

E-Cigarettes/Vaping Is it Helpful or Harmful

Presenter:

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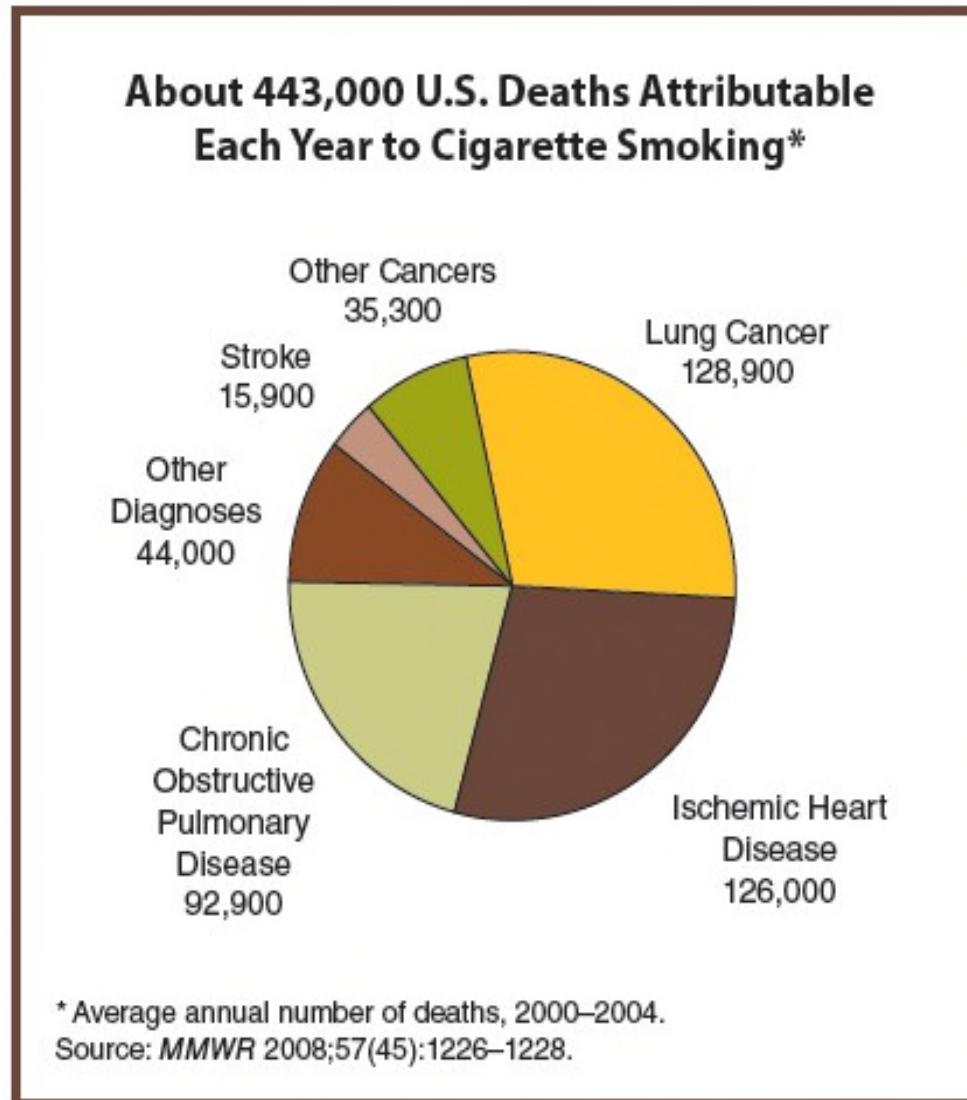
2021
Primary Care Conference

Objectives

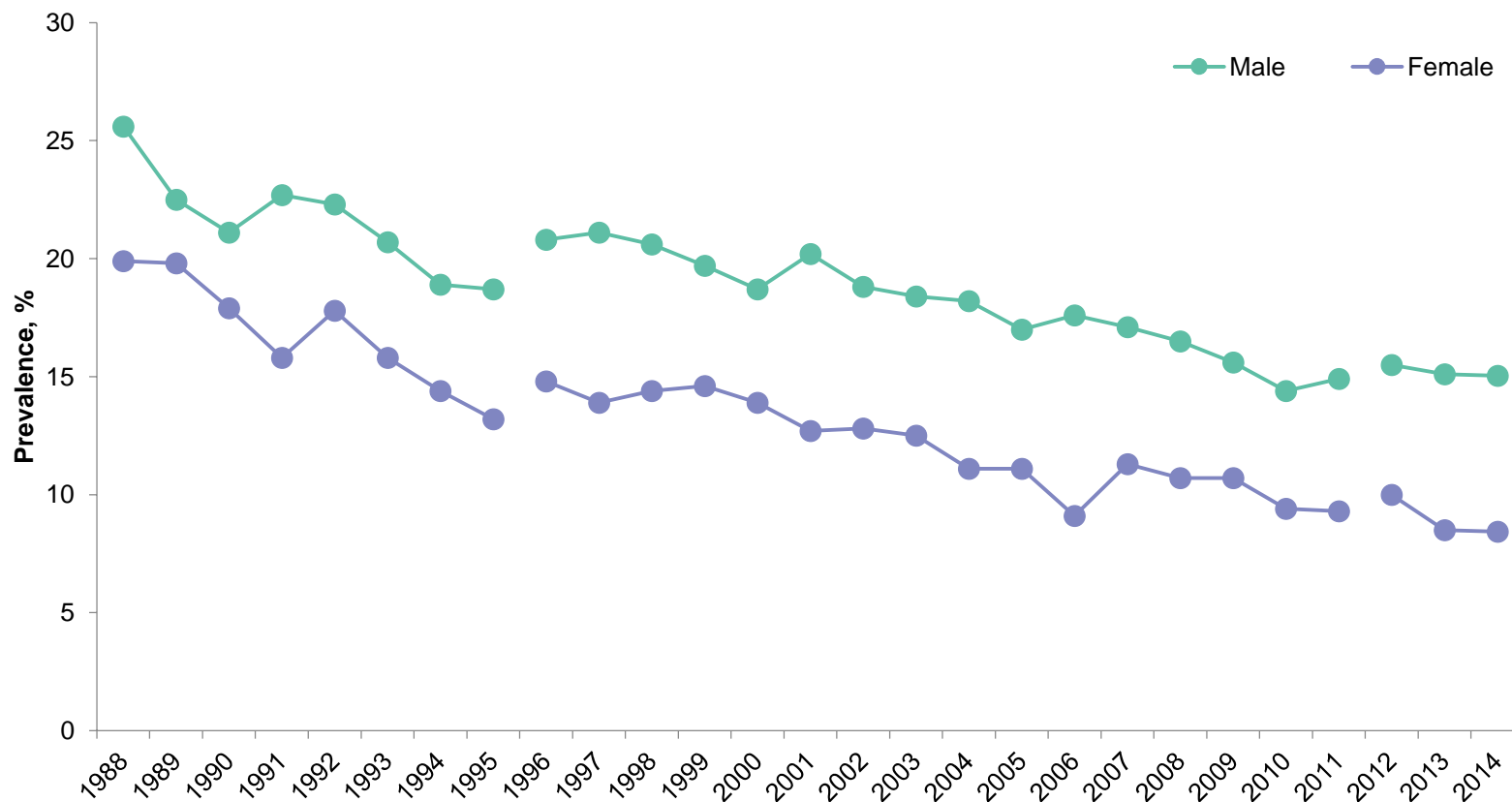
1. E-Cigarette manufacturing and unique risk
2. Overview of E-Cigarette as a cessation aid
3. Understanding the risk of tobacco/E-Cigarettes in the COVID pandemic

Financial Disclosure: None

Health Risks of Cigarette Smoking



Adult Cigarette Smoking Prevalence in California by Gender, 1988–2014












Note: Respondents aged 18+ were asked to report current cigarette smoking behavior. An adjustment was made to address the change of smoking definition in 1996 that included more occasional smokers. The weighting methodology changed in 2012. Weighted to the 2000 California population from 1988–2011 and to the 2010 California population since 2012.
Source: Behavioral Risk Factor Surveillance System, 1988–2014.

Prepared by the California Department of Public Health, California Tobacco Control Program, July 2016.

Populations at Risk

Cigarette smoking is down, but almost
38 MILLION
American adults still smoke

Cigarette smoking remains high
among certain groups

 Men	 Adults 25-64 years old	 Lower education	 Below poverty level	 Midwest and South
 Uninsured or Medicaid	 Disabled	 Serious psychological distress	 American Indians, Alaska Natives and Multiracial	 Lesbians, gays, and bisexuals

Strategies essential to continue reducing
cigarette smoking overall

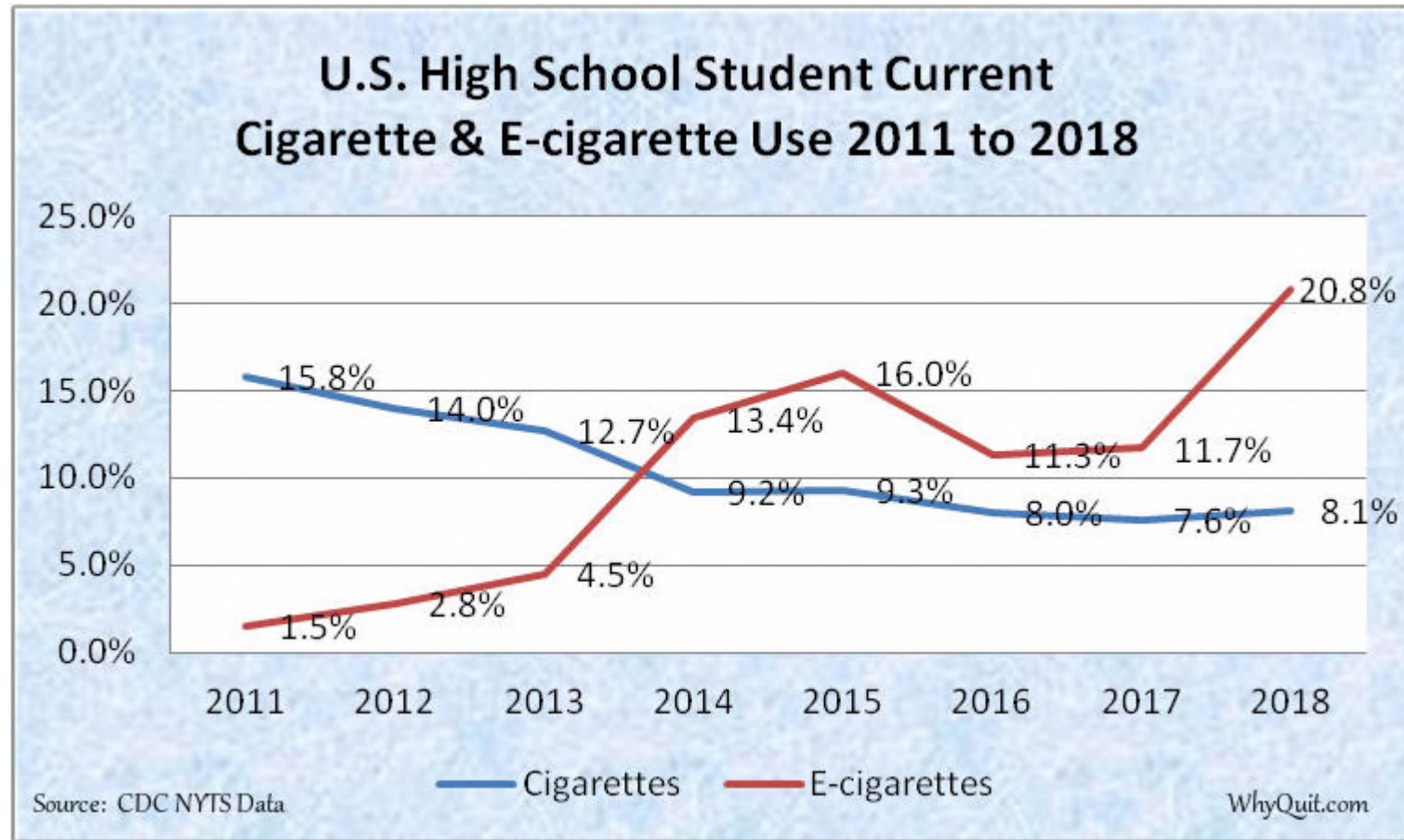
 Implement smoke-free laws	 Run mass media campaigns	 Raise tobacco prices	 Make quit help easy to access
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CDC.gov/quit

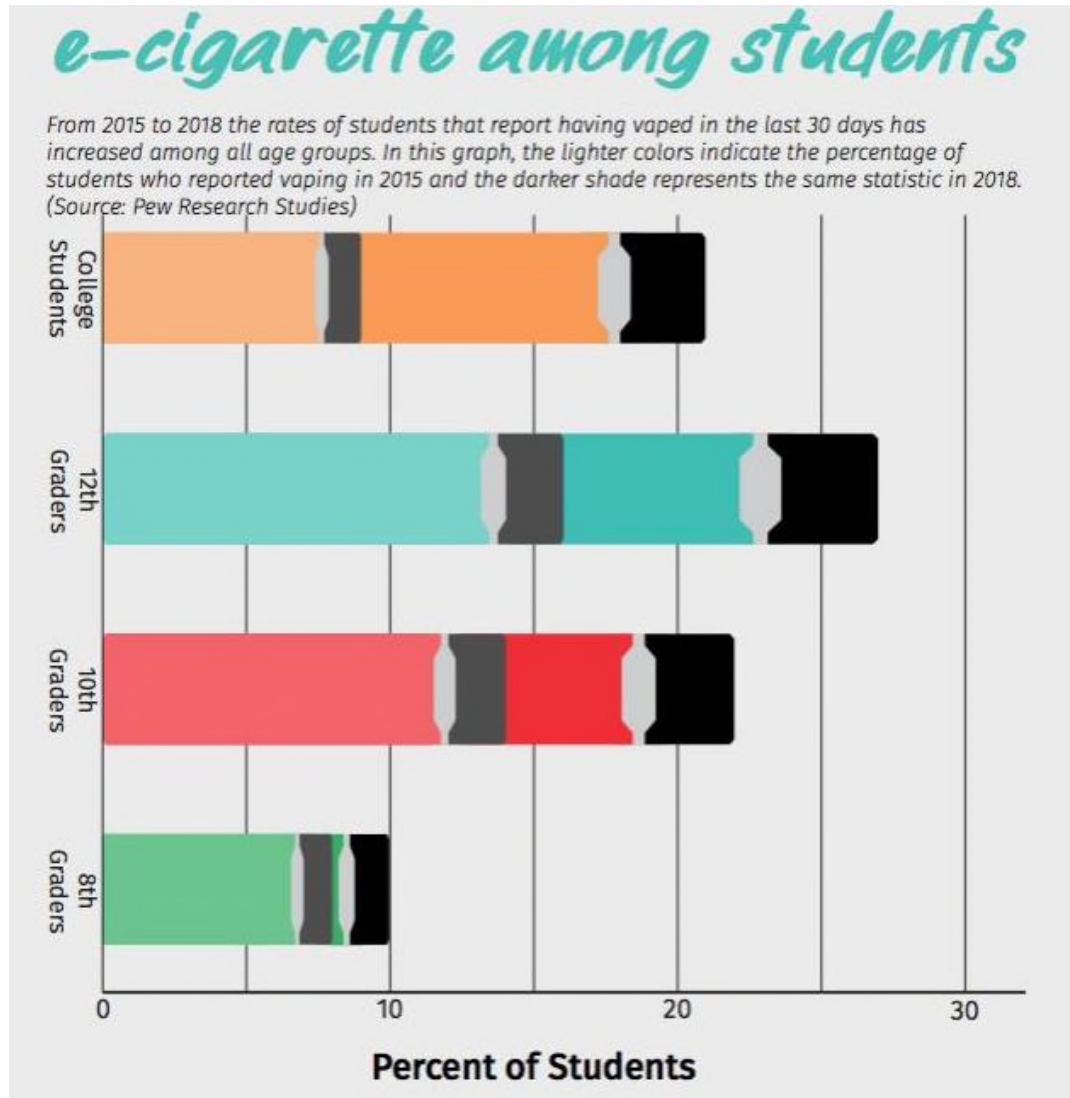
Introducing – First Generation eCigarettes



Smoking Trends – High School



Smoking Trends –



**1/5 Teens
have tried
Vaping**

Electronic Cigarettes (eCigs)

What's the big deal?

- **Unregulated**
- **Poisoning risk**
- **Evidence that vaporization can create toxic chemicals**
- **Role for third hand nicotine deposition**
- **Appealing to youth, gateway to cigarettes**
- **Re-norming smoking behavior**
- **Maintaining tobacco (dual use)**
- **Limited evidence for effectiveness in cessation**

The Many Shapes of Addiction



Disposable and Rechargeable "e-cigarettes" "vape stick"

Medium size "tank system" Vape pen

Large "tank system" "Mod"

Rechargeable with Pods or cartridges

Disposable Flavored eCigs

Parts of an e-cigarette structure and substances that may be found in the vapor



E-Cigarettes – The Flavors of Addiction



The “freedom” myth



WHY QUIT?
SWITCH TO BLU

- Have the Freedom to Smoke Anywhere
- No Tobacco, No Ash, No Smell
- All Flavors Made in the U.S.A.

[Learn More >](#)

This advertisement features a close-up of a man wearing a grey hat and sunglasses, holding a cigarette. The background is dark. The text is white and blue, with 'WHY QUIT?' and 'SWITCH TO BLU' in large, bold, white and blue fonts. A list of three benefits is shown below, and a 'Learn More >' button is at the bottom left.

Fluids Contain

Many come premixed from China, but some are now made in the US and Europe

Origins and quality of the ingredients are generally not known

Fluids may contain:

- ✓ **Nicotine** (in varying concentrations 0-100 ml/mg)
- ✓ **Humectants:** propylene glycol (or vegetable glycerin) for vapor production
- ✓ **Flavorings** (tobacco, menthol, coffee, vanilla, fruit, cotton candy, etc.)

E-Cigarette Liquid Ingredients

Distilled Water

Propylene Glycol

Vegetable Glycerin

Nicotine Concentrate

Artificial Flavoring



E Cigarette the new flavor of addiction



eCigarette
Introduced 2015

Sales increased 700% in
2016

As of 2018 JUUL
represents 60% of the eCig
market

Are E-Cigarettes what's the risk?

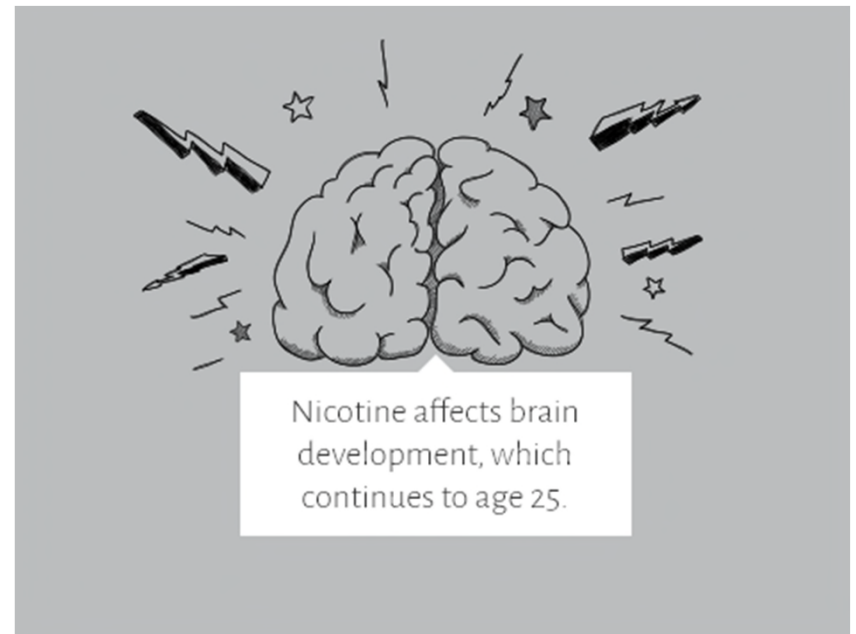
There has been considerable debate in leading medical journals and the media over the safety of e-cigarettes (EC) .

Are e-cigarettes of net benefit or harm to individuals and society?

The Impact of Nicotine ?

Attempts to quit can lead to:

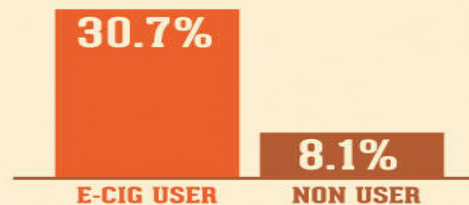
anxiety
irritability
restlessness
difficulty concentrating
depressed mood
frustration
anger
increased hunger
insomnia
constipation
diarrhea



E Cigarette to Traditional Cigarettes

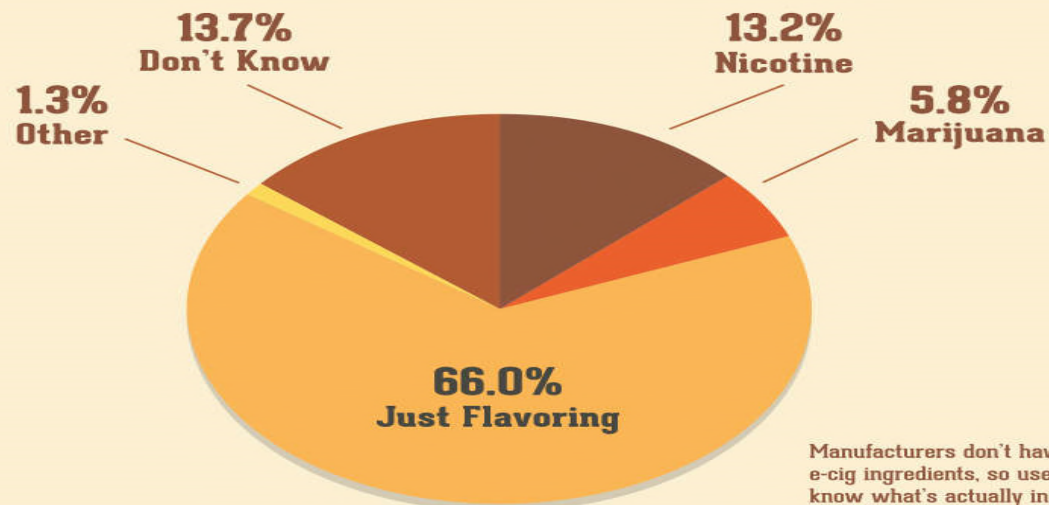
TEEN E-CIG USERS ARE MORE LIKELY TO START SMOKING.*²

Start Smoking Within 6 Months



*Includes combustible tobacco products [cigarettes, cigars, and hookahs]

WHAT DO TEENS SAY IS IN THEIR E-CIG?³



eCigarette as a Cessation aid

Data is mixed with randomized controlled trials ¹

2 randomized studies suggest improved quit rate (CI 1.25 to 2.27)

- Limitations include:
 - Small sample size
 - Wide margin of errors in estimates

¹Cochrane Database of Systematic Reviews 2020 Issue 10 Art No CD010216

eCigarette research in the United Kingdom

February 14, 2019 NEJM A Randomized Trial of E-Cigarettes versus Nicotine-Replacement Therapy (published in the New England Journal of Medicine, 2019) U.K. National Health Service

- ▲ 1st arm the patients used
 - nicotine-replacement products of their choice, including product combinations, provided for up to 3 months
- ▲ 2nd arm an e-cigarette starter pack,
 - with a recommendation to purchase further e-liquids of the flavor and strength of their choice
- ▲ Included weekly behavioral support for at least 4 weeks
- ▲ Primary outcome was sustained abstinence for 1 year, (validated biochemically)

886 participants underwent randomization

1-year abstinence rate was **18.0%** in the e-cigarette group

Compared with **9.9%** in the nicotine-replacement group

E-cigarette group reported greater declines in the incidence of cough and phlegm production

80% were still on eCig compared to **9%** on NRT at 1 year

eCigarette as a Cessation aid

CDC trial, longitudinal online survey of adult smokers¹

74% US adult smokers used multiple quit methods

- Most smokers used EC as opposed to FDA approved cessation aids
- Most EC users are not switching completely, dual users
- Gradually cutting back or going “cold turkey” was the most common quit method

¹Preventing Chronic Disease Quit Methods Used by US Adult Cigarette smokers 2014-2016 Caraballo Et al

Vaping associated illness and death



ARTICLE IN PRESS

American Journal of
Preventive Medicine

RESEARCH ARTICLE

Association of E-Cigarette Use With Respiratory Disease Among Adults: A Longitudinal Analysis

Dharma N. Bhatta, PhD, MPH,^{1,2} Stanton A. Glantz, PhD^{1,2,3,4,5}

E-Cigarettes warning CDC

As of January 21, 2020:

- 2,711 hospitalized EVALI cases or deaths have been reported to CDC
- 60 deaths in 27 states
- Tetrahydrocannabinol (THC)-containing e-cigarette linked to most EVALI cases



**E-cigarette or vaping
product use-
associated lung injury
(EVALI)**

E-Cigarettes warning CDC

WEBMD HEALTH NEWS

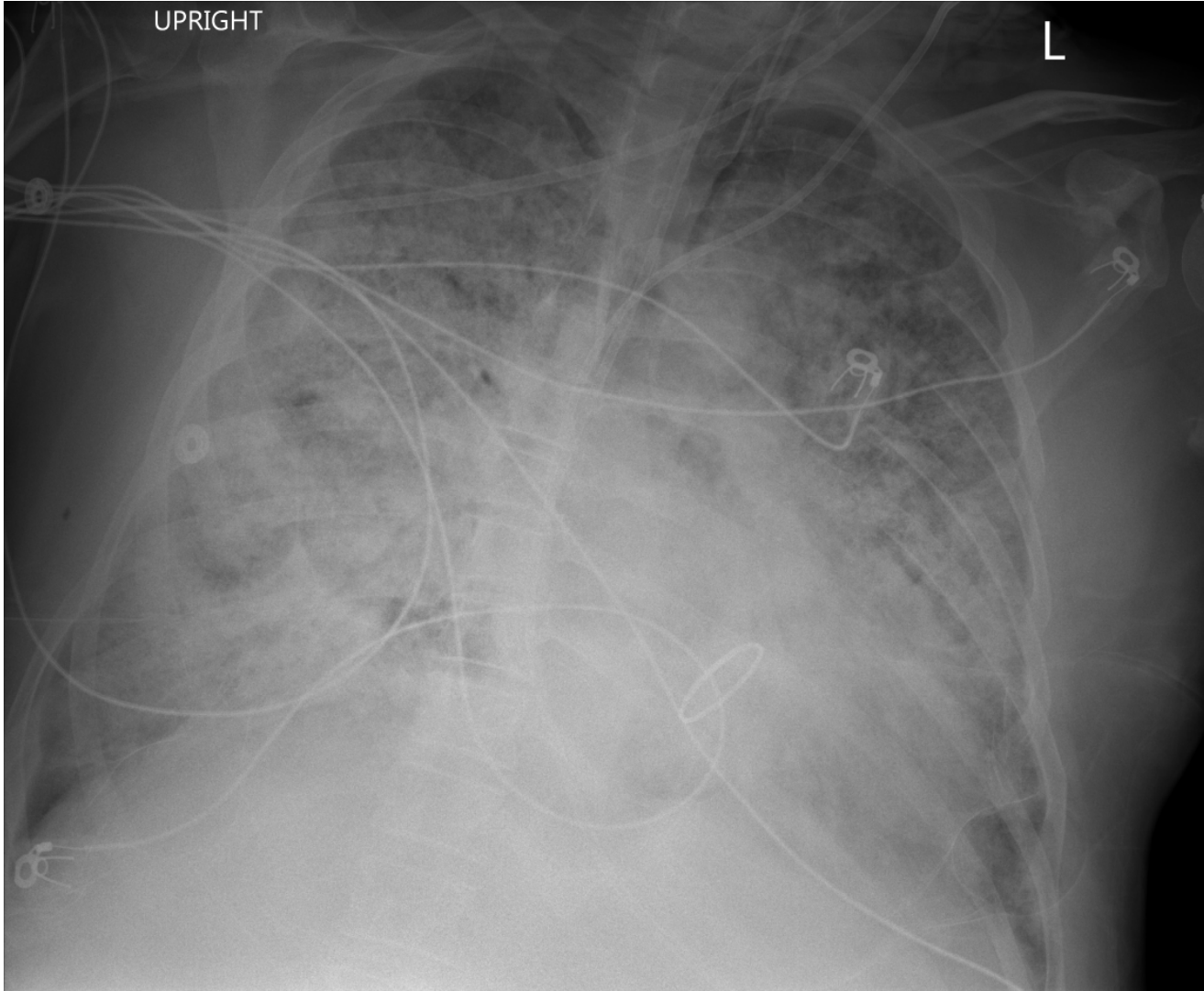
CDC: Vitamin E Likely Culprit in Vaping Cases

By Kathleen Doheny



UPRIGHT

L



eCigarette, vaping or product use associated pulmonary lung injury (EVALI)

BOX 2. Management of patients with suspected e-cigarette, or vaping, product use associated lung injury (EVALI)



Admission criteria and outpatient management

- Strongly consider admitting patients with potential lung injury, especially if respiratory distress present, have comorbidities that compromise pulmonary reserve, or decreased (<95%) O₂ saturation (consider modifying factors such as altitude to guide interpretation).
- Outpatient management for patients with suspected lung injury who have less severe injury might be considered on a case-by-case basis.

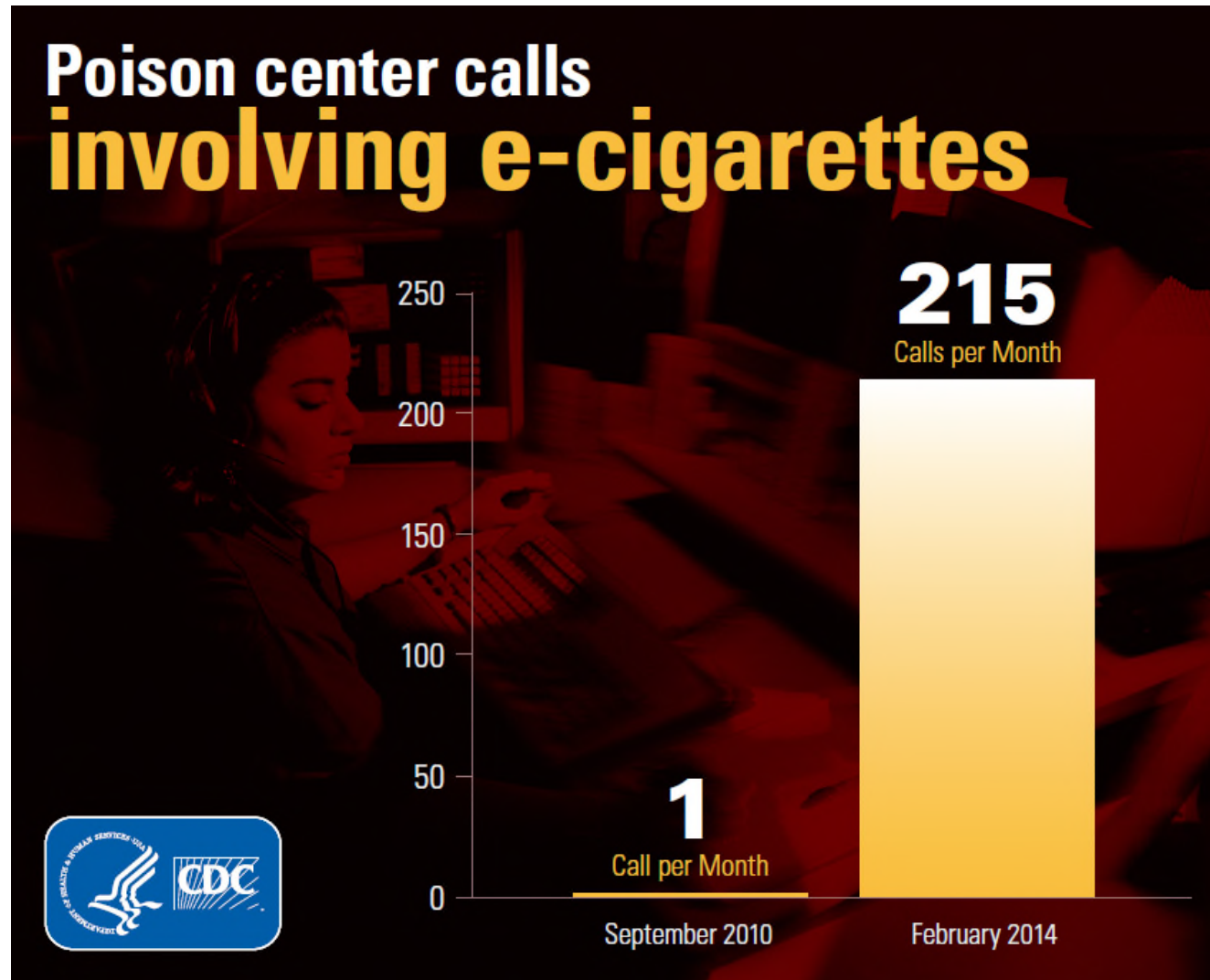
Medical treatment

- Consider initiation of corticosteroids.
- Early initiation of antimicrobial coverage for community-acquired pneumonia should be strongly considered in accordance with established guidelines.*
- Consider influenza antivirals in accordance with established guidelines.†

Patients not admitted to hospital

- Recommend follow-up within 24–48 hours to assess and manage possible worsening lung injury.
- Outpatients should have normal oxygen saturation, reliable access to care and social support systems, and be instructed to promptly seek medical care if respiratory symptoms worsen.
- Consider empiric use of antimicrobials and antivirals.

Toxic in more ways than one



COVID and Tobacco Products



COVID – Is smoking protective ?

Multiple meta analyses cited LOW pooled smoking prevalence in the hospital setting*

- 7.6% to 6.5% smoking prevalence

Etiology – Nicotine downregulate ACE receptors ?

Faulty assumptions

1. Under-assessment of smoking status
2. Non- peer reviewed reports
3. Sampling bias
4. No controls for confounding factors

*Prevalence of Underlying Diseases in Hospitalized Patients with COVID-19 A systematic review and Meta- analysis. *Archives of Academic Emergency Medicine* 2020. 8(1):e35

COVID – Tobacco and COVID disease risk

Commentary

Smoking Is Associated With COVID-19 Progression: A Meta-analysis

Roengrudee Patanavanich MD, LLM, PhD^{1,2}, Stanton A. Glantz PhD^{1,*}

¹Center for Tobacco Control Research and Education, Department of Medicine, University of California, San Francisco, San Francisco, CA; ²Department of Community Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Smoking is a risk factor for COVID progression

(OR 1.91, 95% CI)

Nicotine & Tobacco Research 2020,1-4, May 11 2020

COVID – Tobacco and COVID disease risk

JOURNAL OF
ADOLESCENT HEALTH 
Improving the Lives of Adolescents and Young Adults

ORIGINAL ARTICLE | [ARTICLES IN PRESS](#)

Medical Vulnerability of Young Adults to Severe COVID-19 Illness—Data From the National Health Interview Survey

[Sally H. Adams, Ph.D.](#) • [M. Jane Park, M.P.H.](#) • [Jason P. Schaub, M.P.H.](#) • [Claire D. Brindis, Dr.P.H.](#) •
[Charles E. Irwin Jr., M.D.](#)

Published: July 13, 2020 • DOI: <https://doi.org/10.1016/j.jadohealth.2020.06.025>

In California new COVID19 among those <35 has surged 73% in the last 2 weeks of June ¹

Most prevalent factor for medical vulnerability for severe COVID19 illness among young adults is smoking ²

1. *California Dept of Public Health*

2. *Medical Vulnerability of young adults to severe COVID-19 Illness- data from the National Health Interview Study*

Journal of Adolescent Medicine SA et al July 13, 2020

Talking to Your Child about Vaping

1. Know the Facts
2. Have a Conversation
3. Try to Understand the Why
4. Convey your Expectations
5. Role play Resistance Skills
6. Set a Good Example



What Families Need to Know
to Help Protect Children, Teens
and Young Adults

<https://drugfree.org/article/how-to-talk-with-your-kids-about-vaping/>

Risk for Smoking in Youth

Sociodemographic factors

- ▲ Low monitoring of youth by parents
- ▲ Use of tobacco products by peers or family
- ▲ Permissiveness of tobacco product use by peers or family
- ▲ Exposure to tobacco product advertising

Risk-taking personality traits:

- ▲ Rebelliousness
- ▲ Depression

Risky behaviors:

- ▲ Use of products other than e-cigarettes or combustible tobacco cigarettes
- ▲ Use of non-tobacco drugs of abuse
- ▲ Delinquent behaviors

Who are the teen vapers?

...and why do they vape?

- Experiment
- Peer influence (relaxes social stress)
- Rite of passage to adulthood
- Vaping has been normalized
- Attractive people vape
- Weight control
- Readily available
- Nicotine manages mood



Signs for parents to recognize

- Desire for flavors
- Symptoms: Nosebleeds, chest pain, vomiting, diarrhea, acne
- Cutting back on caffeine
- Pneumonia or acute respiratory disease
- Unfamiliar USB drives, battery chargers or spare parts
- Moodiness or easily agitated
- Fruity or marijuana smell (but oftentimes vaping has no smell)

Quit Resources

California Smokers Helpline



Quit Resources

The Truth Initiative- Text Based Program



WHO WE ARE

WHAT WE DO

OUR TOP ISSUES

Home **This is Quitting**

THIS IS QUITTING

The first-of-its-kind program to help young people quit vaping, This is Quitting has helped more than 250,000 youth and young adults on their journey to quit vaping. Learn more about how it works and the additional resources available for parents of young vapers and for adults who want to quit.

Teens and young adults can join for free by texting **DITCHVAPE** to **88709**



A Movement to Ban Flavored Tobacco

In 2018, San Francisco became the first major U.S. city to end the sale of all flavored tobacco products

In 2019 Massachusetts became the first state to prohibit the sale of all flavored tobacco products. New Jersey soon followed.

69 counties/cities in CA have restrictions in place on the sale of flavored tobacco products



Take Home Points

- ▲ E-cigarette use in youth and young adults has dramatically increased and this increase appears to not only be reversing the trend to decrease nicotine addiction but epidemiological evidence suggests we may see an increased use of combustible cigarettes in youth as well.
- ▲ E-cigarettes in randomized controlled studies have demonstrated efficacy in helping adults quit cigarettes (with dual use and prolonged use) .
- ▲ It is unclear whether their efficacy is superior, inferior or comparable to more established treatment but the best and most recent study showed it to be significantly greater.
- ▲ Given the trend for pulmonary damage and possibly longer term sequela compounded by the lack of quality oversight for e-Cigarette production, the recommendation is not to use these agents as a first line cessation aid.

Resource Links

1. <http://www.CDC.gov>
2. <https://truthinitiative.org/>
3. <https://www.canada.ca/content/dam/hc-sc/documents/services/publications/healthy-living/vaping-damage/v-brain01-eng.pdf>
4. <https://www.hopkinsmedicine.org/health/wellness-and-prevention/5-truths-you-need-to-know-about-vaping>
5. <https://newsnetwork.mayoclinic.org/discussion/mayo-clinic-q-and-a-vaping-health-risks-for-teens/>
6. <https://www.drugabuse.gov/related-topics/trends-statistics/infographics/teens-e-cigarettes>



Thank You

Definitions

eCigarette- electronic cigarette, first generation appearance of a true vaporized cigarette evolved from 3V to 8 V with much high exposure/inhalation and ability to modify the depth of inhalation. Has no tobacco but is considered a tobacco product

Juul newer generation eCig appearance like a memory stick. High concentration of nicotine given they are manufactured as nicotine salts allowing for higher concentration of this entity and inhalant is less harsh due to acidic nature/rather than alkaline (60+% of the eCig market)

Pod vaping – eCig stores its liquid in a small plastic tank that connects to the top of the device. The pods are usually clear allowing you to see how much eLiquid remains

Tank – component of the vaping device which include a reservoir to hold additional liquid and the coil to create vapor. Typically tanks are made of glass or Pyrex or metal like stainless steel

Puff one of the leading manufacturers & distributors of vaping products and accessories

eLiquid what you put into newer chambers, or pre set solution in the newer eCig which gets vaporized to be inhaled by user. That is where flavorants are

Juice is the same as eLiquid

Pens is the newer type of eCig which looks like a pen

Throat hit – the sensation in the throat caused by nicotine as it's inhaled

Vape mod -larger devices than eCig and known for high vapor production- modification to the vape pen (thus the word MOD) which has advanced features (such as larger batteries, holds more eLiquid). Mechanism to heat the eLiquid is usually stronger

Puff Vape- disposable eCig. 2 and 5% options (20 vs 50mg nicotine) traditional cigarettes have 10-12mg nicotine. No charger, no refill. Device available in multiple fruit flavors. Uses nicotine salt

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Negative Effects of Marijuana



Affects parts of the brain responsible for:

- memory , learning, attention, decision making, coordination, emotions, and reaction time.
- Long-term or frequent marijuana been linked to increased risk of psychosis or schizophrenia in some users
- Using marijuana during pregnancy may increase the baby's risk for developmental problems