Electronic Nicotine Delivery Systems: Patterns of Use and Disparities

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Outline

• Youth prevalence data
  – National Youth Tobacco Survey (NYTS)
  – Monitoring the Future (MTF)

• Adult prevalence data
  – National Health Interview Survey (NHIS)
  – National Adult Tobacco Survey (NATS)
  – Population Assessment of Tobacco and Health (PATH)

• Possible explanations for disparities in ENDS use
ENDS use among youth

- Over one-third (38%) of U.S. high school students have tried ENDS (NYTS)
  - Highest among males, white and Hispanic students
- The vast majority (80%) of ENDS users have also tried another tobacco product (NYTS)
- Progression to daily or almost daily use is uncommon, particularly among never tobacco users
Past 30 day ENDS use among U.S. high school students
2015 National Youth Tobacco Survey (n=9,433)
Frequency of ENDS use among U.S. high school students
2015 National Youth Tobacco Survey (n=9,433)

Sex | Male | Female
--- | --- | ---
Race/ethnicity | White, NH | Black, NH | Hispanic | Other, NH
Tobacco use | Current | Ever, not current | Never

- Male: 3.6
- Female: 1.3
- White, NH: 2.8
- Black, NH: 0.8
- Hispanic: 2.1
- Other, NH: 3.8
- Current: 10.0
- Ever, not current: 1.9
- Never: 0.2
Product characteristics - youth

- Almost half (43%) of current ENDS users used a flavored product in past 30 days (NYTS)
- Most youth that have tried ENDS believe they used e-liquid that did not contain nicotine (MTF)
Content of e-liquid during last ENDS use among HS seniors
2015 Monitoring the Future (n=596)

- Just flavoring: 64.5%
- Nicotine: 23.0%
- Marijuana/hash: 4.9%
- Don’t know: 7.2%
- Other: 0.4%
Reasons for use - youth

• Experimentation/curiosity most commonly cited reason among ever ENDS users (54%) (MTF)

• Among current users, flavors, family/peer use, and perception of reduced harm often cited as reasons

• Smoking cessation **not** cited as a primary reason among youth
Reasons for use among HS students who currently use ENDS
2015 National Youth Tobacco Survey (n=4,673)

- They come in flavors: 48.8%
- Friend/family member used them: 38.2%
- Less harmful than other tobacco: 36.7%
- Can be used where no tobacco is allowed: 19.6%
- To quit tobacco: 13.6%
- They cost less than other tobacco: 8.2%
- Famous people use them: 2.4%
ENDS use among adults

• Nearly 14% of adults have ever used ENDS (NHIS)
  – Higher prevalence among males, whites, young adults
  – Smoking status strongest predictor of ENDS use

• Less than 4% of adults use some days or daily (NHIS)
  – Current use most common among current smokers and recent quitters
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<th>Sex</th>
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<th>Female</th>
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Current ENDS use among U.S. adults
2015 National Health Interview Survey (n=33,672)
Frequency of ENDS use among U.S. adults
2015 National Health Interview Survey (n=33,672)
Current ENDS use among U.S. adults
2015 National Health Interview Survey (n=33,672)

- Current smoker: 13.6%
- Recent quitter (past 3 years): 20.7%
- Former smoker (4+ years): 0.8%
- Never smoker: 0.6%
Frequency of ENDS use among U.S. adults
2015 National Health Interview Survey (n=33,672)

Cigarette smoking status

- **Current smoker**
  - Daily: 3.1
  - Some day

- **Recent quitter (past 3 years)**
  - Daily: 14.2
  - Some day

- **Former smoker (4+ years)**
  - Daily: 0.4

- **Never smoker**
  - Daily: 0.1
  - Some day
Product characteristics - adults

• Over two-thirds (68%) of current ENDS users used a flavored product in past 30 days (NATS)
  – Most popular flavors: fruit (30.1%), menthol (29.4%), candy/sweet (17.2%)

• Use of devices where users can add own e-liquid differs by smoking status (PATH)
  – Current smokers: 44.4%
  – Former smokers: 63.1%
Common reasons for use among current ENDS users
Population Assessment of Tobacco and Health – Wave 1 (n=3,640)

- Less harmful to people around me: 84.8%
- Less harmful than smoking: 82.9%
- Can use when can't smoke: 80.8%
- Don't smell: 76.3%
- Help people quit smoking: 71.9%
- More acceptable to non-tobacco users: 71.2%
- Come in flavors: 65.0%
Disparities in ENDS use

• We would expect to see highest ENDS use among groups with highest smoking rates (e.g., white, black Americans)
  – Black smokers have lowest rates of ENDS uptake, while whites have highest

• Some concern that disproportionate rates of harm reduction may exacerbate smoking disparities
Adult combustible product use by race
2010-2014 National Survey on Drug Use and Health
Perceived harm of ENDS compared to cigarettes among smokers
Population Assessment of Tobacco and Health – Wave 1 (32,242)

- Less harmful: 56.8% (White, NH) vs. 49.5% (Black, NH)
- About the same: 38.3% (White, NH) vs. 41.9% (Black, NH)
- More harmful: 4.9% (White, NH) vs. 8.6% (Black, NH)
Where are “vape shops” opening?

- Census tracts with:
  - ▲ Tobacco retailers
  - ▼ African Americans
  - ▼ Hispanic/Latinos

- “Middle class, White Suburbia”
Availability of ENDS in C-Stores

Original article

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Association Between Electronic Cigarette Marketing Near Schools and E-cigarette Use Among Youth

Daniel P. Giovenco, Ph.D., M.P.H. a,*, Myriam Casseus, M.P.H. a, Dustin T. Duncan, Sc.D. b, Elliot J. Coups, Ph.D. c, M. Jane Lewis, Dr.P.H. a, and Cristine D. Delnevo, Ph.D., M.P.H. a

School 1

“Urban”

40.5%

School 2

“Suburban”

90.9%
Summary

• Rates of ENDS trial and current use are higher among youth than adults
  – Males and whites report highest rates of use
• Smoking behaviors strongest predictor of ENDS use
  – Use highest among current smokers and recent quitters
  – Regular use among non-tobacco users is rare
• Reasons for use differ between youth and adults
  – Youth use is more recreational in nature
  – Adults primarily use ENDS to reduce or quit smoking
• Among smokers, differences in uptake by race
Thank you!