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Data

Exhale Study
• Longitudinal cohort study in Wisconsin from 2015–2017
• 422 adult daily cigarette users and dual cigarette and ENDS users
• Followed up every 2 months for 2 years
Tobacco product use states determined every two months by self-reported abstinence over the past 30 days

Results

Transition Probabilities
A. Observed 2-month cumulative transition probabilities

Key Findings
• High biomarker level (NNAL in particular) were associated with persistence of cigarette use.
• Older ages were more persistent in their current patterns of use.
• Cigarette and ENDS primary and secondary dependence measures associated with transitions from dual to sole product use.
• ENDS nicotine levels and some flavors were associated with persistence of ENDS use.
• Limitations: models are univariable, unadjusted for other factors and do not account for product use trajectories.

Introduction
• Electronic nicotine delivery systems (ENDS) have the potential to help people who smoke cigarettes transition to a less harmful product.
• It is uncertain how much ENDS facilitate cigarette cessation in real-world settings.
• A better understanding of what personal and product characteristics are associated with ENDS-facilitated cigarette cessation could improve tobacco control interventions.

Variable Definitions

Biomarkers
NNAL, Cotinine, 3HC
Low: 1st tertile, Moderate/High: 2nd-3rd tertiles

Demographics
Age, sex, race, Hispanic ethnicity, education (defined as ≥ 25), psychiatric history, partner smokes/vapes

Cigarette Dependence
CPD (high≥10), FTND* (high≥5), motivation to quit (high≥5), smoking within 30 minutes of waking, WISDM† primary (PDM), secondary (SDM) (low<3, moderate 3-4, high≥5), total (low<40, moderate40-54, high≥55+)

ENDS Dependence
Frequency, E-FTND (high≥5), motivation to quit (high≥5), vaping within 30 minutes of waking, E-WISDM primary (PDM), secondary (SDM) (low<3, moderate 3-4, high≥5), E-WISDM total (low<40, moderate40-54, high≥55+)

ENDS Descriptors
Flavor, nicotine content (low0-6, medium4-10, high11+) mg

* Fagerstrom Test for Nicotine Dependence
† Wisconsin Inventory of Smoking Dependence Motives