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| **Vaping** |
| ***Liquid Smoke and Mirrors?*** |
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| Rick Rayl |
| Director of Pharmacy UBH Denton |

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**E-cig A Modern Day Debate**

“Young people have taken a technology that was supposed to help grownups stop smoking and invented a new kind of bad habit, one that they have molded in their own image. The potential public-health benefit of the e-cigarette is being eclipsed by the unsettling prospect of a generation of children who may really love to vape.”

**Jia Tolentino**, “The Promise of Vaping and the Rise of Juul,” ***The New Yorker*** (May 14, 2018)

**JUUL (pronounced “jewel”)**

* Company opened in 2015 and has captured >70% if the e-cig market
* FDA is investigating allegations of marketing directed at youth
* Altria (big tobacco) has 35% stake in JUUL
	+ 12.8 Billion dollars

**Popularity among young people**

* Resembling a flash drive, Juuls are sleek, easily concealed…
	+ Peer pressure in schools encourages non-users to try
	+ Social media glamorizes the use
* Sweet flavors like mint, mango, and crème brulee lure in youth
	+ Large number did not realize getting nicotine
* … and difficult to detect
	+ Put out less vapor than e-cigs
	+ JUUL puts off a sweet, fruity smell—easily mistaken as perfume or hair product

**The Smart E-cig**

* Blue tooth
	+ Track usage
	+ Play music
	+ Make a receive phone calls
* Hit control
	+ Manually change nicotine amount without changing tanks
* Flavor mix
	+ Adjusts flavors between tanks
* Auto mode
	+ Adjusts nicotine to your usage

**How do teens get vapes?**

* Vape shops
* Websites such as vaporbeast.com and Etsy

**FDA Crackdown**

* Company’s response to FDA
	+ Pulled various flavored pods from retail stores
		- Mint and menthol only flavors allowed
		- Plan to reinstate flavors with proof of age verification
		- Secret shopper program to check for compliance
	+ Removed itself from social media
	+ To prevent sales to underage users
		- ID match and age verification technology for online sales
		- Company has monitoring systems and penalties in place for resellers

**E-Cig Regulation**

* Regulated as tobacco product in 2016
* Attempt to regulate device as drug-delivery system struck down in federal court
* Each tobacco product must go through application process
	+ Deadline for application pushed back to 2022
* April 2018 FDA issues mandate to crackdown to sales to minors
	+ Juul advertising tactics appealing to youth
	+ Address flavor issue as it applies to tobacco use and addiction in teens

**E-Cig Regulation- Texas**

* Prohibited sale of product/devices to purchaser under age 18
	+ Retailers must verify age
* Possession of product/devices to person under age 18 prohibited
	+ Unless in presence of “adult parent”, guardian or spouse
* Vending machines must be inaccessible to persons under 18
* Areas of use restricted by state and local laws

**Vaping devices**

* E-cigarettes
	+ Advantages
		- Looks like cigarette
		- Portable
	+ Disadvantages
		- Bad battery life
		- Often not refillable
* Vape Pen
	+ Advantages
		- Portable
		- Good battery life
		- Refillable
	+ Disadvantage
		- Bigger than e-cig
* Vape Mod
	+ Advantages
		- Good battery life
		- Variable voltage
		- Customized settings
		- More powerful
	+ Disadvantages
		- Bulky
		- expensive

**Variable voltage vs variable watts**

* Watts is how much power e-cig produces
* Voltage is how much is put through the device
* Increase watts, increase voltage
* Wattage = ratio between ohm setting for the coils and the voltage being applied

**“Dry Throat Hit”**

* Hot, burnt taste as a result of inadequate e-juice absorption while the device is heating
	+ Wick not moist, so scorches producing burnt taste
* Causes:
	+ Improper wicking
	+ Overused cotton
	+ Using a faulty unit
	+ High wattage

Contains current regulating circuitry which

 keeps voltage and resistance w/in normal levels

Not for the inexperienced user; hard

on the parts of the device

**Most mods are regulated**

**Dripping, Appling liquid to the exposed heating coils**

* 1 in 4 teens who vape use this method
* Produces thicker clouds of vapor
* Enhances the taste of flavors
* Most harmful way to vape due to high heat
	+ Metal from coils inhaled
* Chemicals released are associated with:
	+ Cancer
	+ COPD
* Handling liquid exposes teens to direct skin contact with nicotine
	+ Absorbed rapidly through human skin

**Big Tobacco & Research**

* Safety of e-cig vs cigarette funded Tobacco industry
	+ Recent study used genetically engineered lung tissue to compare
	+ Dramatic drop in lung inflammation with e-cig
* Signals a shift in playbook for tobacco companies
	+ Aware that young people’s use of cigarettes is trending down



**“The Flavoring Deception”**

* Flavors are a primary draw of electronic cigarettes
	+ CDC/FDA survey
		- 31% cited availability of flavors as reason for use
* Kids often think they are only vaping flavor
	+ Truth initiative study

**“Still blowing smoke”**

* Evidence is mounting for link between
e-cigarettes and eventual smoking
	+ Teens vaping e-cigs 7x more likely to smoke
	 cigarettes later on
		- NIH-funded study published in *Pediatrics,* Dec. 2017
	+ Teens who smoke e-cigs are more likely
	to try cigarettes
		- A consensus report by *National Academies of Sciences, Engineering and Medicine*, January 2018
	+ E-cig use increases risk of beginning tobacco
	cigarette use in young adults
		- A study by University of Pittsburgh Schools of the Health Sciences
		published in the *American Journal of Medicine*, 2017

**Nicotine**

* Found in foods
	+ Eggplant 100ng/g; green tomato 42.8ng/g
	+ Cauliflower 16.8ng/g, potato 7.1ng/g

**Nicotine age-related dementia**

* Increases dopamine which improves cognition
* May reduce loss of neurons that produce dopamine and may be tied to growth factors in the brain that could reduce degeneration
* 15-21mg/day improves cognition
* Seems more of a treatment than a preventative

**“Harmless” Vapor**

* Toxic chemicals are formed as the e-liquid heats up to
make the aerosol that e-cig users inhale
	+ Examples: Formaldehyde, benzene, arsenic, acetone

**Popcorn lung?**

* Diacetyl is added to food to produce a buttery taste and is perfectly harmless when ingested this way
* Inhaling it over a long period may prove harmful to health,
	+ Linked to bronchiolitis obliterans (a lung disease)
* Findings confirm the presence of diacetyl and “other flavoring chemicals” in e-juices
* CDC urgently recommending more studies into dangers

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* August 10, 2018 FDA issues mandate for health warnings on packaging