



Nicotine & Vaping Trends

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Effect of Nicotine on Learning

- Nicotine raises pulse & heart rate. Brain EEG becomes same as when people are agitated.
- Nicotine has a half life of 2 hours. Students who smoke may have more challenges learning and trouble concentrating due to withdrawal symptoms.
- Youth report withdrawal symptoms with lower amount of consumption than adults, even as low as 5 cigarettes per week.
- Smoking actually contributes to problems; withdrawal causes stress, anxiety.



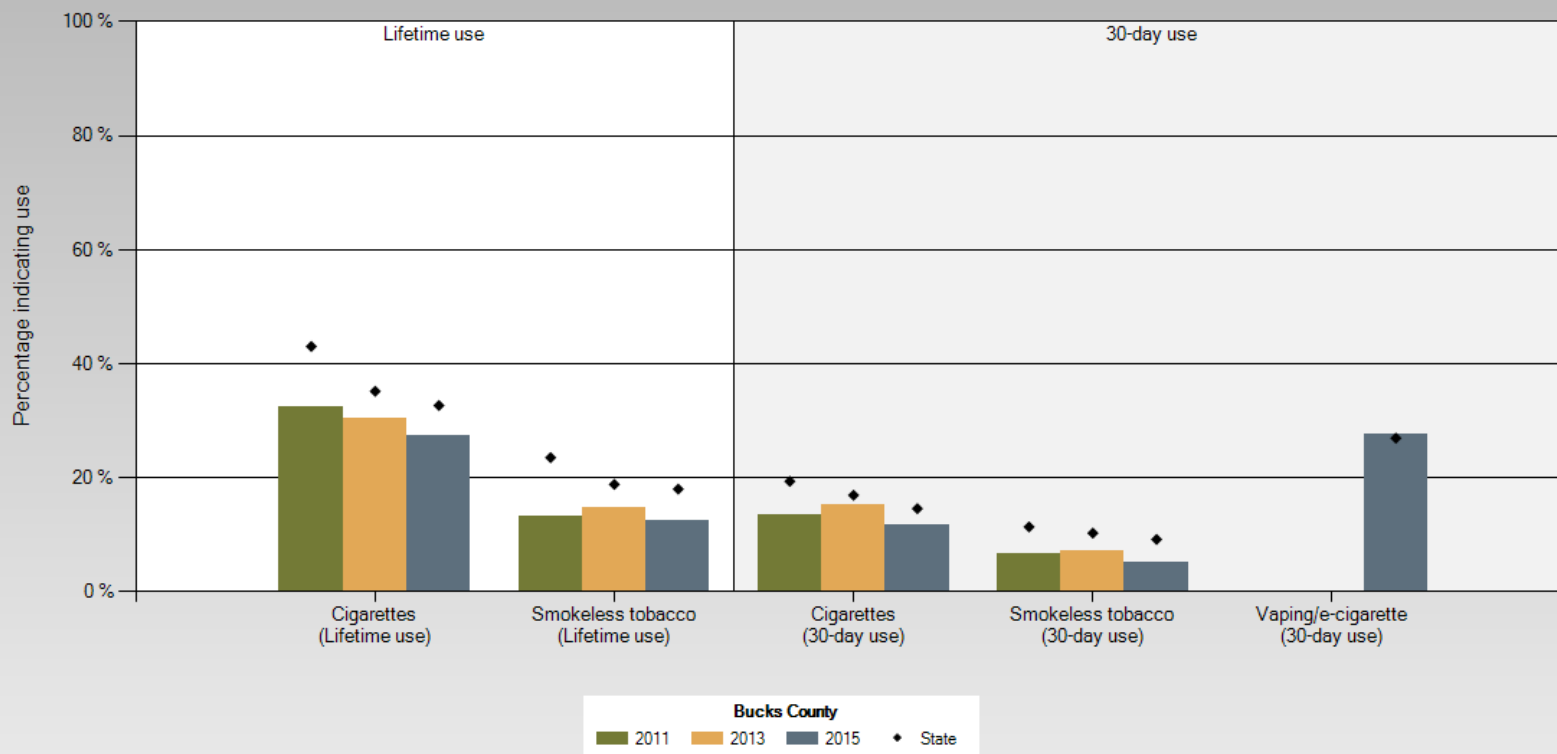
What Nicotine Based Products Can Cost Schools

- Productivity (cravings interfere with learning)
- Truancy/Suspensions
- Absences/Illnesses
- Introduction of other substances and alcohol
- Low test scores
- Repeat violations

Current Statistics

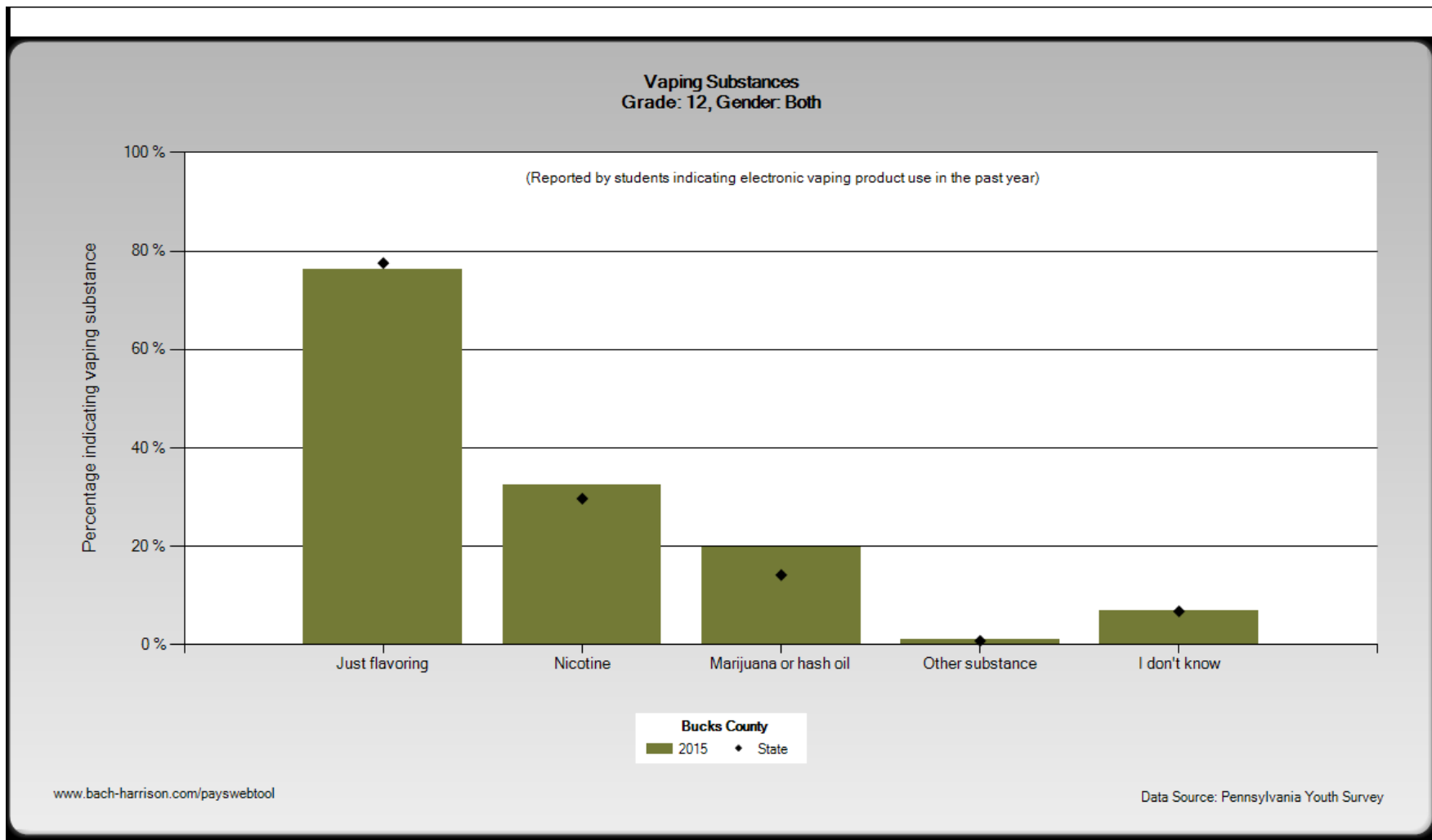
Regarding Youth Tobacco Use

Tobacco And Vaping - Lifetime And 30-Day Use
Grade: 12, Gender: Both



Current Statistics

Regarding E - Cigarette Use





Bucks County PAYS 2015

BUCKS past month use of e-cigarettes (2015)

8th grade: 10.4%
10th grade: 19.1%
12th grade: 27.7%

National past month use of e-cigarettes) (2015)

8th grade: 9.5%
10th grade: 14%
12th grade: 16.2%

**Bucks County youth e-cigarette use
exceeds the national average!**

VAPING

Electronic Nicotine / non Nicotine Delivery System (ENDS)



Vaping is not in fact “vapor”

- It is aerosol:
 - In physics, a vapor is a substance in the gas phase whereas an aerosol is a suspension of tiny particles of liquid, solid or both within a gas.
 - Vapor from an electronic cigarette simulates tobacco smoke, but the process of burning tobacco does not occur.
 - The aerosol of electronic cigarettes is generated when the e-liquid reaches a temperature of roughly 200–500 °F within the coil chamber.
 - The aerosol is made-up of liquid sub-micron particles of condensed vapor, which mostly consist of propylene glycol, glycerol, water, flavorings, nicotine, and other chemicals.

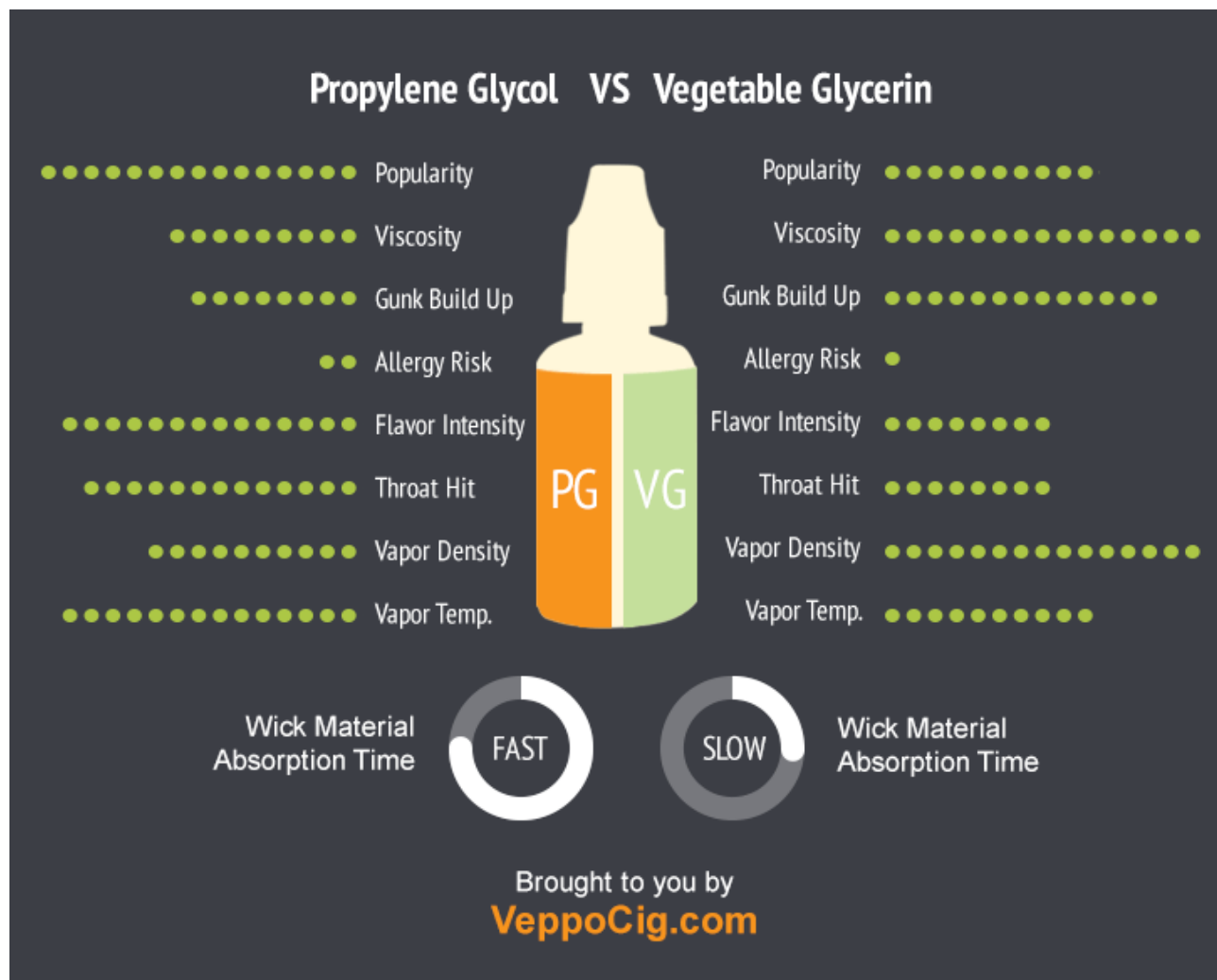


- A 2014 review found that the particles emitted by e-cigarettes are comparable in size and number to particles in cigarette smoke, with the majority of them in the ultrafine range. The particles are of the ultrafine size which can go deep in the lungs and then into the systemic circulation.
- A 2014 review said local pulmonary toxicity may occur because metal nanoparticles can deposit in the lungs.

1. **Grana, R; Benowitz, N; Glantz, SA (13 May 2014). "E-cigarettes: a scientific review". *Circulation*. 129 (19): 1972–86. doi:10.1161/circulationaha.114.007667. PMC 4018182 Freely accessible. PMID 24821826.**

Farsalinos, Konstantinos; Voudris, Vassilis; Poulas, Konstantinos (2015). "Are Metals Emitted from Electronic Cigarettes a Reason for Health Concern? A Risk-Assessment Analysis of Currently Available Literature". *International Journal of Environmental Research and Public Health*. 12 (5): 5215–5232.

VG vrs PG





E- Cigs a 1-way Street to Traditional Smoking

- January 2018 - Teens who use e-cigarettes are more likely to smoke tobacco cigarettes later on—but the opposite wasn't true, found a new long-term study that surveyed high school students over three years. That is, teens who smoked tobacco cigarettes were not more likely to later use e-cigarettes, or "vape."

E-Cigarettes: A 1-Way Street to Traditional Smoking and Nicotine Addiction for Youth - . Jonathan D.Kliein, MD, MPH

Electronic Nicotine Delivery Systems (ENDS)

- E-cigarettes
- Vape pens
- Hookah pens
- E-Hookah
- Personal vaporizers
- Tanks
- Mods



FDA Definition of ENDS

- According to the FDA, ENDS are devices that allow users to inhale an aerosol (vapor) containing nicotine or other substances.
- The main component of ENDS is the e-liquid contained in cartridges.
- To create an e-liquid, nicotine is extracted from tobacco and mixed with a base (usually propylene glycol), and may also include flavorings, colorings and other chemicals. www.lung.org

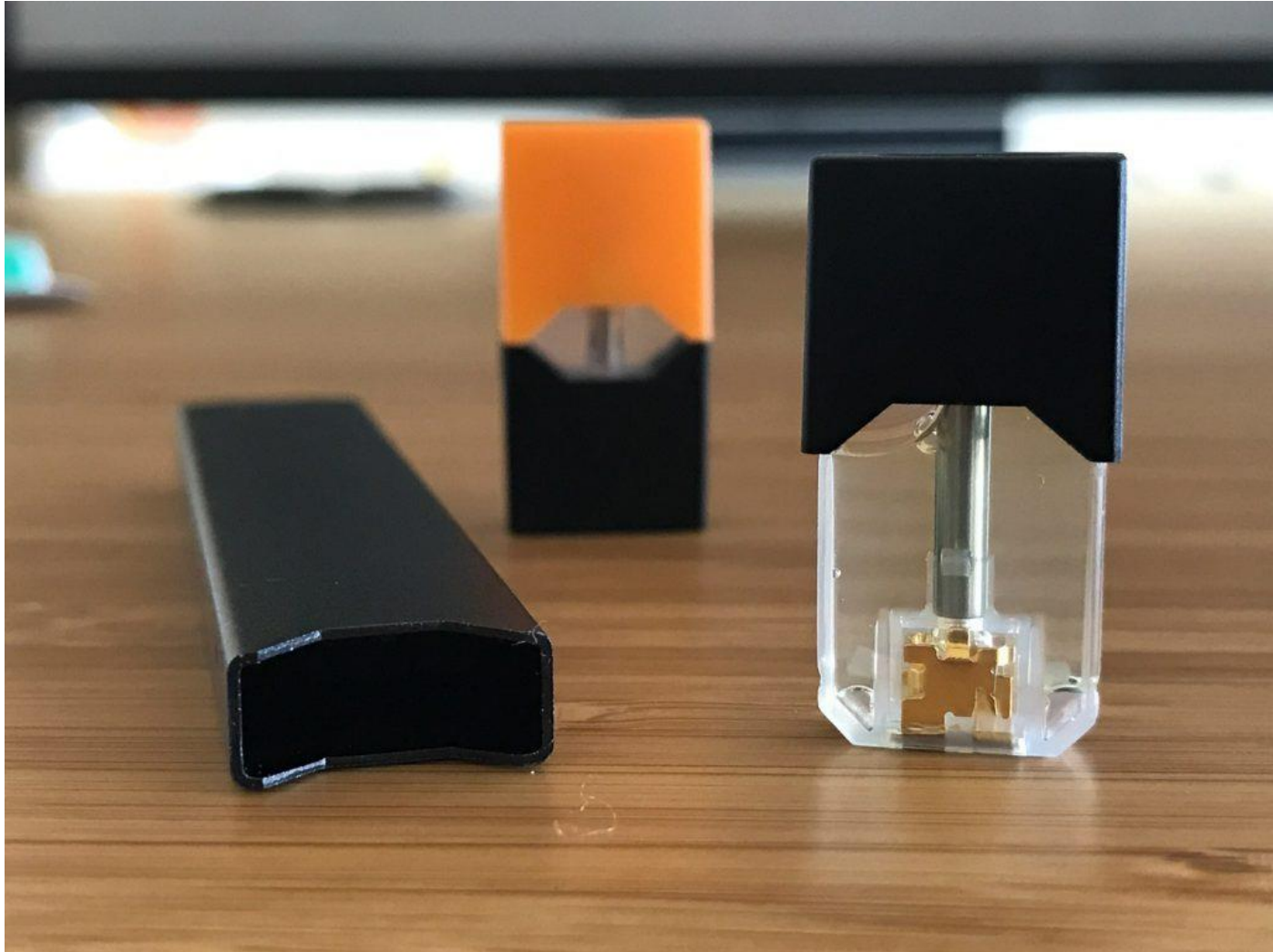
#1 Vape Trend amongst HS age



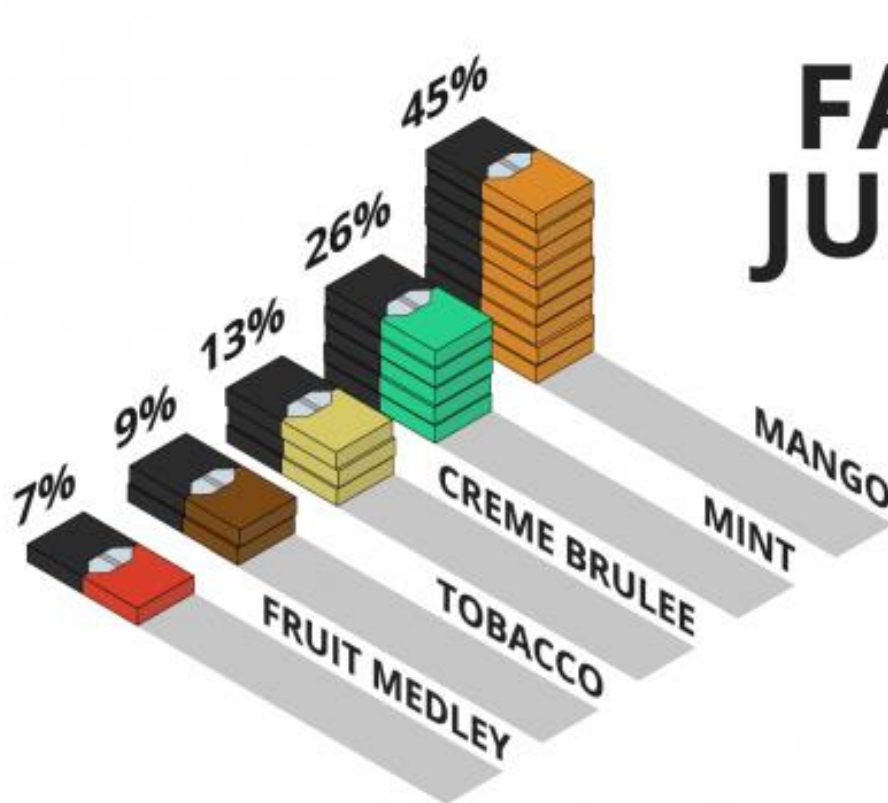
- Discreet
- Easily concealable
- Trendy
- Viewed as “harmful” as coffee
- Cost: Around \$50.00 for a starter kit
 - Refill pods are \$20.00 for 4 pack
 - 1 pod = nicotine equivalent of 1 pack of cigarettes

NPR Article on JUUL: <https://www.npr.org/sections/health-shots/2017/12/04/568273801/teenagers-embrace-juul-saying-its-discreet-enough-to-vape-in-class>

#1 Vape Trend amongst HS age



#1 Vape Trend amongst HS age



*NOTE: The poll was done on vaping360.com and the results reflect more than 2,000 votes.

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Can Vaping Lead to Cigarette Use?

- University of Hawaii Cancer Center (Thomas Willis et al.) study showed teens who use e-cigarettes are more likely to start smoking tobacco cigarettes one year later
- Data collected from over 2,300 HI high school students
- Among non-smoking students who vaped prior to the first survey, 20% began smoking cigarettes a year later vs. 6% of non-smokers
- Associated with risk:
 - Age of student (the older the student, the greater the risk)
 - Ethnicity (Caucasian & Native Hawaiians vs. Asian-Americans)
 - Rebelliousness (the more defiant, the greater the risk)

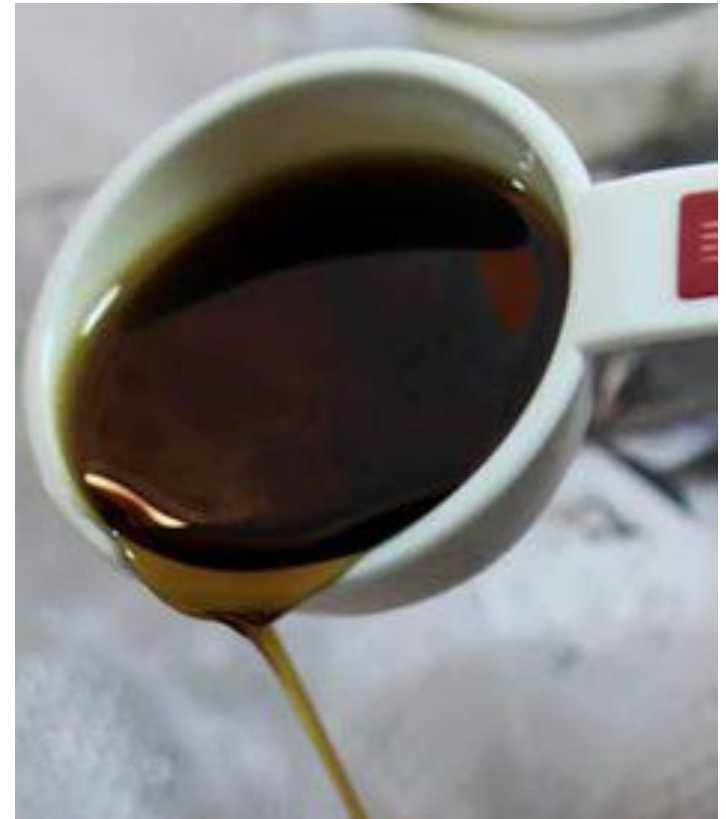


Aggressive ENDS Marketing

- Cigarette ads have been banned from TV since 1971
- ENDS now marketed on TV & mainstream media channels
- ENDS are aggressively marketed using similar tactics proven to lead to youth cigarette smoking
 - Candy-flavored products
 - Youth-resonant themes such as rebellion, glamour & sex
 - Celebrity endorsements
 - Sports & music sponsorships

Vaping Cannabis

- Hash Oil : Several types
 - BHO: Butane extraction
 - Heavy metals & pesticide concentrates.
 - Brain lesions
 - NHO: Naphtha extraction
 - benzene, hexane
 - Cancer hazards
 - CDHO: Cannabinoids are drawn out by pressure and carbon



Vaping “Forms” of Cannabis

“DABS”

- Wax :
 - Another product from the butane & carbon dioxide process
- Shatter :
 - Yet another butane & carbon dioxide process product
- Crumble :



Specialty Vaping Products

- **PAX:** Manufactured by PAX LAB's, the same company that makes the JUUL
 - Can vape dry leaf
 - Can vape hash oil
 - <https://www.paxvapor.com/>



Above pic showing:

- Oil vape pod
- Wax vape pod
- Dry herb vape pod
- Concentrate vape pod

Vaping Cannabis



Vaping Hash oil in a JUUL

- https://www.youtube.com/watch?v=v_BHibYQH0A





Support for youth and families

- Student Assistant Program at The Council
215-230-8218
- Prevention
 - Interrupted classes
 - Cessation Services
 - Group
 - One time presentations
 - Health focused
 - Provided during health classes