

# H.171

# E-Cigarettes and Public Health

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## Examples of different electronic cigarette (e-cigarette) products.

Product	Description	Some Brands
<b>Disposable e-cigarette</b> 	Cigarette-shaped device consisting of a battery and a cartridge containing an atomizer to heat a solution (with or without nicotine). Not rechargeable or refillable and is intended to be discarded after product stops producing aerosol. Sometimes called an e-hookah.	NJOY OneJoy, Aer Disposable, Flavorvapes
<b>Rechargeable e-cigarette</b> 	Cigarette-shaped device consisting of a battery that connects to an atomizer used to heat a solution typically containing nicotine. Often contains an element that regulates puff duration and /or how many puffs may be taken consecutively.	Blu, GreenSmoke, EonSmoke
<b>Pen-style, medium-sized rechargeable e-cigarette</b> 	Larger than a cigarette, often with a higher capacity battery, may contain a prefilled cartridge or a refillable cartridge (often called a clearomizer). These devices often come with a manual switch allowing to regulate length and frequency of puffs.	Vapor King Storm, Totally Wicked Tornado
<b>Tank-style, large-sized rechargeable e-cigarette</b> 	Much larger than a cigarette with a higher capacity battery and typically contains a large, refillable cartridge. Often contains manual switches and a battery casing for customizing battery capacity. Can be easily modified.	Volcano Lavatube

Rachel Grana et al. *Circulation*. 2014;129:1972-1986

# E-Cigarettes

- Also called **ENDS** (electronic nicotine delivery systems)
- E-cigarette use by high school students has **tripled in a single year**
- U.S. sales are projected to rise almost **25 percent** each year for the foreseeable future
- Perceptions about the safety of e-cigarettes are rampant, but unsupported by scientific evidence
- Preserving our current non-smoking social norm is essential to prevent youth smoking and helping adults quit smoking!

# Smoking or Vaping?



# Youth

- From 2011 to 2014, past 30-day use of e-cigarettes increased **nine-fold** for high school students (1.5% to 13.4%)
- Nearly **2.5 million** U.S. middle and high school students were past 30-day e-cigarette users (2014)
- In 2013, more than a quarter of a million (263,000) middle and high school students who had **never** smoked cigarettes had ever used e-cigarettes
- **Nicotine is highly addictive**
- **E-cigarette use is associated with increased intentions to smoke cigarettes**
- **2015 JAMA article: high school students in Los Angeles, CA who had ever used e-cigarettes were more likely to use other tobacco products in the next year**

# Indoor Air

- Vapor from E-Cigarettes is **NOT** harmless water vapor
- May contain:
  - **Nicotine**
  - **Heavy metals** (lead, chromium, nickel)
  - **Ultrafine particles**
  - **Lung irritants** (cherry flavor and benzaldehyde)
  - **Potential carcinogens:** formaldehyde, acetaldehyde, acrolein
  - **Polycyclic Aromatic Hydrocarbons (PAHs);** probable carcinogens; increased by 20% in indoor air after vaping
- Vaporization of propylene glycol produces **formaldehyde-releasing agents**
  - Formaldehyde is an IARC Group 1 Carcinogen; Long-term cancer risks may be much higher for long-term vaping than smoking (***Hidden Formaldehyde in E-Cigarette Aerosols*** NEJM 2015)

# Adults

- Most adult e-cigarette users also smoke conventional cigarettes, called **“dual use”**
- Among adult past 30-day e-cigarette users, **76.8%** were also current cigarette smokers (i.e., “dual users”) in 2012/2013
- **E-Cigarettes are not an FDA-approved quit smoking aid**
- Scientific evidence is currently insufficient to conclude that e-cigarettes are effective for smoking cessation
- Seven FDA-approved medicines are safe and effective for smoking cessation

# Adults and Smoking Cessation

- **NOT Quitting Cigarettes Completely** - Substantial health risks remain
- Smoking just 1-4 cigarettes/day doubles the risk of dying from heart disease
- Heavy smokers who reduce their cigarette use by half still have a very high risk for early death
- **Vs. Quitting Cigarettes Completely**
- Heart disease risk is cut in half 1 year after quitting and continues to drop overtime
- Even quitting at age 50 cuts your risk in half for early death from a smoking-related disease

# H.171 Benefits to Public Health

- Reduces exposure to second-hand e-cigarette vapor (nicotine, particles, irritants, and potential carcinogens)
- Helps keep e-cigarettes out of the hands of children (nicotine highly addictive; e-cigarettes use associated with higher cigarette use)
- Preserves our current **Social Norm** that promotes **NOT smoking** in public places, schools, and workplaces
- Eliminating E-Cigarette use in workplaces and public places may help smokers quit. High rate of “dual use” of e-cigarettes and conventional cigarettes may delay cigarette smokers from quitting completely.
- Despite perceptions, e-cigarettes are **NOT FDA-approved** for this purpose. Scientific evidence insufficient to conclude effectiveness of e-cigarettes for smoking cessation.



# References

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