

USE OF OTHER TOBACCO PRODUCTS TO SWITCH FROM CIGARETTE SMOKING

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- Few studies have examined the extent to which smokers may use other tobacco products, particularly non-combustible products such as electronic cigarettes, in an effort to completely switch from cigarette smoking
- Understanding the extent to which smokers may use of other tobacco products in an effort to completely switch from cigarette smoking, can help to inform an assessment of the population health impact of the use of those products

- Among a nationally representative sample of adults in the U.S.:
 - To describe demographic characteristics, cigarette smoking behaviors and prevalence of other tobacco product use among current cigarette smokers who made a quit attempt in the past 12 months and recent former smokers (those who quit cigarette smoking in the past 12 months)
 - Among current smokers who made a quit attempt in the past year and recent former smokers, present the proportion who reported that they tried to quit cigarette smoking by switching to use of other tobacco products, overall, by tobacco product and by demographic characteristics

- 2014-2015 Tobacco Use Supplement to the Current Population Survey (TUS-CPS)
 - Large, nationally representative cross-sectional address-based household survey of U.S. civilian, non-institutionalized adults administered in conjunction with the U.S. Census Bureau's Current Population Survey (CPS) every four years
 - Can provide tobacco-related estimates at the national, regional and state levels
 - Data collection took place over a three month period in July 2014, January 2015 and May 2015
 - Approximately two-thirds of respondents were interviewed via telephone and one-third were interviewed in-person

- 2014-2015 TUS-CPS Response Rate
 - Overall (self + proxy) response rate = 76.5%
 - Self-only response rate = 60%*
 - Sample size for this analysis:
 - n=163,920 self-only respondents
- Statistical analysis
 - Data were analyzed using SAS-callable SUDAAN Version 11.0.0
 - Replicate weights were applied to account for the complex survey design of TUS-CPS
 - Estimates and standard errors were calculated using balanced repeated replication (BRR)
 - Statistically significant differences were assessed using Wald χ^2 tests
 - Please note: All estimates presented should be considered preliminary

*Self-response rate is equivalent to about 60% for 2010-2011 given the number of self-respondents for large households that were intentionally reduced yielding approximately 5-7% reduction in self-respondents overall (consistent with 54.2% self-only response rate). In addition, a random component was added to self-respondents their selection in larger households.

SURVEY ITEMS ASSESSED ON TUS-CPS



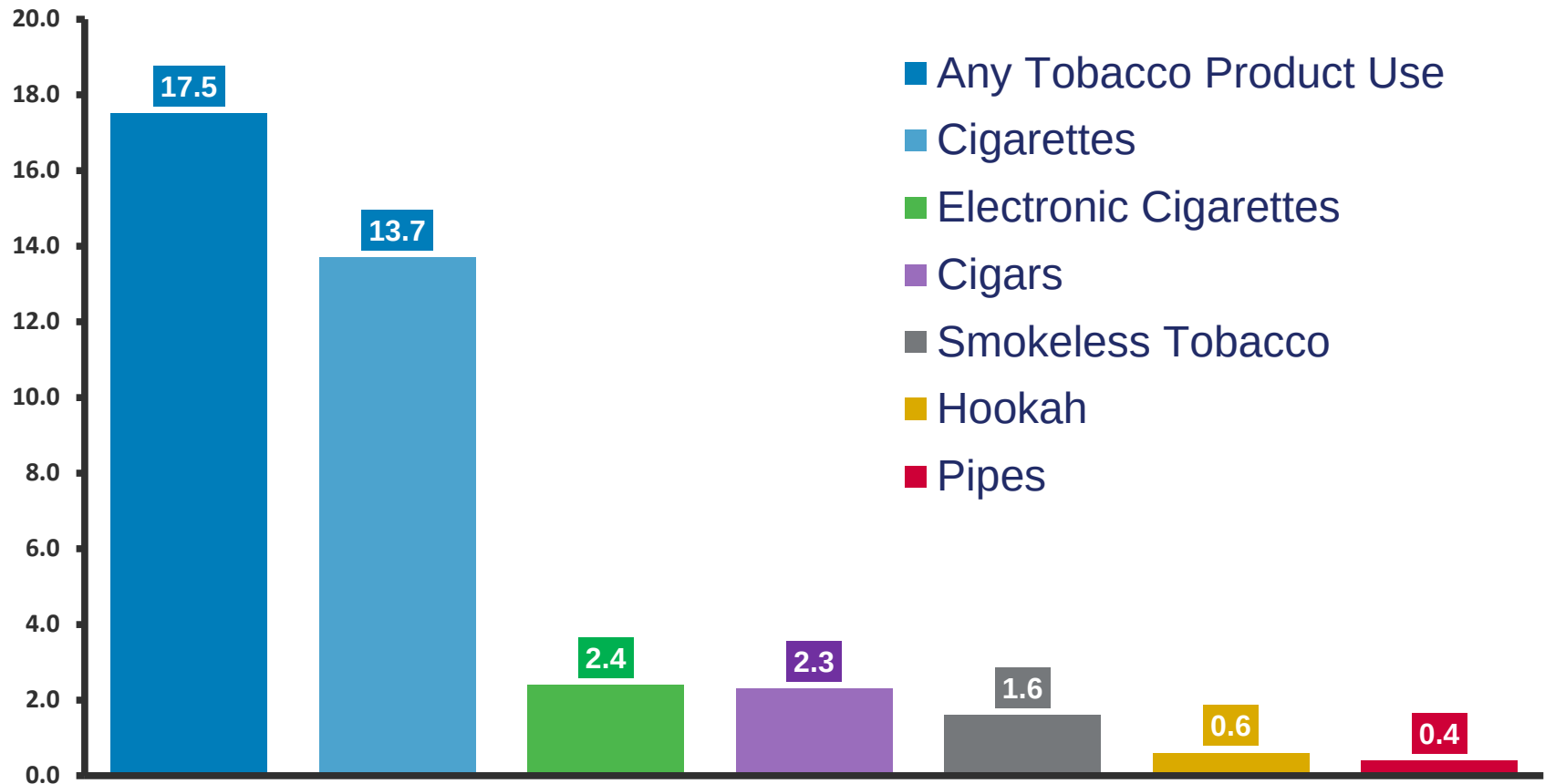
- Ever and current use of all tobacco products
 - Cigarettes; cigars (regular/large cigars, cigarillos, little filtered cigars), electronic cigarettes; smokeless tobacco (chew, snuff, dip, snus, dissolvables); pipes; hookah
- Smoking characteristics/history among current and former cigarette smokers
 - Age at first cigarette smoking, fairly regularly
 - Number of cigarettes smoked per day
- Cessation-related behaviors
 - Quit Attempts
 - Reported switching to other tobacco products to try to quit cigarette smoking

CURRENT TOBACCO USE DEFINITIONS



- Current cigarette smoking was defined as:
 - Reporting smoking at least 100 cigarettes in lifetime and currently smoke cigarettes “every day” or “some days”
- Current use of non-cigarette tobacco products was defined as:
 - Reporting ever using tobacco product at least 1 time and currently use product “every day” or “some days”

PREVALENCE OF TOBACCO USE BY PRODUCT: 2014-2015 TUS-CPS



PAST YEAR CIGARETTE SMOKING STATUS

QUIT ATTEMPT AMONG CURRENT SMOKERS



- Current smokers with a quit attempt in the past year were identified using the following set of questions:
 - For “every day” and “some day smokers” smoking ≥ 12 days during the past 30 days:
 - During the PAST 12 MONTHS, have you stopped smoking for ONE DAY or longer BECAUSE YOU WERE TRYING TO QUIT SMOKING?
 - DURING THE PAST 12 MONTHS, have you made a serious attempt to stop smoking because you were TRYING to quit – even if you stopped for less than a day?
 - For “some day” smokers smoking < 12 Days in the past 30 days :
 - During the PAST 12 MONTHS, have you TRIED to QUIT smoking COMPLETELY?
- 46.7% (or n=10,455) of current smokers reported a quit attempt in the past year

RECENT FORMER SMOKERS



- Recent Former Smokers were identified using the following set of questions:
 - Have you smoked at least 100 cigarettes in your entire life? (Yes)
 - Do you now smoke cigarettes every day, some days, or not at all? (Not at all)
 - About how long has it been since you COMPLETELY quit smoking cigarettes? ($\leq$ 12 months)
- 10.8% (or n=3,224) of former smokers reported they completely quit smoking cigarettes in the past year
- Moving forward, analyses presented are restricted to current smokers with a quit attempt in the past year and recent former smokers.

DEMOGRAPHIC CHARACTERISTICS



	Current Cigarette Smokers who made a quit attempt in past 12 months (n=10,455)	Recent Former Smokers (n=3,224)
Sex*		
Male	51.6 (50.5-52.7)	54.8 (52.8-56.7)
Female	48.4 (47.3-49.5)	45.2 (43.3-47.2)
Age Group*		
18-24	13.6 (12.6-14.8)	18.1 (16.1-20.2)
25-44	40.0 (38.8-41.2)	43.8 (41.5-46.2)
45-64	37.2 (36.0-38.4)	28.9 (27.3-30.6)
65+	9.2 (8.6-9.8)	9.2 (8.1-10.4)

*Wald X² test (p-value < 0.05)

DEMOGRAPHIC CHARACTERISTICS



	Current Cigarette Smokers who made a quit attempt in past 12 months (n=10,455)	Recent Former Smokers (n=3,224)
Race/Ethnicity*		
White, NH	70.0 (68.6-71.2)	74.7 (72.6-76.7)
Black, NH	13.9 (13.0-14.8)	8.2 (7.2-9.3)
Hispanic	9.4 (8.6-10.3)	10.7 (9.2-12.3)
Other, NH	6.8 (6.2-7.4)	6.4 (5.4-7.7)
Education*		
Less than High School	16.3 (15.4-17.3)	11.4 (10.0-12.9)
High School Diploma or GED	38.1 (37.0-39.3)	31.4 (29.4-33.5)
Some College	33.8 (32.8-34.9)	36.7 (34.8-38.7)
Bachelor's Degree or Higher	11.8 (11.0-12.6)	20.5 (18.9-22.2)

*Wald X² test (p-value < 0.05)

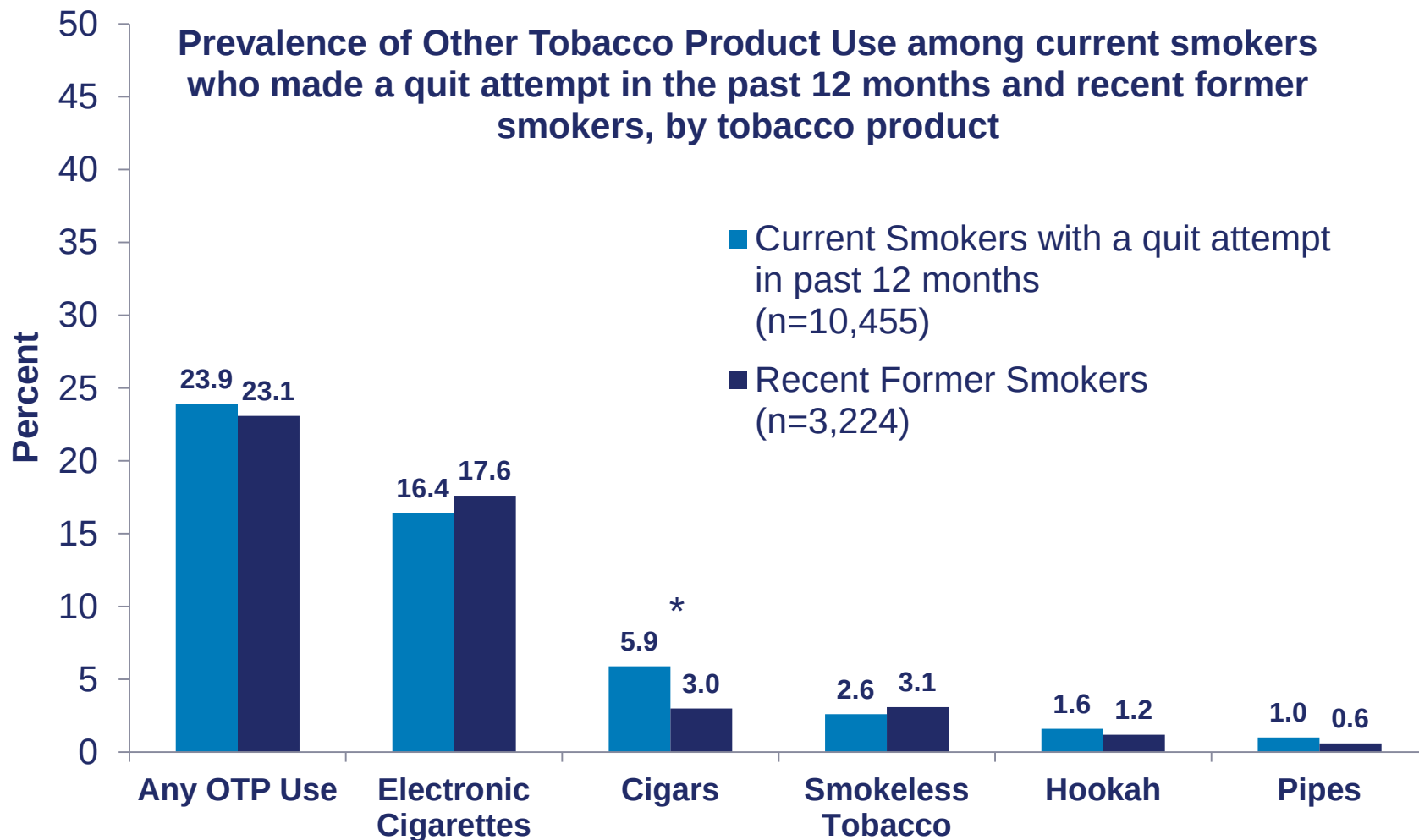
DEMOGRAPHIC CHARACTERISTICS



	Current Cigarette Smokers who made a quit attempt in past 12 months (n=10,455)	Recent Former Smokers (n=3,224)
Household Income*		
<\$20,000	30.4 (29.2-31.6)	22.6 (20.7-24.6)
\$20,000–\$49,999	36.5 (35.3-37.8)	35.5 (33.5-37.6)
\$50,000–\$99,999	23.6 (22.5-24.6)	28.3 (26.3-30.3)
>\$100,000	9.5 (8.8-10.3)	13.6 (12.2-15.1)
Occupation*		
White Collar	30.3 (29.2-31.4)	38.5 (36.5-40.6)
Service	15.8 (15.0-16.8)	14.0 (12.5-15.6)
Blue Collar	20.7 (19.7-21.6)	19.0 (17.5-20.7)
Other	33.2 (32.2-34.2)	28.4 (26.7-30.2)

*Wald X² test (p-value < 0.05)

PREVELANCE OF OTP USE, BY TOBACCO PRODUCT



*Wald X² test (p-value < 0.05)

SUMMARY



- There were differences observed by demographic characteristics across both groups of past year smokers
- Prevalence of any other tobacco product use and product-specific use was similar across both groups of past year smokers with the exception of cigar use which was higher in current smokers with a quit attempt in the past year
- Notably, among both groups of past year smokers, prevalence of e-cigarette use was high compared to other tobacco products

REPORTED SWITCHING TO OTHER TOBACCO PRODUCTS TO TRY TO QUIT SMOKING

REPORTED USE OF OTP'S TO TRY TO QUIT SMOKING



- Current smokers who made a past year quit attempt were asked:
 - The (LAST TIME / time) you tried to QUIT smoking in the past 12 months: Did you do ANY of the following:
 - Try to quit by SWITCHING to smokeless tobacco such as chewing tobacco, snuff, or snus?
 - Try to quit by SWITCHING to regular cigars, cigarillos, little filtered cigars or ANY pipes filled with tobacco?*
 - Try to quit by SWITCHING to electronic or E-cigarettes? You may also know them as vape-pens, hookah-pens, e-hookahs, e-vaporizers, e-cigars, or e-pipes.

*For those who responded "...by switching to regular cigars, cigarillos, little filtered cigars or ANY pipes filled with tobacco?", a follow-up question was asked to determine which specific product(s) (i.e., cigars, pipes or hookah) they used to try to quit smoking.

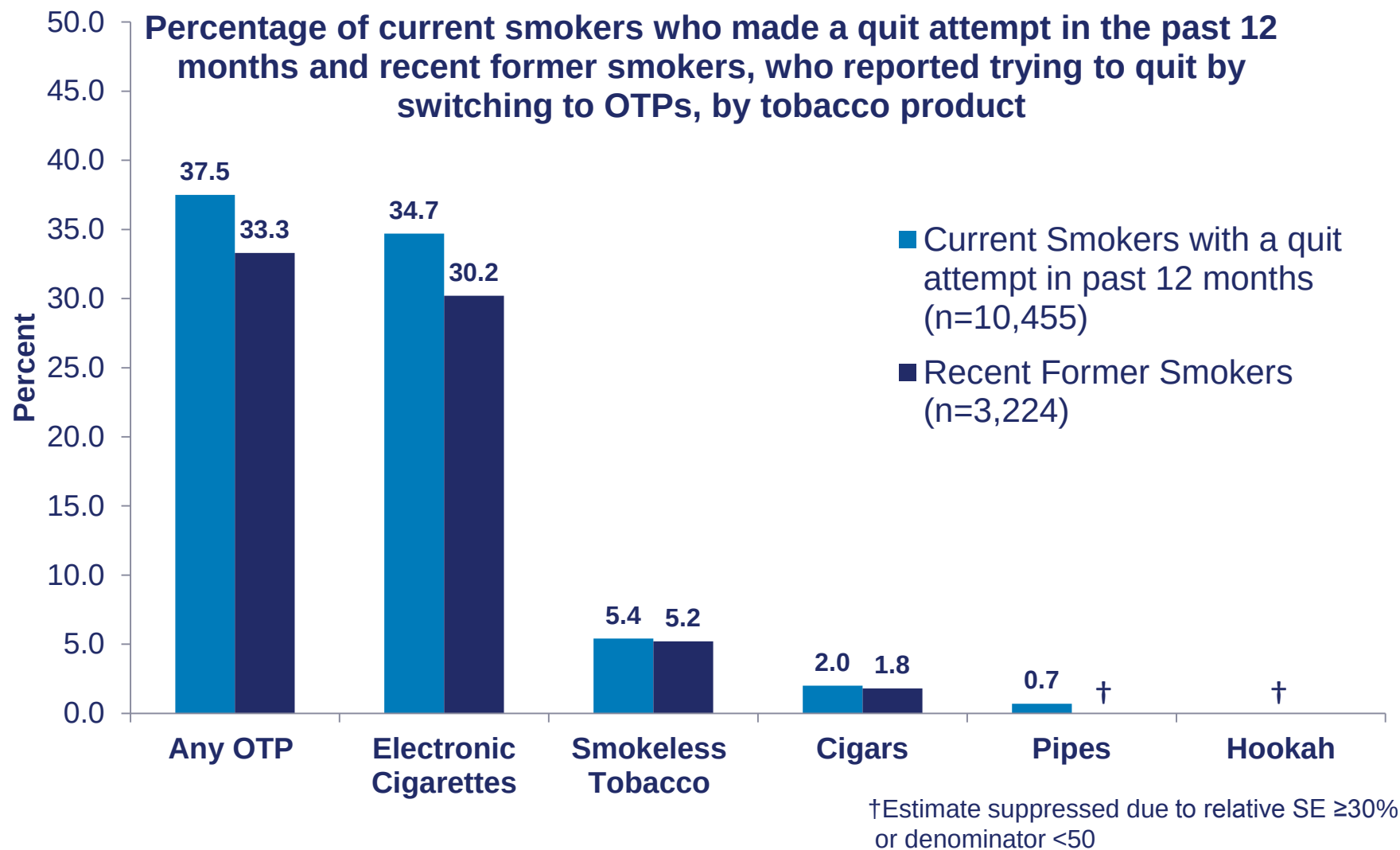
REPORTED USE OF OTP'S TO TRY TO QUIT SMOKING



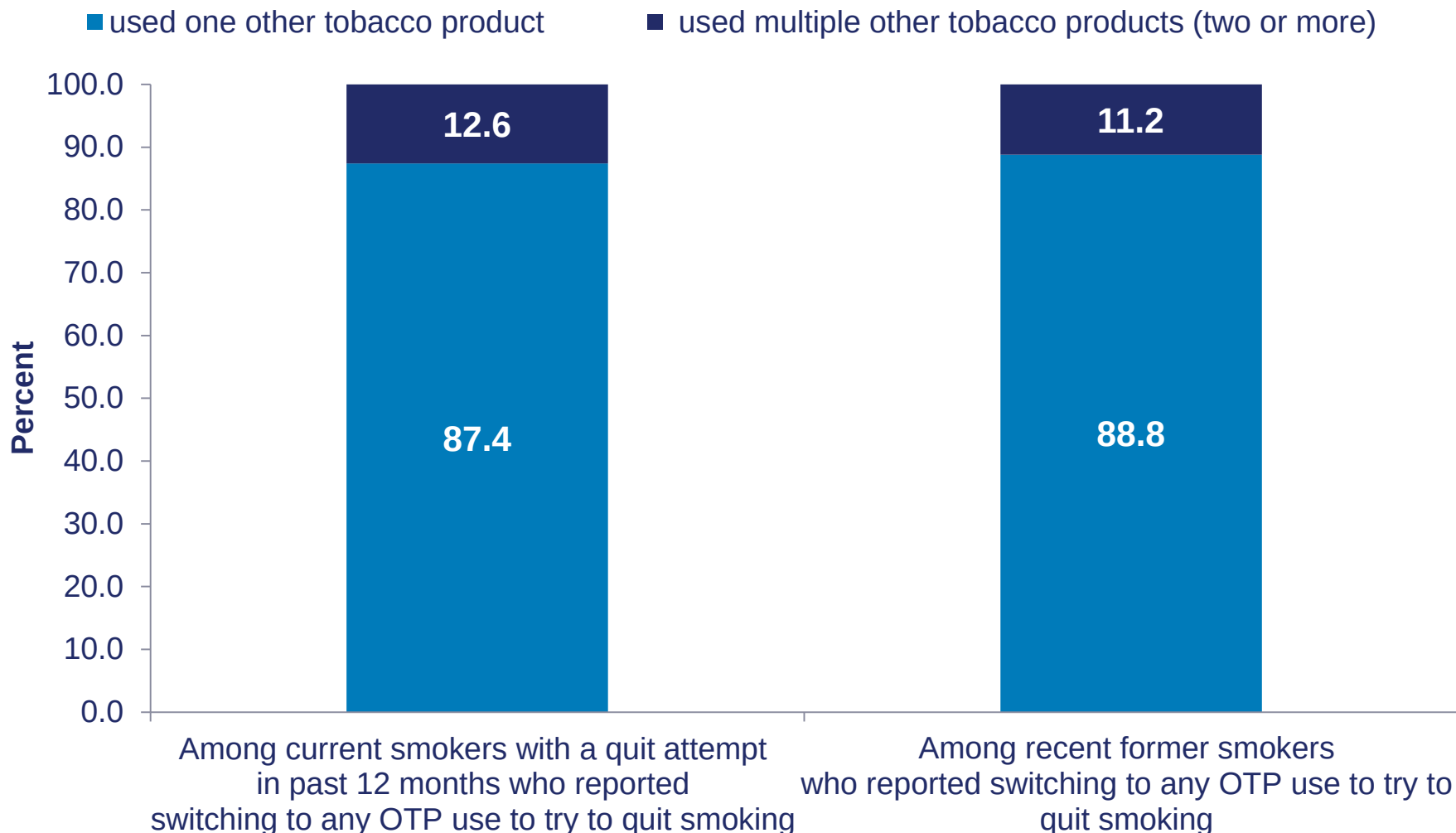
- Recent Former Smokers were asked:
 - When you quit smoking completely, did you do ANY of the following, whether or not you think they were effective:
 - Try to quit by SWITCHING to smokeless tobacco such as chewing tobacco, snuff, or snus?
 - Try to quit by SWITCHING to regular cigars, cigarillos, little filtered cigars or ANY pipes filled with tobacco?*
 - Try to quit by SWITCHING to electronic or E-cigarettes? You may also know them as vape-pens, hookah-pens, E-hookahs, E-vaporizers, E-cigars, or E-pipes.

*For those who responded "...by switching to regular cigars, cigarillos, little filtered cigars or ANY pipes filled with tobacco?", a follow-up question was asked to determine which specific product (s) (i.e., cigars, pipes or hookah) they used to try to quit smoking.

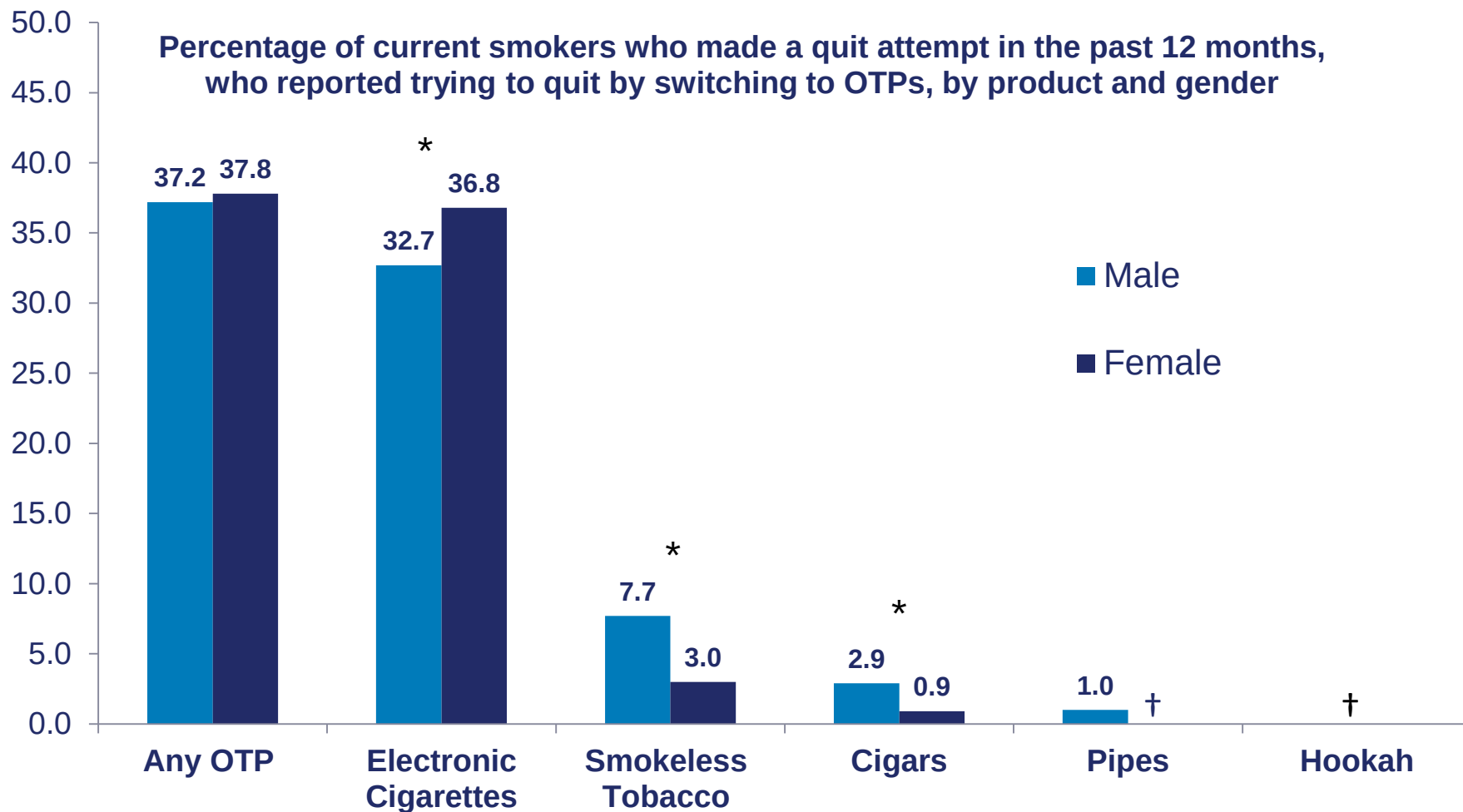
REPORTED USE OF OTP'S TO TRY TO QUIT SMOKING: 2014-2015 TUS-CPS



REPORTED USE OF OTP'S TO TRY TO QUIT SMOKING: 2014-2015 TUS-CPS



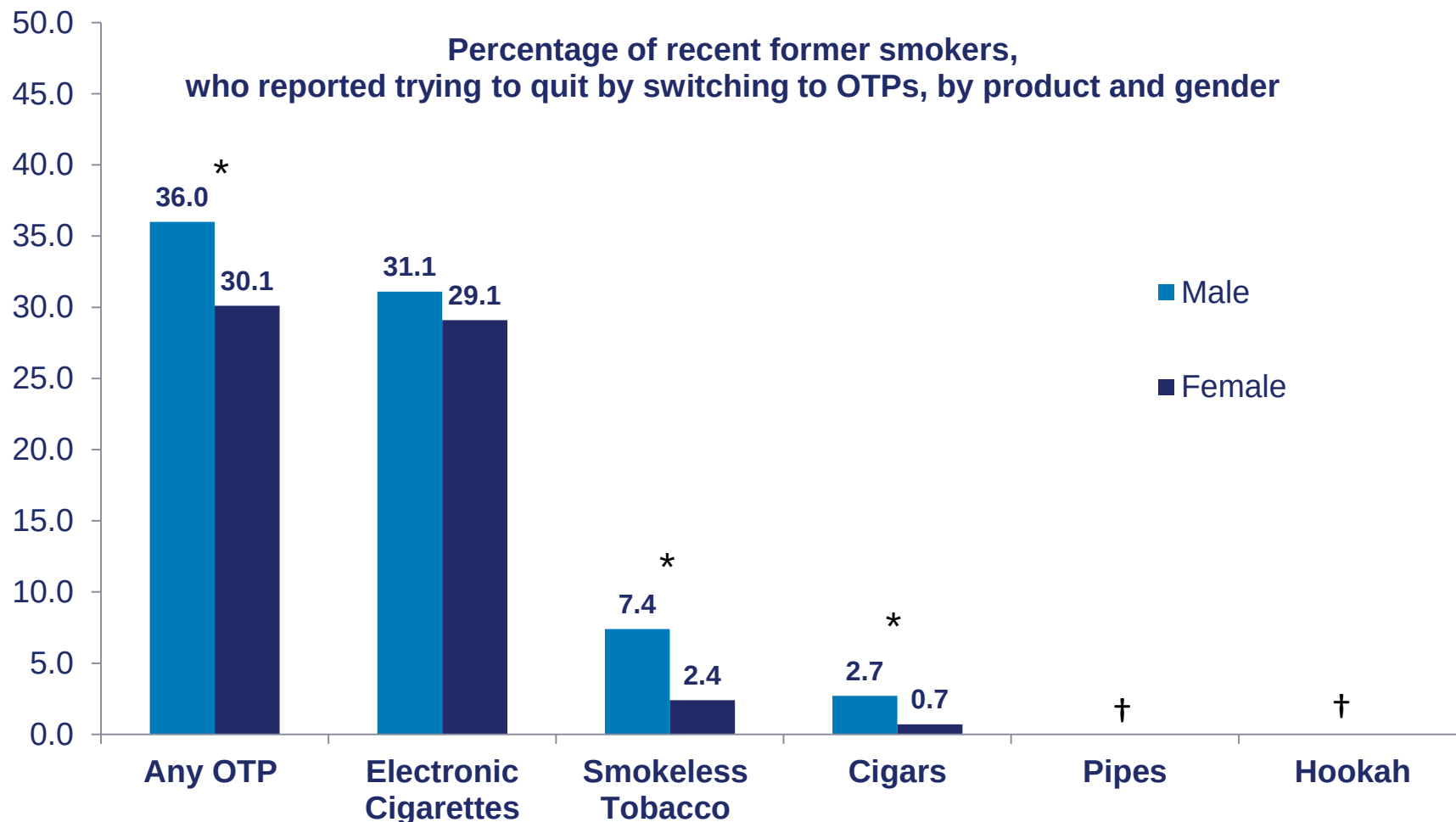
REPORTED USE OF OTP'S TO TRY TO QUIT SMOKING: CURRENT SMOKERS W/ QUIT ATTEMPT BY GENDER: 2014-2015 TUS-CPS



*Wald X² test (p-value < 0.05)

†Estimate suppressed due to relative SE ≥30% or denominator <50

REPORTED USE OF OTP'S TO TRY TO QUIT SMOKING: RECENT FORMER SMOKERS BY GENDER: 2014-2015 TUS-CPS



*Wald X² test (p-value < 0.05)

†Estimate suppressed due to relative SE ≥30% or denominator <50

SUMMARY



- About one-third of current smokers with a past year quit attempt and recent former smokers reported trying to quit smoking by switching to any other tobacco product
- By far, e-cigarettes represented the highest proportion of product-specific switching to try to quit smoking, followed by smokeless tobacco and cigars
- In terms of demographic characteristics, differences were observed by gender, with males reporting a higher proportion of switching to smokeless tobacco and cigars to try to quit among both groups of past year smokers and female current smokers with a past year quit attempt reporting a higher proportion of switching to e-cigarettes

- One of the first studies to provide estimates on reported use of electronic cigarettes to try to quit cigarette smoking in a nationally representative sample of U.S. adults
- Large sample size allowed for characterization of study sample by demographics and smoking behaviors
- Questions on use of nicotine replacement therapy (NRT) products not available on the survey
- Cross-sectional study design

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QUESTIONS???



ADDITIONAL SLIDES

DEMOGRAPHIC CHARACTERISTICS



- Sex
 - Male/Female
- Age Group
 - 18-24, 25-44, 45-64, ≥ 65
- Race/Ethnicity
 - White, Non-Hispanic; Black, Non-Hispanic; Hispanic and Other Non-Hispanic
- Annual household income
 - $< \$20,000$; $\$20,000$ – $49,999$; $\$50,000$ – $99,000$; $\geq \$100,000$
- Occupation
 - White Collar; Service; Blue Collar; Other

OCCUPATION



- White Collar
 - Management, business, and financial occupations; Professional and related occupations; Sales and related occupations; Office and administrative support occupations
- Service
 - Service occupations
- Blue Collar
 - Construction and extraction occupations; Installation, maintenance, and repair occupations; Production occupations; Transportation and material moving occupations; Farming, fishing, and forestry occupations
- Other
 - Armed Forces; Not in labor force (retired, disabled, other) and Unemployed-looking

SMOKING CHARACTERISTICS



- Age at first cigarette
 - How old (were/was) (you/name) when (you/he/she) first started smoking cigarettes FAIRLY REGULARLY?
 - Same question asked to current and former smokers

SMOKING CHARACTERISTICS FOR CURRENT SMOKERS



- Number of cigarettes smoked per day:
 - Current “every day” smokers were asked:
 - On the average, about how many cigarettes do you now smoke each day?
 - Current “some days” smokers were asked:
 - On how many of the past 30 days did you smoke cigarettes?
 - Would you say you smoked on AT LEAST 12 DAYS in the past 30 days?
 - On the average, on those [fill entry] days, how many cigarettes did you usually smoke each day?

SMOKING CHARACTERISTICS FOR CURRENT SMOKERS



- Time To First Cigarette:
 - Current “every day” smokers were asked:
 - How soon after you wake up do you typically smoke your first cigarette of the day?
 - Would you say you smoke your first cigarette of the day within the first 30 minutes? (Yes/No/Varies)
 - Current “some day” smokers were asked:
 - On the days that you smoke, how soon after you wake up do you typically smoke your first cigarette of the day?
 - On the days that you smoke, would you say you smoke your first cigarette of the day within the first 30 minutes? (Yes/No/Varies)

SMOKING HISTORY FOR RECENT FORMER SMOKERS



- Time To First Cigarette:
 - During the 12 MONTHS before you quit smoking, how soon after you woke up did you typically smoke your first cigarette of the day?
 - During the 12 months before you quit smoking, would you say you smoked your first cigarette of the day within the first 30 minutes of awakening? (Yes/No/Varies)

SMOKING HISTORY FOR RECENT FORMER SMOKERS



- Number of cigarettes smoked per day:
 - Around this time 12 MONTHS AGO, were you smoking cigarettes every day, some days, or not at all?
 - Those who responded “every day” were asked:
 - Around this time 12 MONTHS AGO, on the average, about how many cigarettes did you smoke each day?
 - Those who responded “some days” were asked:
 - Around this time 12 MONTHS AGO, on how many of 30 days in the month did you smoke cigarettes?
 - On the average, on those [fill entry] days, how many cigarettes did you usually smoke each day?
 - Information on number of cigarettes smoked per day was not available those who responded “not at all” (about 20% of recent former smokers)

SMOKING CHARACTERISTICS/HISTORY



	Current Cigarette Smokers who made a quit attempt in past 12 months (n=10,455)	Recent Former Smokers (n=3,224)
Age at first cigarette smoking, fairly regularly		
Mean (SD)	18.2 (0.1)	17.9 (0.1)
Median (IQR)	16.9 (14.8-19.3)	17.0 (14.9-18.9)
Average number of cigarettes smoked per day		
Mean (SD)	10.3 (0.1)	11.2 (0.2)
Median (IQR)	9.7 (3.3-15.0)	9.3 (3.1-19.4)

SMOKING CHARACTERISTICS/HISTORY (CONT'D)



	Current Cigarette Smokers who made a quit attempt in past 12 months (n=10,455)	Recent Former Smokers (n=3,224)
	% (95% CI)	% (95% CI)
Time to first cigarette when waking		
Within the first 30 minutes (≤30 min)	42.4 (41.0-43.7)	41.8 (39.5-44.0)
More than 30 minutes	57.6 (56.3-59.0)	58.2 (56.0-60.5)