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A Commitment to Service

Health and Human Services Agency

Clean Indoor Air Ordinance and E-Cigarettes

December 15, 2015



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Introduction

- Cardiovascular disease is the number one cause of death and premature death in Napa County
- Nicotine use is a major risk factor for cardiovascular disease: smoking 1-4 cigarettes/day doubles risk of dying of heart disease
- E-cigarettes are a threat in public health efforts to decrease nicotine use throughout the population



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Outline

- What are e-cigarettes?
- Marketing claims
- Health threats



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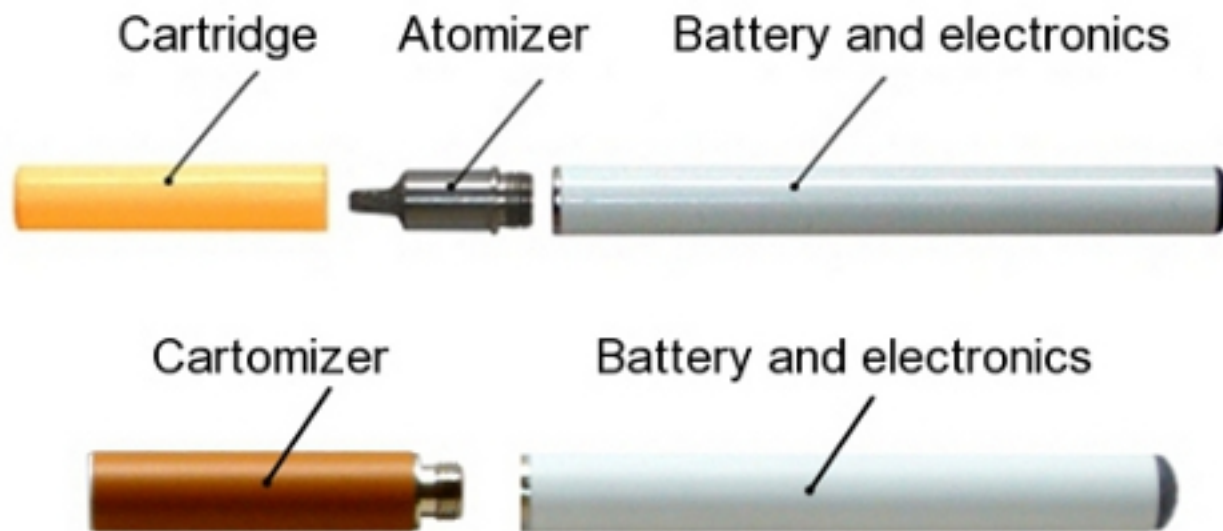
What are Electronic Cigarettes?

- Battery operated products designed to aerosolize nicotine
- Allows nicotine to be inhaled in an aerosolized mixture so it can be absorbed in the lungs
- Not regulated by the FDA, therefore advertising is unrestricted



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Disposable E-cigarettes (E-hookah pens)



Grana, et al. *Circulation* 2014; 129



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Rechargeable e-cigarettes





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Pen-style, medium-size, rechargeable E- cigarettes



Grana, et al. *Circulation* 2014; 129



Tank-style, large-size, rechargeable e-cigarette





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Marketing Claims and Tactics

- Used as “smoking cessation” tool
- Produces “harmless water vapor”
- Marketing appeals to youth
 - Fruity and candy flavors; bright colors
 - In 2014, 73% of high school and 56% of middle school students who used tobacco products in the past 30 days reported using a flavored product



Grana, et al. *Circulation* 2014; 129



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NOT a smoking cessation tool

- Evidence to date from four clinical trials has not demonstrated that e-cigarettes are effective for cessation
- Population-based studies that reflect real-world e-cigarette use have found that e-cigarette use is not associated with successful quitting
- In 2012-2013, 1.9% of adults used e-cigarettes >30 days
- Among adult using e-cigarette >30 days, 76.8% were also current cigarette smokers (“dual users”)

Grana, et al. *Circulation* 2014; 129
Arrazola, et al. *MMWR* 2015; 64(14)



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A Gateway to Nicotine Addiction in Youth

- Nicotine exposure during adolescence may have lasting adverse consequences for brain development, causes addiction, and may lead to sustained tobacco use
- According to National Youth Tobacco Survey, youth who had never smoked conventional cigarettes but who used e-cigarettes were almost twice as likely to *have intentions* to smoke conventional cigarettes as those who had never used e-cigarettes

Grana, et al. *Circulation* 2014; 129
Arrazola, et al. *MMWR* 2015; 64(14)
Corey, et al. *MMWR* 2013; 62(35)



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A Gateway to Nicotine Addiction in Youth

According to the National Youth Tobacco Surveys taken from 2011 to 2014:

- Nearly 4 of every 100 middle school students (3.9%) reported that they used electronic cigarettes in the past 30 days—an increase from 0.6% in 2011.
- More than 13 of every 100 high school students (13.4%) reported that they used electronic cigarettes in the past 30 days—an increase from 1.5% in 2011

Arrazola, et al. *MMWR* 2015; 64(14)
Corey, et al. *MMWR* 2013 62(35)



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A Gateway to Nicotine Addiction in Youth

- In 2011, 61% of middle school students and 80% of high school students were noted to be dual users
- In 2014, more than 12 of every 100 high school students (12.7%) and approximately 3 of every 100 middle school students (3.1%) reported use of two or more tobacco products in the past 30 days

Arrazola, et al. *MMWR* 2015; 64(14)
Corey, et al. *MMWR* 2013 62(35)



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E-cigarette liquid and vapor contains unhealthy substances

- Not just water vapor
- Components vary brand to brand but in general they contain :
 - Nicotine from tobacco leaves (level varies)
 - Propylene glycol
 - Glycerin
 - Metals from cartridge (tin also found in liquid)

(Grana, et al. *Circulation* 2014; 129)



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E-cigarette vapor contains harmful substances

Propylene glycol
glycerin
Flavorings (many)

Nicotine

NNN

NNK

NAB

NAT

Ethylbenzene

Benzene

P,m, xylene

Toluene

Acetaldehyde

Formaldehyde

Naphthalene

Styrene

Benzo(b)fluoranthene

Benzo(ghi)perylene

Acetone

Acrolein

Silver

Nickel

Tin

Sodium

Strontium

Barium

Aluminum

Chromium

Boron

Copper

Selenium

Arsenic

Chlorobenzene

Crotonaldehyde

Propionaldehyde

Benzaldehyde

Valeric acid

Hexanal

Fluorine

Anthracene

Pyrene

Acenaphthylene

Acenaphthene

Fluoranthene

Benz(a)anthracene

Chrysene

Retene

Benzo(a)pyrene

Indeno(1,2,3-cd)pyrene

Cadmium

Silicon

Lithium

Lead

Magnesium

Manganese

Potassium

Titanium

Zinc

Zirconium

Calcium

Iron

Sulfur

Vanadium

Cobalt

Rhubidium



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Secondhand Vapor Exposure

- Blood tests of study participants exposed to e-cigarette vapor simulating a café setting had evidence of nicotine absorption equivalent to conventional tobacco cigarettes
- In a room of five or more e-cigarette users, nicotine and particulate matter levels are above healthy levels



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Health Concerns- E-Cigarette Liquid Poisoning

- Liquid nicotine is extremely toxic when ingested orally or absorbed through the skin and eyes
- Calls to poison control for ingestion of e-cig liquid have skyrocketed



CDC, 2014



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Prevention Policies

- Prohibit smoking in indoor areas of worksites and public places
 - Clean air ordinances enacted by eleven counties and 120 cities in California
- Charge higher costs for tobacco products through increased taxes
- Raise the minimum age of sale for tobacco products to 21 years



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References

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Notes from the Field: Calls to Poison Centers for Exposures to Electronic Cigarettes — United States, September 2010–February 2014. Morbidity and Mortality Weekly Report, 2014; 63(13): 292-3.