

Massachusetts

PTA[®]

everychild.one voice.[®]

Victims,

Vapers and a Virus!

COVID and Vaping, both harmful, both dangerous:

Combating Both!

Welcome to All

**Massachusetts Parent Teacher Association believes
that All Massachusetts children and families should
be safe and live in an environment that promotes
Health, Well-being, Confidence and Security.**



Lester J. Hartman, MD
MPH FAAP, Westwood -
Mansfield Pediatric Assoc.
PRESENTER



Jackie Coogan, Mass PTA BOD,
Chairperson: Health, Safety and
Wellness Committee



David Martin, CEO,
Massachusetts Health Council.

Mass PTA and MHC
in partnership
presents this
Health Webinar.



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David Martin, CEO

Massachusetts Health Council

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 @masshealthcouncil



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Tobacco and COVID-19

Flavored Vaping, Victims and a Virus



*Proactive in your child's care.
Empowering families for over 60 years.*



*For the Children.
Healthy Communities,
Healthy Children.*

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Who We Are



Lester Hartman, MD, MPH

Jonathan Winickoff, MD, MPH

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2015 JUUL Launch Party



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JUUL is a Genie You Can't Put Back



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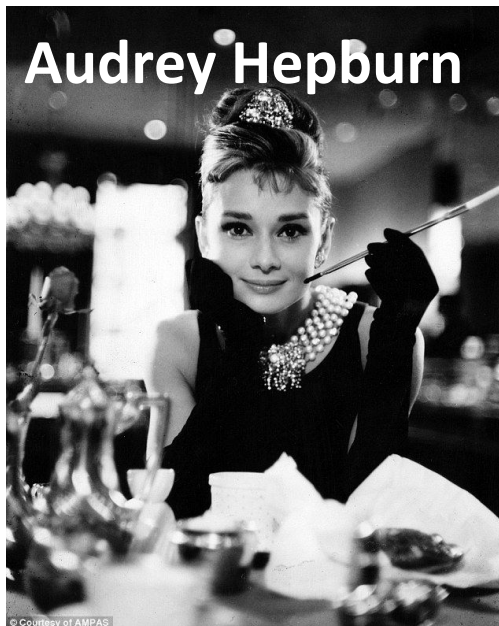
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The Dangers of JUULing and Vaping

...don't let history repeat itself...



Died of smoking related cancer.
1929-1993 – Age 63



TBD
1984-?



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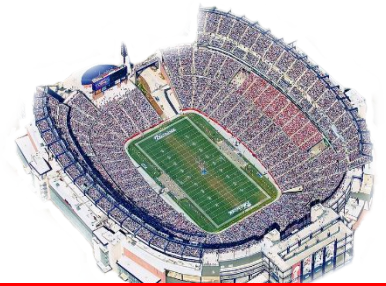
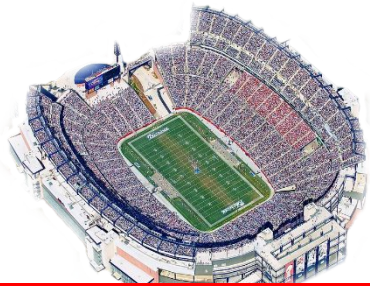
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500,000 People Die Every Year From Tobacco Related Diseases...



7.58 Gillette Stadiums Every Year!



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Why Age Matters!

- **90%** of lifelong smokers began before **age 18**
- **95%** of lifelong smokers began before **age 21**

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How old do you have to be to rent a car?



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Nicotine – Cocaine Connection

NEJM - A Molecular Basis for Nicotine as a Gateway Drug;

Sep 4, 2014

“The majority (75.2%) of cocaine users were smoking the month they began using cocaine.”

“We found that the rate of cocaine dependence was highest (20.2%) among users that started cocaine after smoking cigarettes.”

“Dependence was much lower (6.3%) among people who began cocaine before smoking cigarettes.”

HENCE, nicotine appears to be a gateway drug to cocaine and maybe other drugs. But, cocaine is not a gateway drug to nicotine.

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The New Look of Nicotine Addiction

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FDA Bans Flavored Cigarettes Exempts Mint and Menthol (2009)

The New York Times

Flavors Banned From Cigarettes to Deter Youths

By GARDINER HARRIS SEPT. 22, 2009

The ban is intended to end the sale of tobacco products with chocolate, vanilla, clove and other flavorings that lure children and teenagers into smoking.



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Big Tobacco's First Pivot

Mint and Menthol Continues

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The Pivot



Cigarette



Cigarillo



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Mint and Menthol

In 2009, the FDA took a bold step and banned all flavored cigarettes; however, they exempted mint and menthol.

When all other flavors were removed kids would **default to the remaining mint and menthol flavored tobacco.**

On average, menthol tobacco smokers delay quitting 20% longer than non-mentholated cigarette users.

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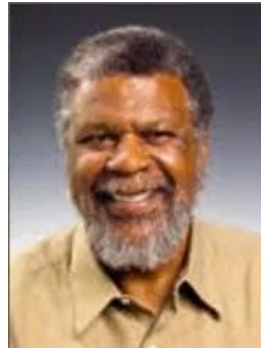
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Black Lives / Black Lungs

Among all racial and ethnic groups in the United States, the black community has carried the greatest burden from tobacco-related diseases.



Lincoln Mondy
Film Creator



Phillip Gardiner
Anti-tobacco Activist

Black Lives / Black Lungs is dedicated to investigating the successful targeting of the black community with menthol products at the hands of the tobacco industry and how it has affected black lives.

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Big Tobacco's Second Pivot

The Devices and Vape Products

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The Amount of Nicotine in 1 JUUL Pod = 1-2 Packs of Cigarettes



1 pack contains 20 cigarettes.

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Coincidence?



JUUL



Apple

**JUUL is promoted as the iPhone
of Cigarettes**

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Teens are voracious for fruity flavors

There are over 15,000 vaping flavors!



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JUUL *is/was* the #1 E-Cigarette in Schools

JUUL controls 80% of
the vaping market.

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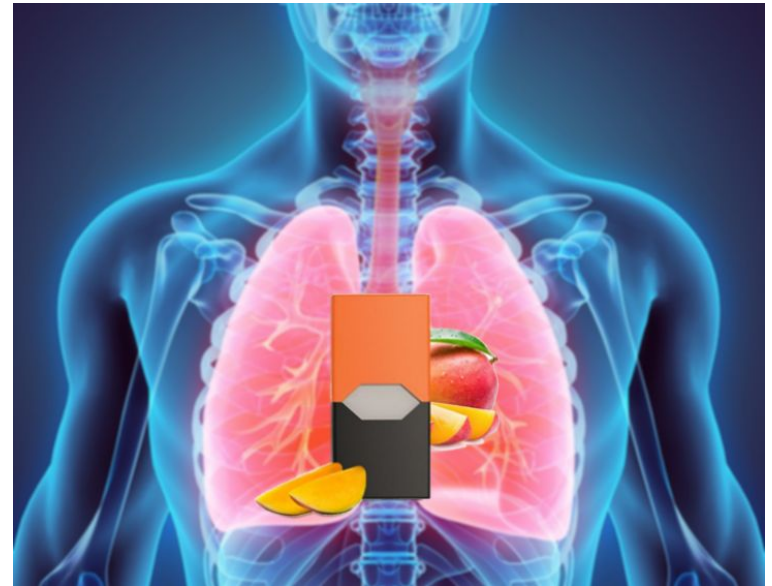
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Stomach function vs lung function

Eating Mango: Natural!



Inhaling Mango: Not Natural.



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NEJM Trial

A Randomized Trial of E-Cigarettes versus Nicotine-Replacement Therapy (NEJM 2019)

Conclusion:

E-cigarettes were 2 X's more effective for smoking cessation than nicotine-replacement therapy (NRT), when both products were accompanied by behavioral support.

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NEJM – Why Claim is Misleading

In the trial, effectiveness was defined as the abstinence rate of cigarettes and NOT the abstinence rate of nicotine...

80% of the people in the study who were counted as having “abstained” were still consuming nicotine and the other toxins in the E-juice.

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Nicotine Levels

European Tobacco Products Directive (EUTPD)

Set maximum nicotine strength limits at **20 mg/mL** in e-cigarette liquids

In the US

JUUL offers two nicotine level products:

- 5% which is ***70* mg/mL**
- 3% which is **35 mg/mL**

In the US high nicotine products are the norm.

In the UK and across Europe, the average nicotine levels are about **a third to a half of that in the US.**

Hence, JUULing in the US is more addictive than JUULing in the UK and Europe, and extrapolating conclusions from British literature to US JUULing is irrelevant!

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State Ranking of Frequency of Teen Vaping (2017)

Highest States	Lowest States
26.2% Colorado **	7.6% Utah
25.5% Hawaii *	9.0% Iowa
24.7% New Mexico *	9.4% Nebraska
23.8% New Hampshire *	10.3% Texas
22.5% Montana *	10.6% Kansas
22.2% Louisiana *	10.9% Missouri
22.1% North Carolina	11.3% Pennsylvania *
20.6% North Dakota *	11.5% Tennessee
20.1% Massachusetts **	11.6% Wisconsin
20.1% Rhode Island *	11.8% Virginia

** Legalized Marijuana; *Legalized RX Marijuana

https://www.cdc.gov/healthyyouth/data/yrbs/2017_tables/tobacco_use.htm#t66_down

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Nicotine is NOT Harmless

- Highly addictive substance the teen brain is thirsty for.
- It raises heart rate and blood pressure.
- E-Cigarettes doubles your risk of heart attack.
- Emerging evidence that it can rewire the **vulnerable teen and young adult addiction centers of the brain as well as effecting the executive function of the brain.**
- Gets processed in the liver into nitrosamines that are shown to cause cancer.
Not clear yet if nicotine causes cancer later in life.
- It causes temporary night blindness.
- Possibilities of bacterial toxins contaminating JUUL pods

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It's NOT just Nicotine and Water...

Ingredients

1. Acrolein aldehydes (Glycerol)
2. Chromium and Nickel
3. Flavors:
 1. "Natural fruit flavors"?
 2. aldehydes-diacetyl
4. Propylene glycol (formaldehyde)
5. Vegetable oil
6. "Natural oils"?
7. Benzoic Acid (JUUL)

While these may be okay for your stomach – we have no idea about how they will affect your lungs!

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South Korea Health Department Finds Vitamin E in JUUL



REUTERS

December 12, 2019

South Korean health authorities have found Vitamin E acetate, which may be linked to lung illnesses, in some liquid e-cigarette products made by JUUL Labs and KT&G.

Both companies denied using the material.

This was also pointed out by the NEJM



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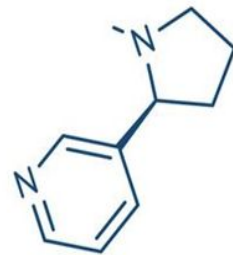
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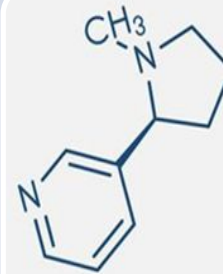
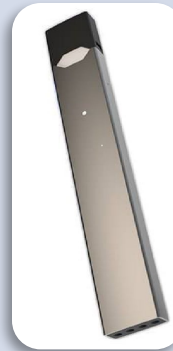


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Two Forms of Nicotine



FREEBASE NICOTINE



NICOTINE SALT
+ BENZOIC ACID

Basic pH

**Irritating
to throat**

More vapor exhaled

Acidic pH

**Smoother “hit”
to throat**

Less vapor exhaled

**More nicotine gets
into blood**

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“Healthy” Vapers Airways Look Abnormal!

Non-Smoker



Vaper



Smoker



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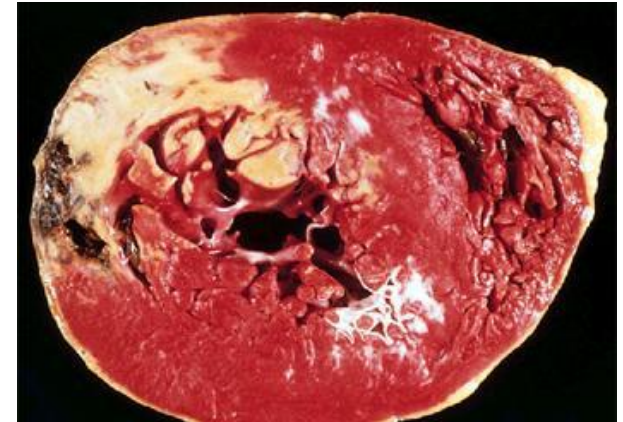
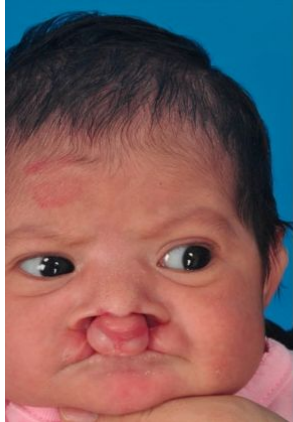
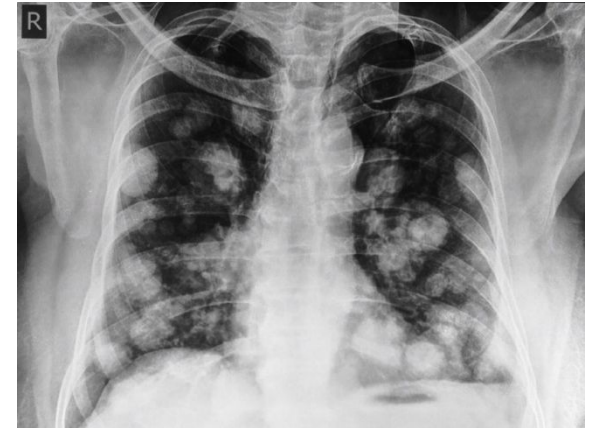
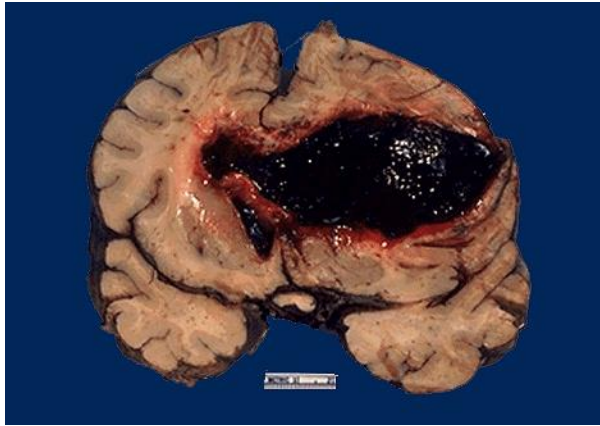
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Devastating Effects of Nicotine





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Young people use technology for health.. and quitting

On Reddit:

Prediction for the future: give it 10 years and people will be using cigarettes to quit juuling

I quit juuling a little over a month ago and I'm still feeling withdrawal

I was smoking off and on for 4 years, not feeling good about it at all, and was able to completely phase out cigs after I started the Juul. It felt like an achievement until I realized I was way more addicted to the vape than I was to the cigarettes.

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JUULs Spoken *and* Unspoken Spin

Spoken

“Harm reduction”



VS

Unspoken

“Addiction initiation”



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JUUL
intentionally
marketed
illegally to
teens,
including
advertising on
the websites of

seventeen

**CARTOON
NETWORK**



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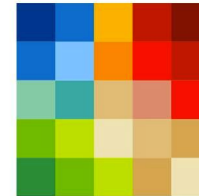


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JUUL Sale to Altria

JUUL employees get an average of \$1.3 Million bonus thanks to Big Tobacco ... Altria (AKA Phillip Morris) purchasing 35% of JUUL's stock.

JUUL



Altria

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But How Does this Affect You Now?

Cost to JUUL for a year: **\$1,459.08**

1 Pack every 4 days = 91.25 packs @ \$15.99

You could buy....



**14 Day Trip from
Boston to Sydney
on June 4th.**



5 PS4s



6 Floor Tickets to Taylor Swift



3 Front Row tickets to Bruins Playoff Game 1

COACHELLA
COACHELLA VALLEY MUSIC AND ARTS FESTIVAL

**Tickets to both weekends
of Coachella.**



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Dab Pens (Marijuana Vapes) Come in All Sizes!



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New Disposable "JUUL"

Puff Bars



WARNING:
This product
contains nicotine.
Nicotine is
an addictive
chemical.

BLUE
RAZ



WARNING:
This product
contains nicotine.
Nicotine is
an addictive
chemical.

BLUEBERRY



WARNING:
This product
contains nicotine.
Nicotine is
an addictive
chemical.

COOL
MINT



WARNING:
This product
contains nicotine.
Nicotine is
an addictive
chemical.

CUCUMBER



WARNING:
This product
contains nicotine.
Nicotine is
an addictive
chemical.

GRAPE



WARNING:
This product
contains nicotine.
Nicotine is
an addictive
chemical.

LUSH ICE



WARNING:
This product
contains nicotine.
Nicotine is
an addictive
chemical.

LYCHEE
ICE



WARNING:
This product
contains nicotine.
Nicotine is
an addictive
chemical.

PINK
LEMONADE



WARNING:
This product
contains nicotine.
Nicotine is
an addictive
chemical.

PINEAPPLE
LEMONADE



WARNING:
This product
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Nicotine is
an addictive
chemical.

O.M.G.



WARNING:
This product
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Nicotine is
an addictive
chemical.

POMEGRANATE



WARNING:
This product
contains nicotine.
Nicotine is
an addictive
chemical.

SOUR APPLE



WARNING:
This product
contains nicotine.
Nicotine is
an addictive
chemical.

STRAWBERRY



WARNING:
This product
contains nicotine.
Nicotine is
an addictive
chemical.

WATERMELON

Puff Bars - Marketing to Minors



In April Puff Bar urged kids to “stay sane with Puff Bar this solo-break” since it’s the “perfect escape from the back-to-back zoom calls” and “parental texts.”

- How many adults do *you* know who need to take a break from “parental texts”?
- “May the Fourth be With You” (with its obvious Star Wars allusion) ad on May 4, displaying six kid-enticing flavored disposable Puff Bars in eye-popping colors.

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New Heat Not Burn

IQOS HEETS



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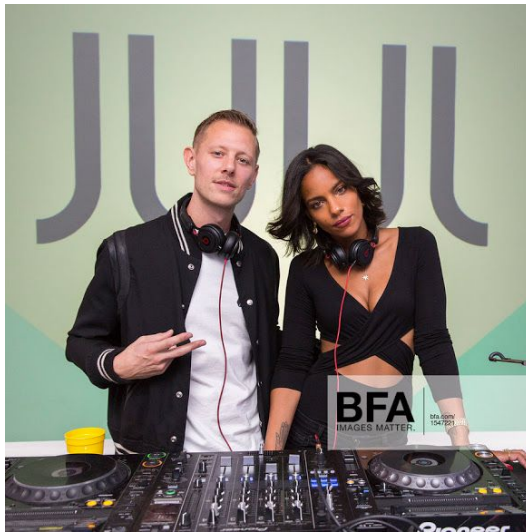
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JUUL Launch Party



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IQOS Launch Party



Catania, Italy (2017)



Kyiv, Ukraine (2017)



Cape Town & Johannesburg



Cape Town & Johannesburg

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EVALI – CDC # of Cases and Deaths

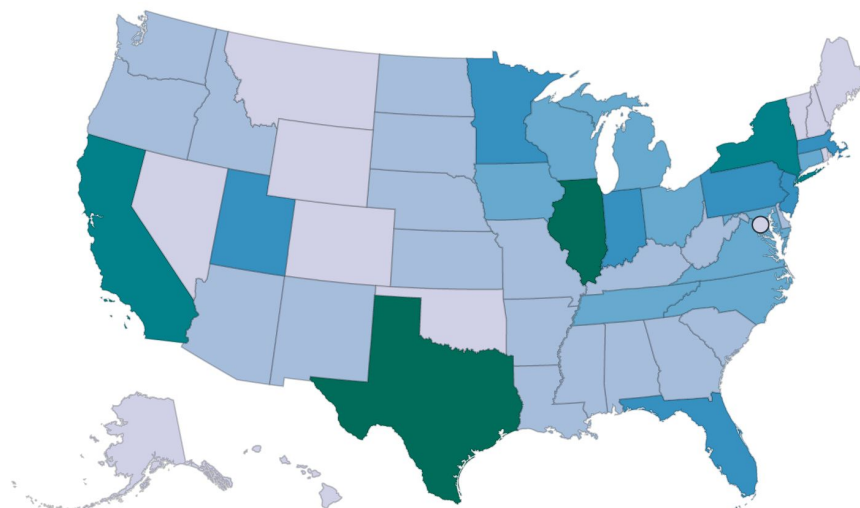
See CDC website for updates

- As of February, 18 2020 – there were 2,870 reported cases of EVALI across all 50 states, with 68 deaths. (5 in MA)
 - More deaths are under investigation.
- The youngest death was in 17 year-old patient

Legend

Number of hospitalized EVALI cases or deaths per state

- 0 cases
- 1-9 cases
- 10-49 cases
- 50-99 cases
- 100-149 cases
- 150-199 cases
- 200-249 cases



Territories

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3rd Hand Vape

- Heavy metals affecting infant and child brain development by both inhalation and ingestion



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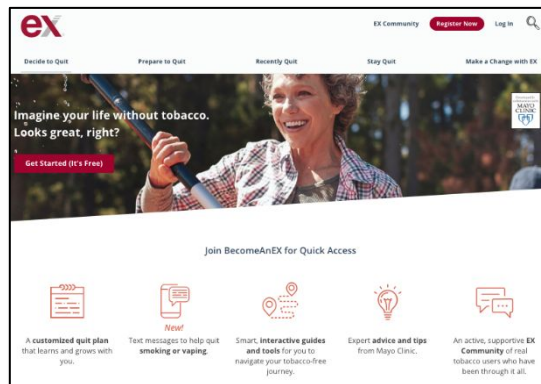
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Approved Quitting Programs

www.ThisIsQuitting.com



www.BecomeAnEx.org



www.MakeSmokingHistory.org



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JUUL Post Coronavirus

- JUUL will likely accept no blame for the recent vaping lung diseases, they will continue to blame incidents of tainted 3rd party “street pods”.
- That’s like saying...
 - We got a bad batch of heroine...
 - We made the gun, you bought the bullets...

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SMOKING VAPING & COVID-19

During the COVID-19 pandemic, it is vital that people are aware of the serious potential risks associated with smoking or vaping and COVID-19. We must act now to spread the word.



Smoking or vaping may put people into a higher-risk category.

Smoking or vaping may increase the chances that a person will be infected by COVID-19 and need hospitalization and advanced life support to survive.



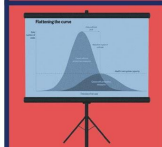
Smoking or vaping could make COVID-19 infections worse.

If a person who smokes catches COVID-19, they are more likely to develop a severe case of the virus than those with no smoking history. Flavored tobacco products could make lung infections like COVID-19 worse.



Smoking and vaping damage lungs and weaken the body's immune system.

Smoking and vaping damage the lungs, allowing viruses to more easily attach to lung cells and enter the lungs.



Smoking and vaping may increase the spread of COVID-19.

The virus is easily spread from hand-to-mouth contact, common when using smoking and vaping products. Social sharing of smoking and vaping products can also facilitate the spread of the virus.



Encourage those who vape or smoke to make every effort to quit.

- Share these facts with people who smoke or vape;
- Discuss with people who smoke or vape in your life the importance of frequent handwashing, social distancing, and not sharing smoking or vaping products;
- Contact your primary care physician or your child's pediatrician for medical advice.



Quitting Resources

- Discuss with your doctor use of nicotine patch and gum. By using a patch and gum together, you are 4 times more likely to quit successfully.
- Pair smoking cessation medications with expert coaching and support.
- For coaching and support, call 1-800-QUIT-NOW. You can also text the word "QUIT" (7848) to IQUIT (47848) for free help.

Office of Attorney General Maura Healey


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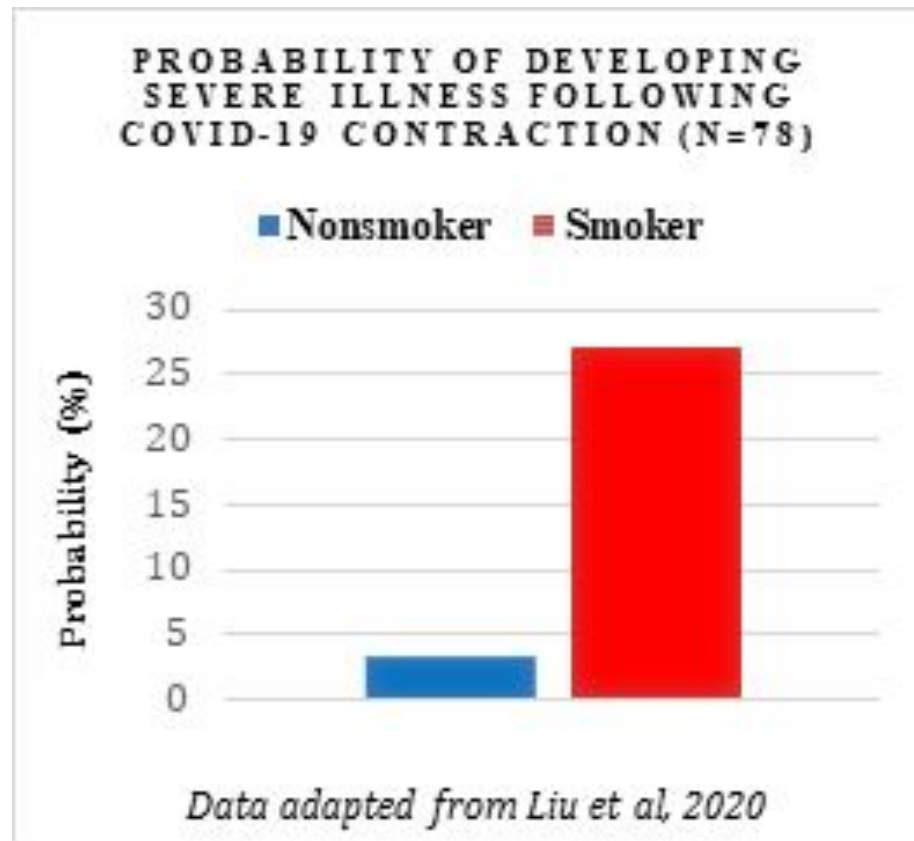
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Probability of Developing Severe Illness Following COVID-19 Contraction



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Smoking and Vaping Likely Increases Severity of COVID-19

Severe Illness: After contracting Coronavirus (COVID-19), individuals with a history of smoking are over **9 times** as likely to develop severe illness as those with no smoking history (27.3% vs. 3.0%, $\chi^2=9.291$, $P=0.018$) (Liu et al. 2020).

DON'T BE A JUUL FUUL

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Smoking and Vaping Likely Increases Severity of COVID-19

COPD: E-cigarette use is associated with a significant increased risk of the development of chronic obstructive pulmonary disease (COPD) (Osei et al. 2020); COPD is an important risk factor for the severity of illness of individuals with COVID-19 (Guan et al. 2020).

DON'T BE A TUUL FOR JUUL

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Vaping and Smoking Decreases the Body's Defense against COVID-19

Ciliary Dysfunction: Ciliary dysfunction is associated with e-cigarette use (Carson et al. 2017), facilitating viral entry through the lungs.

Impairment of neutrophil function has been observed in e-cigarette users, including an increase in neutrophil extracellular trap formation, which is injurious to the lungs (Reidel et al. 2018; Law et al. 2017; Clapp et al. 2017).

JUUL GET OUT OF MY SCHOOL

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Vaping and Smoking Decreases the Body's Defense against COVID-19

Gene Immunosuppression: Extensive immunosuppression of a range of genes, including macrophage genes, has been observed following even minimal e-cigarette usage (Staudt et al. 2018, Martin et al. 2016)

E-cigarette use results in suppression of immune and inflammatory-response genes in nasal epithelial cells similar to cigarette smoke

Elizabeth M. Martin, Phillip W. Clapp, [...], and Ilona Jaspers, American Physiological Society

3 groups (n= 39)

- Nonsmokers not regularly exposed to SHS (control group)
- Self-described active cigarette smokers (smoker group)
- Self-described, active e-cigarette users/vapers who had been using e-cigarettes regularly for at least 6 mo. Dual users smoking more than 5 cigarettes/wk were excluded

PUFF BARS ARE POISONOUS

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Continued

They compared immune-related gene expression changes induced in the nasal mucosa of cigarette smokers and e-cigarette users, compared non smokers

CONCLUSION: The extent of suppression as well as number of immune-related genes whose expression was significantly decreased was six times greater in e-cigarette users than in cigarette smokers (53 vs. 358).

VAPING MAY CAUSE CAVITIES

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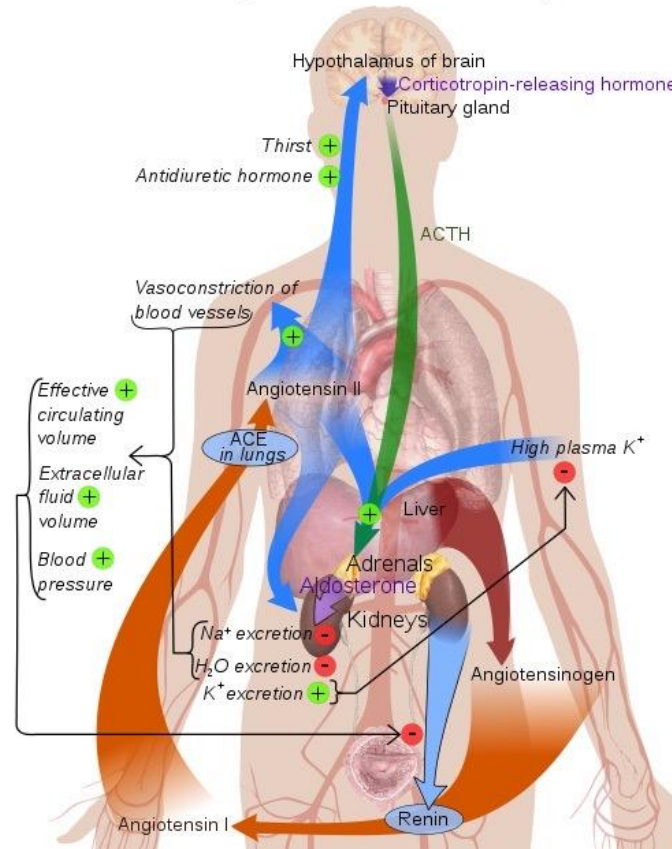
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Renin-angiotensin-aldosterone system



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Potential Role ACE-2 Receptor Plays in Interaction Between Tobacco and COVID-19

ACE-2: Tobacco (obesity and diabetes) use may increase the expression of angiotensin-converting enzyme 2 (ACE-2) by upregulating more receptors, the binding receptor and point of entry for COVID-19 (Cai 2020).

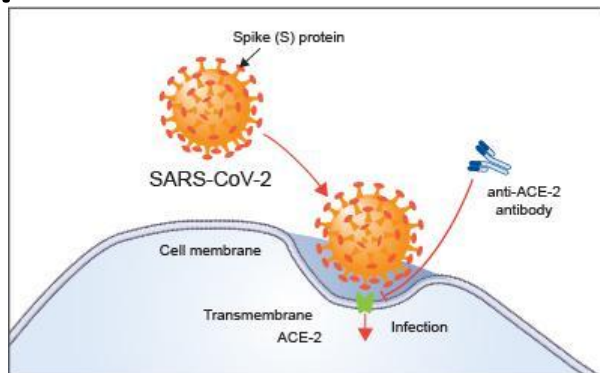


Figure 1. ACE-2 is the host cell receptor responsible for mediating infection by SARS-CoV-2, the novel coronavirus responsible for coronavirus disease 2019 (COVID-19). Treatment with anti-ACE-2 antibodies disrupts the interaction between virus and receptor.

VAPING SKS CHROMIUM, NICKEL, AND LEAD**

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Potential Pulmonary Damages of Flavors and COVID-19

Flavoring Agents: Smoking menthol cigarettes causes more severe lung inflammation as compared to smoking non-flavored cigarettes, highlighting the dangers of flavorings (Lin et al. 2018)

- Cinnamaldehyde, a common e-cigarette flavoring agent, suppresses the function of epithelial cells - a primary barrier to virus entry (Clapp et al. 2019), and inhibits immune cell function (Chao et al. 2008, Kim et al. 2010).
- Vanillin similarly depletes immune cell function (Jung et al. 2010, Kim et al. 2011, Murakami et al. 2007)

FLAVORS HOOKS KIDS

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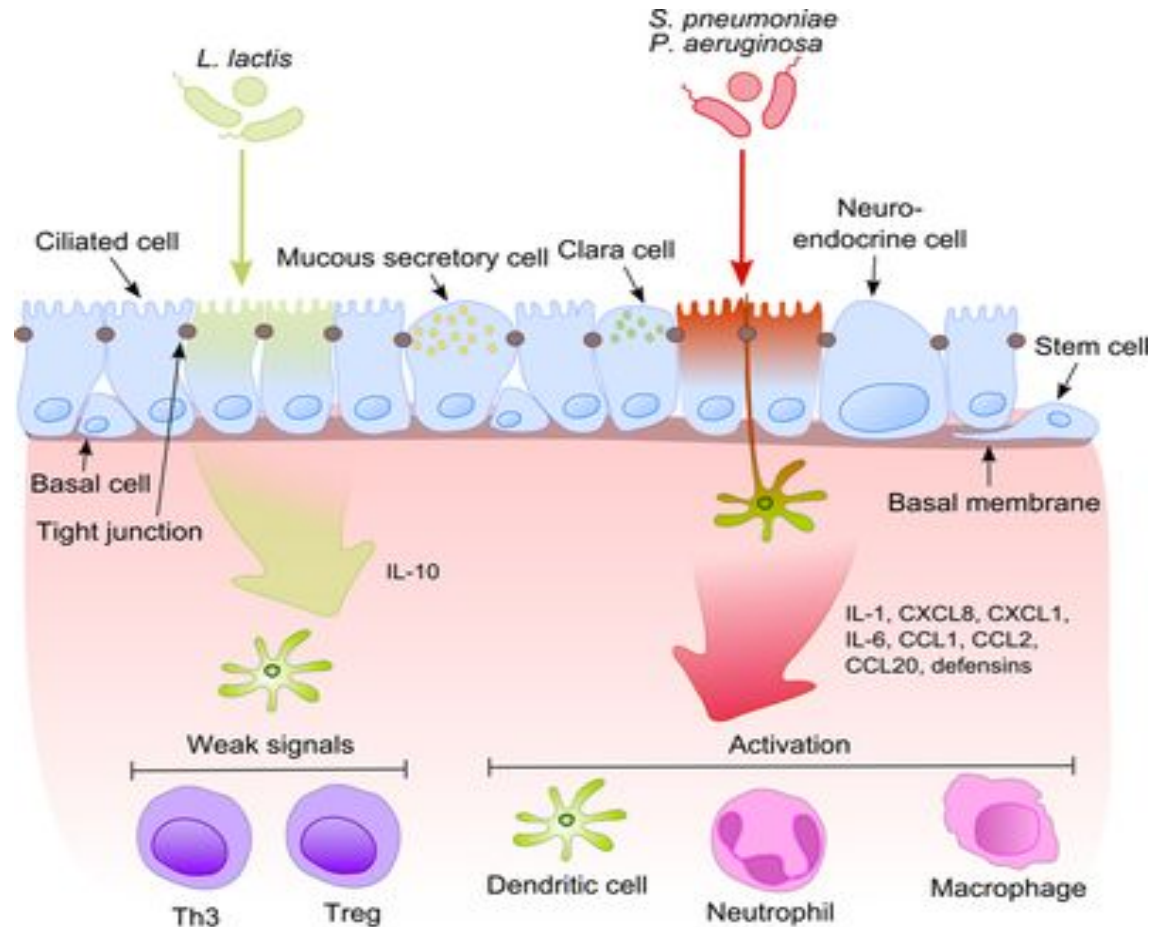
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The Pulmonary Microbiome



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Increased Viral Spread in Smokers and Vapers

Cough: Smokers are more likely to have a cough during the asymptomatic phase of illness COVID-19, thus unknowingly spreading the disease. They are additionally more likely to misrecognize illness-induced cough to be “smoker’s cough.”

Sharing/hygiene: The sharing of vapes provides an easy, dangerous mechanism of viral transmission. Repeated hand to mouth behavior goes against the clear recommendations from the CDC and public health officials for how to protect yourself against COVID-19.

SUORIN IS BOR'IN

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Smoking as a Factor of Severity of COVID-19 Disease

- In a meta-analysis of 12 papers **showed odds of COVID-19 disease progression double with smoking**. Papers are from: China (10), South Korea (1), and US (1).
- 10 studies were hospital based and 2 outpatient-inpatient (total of 9,025 COVID-19 patients)
- Exposure groups were present, past smokers, and never smokers depending on which study.

Patanavanich R, Glantz S, Smoking is Associated with COVID19 UCSF. PAPER UNDER PEER REVIEW

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Lessons on Smoking from MERS-CoV

MERS-CoV: Smoking was found to be independently associated with the development of MERS-CoV following the 2012 outbreak (Alraddadi et al. 2017)

The MERS Coronavirus receptor, DPP4, is upregulated in the lungs of smokers (Seys et al. 2017)

LUNGS HATE VITAMIN E ACETATE

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To Be Continued

Stay tuned, more evidence needs to be developed!

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Questions & Comments



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Lester.Hartman@childrens.harvard.edu

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Victims, Vapers and a Virus!

COVID and Vaping, both harmful, both dangerous:
Combating Both

"Thank you for all that you do for Children, Families and the PTA!"

"Thank You All For Attending"



"A Very Special Thank You to Dr. Lester Hartman"

Lester J. Hartman, MD MPH FAAP,
Westwood - Mansfield Pediatric Assoc.

PRESENTER

David Martin, CEO,
Massachusetts Health Council.



**Thank You
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More Questions and Need Info???



Presenter-Lester J. Hartman, MD MPH FAAP

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