.4†	(17.1-55.0)	15.3 ^{a,b}	(10.9-21.1)	51.3 ^{a,c}	(45.0-57.4)	31.6 ^{b,c}	(24.2-40.0)	9.2† ^a	(3.8-20.5)	63.1 ^{a,c}	(55.7-69.9)	25.7† ^c	(15.2-40.0)
Tobacco use reuptake W1 users who discontinue all tobacco use at W2 and use again at W3	19.2 ^a	(11.0-31.4)	4.7† ^a	(1.4-14.5)	11.4†	(3.8-29.4)	11.3 ^a	(7.6-16.5)	4.6 ^a	(2.6-8.1)	6.1†	(2.9-12.4)	10.0†	(4.1-22.2)	3.2†	(1.2-8.2)	1.5†	(0.2-10.4)
Discontinue all tobacco use W1 users who discontinue all tobacco use at either W2 and W3 or just W3	38.5 ^a	(27.3-51.0)	14.6† ^a	(6.8-28.4)	39.0†	(22.4-58.5)	53.9 ^{a,b}	(46.9-60.7)	16.3 ^{a,c}	(13.1-20.1)	32.4 ^{b,c}	(25.0-40.8)	64.8 ^{a,b}	(51.4-76.1)	10.9 ^a	(6.8-17.0)	24.3† ^b	(13.1-40.7)

Notes:

Abbreviations: P30D = past 30-day; W2 = Wave 2; W3 = Wave 3; W1 = Wave 1; polytobacco use = PTU; w/ = with; CIGS = cigarettes; w/o = without; CI = confidence interval; N/A = not applicable

Analysis included youth (ages 12-17), young adult (ages 18-24), and adult 25+ (ages 25 and older) W1 P30D hookah users with data at all three waves. Respondent age was calculated based on age at W1. W3 longitudinal (all-waves) weights were used to calculate estimates. All tobacco use is defined as P30D use. Use type refers to exclusive use, PTU w/CIGS, or PTU w/o CIGS.

^adenotes significant difference at $p < 0.0167$ (Bonferroni corrected for three comparisons) between W1 Exclusive Hookah Use and W1 Hookah PTU w/CIGS.

^bdenotes significant difference at $p < 0.0167$ (Bonferroni corrected for three comparisons) between W1 Exclusive Hookah Use and W1 Hookah PTU w/o CIGS

^cdenotes significant difference at $p < 0.0167$ (Bonferroni corrected for three comparisons) between W1 Hookah PTU w/CIGS and W1 Hookah PTU w/o CIGS

The logit-transformation method was used to calculate the 95% CIs.

† Estimate should be interpreted with caution because it has low statistical precision. It is based on a denominator sample size of less than 50, or the coefficient of variation of the estimate or its complement is larger than 30%.

Analyses were run on the W1, W2, and W3 Public Use Files (<https://doi.org/10.3886/ICPSR36498.v8>).

Supplemental Table 2a: Transitions in P12M Product Use at W2 (2014/15) and W3 (2015/16) Among W1 (2013/14) P12M Exclusive Hookah Users.

Rows	W1	W2	W3	Youth				Young Adults				Adults 25+			
				Unweighted N	Weighted N	Weighted %	95% CI	Unweighted N	Weighted N	Weighted %	95% CI	Unweighted N	Weighted N	Weighted %	95% CI
1	Exclusive Hookah	No Tobacco	No Tobacco	35	73,220	19.6	(14.2-26.4)	106	436,023	23.3	(18.9-28.3)	80	511,288	39.7	(32.4-47.5)
2	Exclusive Hookah	No Tobacco	Exclusive Hookah	4	8,245	2.2 [†]	(0.8-5.9)	21	80,944	4.3	(2.7-6.8)	6	43,122	3.3 [†]	(1.2-8.9)
3	Exclusive Hookah	No Tobacco	Exclusive Cigarettes	2	2,135	0.6 [†]	(0.1-3.6)	3	14,560	0.8 [†]	(0.2-2.5)	4	29,248	2.3 [†]	(0.7-6.7)
4	Exclusive Hookah	No Tobacco	Hookah PTU w/CIGS	1	2,170	0.6 [†]	(0.1-4.7)	0	N/A	N/A	N/A	0	N/A	N/A	N/A
5	Exclusive Hookah	No Tobacco	Hookah PTU w/o CIGS	4	10,529	2.8 [†]	(1.0-7.9)	7	31,184	1.7 [†]	(0.8-3.6)	6	24,392	1.9 [†]	(0.8-4.6)
6	Exclusive Hookah	No Tobacco	CIG PTU w/o Hookah	1	2,268	0.6 [†]	(0.1-4.2)	2	10,268	0.5 [†]	(0.1-2.4)	1	5,200	0.4 [†]	(0.1-2.7)
7	Exclusive Hookah	No Tobacco	All Other	2	5,494	1.5 [†]	(0.3-6.4)	8	42,224	2.3 [†]	(1.0-5.2)	8	51,361	4.0 [†]	(1.9-8.4)
8	Exclusive Hookah	Exclusive Hookah	No Tobacco	10	25,199	6.8 [†]	(3.5-12.5)	48	175,447	9.4	(6.9-12.6)	21	113,752	8.8	(5.6-13.6)
9	Exclusive Hookah	Exclusive Hookah	Exclusive Hookah	11	25,013	6.7 [†]	(3.6-12.1)	39	145,768	7.8	(5.5-10.9)	17	93,142	7.2	(4.3-11.9)
10	Exclusive Hookah	Exclusive Hookah	Exclusive Cigarettes	1	1,823	0.5 [†]	(0.1-3.6)	2	9,678	0.5 [†]	(0.1-2.1)	0	N/A	N/A	N/A
11	Exclusive Hookah	Exclusive Hookah	Hookah PTU w/CIGS	5	12,788	3.4 [†]	(1.4-8.3)	8	25,650	1.4 [†]	(0.6-3.0)	2	7,520	0.6 [†]	(0.1-2.4)
12	Exclusive Hookah	Exclusive Hookah	Hookah PTU w/o CIGS	20	44,105	11.8	(7.3-18.6)	44	180,372	9.6	(7.0-13.2)	18	116,671	9.1	(5.2-15.3)
13	Exclusive Hookah	Exclusive Hookah	CIG PTU w/o Hookah	3	9,411	2.5 [†]	(0.6-10.6)	2	6,955	0.4 [†]	(0.1-1.5)	0	N/A	N/A	N/A
14	Exclusive Hookah	Exclusive Hookah	All Other	3	4,091	1.1 [†]	(0.4-3.3)	8	31,303	1.7 [†]	(0.8-3.4)	2	10,217	0.8 [†]	(0.2-3.1)
15	Exclusive Hookah	Exclusive Cigarettes	No Tobacco	0	N/A	N/A	N/A	3	12,911	0.7 [†]	(0.2-2.5)	2	12,608	1.0 [†]	(0.2-4.1)
16	Exclusive Hookah	Exclusive Cigarettes	Exclusive Hookah	0	N/A	N/A	N/A	1	2,900	0.2 [†]	(0.0-1.1)	0	N/A	N/A	N/A
17	Exclusive Hookah	Exclusive Cigarettes	Exclusive Cigarettes	0	N/A	N/A	N/A	7	39,592	2.1 [†]	(0.9-5.0)	2	14,313	1.1 [†]	(0.3-4.8)
18	Exclusive Hookah	Exclusive Cigarettes	Hookah PTU w/CIGS	0	N/A	N/A	N/A	1	6,038	0.3 [†]	(0.0-2.2)	2	12,188	0.9 [†]	(0.2-3.8)
19	Exclusive Hookah	Exclusive Cigarettes	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	1	3,653	0.2 [†]	(0.0-1.4)	0	N/A	N/A	N/A
20	Exclusive Hookah	Exclusive Cigarettes	CIG PTU w/o Hookah	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
21	Exclusive Hookah	Exclusive Cigarettes	All Other	1	1,086	0.3 [†]	(0.0-2.1)	0	N/A	N/A	N/A	0	N/A	N/A	N/A
22	Exclusive Hookah	Hookah PTU w/CIGS	No Tobacco	2	4,704	1.3 [†]	(0.4-4.0)	5	15,205	0.8 [†]	(0.3-2.1)	5	39,654	3.1 [†]	(1.2-7.5)
23	Exclusive Hookah	Hookah PTU w/CIGS	Exclusive Hookah	1	1,656	0.4 [†]	(0.1-3.1)	4	21,523	1.1 [†]	(0.4-3.3)	1	3,007	0.2 [†]	(0.0-1.7)
24	Exclusive Hookah	Hookah PTU w/CIGS	Exclusive Cigarettes	0	N/A	N/A	N/A	5	18,178	1.0 [†]	(0.4-2.1)	1	3,703	0.3 [†]	(0.0-2.0)
25	Exclusive Hookah	Hookah PTU w/CIGS	Hookah PTU w/CIGS	19	45,278	12.1	(8.4-17.2)	22	93,789	5.0	(3.1-8.0)	8	39,464	3.1 [†]	(1.5-6.3)
26	Exclusive Hookah	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	4	13,264	3.6 [†]	(1.3-9.6)	5	17,174	0.9 [†]	(0.3-2.4)	1	4,368	0.3 [†]	(0.0-2.6)
27	Exclusive Hookah	Hookah PTU w/CIGS	CIG PTU w/o Hookah	5	12,426	3.3 [†]	(1.3-8.2)	4	18,599	1.0 [†]	(0.3-3.5)	0	N/A	N/A	N/A
28	Exclusive Hookah	Hookah PTU w/CIGS	All Other	0	N/A	N/A	N/A	1	5,315	0.3 [†]	(0.0-1.8)	0	N/A	N/A	N/A
29	Exclusive Hookah	Hookah PTU w/o CIGS	No Tobacco	2	3,684	1.0 [†]	(0.2-4.1)	15	53,726	2.9	(1.8-4.6)	3	15,419	1.2 [†]	(0.4-3.6)
30	Exclusive Hookah	Hookah PTU w/o CIGS	Exclusive Hookah	0	N/A	N/A	N/A	10	45,788	2.4 [†]	(1.1-5.2)	2	5,484	0.4 [†]	(0.1-2.1)
31	Exclusive Hookah	Hookah PTU w/o CIGS	Exclusive Cigarettes	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
32	Exclusive Hookah	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	6	14,524	3.9 [†]	(1.6-8.9)	8	37,534	2.0 [†]	(0.9-4.2)	0	N/A	N/A	N/A
33	Exclusive Hookah	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	6	14,752	4.0 [†]	(1.9-8.2)	31	127,399	6.8	(4.4-10.4)	5	22,726	1.8 [†]	(0.6-4.7)
34	Exclusive Hookah	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	1	2,849	0.8 [†]	(0.1-5.5)	0	N/A	N/A	N/A	0	N/A	N/A	N/A
35	Exclusive Hookah	Hookah PTU w/o CIGS	All Other	3	5,646	1.5 [†]	(0.5-4.6)	7	30,842	1.6 [†]	(0.8-3.5)	0	N/A	N/A	N/A
36	Exclusive Hookah	CIG PTU w/o Hookah	No Tobacco	0	N/A	N/A	N/A	1	8,764	0.5 [†]	(0.1-3.4)	2	9,129	0.7 [†]	(0.2-2.9)
37	Exclusive Hookah	CIG PTU w/o Hookah	Exclusive Hookah	0	N/A	N/A	N/A	1	3,558	0.2 [†]	(0.0-1.4)	1	3,757	0.3 [†]	(0.0-2.0)
38	Exclusive Hookah	CIG PTU w/o Hookah	Exclusive Cigarettes	0	N/A	N/A	N/A	2	5,674	0.3 [†]	(0.1-1.3)	3	12,324	1.0 [†]	(0.3-3.3)
39	Exclusive Hookah	CIG PTU w/o Hookah	Hookah PTU w/CIGS	1	1,726	0.5 [†]	(0.1-3.4)	2	6,787	0.4 [†]	(0.1-1.5)	0	N/A	N/A	N/A
40	Exclusive Hookah	CIG PTU w/o Hookah	Hookah PTU w/o CIGS	2	5,057	1.4 [†]	(0.3-6.2)	1	2,685	0.1 [†]	(0.0-1.1)	0	N/A	N/A	N/A
41	Exclusive Hookah	CIG PTU w/o Hookah	CIG PTU w/o Hookah	1	1,976	0.5 [†]	(0.1-3.6)	0	N/A	N/A	N/A	2	14,780	1.1 [†]	(0.3-5.0)
42	Exclusive Hookah	CIG PTU w/o Hookah	All Other	1	1,767	0.5 [†]	(0.1-3.2)	2	7,336	0.4 [†]	(0.1-1.5)	1	3,825	0.3 [†]	(0.0-2.2)
43	Exclusive Hookah	All Other	No Tobacco	2	6,941	1.9 [†]	(0.4-7.6)	6	19,063	1.0 [†]	(0.4-2.5)	5	37,249	2.9 [†]	(1.1-7.6)
44	Exclusive Hookah	All Other	Exclusive Hookah	1	2,446	0.7 [†]	(0.1-4.4)	5	14,320	0.8 [†]	(0.3-2.0)	2	11,289	0.9 [†]	(0.2-3.9)
45	Exclusive Hookah	All Other	Exclusive Cigarettes	0	N/A	N/A	N/A	2	6,951	0.4 [†]	(0.1-1.6)	0	N/A	N/A	N/A
46	Exclusive Hookah	All Other	Hookah PTU w/CIGS	1	2,347	0.6 [†]	(0.1-3.8)	4	13,295	0.7 [†]	(0.2-2.0)	0	N/A	N/A	N/A
47	Exclusive Hookah	All Other	Hookah PTU w/o CIGS	1	1,850	0.5 [†]	(0.1-3.5)	4	15,833	0.8 [†]	(0.3-2.3)	2	6,929	0.5 [†]	(0.1-2.2)
48	Exclusive Hookah	All Other	CIG PTU w/o Hookah	0	N/A	N/A	N/A	2	7,630	0.4 [†]	(0.1-1.8)	1	4,604	0.4 [†]	(0.0-2.6)
49	Exclusive Hookah	All Other	All Other	1	2,759	0.7 [†]	(0.1-5.2)	6	20,102	1.1 [†]	(0.5-2.5)	1	5,261	0.4 [†]	(0.1-2.9)

Notes:

Abbreviations: P12M = past 12-month; W2 = Wave 2; W3 = Wave 3; W1 = Wave 1;; CI = confidence interval; PTU = polytobacco use; w/ = with; CIG(S) = cigarette(s); w/o = without; N/A = not applicable

The analysis included youth (ages 12-17), young adult (ages 18-24), and adult 25+ (ages 25 and older) W1 P12M exclusive hookah users with data at all three waves. Age was calculated based on age at W1. W3 longitudinal (all-waves) weights were used to calculate estimates.

The weighted percentages for some constructs such as discontinued tobacco and persistent use in this table may not match exactly with those presented in Table 1. This is the result of different denominators. In this table there can be no missing values on tobacco use variables at any wave. Table 1 does not require this restriction since some outcomes reflect behaviors at W3 (e.g. discontinued use by W3), regardless of missing data at Wave 2.

For transitions between waves:

- 1) No tobacco: Defined as no use of any tobacco products within the past 30 days.
- 2) Exclusive hookah: Defined as use of only hookah within the past 30 days.
- 3) Exclusive cigarettes: Defined as use of only cigarettes within the past 30 days.
- 4) Hookah PTU w/CIGS: Defined as use of hookah and cigarettes within the past 30 days and possibly one or more of the following: traditional cigars, cigarillos, filtered cigars, electronic nicotine delivery systems (ENDS*), pipe, or any smokeless tobacco.
- 5) Hookah PTU w/o CIGS: Defined as use of hookah and one or more of the following within the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but not cigarettes.
- 6) CIG PTU w/o hookah: Defined as use of cigarettes and one or more of the following within the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but not hookah.
- 7) All other: Use of one or more of the following in the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but without cigarettes or hookah.

*Respondents were asked about P12M use of "e-cigarettes" at W1 and W2 and "e-products" (e-cigarettes, e-cigars, e-pipes, and e-hookah) at W3.

The logit-transformation method was used to calculate the 95% CIs.

† Estimate should be interpreted with caution because it has low statistical precision. It is based on a denominator sample size of less than 50, or the coefficient of variation of the estimate or its complement is larger than 30%.

Analyses were run on the W1, W2, and W3 Public Use Files (<https://doi.org/10.3886/ICPSR36498.v8>).

Supplemental Table 2b: Transitions in P12M Product Use at W2 (2014/15) and W3 (2015/16) Among W1 (2013/14) P12M Hookah Polytobacco Users w/CIGS.

Rows	W1	W2	W3	Youth				Young Adults				Adults 25+			
				Unweighted N	Weighted N	Weighted %	95% CI	Unweighted N	Weighted N	Weighted %	95% CI	Unweighted N	Weighted N	Weighted %	95% CI
1	Hookah PTU w/CIGS	No Tobacco	No Tobacco	9	24,066	3.4	(1.9-6.1)	21	81,016	1.4	(0.9-2.4)	15	104,232	2.2	(1.2-3.8)
2	Hookah PTU w/CIGS	No Tobacco	Exclusive Hookah	0	N/A	N/A	N/A	3	8,019	0.1 [†]	(0.0-0.5)	2	17,611	0.4 [†]	(0.1-1.5)
3	Hookah PTU w/CIGS	No Tobacco	Exclusive Cigarettes	1	2,996	0.4 [†]	(0.1-3.1)	4	19,327	0.3 [†]	(0.1-0.9)	1	3,558	0.1 [†]	(0.0-0.6)
4	Hookah PTU w/CIGS	No Tobacco	Hookah PTU w/CIGS	4	9,169	1.3 [†]	(0.5-3.5)	3	13,800	0.2 [†]	(0.1-0.9)	2	10,420	0.2 [†]	(0.0-1.0)
5	Hookah PTU w/CIGS	No Tobacco	Hookah PTU w/o CIGS	1	1,622	0.2 [†]	(0.0-1.6)	3	9,136	0.2 [†]	(0.1-0.5)	1	6,867	0.1 [†]	(0.0-1.1)
6	Hookah PTU w/CIGS	No Tobacco	CIG PTU w/o Hookah	1	3,366	0.5 [†]	(0.1-3.2)	6	24,926	0.4 [†]	(0.2-1.0)	1	8,490	0.2 [†]	(0.0-1.3)
7	Hookah PTU w/CIGS	No Tobacco	All Other	0	N/A	N/A	N/A	8	30,954	0.5 [†]	(0.3-1.1)	1	4,300	0.1 [†]	(0.0-0.7)
8	Hookah PTU w/CIGS	Exclusive Hookah	No Tobacco	0	N/A	N/A	N/A	11	45,111	0.8 [†]	(0.4-1.6)	2	5,260	0.1 [†]	(0.0-0.4)
9	Hookah PTU w/CIGS	Exclusive Hookah	Exclusive Hookah	1	2,468	0.3 [†]	(0.1-2.2)	5	23,970	0.4 [†]	(0.1-1.3)	2	7,163	0.1 [†]	(0.0-0.6)
10	Hookah PTU w/CIGS	Exclusive Hookah	Exclusive Cigarettes	0	N/A	N/A	N/A	1	5,018	0.1 [†]	(0.0-0.8)	0	N/A	N/A	N/A
11	Hookah PTU w/CIGS	Exclusive Hookah	Hookah PTU w/CIGS	6	15,981	2.3 [†]	(0.8-6.1)	5	18,824	0.3 [†]	(0.1-0.7)	2	11,511	0.2 [†]	(0.0-1.2)
12	Hookah PTU w/CIGS	Exclusive Hookah	Hookah PTU w/o CIGS	1	2,670	0.4 [†]	(0.0-2.8)	12	49,288	0.9 [†]	(0.5-1.7)	3	7,994	0.2 [†]	(0.1-0.5)
13	Hookah PTU w/CIGS	Exclusive Hookah	CIG PTU w/o Hookah	0	N/A	N/A	N/A	2	4,900	0.1 [†]	(0.0-0.4)	0	N/A	N/A	N/A
14	Hookah PTU w/CIGS	Exclusive Hookah	All Other	1	2,999	0.4 [†]	(0.1-3.0)	4	14,768	0.3 [†]	(0.1-0.8)	0	N/A	N/A	N/A
15	Hookah PTU w/CIGS	Exclusive Cigarettes	No Tobacco	2	5,512	0.8 [†]	(0.2-3.2)	6	20,065	0.4 [†]	(0.2-0.8)	2	14,045	0.3 [†]	(0.1-1.3)
16	Hookah PTU w/CIGS	Exclusive Cigarettes	Exclusive Hookah	0	N/A	N/A	N/A	1	11,258	0.2 [†]	(0.0-1.5)	1	3,312	0.1 [†]	(0.0-0.5)
17	Hookah PTU w/CIGS	Exclusive Cigarettes	Exclusive Cigarettes	4	12,014	1.7 [†]	(0.6-4.9)	31	110,384	2.0	(1.2-3.0)	57	305,134	6.4	(4.7-8.6)
18	Hookah PTU w/CIGS	Exclusive Cigarettes	Hookah PTU w/CIGS	3	5,074	0.7 [†]	(0.2-2.5)	26	103,999	1.8	(1.2-2.7)	15	91,256	1.9 [†]	(1.0-3.6)
19	Hookah PTU w/CIGS	Exclusive Cigarettes	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
20	Hookah PTU w/CIGS	Exclusive Cigarettes	CIG PTU w/o Hookah	0	N/A	N/A	N/A	11	34,966	0.6 [†]	(0.3-1.2)	12	88,204	1.8 [†]	(0.9-3.6)
21	Hookah PTU w/CIGS	Exclusive Cigarettes	All Other	1	1,508	0.2 [†]	(0.0-1.6)	2	5,658	0.1 [†]	(0.0-0.4)	0	N/A	N/A	N/A
22	Hookah PTU w/CIGS	Hookah PTU w/CIGS	No Tobacco	4	10,725	1.5 [†]	(0.4-5.2)	26	99,039	1.8	(1.1-2.7)	10	57,699	1.2 [†]	(0.5-2.6)
23	Hookah PTU w/CIGS	Hookah PTU w/CIGS	Exclusive Hookah	5	10,159	1.4 [†]	(0.5-3.8)	13	44,337	0.8	(0.4-1.4)	7	46,342	1.0 [†]	(0.4-2.3)
24	Hookah PTU w/CIGS	Hookah PTU w/CIGS	Exclusive Cigarettes	9	20,772	2.9 [†]	(1.6-5.3)	84	324,628	5.7	(4.4-7.4)	46	224,194	4.7	(3.4-6.5)
25	Hookah PTU w/CIGS	Hookah PTU w/CIGS	Hookah PTU w/CIGS	125	299,183	42.2	(35.7-48.9)	557	1,981,589	35.0	(32.0-38.2)	211	1,213,970	25.4	(21.7-29.4)
26	Hookah PTU w/CIGS	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	8	19,873	2.8 [†]	(1.3-5.8)	48	180,308	3.2	(2.4-4.2)	9	51,835	1.1 [†]	(0.5-2.2)
27	Hookah PTU w/CIGS	Hookah PTU w/CIGS	CIG PTU w/o Hookah	35	79,410	11.2	(7.8-15.8)	184	661,821	11.7	(9.8-13.9)	97	513,966	10.7	(8.7-13.2)
28	Hookah PTU w/CIGS	Hookah PTU w/CIGS	All Other	7	20,088	2.8 [†]	(1.3-6.2)	17	69,561	1.2	(0.7-2.1)	4	25,553	0.5 [†]	(0.2-1.5)
29	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	No Tobacco	2	3,222	0.5 [†]	(0.1-1.8)	6	19,226	0.3 [†]	(0.2-0.7)	5	31,519	0.7 [†]	(0.2-2.0)
30	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	Exclusive Hookah	0	N/A	N/A	N/A	5	17,697	0.3 [†]	(0.1-0.8)	1	16,585	0.3 [†]	(0.0-2.6)
31	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	Exclusive Cigarettes	0	N/A	N/A	N/A	1	5,032	0.1 [†]	(0.0-0.6)	0	N/A	N/A	N/A
32	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	6	14,802	2.1 [†]	(0.9-4.6)	18	77,542	1.4	(0.8-2.4)	5	20,990	0.4 [†]	(0.2-1.1)
33	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	4	7,946	1.1 [†]	(0.4-3.2)	29	96,541	1.7	(1.1-2.7)	6	27,645	0.6 [†]	(0.2-1.4)
34	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	4	7,076	1.0 [†]	(0.3-2.9)	4	8,968	0.2 [†]	(0.1-0.4)	3	15,573	0.3 [†]	(0.1-1.0)
35	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	All Other	0	N/A	N/A	N/A	2	7,829	0.1 [†]	(0.0-0.6)	6	27,495	0.6 [†]	(0.3-1.3)
36	Hookah PTU w/CIGS	CIG PTU w/o Hookah	No Tobacco	1	925	0.1 [†]	(0.0-1.1)	9	42,142	0.7 [†]	(0.3-1.6)	11	54,372	1.1 [†]	(0.6-2.2)
37	Hookah PTU w/CIGS	CIG PTU w/o Hookah	Exclusive Hookah	0	N/A	N/A	N/A	0	N/A	N/A	N/A	1	17,255	0.4 [†]	(0.0-2.8)
38	Hookah PTU w/CIGS	CIG PTU w/o Hookah	Exclusive Cigarettes	2	3,204	0.5 [†]	(0.1-1.9)	55	195,355	3.5	(2.6-4.6)	65	383,771	8.0	(6.1-10.4)
39	Hookah PTU w/CIGS	CIG PTU w/o Hookah	Hookah PTU w/CIGS	22	51,748	7.3	(4.7-11.2)	116	405,011	7.2	(5.9-8.6)	60	310,537	6.5	(4.8-8.8)
40	Hookah PTU w/CIGS	CIG PTU w/o Hookah	Hookah PTU w/o CIGS	1	3,788	0.5 [†]	(0.1-3.8)	6	21,730	0.4 [†]	(0.2-1.0)	6	37,233	0.8 [†]	(0.3-2.1)
41	Hookah PTU w/CIGS	CIG PTU w/o Hookah	CIG PTU w/o Hookah	16	39,035	5.5	(3.3-9.0)	148	519,818	9.2	(7.8-10.8)	143	826,079	17.3	(14.8-20.0)
42	Hookah PTU w/CIGS	CIG PTU w/o Hookah	All Other	3	6,440	0.9 [†]	(0.3-3.1)	20	74,087	1.3	(0.8-2.0)	11	71,707	1.5 [†]	(0.8-2.9)
43	Hookah PTU w/CIGS	All Other	No Tobacco	2	7,679	1.1 [†]	(0.3-4.4)	11	42,904	0.8 [†]	(0.4-1.5)	8	31,772	0.7 [†]	(0.3-1.3)
44	Hookah PTU w/CIGS	All Other	Exclusive Hookah	1	4,016	0.6 [†]	(0.1-4.0)	3	11,949	0.2 [†]	(0.1-0.8)	0	N/A	N/A	N/A
45	Hookah PTU w/CIGS	All Other	Exclusive Cigarettes	1	2,388	0.3 [†]	(0.0-2.4)	2	7,148	0.1 [†]	(0.0-0.5)	2	18,084	0.4 [†]	(0.1-1.6)
46	Hookah PTU w/CIGS	All Other	Hookah PTU w/CIGS	0	N/A	N/A	N/A	2	5,036	0.1 [†]	(0.0-0.4)	2	11,670	0.2 [†]	(0.1-1.1)
47	Hookah PTU w/CIGS	All Other	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	6	21,480	0.4 [†]	(0.2-0.9)	1	3,801	0.1 [†]	(0.0-0.6)
48	Hookah PTU w/CIGS	All Other	CIG PTU w/o Hookah	0	N/A	N/A	N/A	7	26,082	0.5 [†]	(0.2-1.0)	3	20,894	0.4 [†]	(0.1-1.4)
49	Hookah PTU w/CIGS	All Other	All Other	2	7,002	1.0 [†]	(0.2-3.9)	14	55,396	1.0	(0.6-1.7)	6	36,754	0.8 [†]	(0.3-1.8)

Notes:

Abbreviations: P12M = past 12-month; W2 = Wave 2; W3 = Wave 3; W1 = Wave 1; w/ = with; CIG(S) = cigarette(s); CI = confidence interval; PTU = polytobacco use; w/o = without; N/A = not applicable

The analysis included youth (ages 12-17), young adult (ages 18-24), and adult 25+ (ages 25 and older) W1 P12M hookah polytobacco users w/CIGS with data at all three waves. Age was calculated based on age at W1. W3 longitudinal (all-waves) weights were used to calculate estimates.

The weighted percentages for some constructs such as discontinued tobacco and persistent use in this table may not match exactly with those presented in Table 1. This is the result of different denominators. In this table there can be no missing values on tobacco use variables at any wave. Table 1 does not require this restriction since some outcomes reflect behaviors at W3 (e.g. discontinued use by W3), regardless of missing data at Wave 2.

For transitions between waves:

- 1) No tobacco: Defined as no use of any tobacco products within the past 30 days.
- 2) Exclusive hookah: Defined as use of only hookah within the past 30 days.
- 3) Exclusive cigarettes: Defined as use of only cigarettes within the past 30 days.
- 4) Hookah PTU w/CIGS: Defined as use of hookah and cigarettes within the past 30 days and possibly one or more of the following: traditional cigars, cigarillos, filtered cigars, electronic nicotine delivery systems (ENDS*), pipe, or any smokeless tobacco.
- 5) Hookah PTU w/o CIGS: Defined as use of hookah and one or more of the following within the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but not cigarettes.
- 6) CIG PTU w/o hookah: Defined as use of cigarettes and one or more of the following within the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but not hookah.
- 7) All other: Use of one or more of the following in the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but without cigarettes or hookah.

*Respondents were asked about P12M use of "e-cigarettes" at W1 and W2 and "e-products" (e-cigarettes, e-cigars, e-pipes, and e-hookah) at W3.

The logit-transformation method was used to calculate the 95% CIs.

† Estimate should be interpreted with caution because it has low statistical precision. It is based on a denominator sample size of less than 50, or the coefficient of variation of the estimate or its complement is larger than 30%.

Analyses were run on the W1, W2, and W3 Public Use Files (<https://doi.org/10.3886/ICPSR36498.v8>).

Supplemental Table 2c: Transitions in P12M Product Use at W2 (2014/15) and W3 (2015/16) Among W1 (2013/14) P12M Hookah Polytobacco Users w/o CIGS.

Rows	W1	W2	W3	Youth				Young Adults				Adults 25+			
				Unweighted N	Weighted N	Weighted %	95% CI	Unweighted N	Weighted N	Weighted %	95% CI	Unweighted N	Weighted N	Weighted %	95% CI
1	Hookah PTU w/o CIGS	No Tobacco	No Tobacco	15	31,692	9.2	(5.3-15.5)	38	179,121	9.0	(6.5-12.4)	29	241,760	16.0	(10.7-23.2)
2	Hookah PTU w/o CIGS	No Tobacco	Exclusive Hookah	3	6,486	1.9†	(0.5-6.3)	8	33,799	1.7†	(0.8-3.7)	2	7,658	0.5†	(0.1-2.2)
3	Hookah PTU w/o CIGS	No Tobacco	Exclusive Cigarettes	0	N/A	N/A	N/A	0	N/A	N/A	N/A	2	14,437	1.0†	(0.2-3.9)
4	Hookah PTU w/o CIGS	No Tobacco	Hookah PTU w/CIGS	2	4,864	1.4†	(0.3-6.3)	4	11,901	0.6†	(0.2-1.7)	1	5,043	0.3†	(0.0-2.4)
5	Hookah PTU w/o CIGS	No Tobacco	Hookah PTU w/o CIGS	5	13,151	3.8†	(1.7-8.6)	6	21,642	1.1†	(0.5-2.5)	3	15,059	1.0†	(0.3-3.3)
6	Hookah PTU w/o CIGS	No Tobacco	CIG PTU w/o Hookah	0	N/A	N/A	N/A	2	11,692	0.6†	(0.1-2.7)	0	N/A	N/A	N/A
7	Hookah PTU w/o CIGS	No Tobacco	All Other	3	7,983	2.3†	(0.7-7.0)	6	32,967	1.7†	(0.7-4.0)	5	28,848	1.9†	(0.8-4.7)
8	Hookah PTU w/o CIGS	Exclusive Hookah	No Tobacco	3	8,645	2.5†	(0.7-8.2)	23	92,996	4.7	(3.0-7.2)	4	30,826	2.0†	(0.7-5.8)
9	Hookah PTU w/o CIGS	Exclusive Hookah	Exclusive Hookah	1	2,047	0.6†	(0.1-4.5)	14	48,468	2.4†	(1.3-4.4)	6	31,099	2.1†	(1.1-3.9)
10	Hookah PTU w/o CIGS	Exclusive Hookah	Exclusive Cigarettes	1	2,649	0.8†	(0.1-5.7)	1	3,033	0.2†	(0.0-1.1)	0	N/A	N/A	N/A
11	Hookah PTU w/o CIGS	Exclusive Hookah	Hookah PTU w/CIGS	1	2,376	0.7†	(0.1-4.4)	4	15,906	0.8†	(0.3-2.5)	0	N/A	N/A	N/A
12	Hookah PTU w/o CIGS	Exclusive Hookah	Hookah PTU w/o CIGS	7	18,258	5.3†	(2.4-11.2)	16	56,604	2.8	(1.7-4.7)	6	31,507	2.1†	(0.9-4.7)
13	Hookah PTU w/o CIGS	Exclusive Hookah	CIG PTU w/o Hookah	1	1,892	0.5†	(0.1-4.1)	0	N/A	N/A	N/A	0	N/A	N/A	N/A
14	Hookah PTU w/o CIGS	Exclusive Hookah	All Other	0	N/A	N/A	N/A	6	32,152	1.6†	(0.6-4.0)	3	10,570	0.7†	(0.2-2.3)
15	Hookah PTU w/o CIGS	Exclusive Cigarettes	No Tobacco	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
16	Hookah PTU w/o CIGS	Exclusive Cigarettes	Exclusive Hookah	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
17	Hookah PTU w/o CIGS	Exclusive Cigarettes	Exclusive Cigarettes	0	N/A	N/A	N/A	1	3,368	0.2†	(0.0-1.2)	0	N/A	N/A	N/A
18	Hookah PTU w/o CIGS	Exclusive Cigarettes	Hookah PTU w/CIGS	2	6,660	1.9†	(0.5-7.7)	1	3,439	0.2†	(0.0-1.3)	0	N/A	N/A	N/A
19	Hookah PTU w/o CIGS	Exclusive Cigarettes	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	1	4,827	0.2†	(0.0-1.9)	0	N/A	N/A	N/A
20	Hookah PTU w/o CIGS	Exclusive Cigarettes	CIG PTU w/o Hookah	1	2,383	0.7†	(0.1-5.0)	2	12,558	0.6†	(0.1-3.1)	2	11,883	0.8†	(0.2-3.7)
21	Hookah PTU w/o CIGS	Exclusive Cigarettes	All Other	0	N/A	N/A	N/A	0	N/A	N/A	N/A	1	6,695	0.4†	(0.1-3.2)
22	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	No Tobacco	3	6,854	2.0†	(0.6-6.6)	6	12,773	0.6†	(0.3-1.5)	4	29,764	2.0†	(0.7-5.7)
23	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	Exclusive Hookah	0	N/A	N/A	N/A	3	9,628	0.5†	(0.1-1.6)	0	N/A	N/A	N/A
24	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	Exclusive Cigarettes	0	N/A	N/A	N/A	5	15,846	0.8†	(0.3-1.8)	1	6,110	0.4†	(0.1-3.0)
25	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	Hookah PTU w/CIGS	20	45,889	13.3	(8.5-20.3)	47	191,295	9.6	(7.2-12.8)	8	42,267	2.8†	(1.3-6.0)
26	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	5	12,689	3.7†	(1.5-8.5)	25	87,272	4.4	(2.6-7.2)	6	40,806	2.7†	(1.0-7.0)
27	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	CIG PTU w/o Hookah	6	15,269	4.4†	(1.9-10.0)	15	61,451	3.1†	(1.7-5.6)	3	18,999	1.3†	(0.4-3.9)
28	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	All Other	2	3,538	1.0†	(0.3-4.0)	6	20,491	1.0†	(0.4-2.5)	3	10,352	0.7†	(0.2-2.0)
29	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	No Tobacco	4	7,779	2.3†	(0.9-5.9)	23	70,375	3.5	(2.1-5.9)	5	24,821	1.6†	(0.6-4.5)
30	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	Exclusive Hookah	0	N/A	N/A	N/A	12	42,175	2.1†	(1.1-3.9)	10	48,788	3.2†	(1.5-6.6)
31	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	Exclusive Cigarettes	0	N/A	N/A	N/A	3	13,712	0.7†	(0.2-2.4)	0	N/A	N/A	N/A
32	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	11	24,649	7.2†	(3.8-13.0)	13	48,116	2.4†	(1.3-4.4)	4	27,299	1.8†	(0.6-5.2)
33	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	17	42,961	12.5	(7.8-19.4)	75	295,860	14.9	(11.6-18.9)	30	188,611	12.5	(8.5-18.0)
34	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	2	3,475	1.0†	(0.2-4.2)	6	20,326	1.0†	(0.4-2.4)	2	8,930	0.6	(0.5-0.8)
35	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	All Other	8	20,444	5.9†	(3.0-11.4)	19	68,278	3.4	(2.0-5.9)	18	118,885	7.9	(4.8-12.6)
36	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	No Tobacco	1	1,815	0.5†	(0.1-3.7)	5	19,084	1.0†	(0.4-2.4)	2	13,557	0.9†	(0.2-3.4)
37	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	Exclusive Hookah	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
38	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	Exclusive Cigarettes	0	N/A	N/A	N/A	4	17,812	0.9†	(0.4-2.2)	0	N/A	N/A	N/A
39	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	Hookah PTU w/CIGS	3	8,171	2.4†	(0.8-6.8)	9	35,913	1.8†	(0.8-3.8)	1	4,579	0.3†	(0.0-2.2)
40	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	2	7,667	0.4†	(0.1-1.6)	0	N/A	N/A	N/A
41	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	CIG PTU w/o Hookah	3	6,241	1.8†	(0.5-5.9)	12	43,828	2.2†	(1.2-4.2)	11	78,171	5.2†	(2.6-10.1)
42	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	All Other	0	N/A	N/A	N/A	5	21,375	1.1†	(0.4-2.7)	3	25,753	1.7†	(0.5-5.3)
43	Hookah PTU w/o CIGS	All Other	No Tobacco	2	3,764	1.1†	(0.3-4.5)	20	81,125	4.1	(2.5-6.5)	13	79,094	5.2	(3.5-7.8)
44	Hookah PTU w/o CIGS	All Other	Exclusive Hookah	1	3,179	0.9†	(0.1-6.7)	5	16,311	0.8†	(0.3-2.1)	1	3,779	0.2†	(0.0-1.9)
45	Hookah PTU w/o CIGS	All Other	Exclusive Cigarettes	1	2,258	0.7†	(0.1-5.1)	2	8,477	0.4†	(0.1-1.8)	1	11,665	0.8†	(0.1-5.2)
46	Hookah PTU w/o CIGS	All Other	Hookah PTU w/CIGS	1	4,069	1.2†	(0.2-8.3)	4	12,153	0.6†	(0.2-1.6)	0	N/A	N/A	N/A
47	Hookah PTU w/o CIGS	All Other	Hookah PTU w/o CIGS	1	1,982	0.6†	(0.1-3.9)	11	54,911	2.8†	(1.5-5.1)	6	41,219	2.7†	(1.1-6.7)
48	Hookah PTU w/o CIGS	All Other	CIG PTU w/o Hookah	3	6,974	2.0†	(0.6-6.3)	7	29,406	1.5†	(0.6-3.4)	3	21,216	1.4†	(0.4-4.6)
49	Hookah PTU w/o CIGS	All Other	All Other	6	13,527	3.9†	(1.7-8.8)	31	117,385	5.9	(3.9-8.8)	35	231,615	15.3	(10.6-21.6)

Notes:

Abbreviations: P12M = past 12-month; W2 = Wave 2; W3 = Wave 3; W1 = Wave 1; w/o = without; CIG(S) = cigarette(s); CI = confidence interval; PTU = polytobacco use; w/ = with; N/A = not applicable

The analysis included youth (ages 12-17), young adult (ages 18-24), and adult 25+ (ages 25 and older) W1 P12M hookah polytobacco users w/o CIGS with data at all three waves. Age was calculated based on age at W1. W3 longitudinal (all-waves) weights were used to calculate estimates.

The weighted percentages for some constructs such as discontinued tobacco and persistent use in this table may not match exactly with those presented in Table 1. This is the result of different denominators. In this table there can be no missing values on tobacco use variables at any wave. Table 1 does not require this restriction since some outcomes reflect behaviors at W3 (e.g. discontinued use by W3), regardless of missing data at Wave 2.

For transitions between waves:

- 1) No tobacco: Defined as no use of any tobacco products within the past 30 days.
- 2) Exclusive hookah: Defined as use of only hookah within the past 30 days.
- 3) Exclusive cigarettes: Defined as use of only cigarettes within the past 30 days.
- 4) Hookah PTU w/CIGS: Defined as use of hookah and cigarettes within the past 30 days and possibly one or more of the following: traditional cigars, cigarillos, filtered cigars, electronic nicotine delivery systems (ENDS*), pipe, or any smokeless tobacco.
- 5) Hookah PTU w/o CIGS: Defined as use of hookah and one or more of the following within the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but not cigarettes.
- 6) CIG PTU w/o hookah: Defined as use of cigarettes and one or more of the following within the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but not hookah.
- 7) All other: Use of one or more of the following in the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but without cigarettes or hookah.

*Respondents were asked about P12M use of "e-cigarettes" at W1 and W2 and "e-products" (e-cigarettes, e-cigars, e-pipes, and e-hookah) at W3.

The logit-transformation method was used to calculate the 95% CIs.

† Estimate should be interpreted with caution because it has low statistical precision. It is based on a denominator sample size of less than 50, or the coefficient of variation of the estimate or its complement is larger than 30%.

Analyses were run on the W1, W2, and W3 Public Use Files (<https://doi.org/10.3886/ICPSR36498.v8>).

Supplemental Table 2d: Transitions in P30D Product Use at W2 (2014/15) and W3 (2015/16) Among W1 (2013/14) P30D Exclusive Hookah Users.

Rows	W1	W2	W3	Youth				Young Adults				Adults 25+			
				Unweighted N	Weighted N	Weighted %	95% CI	Unweighted N	Weighted N	Weighted %	95% CI	Unweighted N	Weighted N	Weighted %	95% CI
1	Exclusive Hookah	No Tobacco	No Tobacco	19	39,193	24.0	(15.1-36.1)	81	335,522	33.7	(28.0-39.9)	27	187,411	43.1	(30.4-56.8)
2	Exclusive Hookah	No Tobacco	Exclusive Hookah	1	2,199	1.3 [†]	(0.2-7.9)	5	18,368	1.8 [†]	(0.7-4.7)	1	4,178	1.0 [†]	(0.1-6.8)
3	Exclusive Hookah	No Tobacco	Exclusive Cigarettes	2	3,973	2.4 [†]	(0.6-9.7)	2	7,003	0.7 [†]	(0.2-3.2)	0	N/A	N/A	N/A
4	Exclusive Hookah	No Tobacco	Hookah PTU w/CIGS	1	993	0.6 [†]	(0.1-4.6)	1	3,232	0.3 [†]	(0.0-2.2)	1	4,400	1.0 [†]	(0.1-7.1)
5	Exclusive Hookah	No Tobacco	Hookah PTU w/o CIGS	3	7,841	4.8 [†]	(1.4-15.4)	7	26,842	2.7 [†]	(1.2-5.8)	1	3,380	0.8 [†]	(0.1-4.9)
6	Exclusive Hookah	No Tobacco	CIG PTU w/o Hookah	1	3,105	1.9 [†]	(0.2-13.3)	3	11,618	1.2 [†]	(0.3-4.6)	0	N/A	N/A	N/A
7	Exclusive Hookah	No Tobacco	All Other	6	13,222	8.1 [†]	(3.4-18.1)	11	46,023	4.6 [†]	(2.5-8.4)	4	31,414	7.2 [†]	(2.2-20.9)
8	Exclusive Hookah	Exclusive Hookah	No Tobacco	3	7,703	4.7 [†]	(1.5-14.0)	25	85,052	8.5	(5.7-12.6)	5	22,995	5.3 [†]	(2.0-13.3)
9	Exclusive Hookah	Exclusive Hookah	Exclusive Hookah	0	N/A	N/A	N/A	11	43,945	4.4 [†]	(2.1-8.9)	7	33,565	7.7 [†]	(3.5-16.2)
10	Exclusive Hookah	Exclusive Hookah	Exclusive Cigarettes	1	3,179	1.9 [†]	(0.3-13.3)	1	5,453	0.5 [†]	(0.1-4.0)	1	3,121	0.7 [†]	(0.1-5.4)
11	Exclusive Hookah	Exclusive Hookah	Hookah PTU w/CIGS	1	2,028	1.2 [†]	(0.2-8.7)	0	N/A	N/A	N/A	1	3,590	0.8 [†]	(0.1-6.5)
12	Exclusive Hookah	Exclusive Hookah	Hookah PTU w/o CIGS	4	9,412	5.8 [†]	(1.8-16.6)	11	43,389	4.4 [†]	(2.4-7.9)	3	12,276	2.8 [†]	(0.9-8.8)
13	Exclusive Hookah	Exclusive Hookah	CIG PTU w/o Hookah	1	2,347	1.4 [†]	(0.2-10.3)	0	N/A	N/A	N/A	0	N/A	N/A	N/A
14	Exclusive Hookah	Exclusive Hookah	All Other	3	9,679	5.9 [†]	(1.8-17.8)	8	27,218	2.7 [†]	(1.3-5.7)	1	3,123	0.7 [†]	(0.1-5.4)
15	Exclusive Hookah	Exclusive Cigarettes	No Tobacco	1	2,818	1.7 [†]	(0.2-13.1)	4	14,238	1.4 [†]	(0.5-4.3)	2	11,228	2.6 [†]	(0.6-10.4)
16	Exclusive Hookah	Exclusive Cigarettes	Exclusive Hookah	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
17	Exclusive Hookah	Exclusive Cigarettes	Exclusive Cigarettes	0	N/A	N/A	N/A	4	12,280	1.2 [†]	(0.4-3.3)	1	4,923	1.1 [†]	(0.1-8.8)
18	Exclusive Hookah	Exclusive Cigarettes	Hookah PTU w/CIGS	0	N/A	N/A	N/A	2	17,143	1.7 [†]	(0.2-12.1)	0	N/A	N/A	N/A
19	Exclusive Hookah	Exclusive Cigarettes	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
20	Exclusive Hookah	Exclusive Cigarettes	CIG PTU w/o Hookah	0	N/A	N/A	N/A	1	2,072	0.2 [†]	(0.0-1.6)	0	N/A	N/A	N/A
21	Exclusive Hookah	Exclusive Cigarettes	All Other	2	5,507	3.4 [†]	(0.8-13.0)	0	N/A	N/A	N/A	0	N/A	N/A	N/A
22	Exclusive Hookah	Hookah PTU w/CIGS	No Tobacco	2	5,626	3.4 [†]	(0.7-15.8)	3	13,452	1.3 [†]	(0.4-4.4)	1	13,165	3.0 [†]	(0.4-19.2)
23	Exclusive Hookah	Hookah PTU w/CIGS	Exclusive Hookah	2	6,488	4.0 [†]	(1.0-15.0)	3	12,541	1.3 [†]	(0.4-4.2)	0	N/A	N/A	N/A
24	Exclusive Hookah	Hookah PTU w/CIGS	Exclusive Cigarettes	2	3,809	2.3 [†]	(0.5-10.0)	1	2,036	0.2 [†]	(0.0-1.5)	1	4,582	1.1 [†]	(0.1-8.0)
25	Exclusive Hookah	Hookah PTU w/CIGS	Hookah PTU w/CIGS	0	N/A	N/A	N/A	8	27,491	2.8 [†]	(1.2-6.3)	3	11,811	2.7 [†]	(0.8-8.9)
26	Exclusive Hookah	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	1	8,010	0.8 [†]	(0.1-6.3)	1	8,564	2.0 [†]	(0.3-12.7)
27	Exclusive Hookah	Hookah PTU w/CIGS	CIG PTU w/o Hookah	2	5,323	3.3 [†]	(0.8-12.9)	2	8,113	0.8 [†]	(0.2-3.5)	1	4,119	0.9 [†]	(0.1-7.1)
28	Exclusive Hookah	Hookah PTU w/CIGS	All Other	0	N/A	N/A	N/A	3	12,488	1.3 [†]	(0.4-4.0)	0	N/A	N/A	N/A
29	Exclusive Hookah	Hookah PTU w/o CIGS	No Tobacco	0	N/A	N/A	N/A	9	35,021	3.5 [†]	(1.7-7.0)	2	11,150	2.6 [†]	(0.6-10.8)
30	Exclusive Hookah	Hookah PTU w/o CIGS	Exclusive Hookah	0	N/A	N/A	N/A	4	10,178	1.0 [†]	(0.4-2.8)	0	N/A	N/A	N/A
31	Exclusive Hookah	Hookah PTU w/o CIGS	Exclusive Cigarettes	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
32	Exclusive Hookah	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	2	2,668	1.6 [†]	(0.4-6.6)	3	11,455	1.1 [†]	(0.4-3.6)	0	N/A	N/A	N/A
33	Exclusive Hookah	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	1	1,469	0.9 [†]	(0.2-5.2)	2	6,915	0.7 [†]	(0.2-2.7)	0	N/A	N/A	N/A
34	Exclusive Hookah	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	0	N/A	N/A	N/A	1	4,353	0.4 [†]	(0.1-3.1)	0	N/A	N/A	N/A
35	Exclusive Hookah	Hookah PTU w/o CIGS	All Other	0	N/A	N/A	N/A	3	7,581	0.8 [†]	(0.2-2.5)	0	N/A	N/A	N/A
36	Exclusive Hookah	CIG PTU w/o Hookah	No Tobacco	1	1,298	0.8 [†]	(0.1-5.9)	3	9,563	1.0 [†]	(0.3-3.1)	3	21,246	4.9 [†]	(1.5-14.7)
37	Exclusive Hookah	CIG PTU w/o Hookah	Exclusive Hookah	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
38	Exclusive Hookah	CIG PTU w/o Hookah	Exclusive Cigarettes	0	N/A	N/A	N/A	4	13,861	1.4 [†]	(0.5-3.9)	0	N/A	N/A	N/A
39	Exclusive Hookah	CIG PTU w/o Hookah	Hookah PTU w/CIGS	1	3,637	2.2 [†]	(0.3-16.1)	2	9,076	0.9 [†]	(0.2-4.0)	0	N/A	N/A	N/A
40	Exclusive Hookah	CIG PTU w/o Hookah	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
41	Exclusive Hookah	CIG PTU w/o Hookah	CIG PTU w/o Hookah	1	1,917	1.2 [†]	(0.2-8.4)	3	8,036	0.8 [†]	(0.2-2.8)	0	N/A	N/A	N/A
42	Exclusive Hookah	CIG PTU w/o Hookah	All Other	1	2,074	1.3 [†]	(0.2-9.6)	4	13,213	1.3 [†]	(0.5-3.8)	0	N/A	N/A	N/A
43	Exclusive Hookah	All Other	No Tobacco	2	6,116	3.7 [†]	(0.9-14.7)	13	44,577	4.5	(2.5-7.8)	3	14,422	3.3 [†]	(0.9-11.4)
44	Exclusive Hookah	All Other	Exclusive Hookah	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
45	Exclusive Hookah	All Other	Exclusive Cigarettes	1	2,382	1.5 [†]	(0.2-9.1)	0	N/A	N/A	N/A	0	N/A	N/A	N/A
46	Exclusive Hookah	All Other	Hookah PTU w/CIGS	0	N/A	N/A	N/A	1	3,909	0.4 [†]	(0.0-3.1)	0	N/A	N/A	N/A
47	Exclusive Hookah	All Other	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
48	Exclusive Hookah	All Other	CIG PTU w/o Hookah	1	4,876	3.0 [†]	(0.5-17.3)	2	9,962	1.0 [†]	(0.2-4.3)	0	N/A	N/A	N/A
49	Exclusive Hookah	All Other	All Other	1	2,270	1.4 [†]	(0.2-8.6)	7	25,800	2.6 [†]	(1.0-6.8)	3	20,104	4.6 [†]	(1.3-15.0)

Notes:

Abbreviations: P30D = past 30-day; W2 = Wave 2; W3 = Wave 3; W1 = Wave 1; CI = confidence interval; PTU = polytobacco use; w/ = with; CIG(S) = cigarette(s); w/o = without; N/A = not applicable

The analysis included youth (ages 12-17), young adult (ages 18-24), and adult 25+ (ages 25 and older) W1 P30D exclusive hookah users with data at all three waves. Age was calculated based on age at W1. W3 longitudinal (all-waves) weights were used to calculate estimates.

The weighted percentages for some constructs such as discontinued tobacco and persistent use in this table may not match exactly with those presented in Table 1. This is the result of different denominators. In this table there can be no missing values on tobacco use variables at any wave. Table 1 does not require this restriction since some outcomes reflect behaviors at W3 (e.g. discontinued use by W3), regardless of missing data at Wave 2.

For transitions between waves:

- 1) No tobacco: Defined as no use of any tobacco products within the past 30 days.
- 2) Exclusive hookah: Defined as use of only hookah within the past 30 days.
- 3) Exclusive cigarettes: Defined as use of only cigarettes within the past 30 days.
- 4) Hookah PTU w/CIGS: Defined as use of hookah and cigarettes within the past 30 days and possibly one or more of the following: traditional cigars, cigarillos, filtered cigars, electronic nicotine delivery systems (ENDS*), pipe, or any smokeless tobacco.
- 5) Hookah PTU w/o CIGS: Defined as use of hookah and one or more of the following within the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but not cigarettes.
- 6) CIG PTU w/o hookah: Defined as use of cigarettes and one or more of the following within the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but not hookah.
- 7) All other: Use of one or more of the following in the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but without cigarettes or hookah.

*Respondents were asked about P30D use of "e-cigarettes" at W1 and W2 and "e-products" (e-cigarettes, e-cigars, e-pipes, and e-hookah) at W3.

The logit-transformation method was used to calculate the 95% CIs.

† Estimate should be interpreted with caution because it has low statistical precision. It is based on a denominator sample size of less than 50, or the coefficient of variation of the estimate or its complement is larger than 30%.

Analyses were run on the W1, W2, and W3 Public Use Files (<https://doi.org/10.3886/ICPSR36498.v8>).

Supplemental Table 2e: Transitions in P30D Product Use at W2 (2014/15) and W3 (2015/16) Among W1 (2013/14) P30D Hookah Polytobacco Users w/CIGS.

Rows	W1	W2	W3	Youth				Young Adults				Adults 25+			
				Unweighted N	Weighted N	Weighted %	95% CI	Unweighted N	Weighted N	Weighted %	95% CI	Unweighted N	Weighted N	Weighted %	95% CI
1	Hookah PTU w/CIGS	No Tobacco	No Tobacco	5	12,419	9.7 [†]	(4.0-21.8)	24	92,361	5.4	(3.5-8.2)	10	46,290	4.8 [†]	(2.3-9.5)
2	Hookah PTU w/CIGS	No Tobacco	Exclusive Hookah	0	N/A	N/A	N/A	1	2,257	0.1 [†]	(0.0-0.9)	0	N/A	N/A	N/A
3	Hookah PTU w/CIGS	No Tobacco	Exclusive Cigarettes	0	N/A	N/A	N/A	6	19,633	1.1 [†]	(0.5-2.8)	1	8,033	0.8 [†]	(0.1-6.2)
4	Hookah PTU w/CIGS	No Tobacco	Hookah PTU w/CIGS	0	N/A	N/A	N/A	0	N/A	N/A	N/A	1	3,023	0.3 [†]	(0.0-2.5)
5	Hookah PTU w/CIGS	No Tobacco	Hookah PTU w/o CIGS	2	4,603	3.6 [†]	(0.9-13.7)	1	6,924	0.4 [†]	(0.1-2.8)	1	6,867	0.7 [†]	(0.1-5.2)
6	Hookah PTU w/CIGS	No Tobacco	CIG PTU w/o Hookah	1	1,410	1.1 [†]	(0.1-8.9)	7	24,139	1.4 [†]	(0.6-3.1)	2	13,357	1.4 [†]	(0.3-6.2)
7	Hookah PTU w/CIGS	No Tobacco	All Other	0	N/A	N/A	N/A	8	26,752	1.6 [†]	(0.7-3.3)	0	N/A	N/A	N/A
8	Hookah PTU w/CIGS	Exclusive Hookah	No Tobacco	0	N/A	N/A	N/A	4	15,972	0.9 [†]	(0.3-2.8)	1	15,438	1.6 [†]	(0.2-11.3)
9	Hookah PTU w/CIGS	Exclusive Hookah	Exclusive Hookah	0	N/A	N/A	N/A	2	9,333	0.5 [†]	(0.1-2.4)	2	21,947	2.3 [†]	(0.5-10.1)
10	Hookah PTU w/CIGS	Exclusive Hookah	Exclusive Cigarettes	0	N/A	N/A	N/A	2	5,375	0.3 [†]	(0.1-1.3)	0	N/A	N/A	N/A
11	Hookah PTU w/CIGS	Exclusive Hookah	Hookah PTU w/CIGS	1	1,427	1.1 [†]	(0.2-7.3)	1	2,960	0.2 [†]	(0.0-1.3)	1	8,329	0.9 [†]	(0.1-6.4)
12	Hookah PTU w/CIGS	Exclusive Hookah	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	4	11,668	0.7 [†]	(0.2-2.1)	2	6,474	0.7 [†]	(0.2-2.8)
13	Hookah PTU w/CIGS	Exclusive Hookah	CIG PTU w/o Hookah	1	2,602	2.0 [†]	(0.3-14.6)	2	5,300	0.3 [†]	(0.1-1.4)	0	N/A	N/A	N/A
14	Hookah PTU w/CIGS	Exclusive Hookah	All Other	0	N/A	N/A	N/A	1	5,724	0.3 [†]	(0.0-2.5)	1	3,447	0.4 [†]	(0.0-2.9)
15	Hookah PTU w/CIGS	Exclusive Cigarettes	No Tobacco	1	2,461	1.9 [†]	(0.2-14.5)	5	16,281	1.0 [†]	(0.3-2.7)	3	16,266	1.7 [†]	(0.6-4.9)
16	Hookah PTU w/CIGS	Exclusive Cigarettes	Exclusive Hookah	0	N/A	N/A	N/A	0	N/A	N/A	N/A	1	5,868	0.6 [†]	(0.1-4.2)
17	Hookah PTU w/CIGS	Exclusive Cigarettes	Exclusive Cigarettes	4	8,953	7.0 [†]	(2.3-19.4)	35	129,652	7.6	(5.2-10.8)	23	132,453	13.6	(8.9-20.4)
18	Hookah PTU w/CIGS	Exclusive Cigarettes	Hookah PTU w/CIGS	2	3,243	2.5 [†]	(0.6-10.1)	11	46,513	2.7 [†]	(1.5-5.0)	5	33,968	3.5 [†]	(1.2-9.7)
19	Hookah PTU w/CIGS	Exclusive Cigarettes	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	2	7,353	0.4 [†]	(0.1-1.9)	0	N/A	N/A	N/A
20	Hookah PTU w/CIGS	Exclusive Cigarettes	CIG PTU w/o Hookah	2	4,175	3.3 [†]	(0.6-15.1)	17	57,290	3.3	(2.0-5.5)	8	44,398	4.6 [†]	(2.1-9.4)
21	Hookah PTU w/CIGS	Exclusive Cigarettes	All Other	0	N/A	N/A	N/A	2	9,835	0.6 [†]	(0.1-3.0)	0	N/A	N/A	N/A
22	Hookah PTU w/CIGS	Hookah PTU w/CIGS	No Tobacco	0	N/A	N/A	N/A	17	59,825	3.5	(2.1-5.8)	3	11,949	1.2 [†]	(0.4-3.9)
23	Hookah PTU w/CIGS	Hookah PTU w/CIGS	Exclusive Hookah	1	3,212	2.5 [†]	(0.3-17.3)	4	17,688	1.0 [†]	(0.3-3.4)	1	3,654	0.4 [†]	(0.0-2.8)
24	Hookah PTU w/CIGS	Hookah PTU w/CIGS	Exclusive Cigarettes	1	1,749	1.4 [†]	(0.2-7.3)	31	119,987	7.0	(4.9-10.0)	11	68,122	7.0 [†]	(3.4-13.8)
25	Hookah PTU w/CIGS	Hookah PTU w/CIGS	Hookah PTU w/CIGS	9	21,669	16.9 [†]	(8.6-30.8)	58	242,730	14.2	(10.4-18.9)	21	91,530	9.4	(6.0-14.5)
26	Hookah PTU w/CIGS	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	8	26,330	1.5 [†]	(0.7-3.4)	1	3,556	0.4 [†]	(0.1-2.5)
27	Hookah PTU w/CIGS	Hookah PTU w/CIGS	CIG PTU w/o Hookah	6	13,160	10.3 [†]	(4.8-20.8)	54	172,081	10.0	(7.1-14.0)	13	58,420	6.0	(3.4-10.3)
28	Hookah PTU w/CIGS	Hookah PTU w/CIGS	All Other	1	1,911	1.5 [†]	(0.2-10.2)	4	11,315	0.7 [†]	(0.2-1.8)	2	11,206	1.2 [†]	(0.3-4.9)
29	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	No Tobacco	0	N/A	N/A	N/A	5	21,688	1.3 [†]	(0.3-4.6)	0	N/A	N/A	N/A
30	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	Exclusive Hookah	0	N/A	N/A	N/A	1	4,903	0.3 [†]	(0.0-2.3)	0	N/A	N/A	N/A
31	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	Exclusive Cigarettes	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
32	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	0	N/A	N/A	N/A	4	9,261	0.5 [†]	(0.2-1.6)	0	N/A	N/A	N/A
33	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	2	4,240	3.3 [†]	(0.9-11.4)	6	24,108	1.4 [†]	(0.6-3.3)	2	7,760	0.8 [†]	(0.2-3.4)
34	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	2	5,290	4.1 [†]	(1.0-16.2)	1	2,343	0.1 [†]	(0.0-1.0)	0	N/A	N/A	N/A
35	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	All Other	0	N/A	N/A	N/A	5	18,501	1.1 [†]	(0.4-2.7)	1	5,036	0.5 [†]	(0.1-4.1)
36	Hookah PTU w/CIGS	CIG PTU w/o Hookah	No Tobacco	0	N/A	N/A	N/A	16	44,713	2.6	(1.5-4.4)	2	12,142	1.2 [†]	(0.3-5.2)
37	Hookah PTU w/CIGS	CIG PTU w/o Hookah	Exclusive Hookah	0	N/A	N/A	N/A	0	N/A	N/A	N/A	1	2,131	0.2 [†]	(0.0-1.7)
38	Hookah PTU w/CIGS	CIG PTU w/o Hookah	Exclusive Cigarettes	2	5,092	4.0 [†]	(1.0-14.6)	29	98,938	5.8	(4.0-8.3)	19	95,129	9.8	(6.0-15.7)
39	Hookah PTU w/CIGS	CIG PTU w/o Hookah	Hookah PTU w/CIGS	3	5,550	4.3 [†]	(1.3-14.0)	21	68,452	4.0	(2.4-6.5)	8	37,716	3.9 [†]	(1.7-8.5)
40	Hookah PTU w/CIGS	CIG PTU w/o Hookah	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
41	Hookah PTU w/CIGS	CIG PTU w/o Hookah	CIG PTU w/o Hookah	6	14,376	11.2 [†]	(4.9-23.6)	49	157,494	9.2	(6.8-12.3)	33	166,432	17.1	(11.8-24.2)
42	Hookah PTU w/CIGS	CIG PTU w/o Hookah	All Other	0	N/A	N/A	N/A	5	24,066	1.4 [†]	(0.5-3.6)	2	9,074	0.9 [†]	(0.3-3.4)
43	Hookah PTU w/CIGS	All Other	No Tobacco	1	3,788	3.0 [†]	(0.4-18.5)	6	25,796	1.5 [†]	(0.6-3.7)	0	N/A	N/A	N/A
44	Hookah PTU w/CIGS	All Other	Exclusive Hookah	0	N/A	N/A	N/A	1	2,549	0.1 [†]	(0.0-1.1)	0	N/A	N/A	N/A
45	Hookah PTU w/CIGS	All Other	Exclusive Cigarettes	0	N/A	N/A	N/A	2	7,315	0.4 [†]	(0.1-1.8)	1	7,572	0.8 [†]	(0.1-5.4)
46	Hookah PTU w/CIGS	All Other	Hookah PTU w/CIGS	1	3,178	2.5 [†]	(0.3-16.5)	0	N/A	N/A	N/A	0	N/A	N/A	N/A
47	Hookah PTU w/CIGS	All Other	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	1	3,140	0.2 [†]	(0.0-1.4)	0	N/A	N/A	N/A
48	Hookah PTU w/CIGS	All Other	CIG PTU w/o Hookah	2	3,505	2.7 [†]	(0.7-9.8)	5	19,103	1.1 [†]	(0.5-2.7)	0	N/A	N/A	N/A
49	Hookah PTU w/CIGS	All Other	All Other	0	N/A	N/A	N/A	9	36,091	2.1 [†]	(1.1-4.1)	3	14,664	1.5 [†]	(0.4-5.2)

Notes:
Abbreviations: P30D = past 30-day; W2 = Wave 2; W3 = Wave 3; W1 = Wave 1; w/ = with; CIG(S) = cigarette(s); CI = confidence interval; PTU = polytobacco use; w/o = without; N/A = not applicable

The analysis included youth (ages 12-17), young adult (ages 18-24), and adult 25+ (ages 25 and older) W1 P30D hookah polytobacco users w/CIGS with data at all three waves. Age was calculated based on age at W1. W3 longitudinal (all-waves) weights were used to calculate estimates.

The weighted percentages for some constructs such as discontinued tobacco and persistent use in this table may not match exactly with those presented in Table 1. This is the result of different denominators. In this table there can be no missing values on tobacco use variables at any wave. Table 1 does not require this restriction since some outcomes reflect behaviors at W3 (e.g. discontinued use by W3), regardless of missing data at Wave 2.

For transitions between waves:

- 1) No tobacco: Defined as no use of any tobacco products within the past 30 days.
- 2) Exclusive hookah: Defined as use of only hookah within the past 30 days.
- 3) Exclusive cigarettes: Defined as use of only cigarettes within the past 30 days.
- 4) Hookah PTU w/CIGS: Defined as use of hookah and cigarettes within the past 30 days and possibly one or more of the following: traditional cigars, cigarillos, filtered cigars, electronic nicotine delivery systems (ENDS*), pipe, or any smokeless tobacco.
- 5) Hookah PTU w/o CIGS: Defined as use of hookah and one or more of the following within the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but not cigarettes.
- 6) CIG PTU w/o hookah: Defined as use of cigarettes and one or more of the following within the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but not hookah.
- 7) All other: Use of one or more of the following in the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but without cigarettes or hookah.

*Respondents were asked about P30D use of “e-cigarettes” at W1 and W2 and “e-products” (e-cigarettes, e-cigars, e-pipes, and e-hookah) at W3.

The logit-transformation method was used to calculate the 95% CIs.

† Estimate should be interpreted with caution because it has low statistical precision. It is based on a denominator sample size of less than 50, or the coefficient of variation of the estimate or its complement is larger than 30%.

Analyses were run on the W1, W2, and W3 Public Use Files (<https://doi.org/10.3886/ICPSR36498.v8>).

Supplemental Table 2f: Transitions in P30D Product Use at W2 (2014/15) and W3 (2015/16) Among W1 (2013/14) P30D Hookah Polytobacco Users w/o CIGS.

Rows	W1	W2	W3	Youth				Young Adults				Adults 25+			
				Unweighted N	Weighted N	Weighted %	95% CI	Unweighted N	Weighted N	Weighted %	95% CI	Unweighted N	Weighted N	Weighted %	95% CI
1	Hookah PTU w/o CIGS	No Tobacco	No Tobacco	5	13,452	16.7 [†]	(6.3-37.6)	21	77,494	13.5	(8.9-20.1)	5	27,249	10.5 [†]	(4.3-23.4)
2	Hookah PTU w/o CIGS	No Tobacco	Exclusive Hookah	2	4,637	5.8 [†]	(1.3-21.7)	4	16,892	3.0 [†]	(1.1-7.9)	1	3,830	1.5 [†]	(0.2-10.4)
3	Hookah PTU w/o CIGS	No Tobacco	Exclusive Cigarettes	0	N/A	N/A	N/A	1	4,199	0.7 [†]	(0.1-4.7)	0	N/A	N/A	N/A
4	Hookah PTU w/o CIGS	No Tobacco	Hookah PTU w/CIGS	0	N/A	N/A	N/A	2	6,146	1.1 [†]	(0.3-4.2)	0	N/A	N/A	N/A
5	Hookah PTU w/o CIGS	No Tobacco	Hookah PTU w/o CIGS	1	4,535	5.6 [†]	(0.9-29.3)	1	2,034	0.4 [†]	(0.1-2.4)	0	N/A	N/A	N/A
6	Hookah PTU w/o CIGS	No Tobacco	CIG PTU w/o Hookah	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
7	Hookah PTU w/o CIGS	No Tobacco	All Other	0	N/A	N/A	N/A	2	6,181	1.1 [†]	(0.2-4.7)	0	N/A	N/A	N/A
8	Hookah PTU w/o CIGS	Exclusive Hookah	No Tobacco	2	6,750	8.4 [†]	(2.3-25.9)	7	26,961	4.7 [†]	(2.1-10.1)	2	11,008	4.2 [†]	(0.9-18.4)
9	Hookah PTU w/o CIGS	Exclusive Hookah	Exclusive Hookah	0	N/A	N/A	N/A	4	16,640	2.9 [†]	(0.9-9.3)	2	12,220	4.7 [†]	(0.9-21.1)
10	Hookah PTU w/o CIGS	Exclusive Hookah	Exclusive Cigarettes	0	N/A	N/A	N/A	1	4,346	0.8 [†]	(0.1-4.7)	0	N/A	N/A	N/A
11	Hookah PTU w/o CIGS	Exclusive Hookah	Hookah PTU w/CIGS	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
12	Hookah PTU w/o CIGS	Exclusive Hookah	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	2	6,492	1.1 [†]	(0.3-4.7)	2	14,740	5.7 [†]	(1.3-21.5)
13	Hookah PTU w/o CIGS	Exclusive Hookah	CIG PTU w/o Hookah	0	N/A	N/A	N/A	1	2,735	0.5 [†]	(0.1-3.5)	0	N/A	N/A	N/A
14	Hookah PTU w/o CIGS	Exclusive Hookah	All Other	0	N/A	N/A	N/A	2	6,909	1.2 [†]	(0.3-5.0)	0	N/A	N/A	N/A
15	Hookah PTU w/o CIGS	Exclusive Cigarettes	No Tobacco	1	2,694	3.3 [†]	(0.4-21.9)	2	9,773	1.7 [†]	(0.4-6.7)	0	N/A	N/A	N/A
16	Hookah PTU w/o CIGS	Exclusive Cigarettes	Exclusive Hookah	0	N/A	N/A	N/A	1	6,916	1.2 [†]	(0.2-7.4)	0	N/A	N/A	N/A
17	Hookah PTU w/o CIGS	Exclusive Cigarettes	Exclusive Cigarettes	0	N/A	N/A	N/A	1	2,700	0.5 [†]	(0.1-3.3)	1	6,971	2.7 [†]	(0.3-18.5)
18	Hookah PTU w/o CIGS	Exclusive Cigarettes	Hookah PTU w/CIGS	0	N/A	N/A	N/A	1	5,084	0.9 [†]	(0.1-6.3)	0	N/A	N/A	N/A
19	Hookah PTU w/o CIGS	Exclusive Cigarettes	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
20	Hookah PTU w/o CIGS	Exclusive Cigarettes	CIG PTU w/o Hookah	0	N/A	N/A	N/A	0	N/A	N/A	N/A	1	4,164	1.6 [†]	(0.2-10.3)
21	Hookah PTU w/o CIGS	Exclusive Cigarettes	All Other	0	N/A	N/A	N/A	1	2,645	0.5 [†]	(0.1-3.4)	0	N/A	N/A	N/A
22	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	No Tobacco	1	1,655	2.1 [†]	(0.2-15.2)	3	8,861	1.5 [†]	(0.5-5.1)	1	7,937	3.0 [†]	(0.4-19.8)
23	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	Exclusive Hookah	0	N/A	N/A	N/A	1	3,490	0.6 [†]	(0.1-4.5)	1	11,696	4.5 [†]	(0.6-27.4)
24	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	Exclusive Cigarettes	0	N/A	N/A	N/A	1	3,982	0.7 [†]	(0.1-5.1)	0	N/A	N/A	N/A
25	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	Hookah PTU w/CIGS	2	4,198	5.2 [†]	(1.1-21.0)	10	32,478	5.7 [†]	(3.0-10.4)	1	8,462	3.3 [†]	(0.4-20.6)
26	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	Hookah PTU w/o CIGS	2	5,173	6.4 [†]	(1.6-22.5)	0	N/A	N/A	N/A	1	5,203	2.0 [†]	(0.2-14.4)
27	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	CIG PTU w/o Hookah	1	2,642	3.3 [†]	(0.4-23.1)	7	31,239	5.5 [†]	(2.4-11.8)	1	7,040	2.7 [†]	(0.4-17.9)
28	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	All Other	1	4,163	5.2 [†]	(0.7-30.5)	2	6,292	1.1 [†]	(0.3-4.5)	0	N/A	N/A	N/A
29	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	No Tobacco	1	1,337	1.7 [†]	(0.2-13.3)	5	21,805	3.8 [†]	(1.4-10.1)	1	3,421	1.3 [†]	(0.2-10.1)
30	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	Exclusive Hookah	0	N/A	N/A	N/A	6	26,668	4.7 [†]	(2.0-10.7)	1	10,988	4.2 [†]	(0.6-23.2)
31	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	Exclusive Cigarettes	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
32	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	Hookah PTU w/CIGS	0	N/A	N/A	N/A	4	20,229	3.5 [†]	(1.2-9.9)	1	1,850	0.7 [†]	(0.1-5.4)
33	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	11	39,462	6.9 [†]	(3.4-13.5)	4	21,237	8.2 [†]	(3.1-19.8)
34	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	0	N/A	N/A	N/A	2	4,696	0.8 [†]	(0.2-3.3)	2	9,597	3.7 [†]	(1.7-7.9)
35	Hookah PTU w/o CIGS	Hookah PTU w/o CIGS	All Other	0	N/A	N/A	N/A	9	34,825	6.1 [†]	(2.7-13.0)	2	9,794	3.8 [†]	(0.9-14.4)
36	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	No Tobacco	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
37	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	Exclusive Hookah	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
38	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	Exclusive Cigarettes	1	1,918	2.4 [†]	(0.3-15.2)	1	2,042	0.4 [†]	(0.0-2.8)	0	N/A	N/A	N/A
39	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	Hookah PTU w/CIGS	2	3,726	4.6 [†]	(1.0-19.0)	2	7,266	1.3 [†]	(0.3-5.8)	0	N/A	N/A	N/A
40	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
41	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	CIG PTU w/o Hookah	1	2,407	3.0 [†]	(0.4-20.8)	8	29,236	5.1 [†]	(2.4-10.4)	0	N/A	N/A	N/A
42	Hookah PTU w/o CIGS	CIG PTU w/o Hookah	All Other	0	N/A	N/A	N/A	2	5,723	1.0 [†]	(0.3-3.9)	1	7,162	2.8 [†]	(0.4-18.2)
43	Hookah PTU w/o CIGS	All Other	No Tobacco	2	5,486	6.8 [†]	(1.3-29.2)	9	37,330	6.5 [†]	(3.2-12.7)	3	13,688	5.3 [†]	(1.5-16.9)
44	Hookah PTU w/o CIGS	All Other	Exclusive Hookah	0	N/A	N/A	N/A	1	2,236	0.4 [†]	(0.0-3.1)	0	N/A	N/A	N/A
45	Hookah PTU w/o CIGS	All Other	Exclusive Cigarettes	0	N/A	N/A	N/A	0	N/A	N/A	N/A	0	N/A	N/A	N/A
46	Hookah PTU w/o CIGS	All Other	Hookah PTU w/CIGS	0	N/A	N/A	N/A	0	N/A	N/A	N/A	1	2,958	1.1 [†]	(0.1-9.3)
47	Hookah PTU w/o CIGS	All Other	Hookah PTU w/o CIGS	0	N/A	N/A	N/A	1	5,662	1.0 [†]	(0.1-7.3)	5	37,034	14.2 [†]	(5.3-33.2)
48	Hookah PTU w/o CIGS	All Other	CIG PTU w/o Hookah	2	5,380	6.7 [†]	(2.0-20.2)	3	8,672	1.5 [†]	(0.4-5.1)	0	N/A	N/A	N/A
49	Hookah PTU w/o CIGS	All Other	All Other	3	10,393	12.9 [†]	(4.0-34.5)	10	36,082	6.3 [†]	(3.3-11.8)	5	22,062	8.5 [†]	(3.5-19.2)

Notes:

Abbreviations: P30D = past 30-day; W2 = Wave 2; W3 = Wave 3; W1 = Wave 1; w/o = without; CIG(S) = cigarette(s); CI = confidence interval; PTU = polytobacco use; w/ = with; N/A = not applicable

The analysis included youth (ages 12-17), young adult (ages 18-24), and adult 25+ (ages 25 and older) W1 P30D hookah polytobacco users w/o CIGS with data at all three waves. Age was calculated based on age at W1. W3 longitudinal (all-waves) weights were used to calculate estimates.

The weighted percentages for some constructs such as discontinued tobacco and persistent use in this table may not match exactly with those presented in Table 1. This is the result of different denominators. In this table there can be no missing values on tobacco use variables at any wave. Table 1 does not require this restriction since some outcomes reflect behaviors at W3 (e.g. discontinued use by W3), regardless of missing data at Wave 2.

For transitions between waves:

- 1) No tobacco: Defined as no use of any tobacco products within the past 30 days.
- 2) Exclusive hookah: Defined as use of only hookah within the past 30 days.
- 3) Exclusive cigarettes: Defined as use of only cigarettes within the past 30 days.
- 4) Hookah PTU w/CIGS: Defined as use of hookah and cigarettes within the past 30 days and possibly one or more of the following: traditional cigars, cigarillos, filtered cigars, electronic nicotine delivery systems (ENDS*), pipe, or any smokeless tobacco.
- 5) Hookah PTU w/o CIGS: Defined as use of hookah and one or more of the following within the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but not cigarettes.
- 6) CIG PTU w/o hookah: Defined as use of cigarettes and one or more of the following within the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but not hookah.
- 7) All other: Use of one or more of the following in the past 30 days: traditional cigars, cigarillos, filtered cigars, ENDS, pipe, or any smokeless tobacco, but without cigarettes or hookah.

*Respondents were asked about P30D use of “e-cigarettes” at W1 and W2 and “e-products” (e-cigarettes, e-cigars, e-pipes, and e-hookah) at W3.

The logit-transformation method was used to calculate the 95% CIs.

† Estimate should be interpreted with caution because it has low statistical precision. It is based on a denominator sample size of less than 50, or the coefficient of variation of the estimate or its complement is larger than 30%.

Analyses were run on the W1, W2, and W3 Public Use Files (<https://doi.org/10.3886/ICPSR36498.v8>).