Vaping—An Alternative to Smoking?

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• Act of inhaling water vapor through a personal vaporizer or electronic cigarette

• User draws on device, battery heats the liquid, which is then atomized into an inhalable vapor:
  – Very efficient toxin delivery method

• ENDS: Electronic Nicotine Delivery Devices:
  – Vapes
  – Vaporizers
  – Electronic cigarettes (e-cigs)
  – Hookah pens
  – E-pipes
Vaping Hazards

- **E-liquid content:**
  - Nicotine-variable levels
  - Propylene glycol
  - Glycerol
  - Flavorings
  - Metals: lead, nickel, chromium, arsenic
Vaping Hazards

- Vaping smoke:
  - Second hand smoke is probably less harmful than cigarette smoke
  - Safety and carcinogenicity of heated propylene glycol and glycerol is unknown
  - Potential irritant to sensitive individuals, e.g., those with asthma
  - Possible heart and respiratory risks

- 195 incidents of explosions and fires
- 133 acute injuries, 38 severe
- 121 involving e-cig or battery occurred while in a pocket or in use
Adult Vapers

2014 National Health Interview Survey

- 12.6 percent of adults had ever used an e-cigarette
- 3.7 percent are current users
- 1.1 percent daily users
- Highest use:
  - 16 percent current smoker
  - 22 percent those who quit in last year
- Rates of use increasing among former smokers but not those who never smoked

Most are not daily users but 12-14 percent progress to daily use
Youthful Vapers—Why They Do It

- Used by “friends and family” (39.0 percent)
- Availability of flavors (31.0 percent)
- “They are less harmful than other forms of tobacco such as cigarettes” (17.1 percent)

E-cigarette use associated with future use of cigarettes
Tobacco, Vaping, and Youth

Current Use of Any Tobacco Product in 2017

1 in 5 high school students currently used a tobacco product.

1 in 18 middle school students currently used a tobacco product.

Of those students who currently used a tobacco product, many reported using two or more tobacco products.

46.8% High School Students

41.8% Middle School Students
“Feds crack down on e-liquid packaging that looks like candy, juice boxes.”
- Washington Post

Calls to poison centers involving e-cigarette liquids containing nicotine increased from 1/month in September 2010 to 215/month in February 2014.
E-Cigarettes

Pros

- Provides fewer risks than traditional smoking
- Lower exposure to nicotine
- Potential as second-line approach to smoking cessation

Cons

- Limited studies on long-term health effects of direct use and second hand vapor
- Burns due to device malfunction
- Use may deter smoker from using conventional smoking cessation tools
- Serve as gateway to nicotine dependence
### FDA Regulations

- **2016** Food and Drug Administration (FDA) authorized to regulate all products “deemed” subject to Tobacco Control Act
- **Now included:**
  - Hookah
  - Smokeless tobacco
  - Roll-your-own tobacco
  - E-cigarettes
  - Cigarettes
  - Pipe tobacco
  - Dissolvables
  - All cigars
  - Future products that meet definition
Regulations and Guidelines

• U.S. Department of Transportation bans e-cigs on commercial flights

• U.S. District Court Eastern District of Oklahoma expanded EO 13058 to include electronic cigarettes in ban on tobacco use in Federal facilities

• Secretary of Defense Memorandum includes e-cigarettes in Department of Defense Tobacco policy

• Office of the Chief Health and Medical Officer Position Statement recommends e-cigarettes be treated like tobacco in NASA facilities
What Does NASA Do?

- NASA strongly supports the continued wellbeing of its employees.
- Each Center provides smoking cessation services:
  - Outreach to tobacco users, smokers, and smokeless users.
  - Access to intervention programs.
  - Activities to prevent tobacco use among the workforce, including education on tobacco-related health consequences.
  - Center Occupational Health COR shall advocate for a work environment conducive to the success of the smoking cessation program and ensure collaboration between disciplines.
- NASA complies with General Services Administration’s requirement for a smoke-free workplace:
  - Facilities Management function typically implements smoke-free workplace policies.
- All Federal Employee Health Benefit plans offer 100 percent coverage to help employees quit; plans are required to cover:
  - Individual, group, and telephone counseling.
  - All seven FDA-approved cessation medications.
  - At least two quit attempts per year, with a minimum of four counseling sessions of at least 30 minutes each for each attempt.
Summary

- Understanding of the health hazards of electronic cigarettes continues to evolve
- Potential gateway to cigarette, other drug and alcohol use for youth
- Second hand smoke from vaping is a health hazard (although less than cigarette smoking) and may be an irritant for susceptible individuals
- Quitting both cigarette smoking and vaping are the healthiest alternatives
References

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- Review from UpToDate© Website
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- Feds Crack Down on E-liquid Packaging--Washington Post
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- Electronic Cigarette Fires and Explosions in the US 2009 2016