



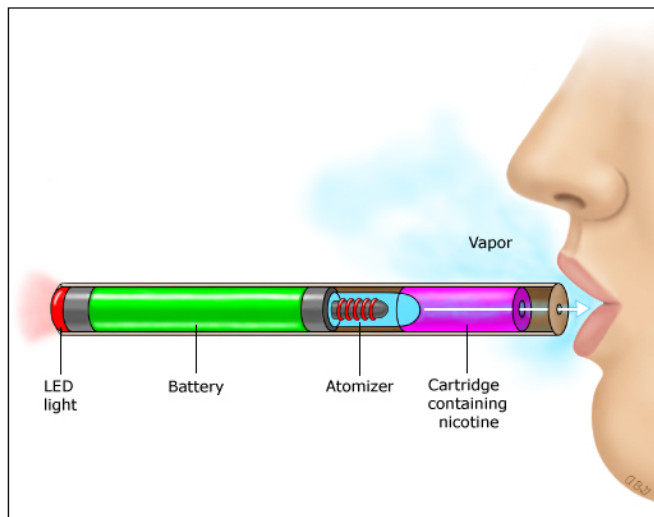
Vaping—An Alternative to Smoking?

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This and previous presentations are archived at
<https://sma.nasa.gov/news/safety-messages>.



- **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**



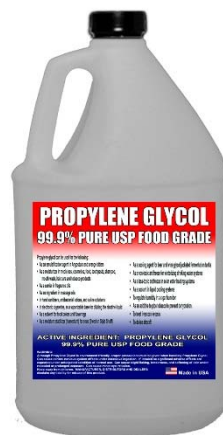
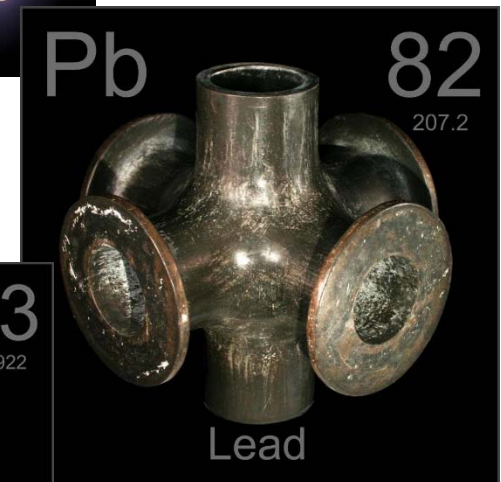
- **ENDS: Electronic Nicotine Delivery Devices:**
 - **Vapes**
 - **Vaporizers**
 - **Electronic cigarettes (e-cigs)**
 - **Hookah pens**
 - **E-pipes**



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**



U.S. Fire Administration Report (2009-2016):

- **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



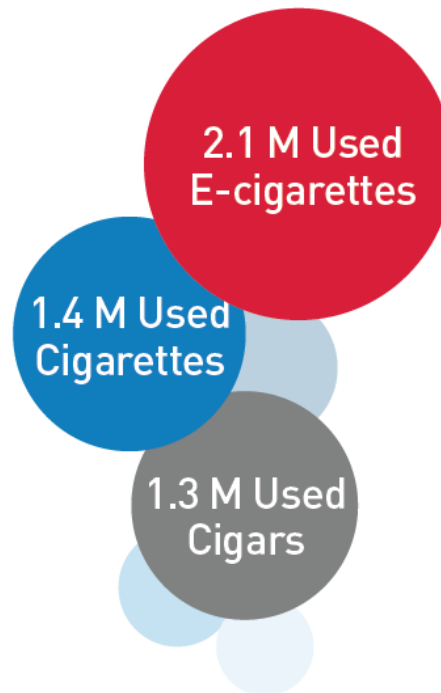
Youthful Vapers—Why They Do It



- **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)**

Most Used Tobacco Products in 2017

E-cigarettes continue to be the most commonly used tobacco product among middle and high school students.



E-cigarette use associated with future use of cigarettes



Tobacco, Vaping, and Youth



Current Use of Any Tobacco Product in 2017



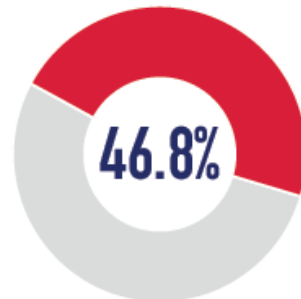
1 in **5**

high school students
currently used a
tobacco product.

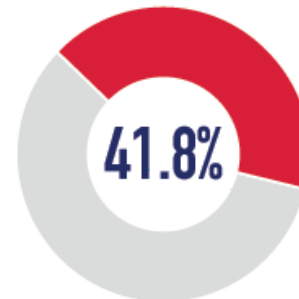
1 in **18**

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.



High School Students



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



**NASA Supports
Smoking Cessation**





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



- **FDA Tobacco Products Website**
- **Review from UpToDate© Website**
- **CDC Smoking & Tobacco Use**
- **USDOT Final Rule: Use of Electronic Cigarettes on Aircraft**
- **Policy Memorandum 16-001, Department of Defense Tobacco Policy**
- **Use of Electronic Smoking Devices in Federal Facilities**
- **USDOJ FBP Program Statement, November 9, 2017**
- **Bold KW, Grace K, et al. Trajectories of E-Cigarette and Conventional Cigarette Use Among Youth. *Pediatrics* 2018; 141(1)**
- **Feds Crack Down on E-liquid Packaging--*Washington Post***
- **MMWR April 4, 2014 / Vol. 63 / No. 13 / Pg. 277 - 300; ND 170 – 183**
- **Electronic Cigarette Fires and Explosions in the US 2009 2016**