



VAPING

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OBJECTIVES

- Differentiate devices used in vaping, and review their function
- Identify the safety standards and regulations of electronic cigarettes
- Discuss Risk and Health Concerns

ELECTRONIC CIGARETTES

- Electronic cigarettes (e-cigarettes) are devices that consist of three components
 - Battery
 - Atomizer
 - Dripping atomizers, cartomizers, clearomizers, Rebuildables
 - Cartridge



TYPES OF ELECTRONIC CIGARETTES

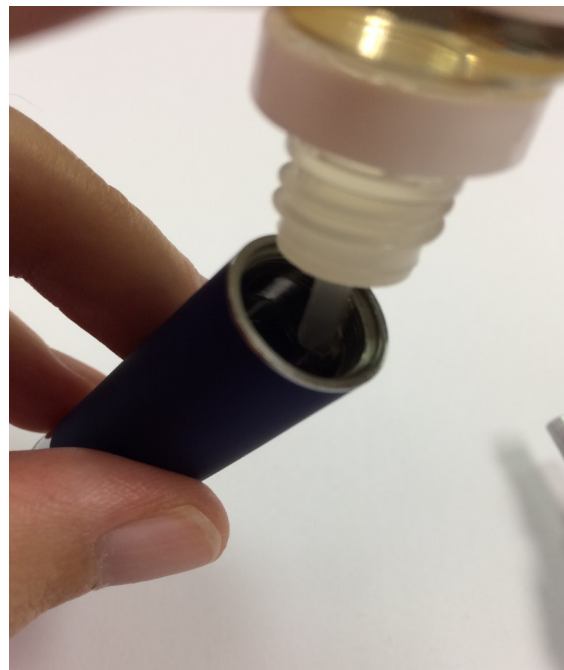
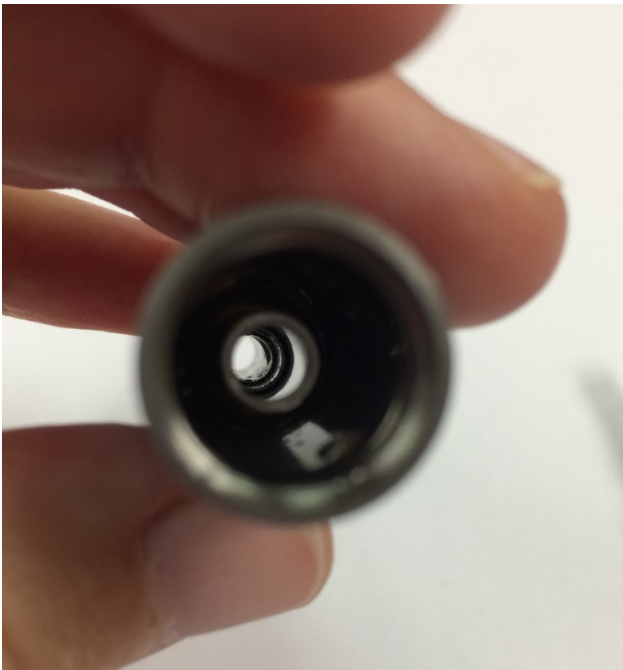
- Disposable cigalike
- Rechargeable cigalike
- Pen-style refillable
- Tank-style “MOD”
- Electronic cigar
- Vapor pipe



CIGALIKE



PEN STYLE REFILLABLE



MODS



SUORIN AIR



JUUL



E-CIG TERMINOLOGY

- Vape or vaping
 - Refers to “smoking” an e-cigarette
- Juice
 - Liquid solution that typically consists of propylene glycol or vegetable glycerin, nicotine, water, flavoring and other additives/preservatives
 - AKA e-liquid, e-juice, or smoke juice
 - Nicotine content of 0-36 mg/mL



MECHANICAL MOD UNREGULATED

- **Mechanical Mod** – This is a mod without any circuitry. They are simply a battery tube with a button, when you press the button you complete a circuit that power's the attached atomizer.
- They can be very dangerous if the user is inexperienced
- They will accept any resistance atomizer even if it's in the battery's "red zone"
- Not ideal for the beginner
- The vape diminishes as the battery power decreases

MECHANICAL MOD REGULATED

- **Regulated Mod** – A mod with circuitry and its electrical current is regulated.
 - **Fixed voltage:** Fixed voltage devices were the very first ecigs. They are the go-to choice for beginners since they require no tinkering and little if any instructions. These devices typically use a single button or a vacuum switch that senses changes in pressure as you draw. They still dominate the market due to ease of use. Cigalikes (both rechargeable and disposable), standard eGo, [e-cigars](#), AIOs, [JUUL](#), etc are all fixed voltage.
 - **Variable Voltage (VV):** Introduced in 2010 (BuzzPro and the Provari), these devices were revolutionary! Using microprocessors like buck-boost converters, these mods allowed vapers to exceed or go below a battery's output voltage, thus intensifying or mellowing the vape. VV devices like eGo spinners and the Provari are still widely used, but most variable wattage devices do the same, and more.
- Variable Wattage (VW):** First on the scene in January of 2011 with the Darwin by Evolv (and a year later with the SvoeMesto Semovar). These devices really propelled modern vaping to what it is now. In basic terms, your desired power setting can be constant if you like, even after changing an atomizer's resistance, something that variable voltage mods can't do.
- **Temperature Control (TC):** Released in 2014 by (Evolv), the originator of the variable wattage device, temperature control (TC) mods allow the user to set heat limitations to their specific types of coils, something VV or VW can't do. But TC mods are not their own kind of device per se, but a further development for many VW mods. TC mods are also VW mods.



E-CIG TERMINOLOGY

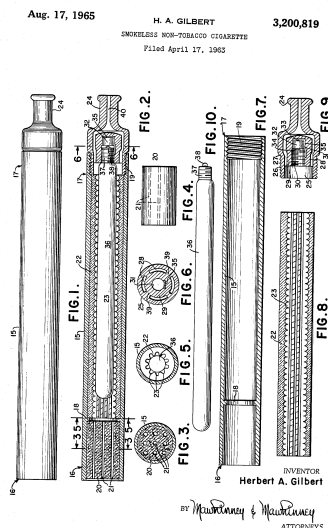
- Dripping
 - Dripping drops of juice directly into an atomizer
- Cloud chasing
 - Vapers who try to achieve the largest vape cloud
- Throat hit
 - The tingling feeling one feels in the back of the throat when vaporizing juice that contains nicotine. Typically, since nicotine is a large contributing factor in throat hit, when a juice that contains zero nicotine is vaporized, there is no throat hit
- Doubler
 - An e-liquid flavor made at double strength, meant to be used as one part in a half and half mixture

E-CIG TERMINOLOGY

- Heat Steeping
 - Using a warm water bath before vaping in order to speed up the melding of flavors in e - juice
- Squonk Box
 - A vape modification that allows a bottle of e-liquid to be attached to a cartomizer and refilled from below via a squeeze
- Sweet Spot
 - The confluence of several variables affecting a vape hit: voltage, wattage, resistance and the flashpoint of your blend
- Vapehole
 - Someone who vapes in a deliberately obnoxious manner or in areas where vaping frowned upon

BRIEF HISTORY OF E-CIGS

- **1963** Herbert A. Gilbert files a patent for an electronic smoking device
- **2003** The electronic cigarette is developed in Beijing, China by Hon Lik, a 52-year-old pharmacist, inventor, and smoker. He reportedly invents the device after his father, also a heavy smoker, dies of lung cancer
- **2007** Electronic cigarettes introduced to the U.S.



http://casaa.org/E-cigarette_History.html
<http://www.theguardian.com/society/2015/jun/09/hon-lik-e-cigarette-inventor-quit-smoking-dual-user>
<http://www.learn.eversmoke.com/history-of-electronic-cigarettes.html>
<http://www.google.com/patents/US3200819>
<http://onvaping.com/beginners-guide-to-vaping/ch-1-history-of-vaping/>

E-CIG REGULATIONS

- In 2016, the FDA extended its regulatory authority over e-cigarettes
 - All vaping products currently on the market will be required to submit a pre-market approval application to stay on the market.
 - Manufacturers must submit ingredient lists and quantities of harmful and potentially harmful ingredients. This includes vape shops that mix their own e-cigarette liquids and modify parts of e-cigarettes.
 - Vaping shops must check a photo ID of everyone under the age of 27, and sell to only those age 18 or older.
 - Products must be labeled with the following statement: “WARNING: This product contains nicotine. Nicotine is an addictive chemical.”

WHAT IS THE ALLURE?



- Many negatives that exist with cigarettes aren't applicable to e-cigs
 - Tobacco-free
 - Flavors
 - Smoke tricks
 - Customizable devices
 - Cost savings





MARKETING STRATEGIES

- How different are marketing strategies when you compare tobacco cigarettes to electronic cigarettes?

MARKETING STRATEGIES

- Social Rewards



MARKETING STRATEGIES

- Sports Themes



MARKETING STRATEGIES

- Health Benefits



WHO OWNS E-CIG COMPANIES?


- E-cigs are big business
 - Worldwide retail sales of e-cigs in 2013= \$2.5 billion
 - Sales on track to exceed \$10 billion by 2017
 - E-cigs anticipated to surpass traditional cigarette sales by 2047
- Marlboro-maker Altria Group Inc., created electronic cigarette, "MarkTen"
- Reynolds American manufactures "VUSE" electronic cigarette
- U.S. tobacco company, Lorillard Inc., acquired "Blu" e-cigarettes for \$135 million. Lorillard was purchased in 2014 by Reynolds American and Imperial Tobacco. Imperial Tobacco now owns "Blu"

HEALTH CONCERNS AND CONSIDERATIONS

- Concept of harm reduction
- Gateway theory
 - 2015 Dartmouth and University of Pittsburgh collaborative study
 - Approximately 700 16-to 26-year old non-smokers
 - 38% e-cigarette users → tobacco cigarette users
 - 10% non-users → tobacco cigarette users
- Nicotine delivery is slower than traditional cigarettes, allowing a new user to advance to cigarette smoking as tolerance increases
- Regulation differences potentially renormalize the act of smoking

HEALTH CONCERNS AND CONSIDERATIONS

- Health Effects
 - Acute nicotine toxicity – Liquid Nicotine
 - Lipoid pneumonitis - Lipoid pneumonia is a rare respiratory illness that may occur from aspiration or inhalation of fatlike material in the lung; this has been reported after accidental ingestion of oil-based laxatives
 - Impaired cough
 - Bronchiolitis Obliterans – Popcorn Lung
 - Serious Irreversible condition where tiny air sacs in the lungs become scarred
 - A study published in 2015 in the journal Environmental Health Perspectives showed that harmful chemicals associated with "popcorn lung" are present in many types of flavored e-cigarettes, particularly those with flavors like fruit and candy that may appeal to young smokers. Of the 51 flavored e-cigarettes tested, flavoring chemicals were found in 47 and diacetyl specifically in 39 samples



HEALTH CONCERNS AND CONSIDERATIONS

- U.S. poison control center calls
 - E-cigarette exposure- 1/month (2010) to 215/month (2014)
 - 51% of exposures to children 0-5 years
 - 6% skin exposures and 8.5% eye exposures
- Vape equipment has the potential to be dangerous if not used/maintained/stored correctly
- WARNING Graphic Photos

DEVICE EXPLOSION PICTURES



DEVICE EXPLOSION PICTURES



E-CIG REGULATIONS

TIPS TO HELP AVOID BATTERY EXPLOSIONS

- <https://www.fda.gov/tobaccoproducts/labeling/productsingredientscomponents/ucm539362.htm>

