# Switching Away from Cigarettes Among Adult Smokers who Purchased the JUUL System: 12-Month Follow-Up Results from Two Large Longitudinal Studies

## Objective

- Evaluating complete switching away from combustible cigarettes among smokers who use electronic nicotine delivery systems (ENDS) is a key component of assessing the potential population health benefit of ENDS
- Complete switching was assessed in two parallel longitudinal studies of adult smokers 12 months after their initial purchase of the JUUL System (JS; Juul Labs, Inc.)

## Methods

- Adult smokers (age≥21 years, smoked in the past 30 days at baseline, smoked ≥100 cigarettes in lifetime and currently smoke 'some days' or 'every day') who purchased a JS Starter Kit in 2018 were recruited into two prospective cohort studies
- Participants completed online surveys at baseline (after initial JS purchase) and 12-month follow-up
- Smoking characteristics were assessed at baseline
- Past 30-day smoking (yes/no) was assessed 12 months after JS purchase
- Point prevalence of past 30-day complete switching (no cigarette smoking in the past 30 days, not even a puff) was calculated at 12 months
- Logistic regression models assessed associations of baseline smoking characteristics and switching at 12 months

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## Results

- The proportion of respondents that self-reported complete switching at 12 months was 51.2% in Study 1 (N=11,919) and 58.6% in Study 2 (N=8,511; Figure 1)
- At baseline the number of days participants reported smoking in the past 30 days ("On how many of the past 30 days did you smoke cigarettes?") and duration of smoking ("About how long have you been smoking cigarettes fairly regularly?") were significantly associated with switching at 12 months (ps<0.001)</li>

 Table 1. Smoking History Definitions

Smoking History Group	Definition
Current Established Smoker	<ul> <li>Smoked in past 30 days</li> <li>Smoked 100 or more cigarettes in lifetime</li> <li>Currently smoke 'Every day' or 'Some days' at baseline</li> </ul>
Infrequent, Short-Term Smokers	<ul> <li>Smoked 1-20 days in the past 30 days at baseline</li> <li>Smoking ≤5 years</li> </ul>
Infrequent, Long-Term Smokers	<ul> <li>Smoked 1-20 days in the past 30 days at baseline</li> <li>Smoking &gt;5 years</li> </ul>
Frequent, Short-Term Smokers	<ul> <li>Smoked 20-29 days in the past 30 days at baseline</li> <li>Smoking ≤5 years</li> </ul>
Frequent, Long-Term Smokers	<ul> <li>Smoked 20-29 days in the past 30 days at baseline</li> <li>Smoking &gt;5 years</li> </ul>
Daily, Short-Term Smokers	<ul> <li>Smoked 30 days in the past 30 days at baseline</li> <li>Smoking ≤5 years</li> </ul>
Daily, Long-Term Smokers	<ul> <li>Smoked all 30 days in the past 30 days at baseline</li> <li>Smoking &gt;5 years</li> </ul>

#### Reference

1. Prakash S, Wissmann R, Vose J, Russell C, McKeganey N, Augustson E. Identifying Predictive Attributes of Adult Smokers Who Cease Combustible Smoking using the JUUL Electronic Nicotine Delivery System (ENDS) via Logistic Regression and CART. Society for Research on Nicotine and Tobacco; 2019; San Francisco, CA. <sup>1</sup>Juul Labs, Inc.

- Smokers were divided into six smoking history subgroups based on the number of days they reported smoking in the past 30 days and duration of smoking at baseline based on a previous classification and regression tree analysis<sup>1</sup> (Table 1):
- 1. Infrequent, Short-Term Smokers (Study 1: N=1,675; Study 2: N=2,345)
- 2. Infrequent, Long-Term Smokers (Study 1: N=1,240; Study 2: N=1,484)
- 3. Frequent, Short-Term Smokers (Study 1: N=924; Study 2: N=1,610)
- 4. Frequent, Long-Term Smokers (Study 1: N=1,531; Study 2: N=1,796)
- 5. Daily, Short-Term Smokers (Study 1: N=1,199; Study 2: N=1,689)
- 6. Daily, Long-Term Smokers (Study 1: N=5,170; Study 2: N=5,781)

**Figure 1.** Proportion of Smokers in Each Study Reporting Complete Switching at 12-Month Follow-Up (±SE)







- Past 30-day switching at 12 months was higher among participants with lighter smoking histories (Figure 2)
- Participants who reported purchasing JS to help "quit smoking" (vs. those who did not purchase to quit smoking) were more likely to report switching at 12 months (Study 1: aOR [95% CI]=1.36[1.21, 1.53]; Study 2: aOR [95% CI]=1.32[1.16, 1.51]; Table 2)

**Table 2.** Association of Purchasing First JUUL Starter Kit "To help quit smoking" andPast 30-Day Switching at 12-Month Follow-Up Assessment

Regressor	Unadjusted OR (95% CI)	Adjustedª OR (95% CI)
Study 1	(n=11,919)	(n=9,733)
Purchased first JUUL System 'To help me quit smokin	g′	
Yes	1.27 (1.14, 1.41)	1.36 (1.21, 1.53)
No	Ref.	Ref.
Study 2	(n=8,511)	(n=6,893)
Purchased first JUUL System 'To help me quit smokin	g′	
Yes	1.25 (1.11, 1.40)	1.32 (1.16, 1.51)
No	Ref.	Ref.

Note: "Adjusted for sex, race/ethnicity age, education, household income

Purchased first JUUL SK 'To help me quit smoking' = "Which of the following, if any, are reasons why you decided to buy a JUUL Starter Kit? To help me quit smoking regular cigarettes."

## Conclusions

- Results were consistent across both studies: more than 50% of respondents reported complete switching 12 months after purchasing the JS
- Switch rates were high among all smokers, although lighter smoking history was associated with increased switching at 12-months
- Additionally, intention to switch (i.e., quit smoking) at baseline was significantly associated with switching 12-months
- These results concord with and extend published data that suggests use of JS among adult smokers is associated with switching away from cigarettes