

ENDS use 'in the wild': Device and liquid characteristics from the VAPER study

Presenter: Joanna Cohen

Background

- ENDS device characteristics & liquid characteristics affect e-cigarette user nicotine exposure
- This poster describes characteristics of devices and liquids used by regular e-cigarette users in 2020

Methods

- Online survey of U.S. adults (21+) using e-cigarettes 5+ days per week (N=1209)
- Participants asked about device and liquid used most often past week, & uploaded photos of their most used device and liquid
- Devices: categorized as reusable or not, refillable or not, tank vs. pod/cartridge (reusable devices), and adjustable (power, airflow, coil)
- Liquids: categorized by formulation (salt or free-base)
- The most common device/liquid combinations are described, with median nicotine concentration, wattage, voltage & resistance
- Post-stratification weights produced estimates for U.S. population

Results

- 91.9% used reusable devices with a rechargeable battery (n=1083)
- 2 predominant device type/liquid pairing groupings:
 - Reusable devices with adjustable settings and tank refilled with free-base nicotine liquid (36.2%)

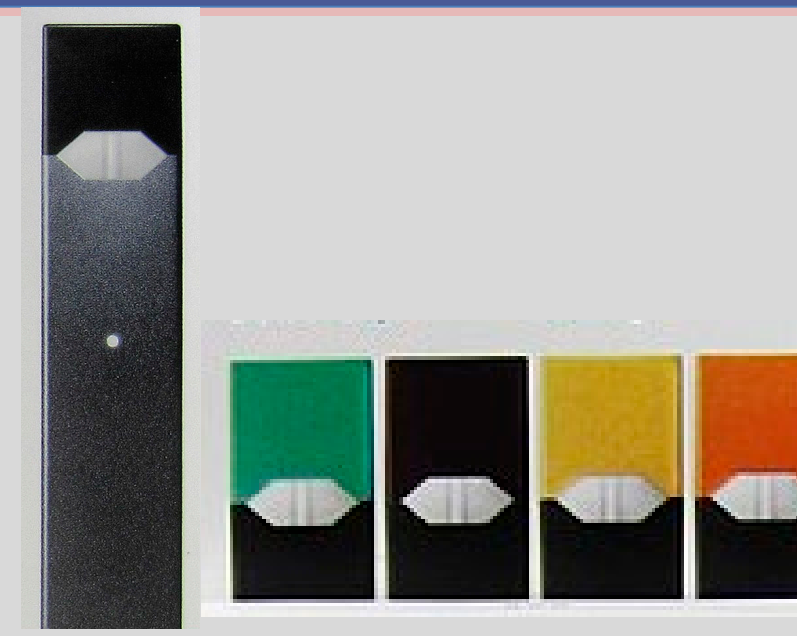
The **most common** combinations of device/liquid pairings among our sample of 5+ day/week e-cigarette users were:

36.2%



- Reusable device
- Adjustable settings
- Refillable tank
- Free-base nicotine liquid
- Median (min, max) nicotine concentration, wattage, volage, resistance:
 - 5.2 (1, 90) mg/ml
 - 63.6 (5.6, 220.0) W
 - 3.5 (0, 37.5) V
 - 0.2 (0.1, 2,8) ohms

22.8%



- Reusable device
- No adjustable settings
- Disposable pod/cartridge
- Nicotine salt liquid
- Median (min, max) nicotine concentration, wattage, volage, resistance:
 - 49.4 (5, 60) mg/ml
 - 9.4 (6.3, 16.6) W
 - 3.9 (3.7, 4.2) V
 - 1.5 (1.0, 2.6) ohms

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Competing Interests: Dr. Eissenberg is a paid consultant in litigation against the tobacco industry and also the electronic cigarette industry and is named on one patent for a device that measures the puffing behavior of electronic cigarette users and on another patent for a smartphone app that determines electronic cigarette device and liquid characteristics. Dr. Soule is named on a patent for a smartphone app that determines electronic cigarette device and liquid characteristics.

Results (cont'd)

- Reusable devices, no adjustable settings, used with nicotine salt liquid in a pod/cartridge (22.8%)
- Next most common pairings were: reusable devices with adjustable settings used with refillable pods/ cartridges with nicotine salt liquid (12.6%), or with free-base liquid (8.1%); and, disposable devices (not adjustable) with nicotine salt liquid (7.0%)

Discussion

- There is much heterogeneity in the characteristics and combinations of devices and liquids being used
- A majority of regular ENDS users in our sample are able to manipulate device performance characteristics (65.8%) and refill their devices with a pre-mixed or customizable liquid from a bottle (64.5%), resulting in challenges for regulating ENDS users' nicotine exposure, with implications for understanding ENDS toxicity, addiction, health effects and use behaviors at the individual and population level

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