

Project ECHO

E-cigarettes: What Are They and Their Impact on Mental Health

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Making Cancer History®



Clarification

CDC is advising public health professionals to refer to E-cigs as Electronic Nicotine Delivery Systems (ENDS).

In this presentation I will refer to ENDS as E-cigarettes or E-cigs for two reasons:

1. This is the name patients use
2. Often times the electronic device is delivering only flavor without nicotine

Objectives

- Describe E-cigarettes (ENDS) and how they work
- State health risks and implications of E-cigarettes use
- Describe the use of E-cigarettes among cancer and mental health patients

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Brief History

- Invented in China in 2003
- Introduced in USA in 2007
- First data collection on E-cigs in 2011 by CDC and the FDA's Center for Tobacco Products (CTP)

E-cigarette: Overview



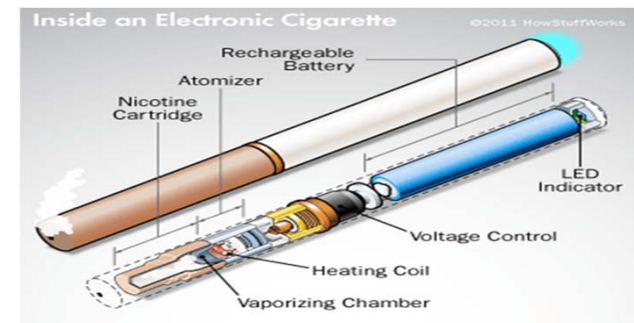
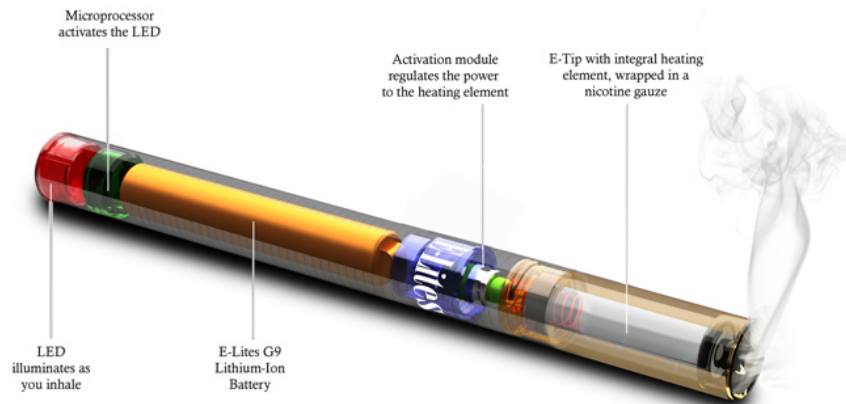
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E-cigarette: Components



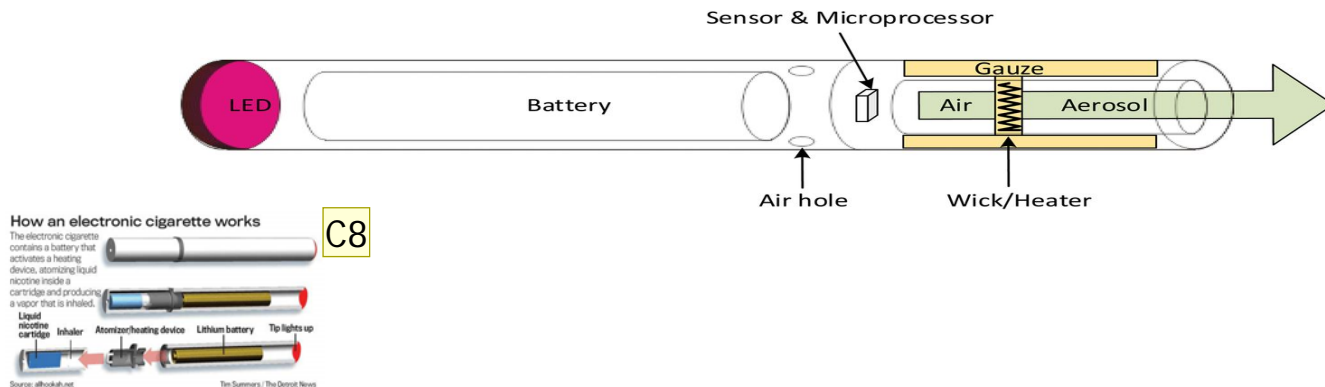
How E-cigarettes Work

- The lithium battery powers the E-cigarette
- The battery is connected to the vaporization chamber that contains the atomizer



How E-cigarettes Work (continued)

- User's inhalation activates the atomizer
- Atomizer heats liquid in the cartridge
- Liquid converts to vapor, inhaled by user



Types of E-cigarettes (by design)

- Ciga-likes: with the appearance of cigarettes



- eGos: larger than cigarettes, with tanks that can be filled and refilled



- Mods: stands for modification of the commercially available products



Types of E-cigarettes (by use)

Single Use (cartridge)



Refillable Tank



What is in a E-Cigarette?

- Humectant (always present)
 - Typically propylene glycol or glycerol

Then can have:

- a) Flavoring agent (tobacco, menthol, chocolate, coffee, apple, caramel, etc.)
- b) Nicotine
- c) a + b

Brands of E-cigarettes

- *As of January of 2014:
 - More than 466 brands of E-cigarettes
 - 7764 unique flavors

Lorillard Inc. (Newport)

- New or Second generation (V2)

Altria (Marlboro)

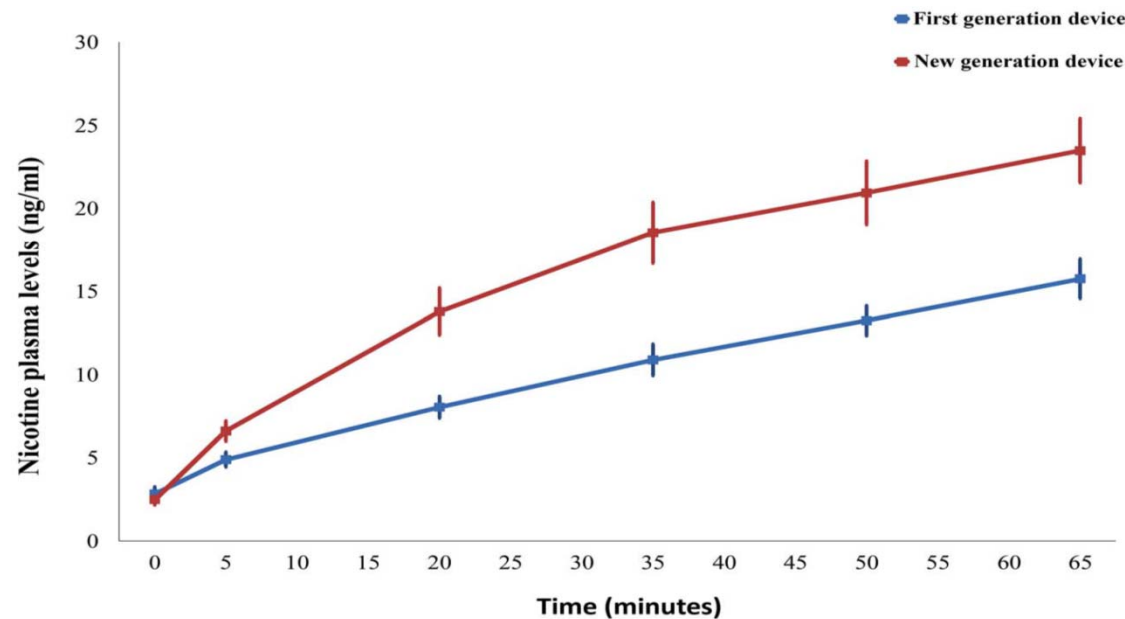


Reynolds (Camel)



Does it Matter the E-cig Generation?

Nicotine plasma levels: First vs. second generation (V2)



Plasma nicotine levels at baseline and at 5, 20, 35, 50 and 65 minutes after using the first- and the new-generation device

Error bars represent 1 SEM. There was a statistically significant difference between devices at all time points except baseline.

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Why Are E-cigarettes Appealing?

- Mimic the use of a conventional cigarette
- Address the hand-to-mouth need
- Provide flavor
- Expectation from the users that there will be a health gain by using these devices.

Why Are E-cigarettes Worrisome?

- Vapor (second hand aerosol) particles of nicotine can reach the inner areas of the lungs (alveoli) where it can be absorbed
- The aerosol and gases produced contain nicotine, glycerin/glycols, artificial flavorings, preservatives (potentially harmful if inhaled)

Why Are E-cigarettes Worrisome?

(continued)

- Not regulated and therefore the actual amount of nicotine and composition might not be disclosed, consistent or accurate

Why Are E-cigarettes Worrisome?

(continued)

- Re-normalize smoking
- Increased risk of dual use: smokers using both the E-cigarette and continuing to smoke
- Increase the risk of never smokers using E-cigarettes: adolescents and young adults

What Is The Prevalence of E-cigarettes Use?

- Close to 6% of all adults (smokers and non-smokers) have tried E-cigarettes
- 21% of adult smokers in US have used them

What Is The Prevalence of E-cigarettes Use? (continued)

- Use among US high-school students increased from 4.5% in 2013 to 13.4% in 2014.
- Among US middle and high school students who had used E-cigarettes, 20.3% reported never smoking conventional cigarettes.

What We Know About E-cigarettes

- The USA Food and Drug Administration (FDA) does not currently regulate their use
- Can FDA regulate them under the Family Smoking Prevention and Tobacco Control Act of 2009?
- More than half of the states are planning to regulate them, in absence of final federal regulation

What We Know About E-cigarettes

(continued)

- They have not been shown to be better than FDA approved medications for smoking cessation
- The dual use of traditional cigs and E-cigs might prolong exposure to tobacco and delay cessation

What We Know About E-cigarettes

(continued)

- *American Heart Association position:
 - Clinicians should not recommend their use as the primary smoking cessation method.
 - If a patient is using an E-cig and succeeded to stop smoking, an E-cig quit date should be advised.

What We Do Not Know About E-cigarettes

- The safety of using them since their composition is not known and they are not regulated
 - Hazards (explosion!)
 - Toxic components:
 - 1) traces of carcinogens
 - 2) heating element residue

What We Do Not Know About E-cigarettes (continued)

- Potential exposure to lethal doses of nicotine (refillable tanks)
- Their efficacy as a smoking cessation aid
- The long-term health risk

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E-cigarettes and Cancer Patients

- One study in cancer patients did not find E-cigs effective for smoking cessation
- That study found E-cigs users had higher nicotine dependence and smoked more traditional cigs/day

E-cigarettes and Cancer Patients

(continued)

- One suggestion: perhaps the use of E-cigs delayed or averted quit attempts of traditional cigarettes
- The authors did not support oncologists recommending E-cigs for smoking cessation to cancer patients

E-cigarettes and Patients with Mental Health Conditions

One published study showed:

- Individuals with MHC are more likely to use E-cigs
- Individuals with MHC use E-cigs for the same reasons (than people without MHC)
 - They see them less harmful, more acceptable, and an aid to quit smoking.

E-cigarettes for Patients with Mental Health Conditions (2)

- One theory of this increased susceptibility to E-cigarettes use could be that individuals with MHC may have:
 - A harder time at quitting
 - Failed to quit several times before, and
 - Been looking for new ways to quit.

What we Know

- Few things are more harmful than traditional cigarettes
- E-cigs might not help to quit smoking
- E-cigs might have adverse health consequences
- They may delay smoking cessation via dual use

What we Know

(continued)

- Patients with mental health conditions may be more susceptible to the use of E-cigarettes
- Standardization of these devices and MORE RESEARCH ARE NEEDED!!!

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Q & A

QUESTIONS?

THOUGHTS?