

**Vaping, E-cigs and the
Health of Our Youth**
Pelham Middle & High School

Richard Stumacher, MD,
FCCP
January 14, 2019



Northern Westchester Hospital
Northwell HealthSM

Some images included as seen on the internet.

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Public Health Consequences of E-Cigarettes

Released: January 23, 2018

REPORT AT A GLANCE

- Report Highlights (HTML)
- Recommendations (HTML)
- Conclusions (organized by level of evidence) (HTML)
- Conclusions (organized by outcome) (HTML)
- Press Release (HTML)

Millions of Americans use e-cigarettes, even as rates of smoking combustible tobacco cigarettes continue to decline among youth and adults. In 2016 youth e-cigarette use was substantially higher than cigarette smoking or use of any other tobacco product. The [Center for Tobacco Products of the Food and Drug Administration](#) requested that the National Academies of Sciences, Engineering, and Medicine convene a committee of experts to conduct a review the available evidence of the health effects related to the use of e-cigarettes and identify future federally funded research needs. The resulting report is a comprehensive and systematic review of the literature that evaluates the evidence about e-cigarettes and health, highlights gaps that are a priority for future research, and makes recommendations to improve the quality of this research.



Tweet about it! New NASEM report on #eCigHealthEffects evaluates the available evidence of health effects related to the use of e-cigarettes: nationalacademies.org/eCigHealthEffects.

* > 800 peer reviewed scientific studies

<https://www.nap.edu/resource/24952/012318ecigaretteConclusionsbyOutcome.pdf>

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Details

Activity: Committee on the Review of the Health Effects of Electronic Nicotine Delivery Systems

Type: Consensus Report

Topics: Environmental Health, Public Health, Substance Use and Mental Health

Committee Members

Summary

- Evidence suggests that while e-cigarettes are not without health risks, they are likely to be far less harmful than conventional cigarettes, the report says.
- They contain fewer numbers and lower levels of toxic substances than conventional cigarettes, and using e-cigarettes may help adults who smoke conventional cigarettes quit smoking.
- However, their long-term health effects are not yet clear.
- Among youth -- who use e-cigarettes at higher rates than adults do -- there is substantial evidence that e-cigarette use increases the risk of transitioning to smoking conventional cigarettes.

Exposure to nicotine

- There is conclusive evidence that exposure to nicotine from e-cigarettes is highly variable and depends on the characteristics of the device and the e-liquid, as well as on how the device is operated.
- There is substantial evidence that nicotine intake from e-cigarettes among experienced adult e-cigarette users can be comparable to that from conventional cigarettes.

Exposure to toxic substances

- There is conclusive evidence that in addition to nicotine, most e-cigarettes contain and emit numerous potentially toxic substances.
- There is substantial evidence that except for nicotine, exposure to potentially toxic substances from e-cigarettes (under typical conditions of use) is significantly lower compared with conventional cigarettes.

You are 4 X more
likely to smoke
regular cigarettes if
you Juul or Vape

Dependence and abuse liability

- There is substantial evidence that e-cigarette use leads to dependence on e-cigarettes.

Use by youth and young adults

- There is substantial evidence that e-cigarette use by youth and young adults increases their risk of ever using conventional cigarettes.

Secondhand exposure

- There is conclusive evidence that e-cigarette use increases airborne concentrations of particulate matter and nicotine in indoor environments compared with background levels.

Cancer

- There is no available evidence **whether or not e-cigarette use is associated with intermediate cancer endpoints in humans**. (An intermediate cancer endpoint is a precursor to the possible development of cancer; for example, polyps are lesions that are intermediate cancer endpoints for colon cancer.)
- There is limited evidence from **animal studies** using intermediate biomarkers of cancer **to support the hypothesis that long-term e-cigarette use could increase the risk of cancer**.

Respiratory effects

- There is no available evidence whether or not e-cigarettes cause respiratory diseases in humans.
- There is moderate evidence for increased cough and wheeze in adolescents who use e-cigarettes, and an increase in asthma exacerbations.

Injuries and poisonings

- There is conclusive evidence that e-cigarettes can explode and cause burns and projectile injuries. Such risk is significantly increased when batteries are of poor quality, stored improperly, or are being modified by users.
- There is conclusive evidence that intentional or accidental exposure to e-liquids (from drinking, eye contact, or skin contact) can result in adverse health effects such as seizures, anoxic brain injury, vomiting, and lactic acidosis.
- There is conclusive evidence that intentionally or accidentally drinking or injecting e-liquids can be fatal.

Reproductive and developmental effects

- There is no available evidence whether or not e-cigarettes affect pregnancy outcomes.
- There is insufficient evidence whether or not maternal e-cigarette use affects fetal development

NICOTINE

Nicotine is a powerful mood-altering substance that is extremely toxic and addictive

Facts about Nicotine

- Found only in the tobacco leaf.
- At low doses it can stimulate nerve cells.
- At high doses it is a poison that has been used as an insecticide.
- Two to three drops of pure nicotine can kill a person.



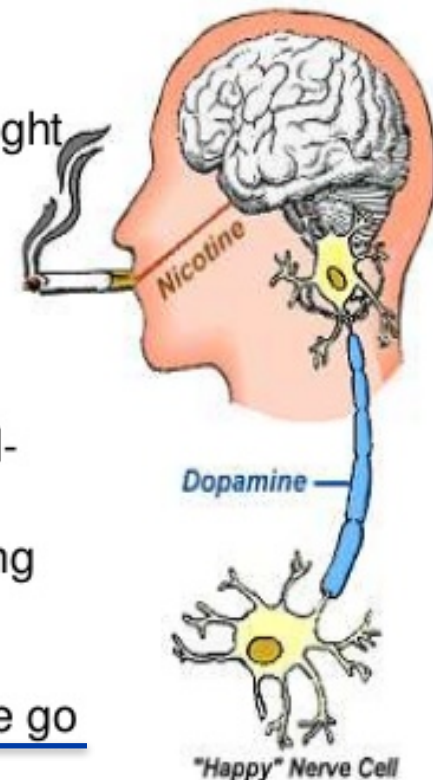
What does Nicotine do?

Takes 7 seconds for 1/4 of the nicotine to go straight to the brain.

Causes your brain to release a chemical called Dopamine.

It's Dopamine that gives you a false sense of well-being, and soon the body wants more and more Dopamine on a regular basis. This is the beginning of an addiction.

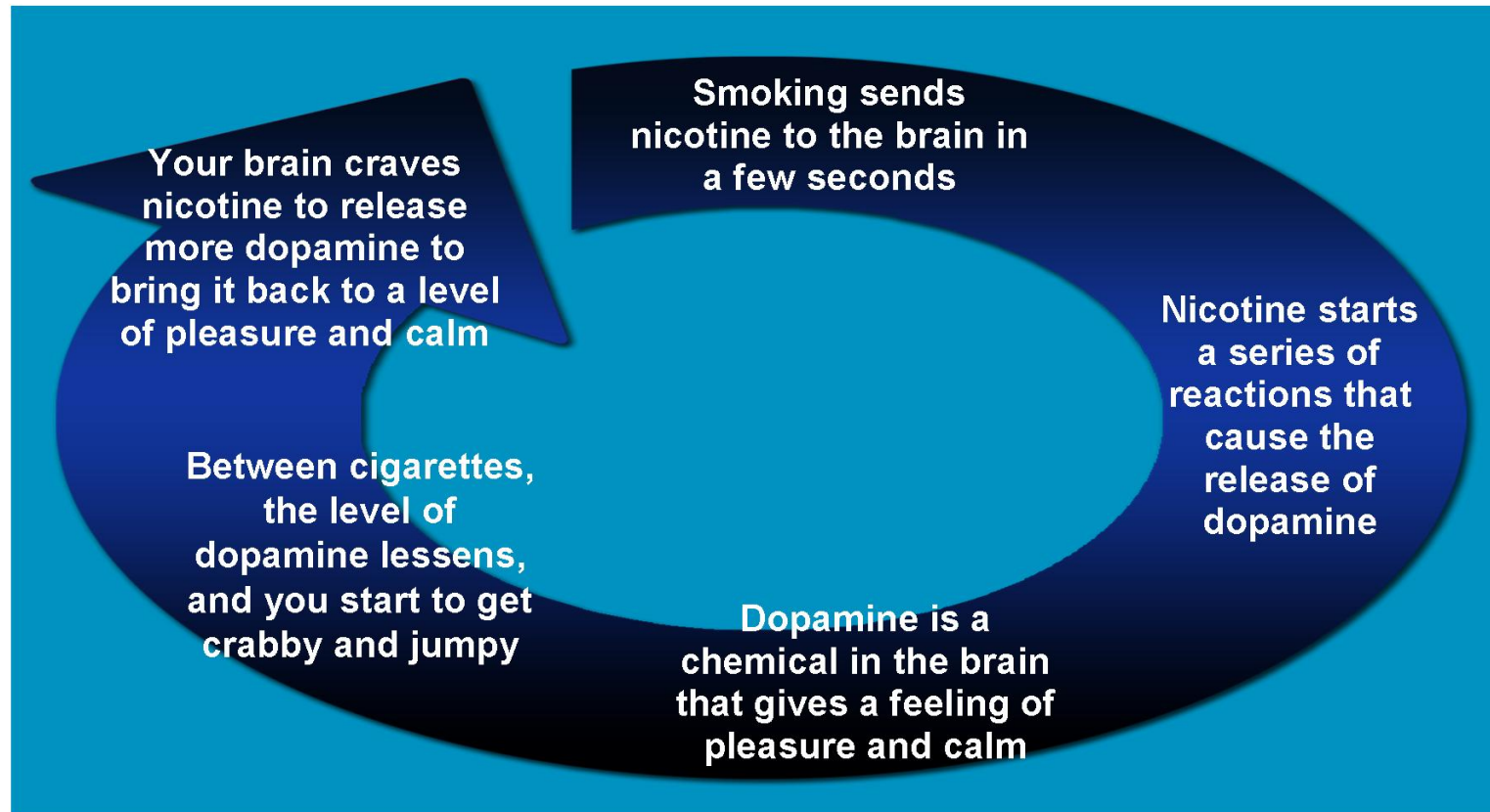
80% of young people who try 2 cigarettes or more go on to battle a life-time of addiction.



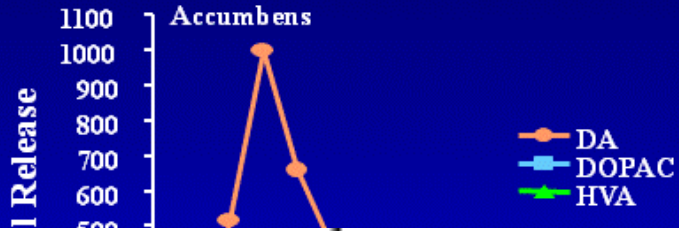
<http://www.finaismoke.com/howitworks.html>

Why It's So Hard to Quit

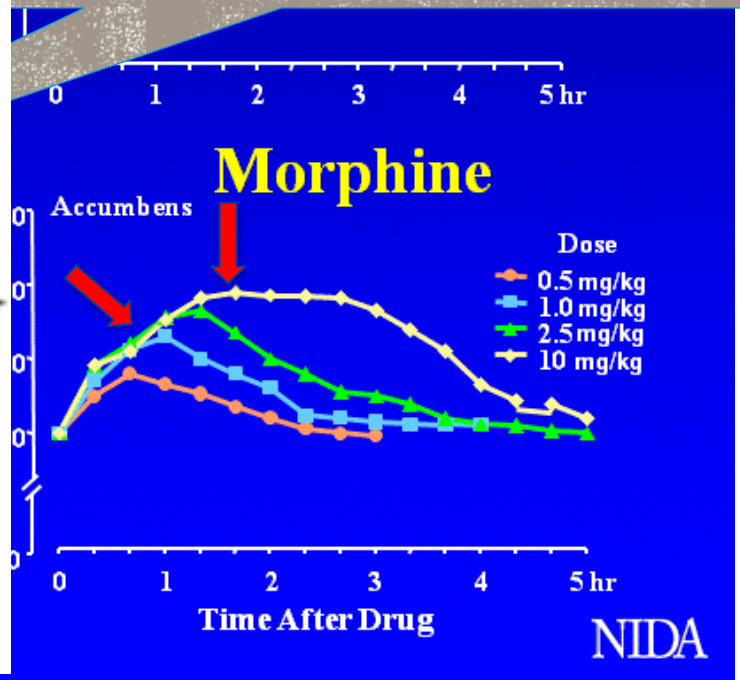
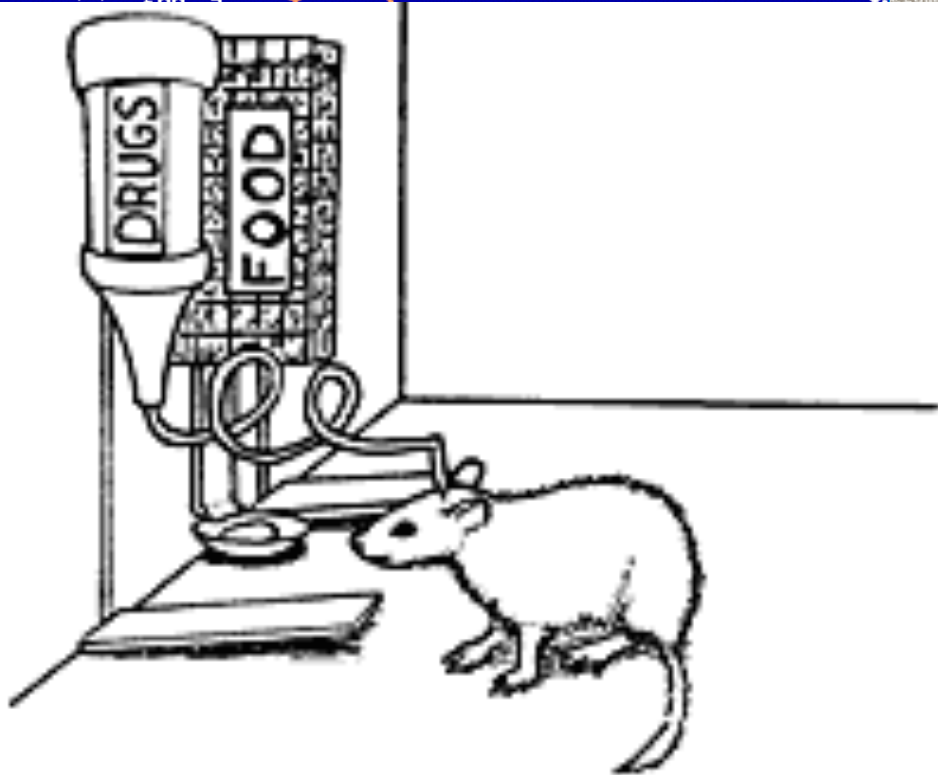
1. Physical addiction – comes from brain chemistry



Amphetamine



Nicotine is more addictive than Cocaine or Heroin

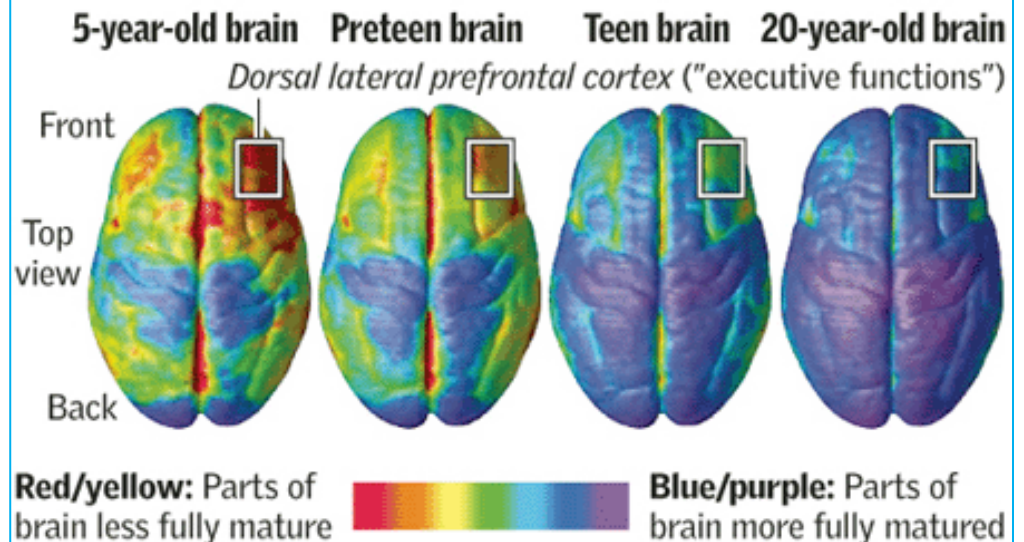


Nicotine effects the Prefrontal Cortex

- The Prefrontal Cortex (white boxes)
- ***Governs judgment and decision-making functions***
- This may explain why teens, who are participating in risk-taking behavior, are particularly vulnerable to drug abuse

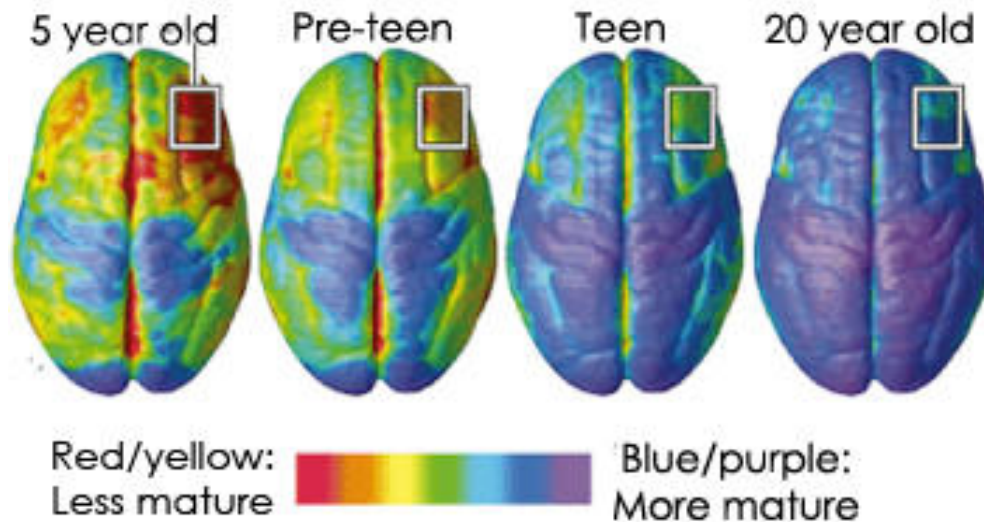
Judgment last to develop

The area of the brain that controls "executive functions" — including weighing long-term consequences and controlling impulses — is among the last to fully mature. Brain development from childhood to adulthood:



Sources: National Institute of Mental Health; Paul Thompson, Ph.D., UCLA Laboratory of Neuro Imaging

Thomas McKay | The Denver Post



- Nicotine can disrupt the growth of brain circuits that control attention, learning, and susceptibility to addiction
- Increase risk of psychiatric disorders, cognitive impairment, and attention deficit

Forty-Two Chemicals Identified in Electronic Cigarettes

✓ = exposure can be especially harmful to the health. Chemicals in red are emitted in secondhand smoke.

2-butanone (MEK)	Butyl hydroxyl toluene	Limonene	Potassium
2-furaldehyde	Cadmium ✓	m,p-Xylen	Propanal ✓
Acetaldehyde ✓	Chromium ✓	Magnesium	Propylene Glycol ✓
Acetic acid	Copper	Manganese	Sulfur
Acetone ✓	Crotonaldehyde	Nickel ✓	Tin ✓
Acrolein ✓	Diethylene Glycol ✓	Nicotine ✓	Toluene ✓
Aluminum	Formaldehyde ✓	N-Nitrosornicotine ✓	Valeraldehyde
Barium	Glyoxal	o-Methylbenzaldehyde ✓	Zinc
Benzene ✓	Iron	p,m-Xylene	Zirconium
Boron	Isoprene ✓	Phenol ✓	
Butanal	Lead ✓	Polycyclic Aromatic Hydrocarbons ✓	

- Harvard researchers- of 51 brands tested- 92% carried at least 1 chemical known to cause serious lung damage
- Flavorants- Diacetyl and Acetyl Propionyl- ‘Safe for Food Consumption’ (? Safe for Inhalation)
- Diacetyl- Causes Popcorn Lung (used in microwave popcorn)- Bronchiolitis Obliterans
- Propylene Glycol (plastics and food processing) and Glycerin
- Breakdown products are carcinogenic (*Formaldehyde and *Acetaldehyde)

**Means- it
causes cancer**



National Institute on Drug Abuse
Advancing Addiction Science

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Vaping popular among teens; opioid misuse at historic lows

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NIH's 2017 Monitoring the Future survey shows both vaping and marijuana are more popular than traditional cigarettes or pain reliever misuse

December 14, 2017

Nearly 1 in 3 students in 12th grade report past year use of some kind of vaping device, raising concerns about the impact on their health. What they say is in the device, however, ranges from nicotine, to marijuana, to "just flavoring." The survey also suggests that use of hookahs and regular cigarettes is declining. These findings come from the 2017 Monitoring the Future (MTF) survey of eighth, 10th and 12th graders in schools nationwide, reported today by the director of the National

PDF
(166KB)

[Cite this article](#)

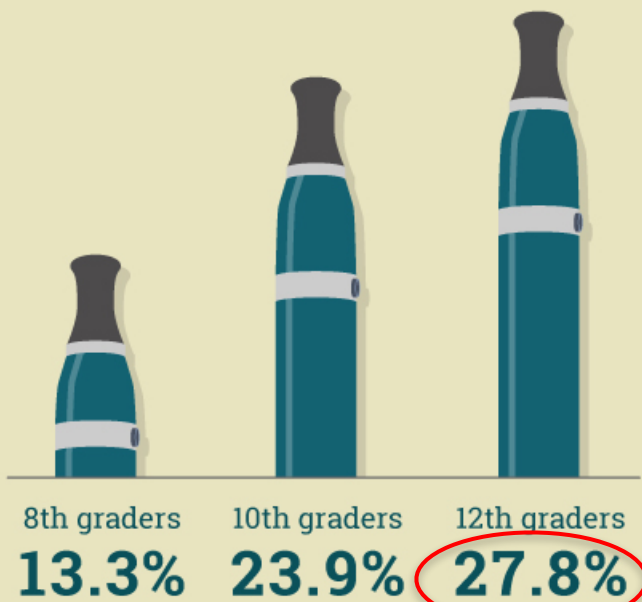
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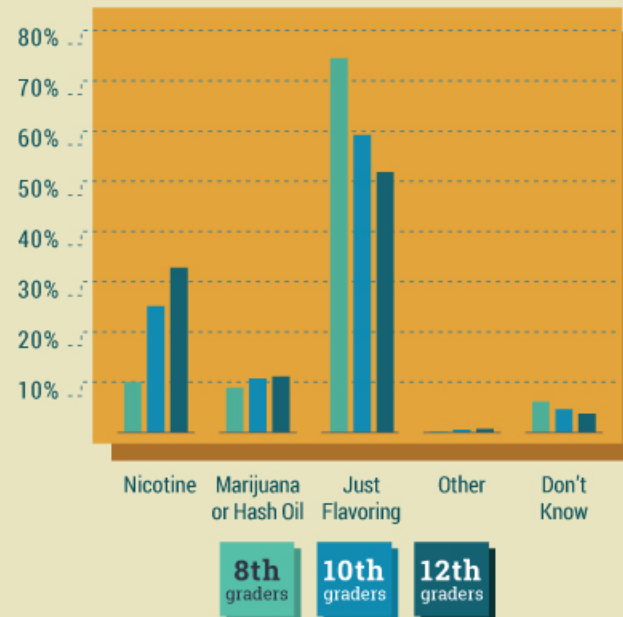


NIDA Media Guide

PAST-YEAR E-VAPORIZER USE AND WHAT TEENS ARE INHALING



When asked what they thought was in the e-vaporizer mist students inhaled the last time they smoked, these were their responses:



NEARLY 1 IN 3 STUDENTS IN 12TH GRADE REPORT PAST-YEAR USE OF E-VAPORIZERS, RAISING CONCERNS ABOUT THE IMPACT ON THEIR LONG-TERM HEALTH.

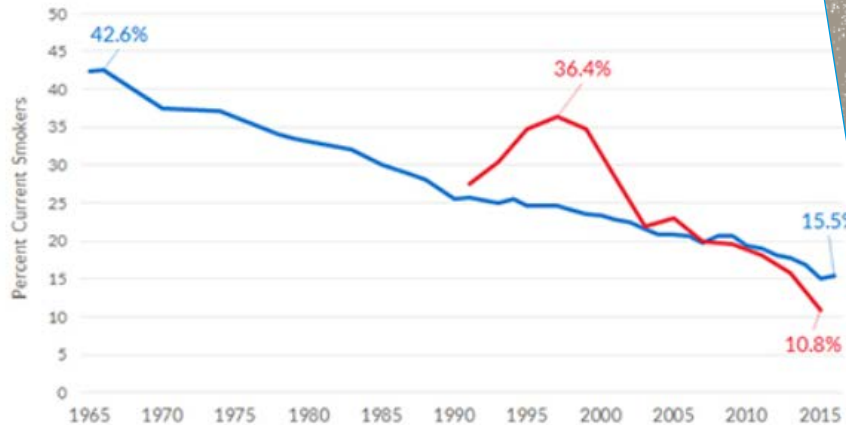


How can we help you?

2015- Youth Cigarette Use was 10.8%

Trends in Cigarette Smoking Rates

Smoking rates have fallen significantly for both youth and adults



Sources: CDC, NHIS 1965-2016, YRBSS 1995-2015.

Long-term, smoking rates have fallen:

- 64 percent among adults, from 42.6 percent in 1965 to 15.5 percent in 2016. [Data table](#)
- 70 percent among youth, from 36.4 percent in 1997 to 10.8 percent in 2015. [Data table](#)

From 2011 to 2015, the number of high school students:

- Who had ever used electronic cigarettes increased 702 percent from 4.7 percent to 37.7 percent.
- Who were current users of electronic cigarettes increased 967 percent from 1.5 percent to 16.0 percent. *Data table*



Cigarette Smoking Among U.S. Adults Lowest Ever Recorded: 14% in 2017

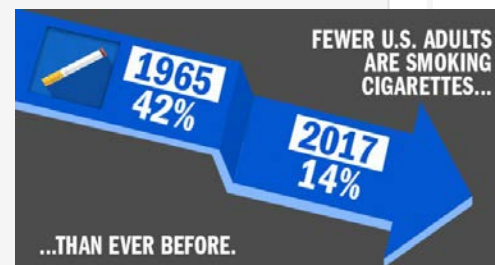
But 1 in 5 adults still used some form of tobacco product

Press Release

Embargoed Until: Thursday, November 8, 2018, 1:00 p.m. ET

Contact: [Media Relations](#)

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MONITORING THE FUTURE



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December 17, 2018

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Richard Stu

Home World U.S.

state WSJ. Magazine

Findings summarized here on vaping and nicotine use appear in the *New England Journal of Medicine* at the

Vaping Surges

Largest Year-to-Year Increase in Substance Use Ever Recorded in the U.S. for 10th and 12th Grade Students

ANN ARBOR— Increases in adolescent vaping from 2017 to 2018 were the largest ever recorded in the past 43 years for any adolescent substance use outcome in the U.S. The percentage of 12th grade students who reported *vaping nicotine* in the past 30 days nearly doubled, rising from 11% to 21%. This ten percentage point increase is twice as large as the previous record for largest-ever increase among past 30-day outcomes in 12th grade. As a result of the increase, one in five 12th grade students vaped nicotine in the last 30 days in 2018.

For secondary students in grades 9 through 12 the increases in nicotine vaping translate into at least 1.3 million additional nicotine vapers in 2018 as compared to 2017.

These results come from the annual Monitoring the Future survey, which has tracked national substance use among U.S. adolescents every year since 1975 for 12th grade students and since 1991 for 8th and 10th grade students. The survey is conducted by a team of research professors at the University of Michigan's Institute for Social Research and is funded under a series of competitive research grants from the National Institute on Drug Abuse, which is part of the National Institutes of Health.

To put the nicotine vaping increase in context, it is the largest out of more than one thousand reported year-to-year changes since 1975 for use of substances within the 30 days prior to the survey among 12th grade students.

Among 10th grade students nicotine vaping also increased at a record rate as it doubled and rose eight percentage points, from 8% to 16%. This is the largest percentage point increase ever recorded by the survey for any past 30-day substance use outcome in this grade.

Lifetime Prevalance

Vaping Nicotine

8th Grade: 10.6->13.5

10th Grade: 21.4->28.0

12th Grade: 25.0->34.0

10th Grade	55.1	53.5	56.3	56.9	57.6	61.2	60.2	57.7	57.6	55.1	52.8	47.4	43.0	40.1	22.6	19.9	17.5	15.9	16.0	0.0			
12th Grade	63.1	61.8	61.9	62.0	64.2	63.5	65.4	65.3	64.6	62.5	61.0	57.2	53.7	52.8	44.4	31.1	28.3	26.6	23.8	-2.8			
Smokeless Tobacco ¹																							
8th Grade	22.2	20.7	18.7	19.9	20.0	20.4	16.8	15.0	14.4	12.8	11.7	11.2	11.3	11.0	10.1	10.2	9.1	8.6	6.9	6.2	6.4	+0.1	
10th Grade	28.2	26.6	28.1	29.2	27.6	27.4	26.3	22.7	20.4	19.1	19.5	16.9	14.6	13.8	14.5	15.0	15.1	12.2	12.3	10.2	9.1	10.0	+0.9

Lifetime Prevalance

Vaping THC

8th Grade: 4.0->5.5

10th Grade: 9.8->14.2

12th Grade: 11.9->15.6

8th Grade	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	4.0	5.5	+1.5 ss	
10th Grade	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	9.8	14.2	+4.4 sss	
12th Grade	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	11.9	15.6	+3.8 ss	
Vaping Just Flavoring ^{2b}																							
8th Grade	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	17.0	19.4	+2.4
10th Grade	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	27.5	31.7	+4.3 sss
12th Grade	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	30.7	34.1	+3.4

2017-2018 change

30-Day Prevalance

Vaping Nicotine

8th Grade: 3.5->6.1

10th Grade: 8.2->16.1

12th Grade: 11.0->20.9

	2014	2015	2016	2017	2018	2017-2018 change
10th Grade	2.5	3.3	1.9	1.6	1.6	0.0
12th Grade	4.4	3.8	3.0	3.0	3.1	+0.1
Vaping Nicotine ^{bb}	7.0	7.8	6.1	6.6	5.8	-0.7
8th Grade	—	8.0	6.2†	6.6	10.4	+3.7 sss
10th Grade	—	14.2	11.0†	13.1	21.7	+8.6 sss
12th Grade	—	16.3	12.6†	16.6	26.7	+9.9 sss

10th Grade

12th Grade

Vaping Nicotine^{bb}

8th Grade

10th Grade

12th Grade

Vaping Marijuana^{bb}

8th Grade	—	—	—	1.6	2.6	+1.0 ss
10th Grade	—	—	—	4.3	7.0	+2.7 sss
12th Grade	—	—	—	4.9	7.5	+2.6 sss
Vaping THC	—	—	—	5.3	8.1	+2.8 sss
8th Grade	—	—	—	9.2	13.1	+4.0 sss
10th Grade	—	—	—	9.7	13.5	+3.8 sss
Vaping Marijuana ^{bb}	—	—	2.8	2.5	1.6	-0.9 s
8th Grade	—	—	4.0	3.0	2.4	-0.7
10th Grade	—	—	6.1	5.0	4.4	-0.6

30-Day Prevalance

Vaping THC

8th Grade: 1.6->2.6

10th Grade: 4.3->7.0

12th Grade: 4.9->7.5



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Vaporizers, E-Cigarettes, and other Electronic Nicotine Delivery Systems (ENDS)



SHARE



TWEET



LINKEDIN



PIN IT



EMAIL



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Statistics about Electronic Nicotine Delivery System Use

- More than 2 million middle and high school students were current users of e-cigarettes in 2016.^{1,2}
- 11% of high school and 4.3% of middle school students were current users of e-cigarettes in 2016.¹
- E-cigarette use rose from 1.5% to 16.0% among high school students and from 0.6% to 5.3% among middle school students from 2011 to 2015.¹
- In 2013-2014, 81% of current youth e-cigarette users cited the availability of appealing flavors as the primary reason for use.³

Read the fine print...

63%

**OF JUUL USERS
DON'T KNOW THAT
THE PRODUCT
ALWAYS CONTAINS
NICOTINE.**



truthinitiative.org

SMOKING EVOLVED


ADVERTISEMENT

Teen develops 'wet lung' after vaping for just 3 weeks

By Susan Scutti, CNN
🕒 Updated 9:05 AM ET, Thu May 17, 2018



More from CNN

-  Donald Trump said 11 false things in just 5 tweets Sunday morning
-  Former model and young son die in plunge from New York hotel

Pediatrics
May 2018
From the American Academy of Pediatrics
Case Report

Hypersensitivity Pneumonitis and Acute Respiratory Distress Syndrome From E-Cigarette Use

Casey G. Sommerfeld, Daniel J. Weiner, Andrew Nowalk, Allyson Larkin

- Article
- Info & Metrics
- Comments

Dr. Stumacher's Opinion

- Are Vaping, E-cigs healthy? Are Vaping, E-cigs harmful?
 - ***Distractor Questions***- intended to draw focus from (in my opinion) the most important question
- *Should we allow our youth to Vape?* The answer is **NO**.
- THERE IS NO ACCEPTABLE REASON ANY YOUTH/ADOLESCENT SHOULD BE VAPING.

Dr. Stumacher's Opinion

- Vape's/E-cigs are an acceptable tool to use for smoking cessation or as a substitute for smoking in those who have *failed smoking cessation*
- Non-nicotine **flavored vaping liquid** is a gross and obvious *gateway product* aimed at youth to enter into the nicotine addiction market place
- There is a significant amount of money to be made to turn your child into a nicotine addict



What is the difference between vaping and smoking?



Combustion: the tobacco burns and turns into smoke



Vaporizing: heat up liquid/wax/leaf into a vapor

Vapor: a liquid or solid that has been turned into a gaseous form

What is the difference between a Juul, an E-cig and a Vape?





*No Difference-
Just different types
of the same thing*



Vape
Pens



Different types of Soda



What is an electronic cigarette?

- Heats a nicotine solution to create an aerosol for inhalation



THE VAPE





SPECIFICATIONS



Vape Pen Components



Components



a Herb



b BHO



c E-liquid





Did Juul Lure Teenagers and Get ‘Customers for Life’?

The e-cigarette company says it never sought teenage users, but the F.D.A. is investigating whether Juul intentionally marketed its devices to youth.



<https://www.nytimes.com/2018/08/27/science/juul-vaping-teen-marketing.html>

JUUL STARTER KIT VAPING MADE EASY

JUUL PODS
BACK IN STOCK

• 2/3/2017

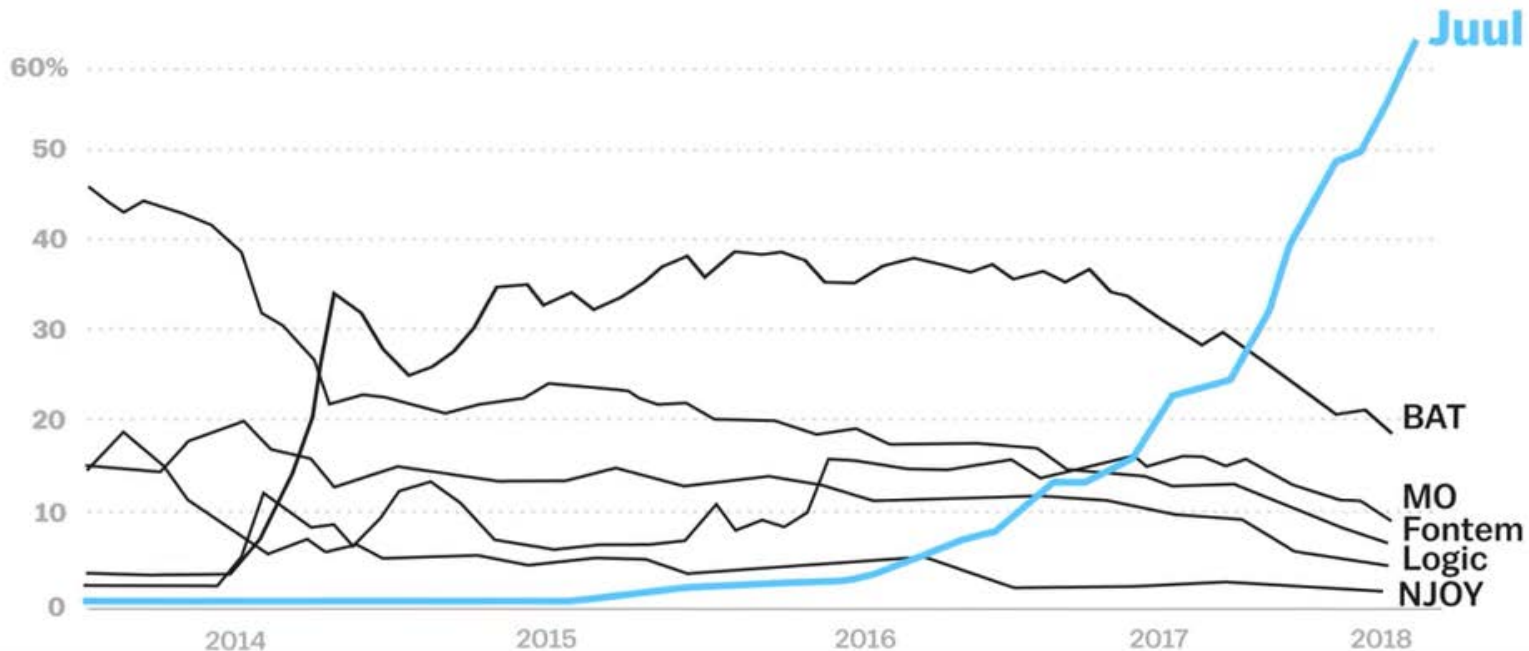
• VAPE PKWY

• LIMITED SUPPLY

70% of all e-cigs sold are

Juul's

SHARE OF E-CIGARETTE RETAIL MARKET

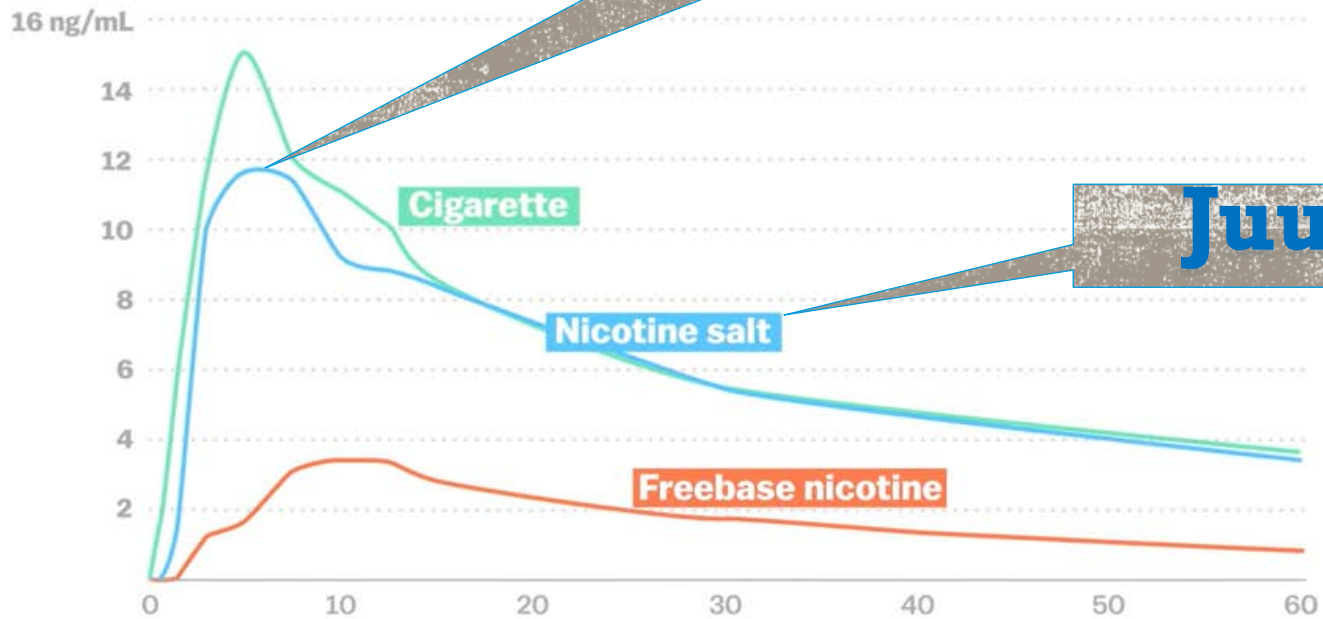


Nielsen Total US xAOC/Convenience Database and Wells Fargo Securities LLC

SUBSCRIBE

absorbed almost as fast as cigarettes, and, less irritating than freebase nicotine

BLOOD NICOTINE CONCENTRATION OVER TIME



Juul Labs Inc. patent

SUBSCRIBE

\$15 billion startup Juul used 'relaxation, freedom, and sex appeal' to market its creme-brulee-flavored e-cigs on Twitter and Instagram — but its success has come at a big cost

Erin Brodwin Oct. 26, 2018, 10:05 AM



- **Juul maintains that its products are for adult smokers who want to move away from traditional cigarettes.**
- **A recent study found that Juul stood out from other e-cigarette companies by marketing its devices on social-media platforms such as Twitter, YouTube, and Instagram.**
- **That marketing campaign was a big success, the study suggests, with Juul's social-media activities being "highly correlated" with sales.**

“Concentrates”- THC



Marijuana Wax: (Dabbing)

Derived directly from marijuana and is commonly known as Butane Hash Oil (BHO), honey oil, budder, and shatter.

Contains a higher concentration of (THC) extract than cannabis, which is the chemical responsible for the psychological effects on the brain.

- Impaired judgment
- Poor concentration
- Short-term memory loss
- Impaired motor skills
- Suppression of the immune system
- Personality and mood changes
- Reduced sexual capacity
- Sensory distortion
- Vomiting
- Severe withdrawal symptoms
- Paranoia
- Anxiety
- Severe psychological symptoms

The butane left in the substance poses various health risks including:

- Permanent damage to the brain and central nervous system
- Increased heart rate
- Loss of consciousness

THE FACTS ABOUT MARIJUANA CONCENTRATES

WHAT ARE MARIJUANA CONCENTRATES?

Also known as: 710 (the word "OIL" flipped and spelled backwards), wax, ear wax, honey oil, budder, butane hash oil, butane honey oil (BHO), shatter, dabs (dabbing), black glass, and errl.

WHAT IS IT?

A marijuana concentrate is a highly potent THC- (Tetrahydrocannabinol) concentrated mass that looks like honey or butter. For that reason, it's often called "honey oil" or "budder" on the street.



HOW POTENT IS THIS FORM OF MARIJUANA?

Marijuana concentrates contain extraordinarily high THC levels ranging from 40 to 80 percent THC amounts. This form of marijuana can be up to four times stronger in THC content than high grade or top shelf marijuana, which normally contains around 20 percent THC levels.

HOW IS IT ABUSED?

One form of abuse occurs orally by infusing marijuana concentrates in various food or drink products. Smoking remains the most popular form of ingestion by use of water or oil pipes.

Many abusers of marijuana concentrates also prefer using an e-cigarette/vaporizer because it is smokeless, odorless and easy to hide. The user takes a "dab" of the concentrate, then heats the substance using the e-cigarette/vaporizer, producing vapors that ensure an instant high.

Using an e-cigarette/vaporizer to ingest marijuana concentrates is commonly referred to as "dabbing" or "vaping."

WHAT ARE THE EFFECTS OF USING MARIJUANA CONCENTRATES?

Being a highly concentrated form of marijuana, the effects upon the user may be more psychologically and physically intense than plant marijuana use.

To date, long term effects of marijuana concentrate use are not yet fully known; but, we do know the effects of plant marijuana use. These effects include **paranoia, anxiety, panic attacks, and hallucinations**.

Additionally, the use of plant marijuana increases one's heart rate and blood pressure. Plant marijuana users may also experience withdrawal and addiction problems.

CDC Website:
THC levels- 40-80%
Smokeless
Odorless
Easy to hide

Vaporized cannabis produced greater pharmacodynamics effects and higher concentrations of THC in blood compared with equal doses of smoked cannabis

Infrequently Use Cannabis A Crossover Trial

Tory R. Spindle, PhD¹; Edward J. Cone, PhD¹; Nicolas J. Schlienz, PhD¹; et al

» [Author Affiliations](#) | [Article Information](#)

JAMA Netw Open. 2018;1(7):e184841. doi:10.1001/jamanetworkopen.2018.4841

Key Points

Question How does smoked and vaporized cannabis acutely influence subjective drug effects, cognitive and psychomotor performance, and cardiovascular measures in healthy adults who infrequently use cannabis (>30 days since last use)?

Findings In a crossover trial of 17 healthy adults, inhalation of smoked and vaporized cannabis containing 10 mg of Δ^9 -tetrahydrocannabinol (THC) produced discriminative drug effects and modest impairment of cognitive functioning, while inhalation of a 25-mg dose of THC was associated with more pronounced drug effects, increased cardiovascular effects, and significant impairment of cognitive and psychomotor ability. Vaporized cannabis produced greater pharmacodynamic effects and higher concentrations of THC in blood compared with equal doses of smoked cannabis.

Meaning Significant, sometimes adverse, drug effects can occur at relatively low THC doses in infrequent cannabis users, and accordingly these data should be considered with regard to regulation of retail cannabis products and education for individuals initiating cannabis use.



MARIJUANA USE & EDUCATIONAL OUTCOMES

Studies show that marijuana interferes with attention, motivation, memory, and learning. Students who use marijuana regularly tend to get lower grades and are more likely to drop out of high school than those who don't use. Those who use it regularly may be functioning at a reduced intellectual level most or all of the time.

MOST MARIJUANA USE BEGINS IN ADOLESCENCE



78%

of the 2.4 million people who began using in the last year were aged 12 to 20.¹

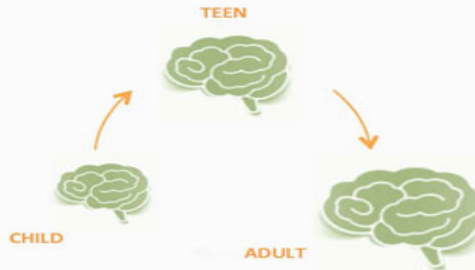
As perception of harm decreases...



EVERY DAY, 3,287 TEENS USE MARIJUANA FOR THE FIRST TIME¹

MARIJUANA MAY HURT THE DEVELOPING TEEN BRAIN

The teen brain is **still developing** and it is especially vulnerable to drug use.



IQ

Regular heavy marijuana use by teens can lead to an IQ drop of up to **8 points³**

HEAVY MARIJUANA USE BY TEENS IS LINKED TO⁴:

Educational Outcomes

lower grades and exam scores

less likely to enroll in college



less likely to graduate from HS or college

Life Outcomes

lower satisfaction with life

more likely to earn a lower income

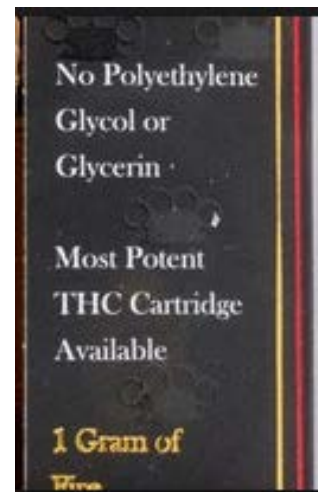


more likely to be unemployed



1. NSDUH, SAMSHA, 2014; 2. MTF Survey; 3. Meier et al 2012; 4. MTF Survey; Cobb-Clark et al, 2013; Silins et al 2014; Tucker et al 2005; Homel et al, 2014; Volkow et al 2014; Fergusson and Boden 2008; Brooks et al 2013





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ASK WELL
[Am I Contagious?](#)

PAID POST: STANFORD CHILDREN'S
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[Need a Date? First, Get Dog](#)

WELL | FAMILY

How to Talk With Teenagers About Vaping

Adolescence

By LISA DAMOUR FEB. 14, 2018



RELATED COVERAGE



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[Plain Old Vaping Gives Way to 'Dripping' Among Teenagers, Study Says](#)
FEB. 7, 2017

Adolescence

Accept That Facts Don't Go Far

[Research](#) consistently finds that having good information doesn't necessarily lead to making smart choices. Adolescents (and adults) routinely

Get Their Perspective

Instead of leading with facts, consider starting with genuine curiosity. Setting judgment to the side, ask, "What's your take on e-cigarettes?" or "Do you know kids who are vaping?" or something along those lines.

Ask Why Before Suggesting Why Not

Adolescents have their reasons for vaping. Some do it for the thrill of defying authority, often in view of their peers. Compact vaporizers like Juuls, which look like flash drives, allow teenagers to easily conceal their

Share Your Concerns

Teenagers can be quick to tune out adults when we treat all hazards as equal. To this end, we should allow that experimenting with conventional

Concede the Limits of Your Power

Parenting teenagers would be a lot less stressful if we could lay down the law and leave it at that. But adopting a thou-shalt-not stance overestimates the

Current New York State Tobacco/E-Cigarette

Legislation

Clean Indoor Air Act (CIAA)

- prohibits the smoking of tobacco (i.e., cigarettes, cigars, pipe or any other matter or substance containing tobacco) in nearly all indoor and certain outdoor public and work places. Effective November 22, 2017, the law also applies to vaping, which is the use of electronic cigarettes and similar devices.

Smoking and Vaping Prohibited on Hospitals and Residential Health Care Facilities Grounds

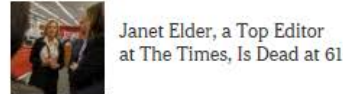
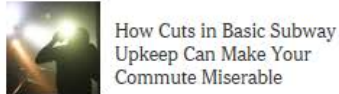
- This amendment to the New York State Public Health Law prohibits smoking outdoors on the grounds of hospitals and residential health care facilities. Smoking is prohibited within 15 feet of a building entrance or exit and within 15 feet of the entrance to or exit from the grounds. Effective November 22, 2017, the law also prohibits vaping (use of electronic cigarettes and similar devices).

Smoking and Vaping Prohibited at Playgrounds

- This amendment to the New York State Public Health Law prohibits smoking at New York playgrounds (as defined by the law) between sunrise and sunset when anyone under the age of twelve is present. Effective November 22, 2017, the law also prohibits vaping (use of electronic cigarettes and similar devices).

Liquid Nicotine Sales and Packaging

- Prohibits the sale of liquid nicotine to minors (under the age of 21 in New York City and Albany, Cattaraugus, Chautauqua, Cortland, Orange, Schenectady, Suffolk, Sullivan and Tompkins counties, under age 19 in Nassau and Onondaga counties and under 18 in the rest of the state).



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N.Y. / REGION

New York State Bans Vaping Anywhere Cigarettes Are Prohibited

By SARAH MASLIN NIR OCT. 23, 2017



You now have to be 21 to buy tobacco, vape products in Westchester

Mark Lungariello, mlungariel@lohud.com Published 8:10 p.m. ET June 4, 2018 | Updated 1:06 p.m. ET June 5, 2018





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FDA News Release

FDA takes new steps to address epidemic of youth e-cigarette use, including a historic action against more than 1,300 retailers and 5 major manufacturers for their roles perpetuating youth access

Warning letters and civil money penalty complaints to retailers are largest coordinated enforcement effort in agency history; FDA requests manufacturers provide plan for mitigating youth sales within 60 days; warns it may restrict flavored e-cigarettes to address youth epidemic



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**For Immediate
Release**

September 12, 2018

FDA seizes 'more than a thousand pages' of documents in surprise inspection of e-cigarette maker Juul

- The FDA surprised e-cigarette manufacturer Juul at its San Francisco headquarters and seized "more than a thousand pages of documents" related to the company's marketing practices.
- Juul has been at the center of the FDA's attention this year as the e-cigarette becomes a phenomenon among teens.

Angelica LaVito | [@angelicalavito](#)

Published 11:25 AM ET Tue, 2 Oct 2018 | Updated 6:52 PM ET Tue, 2 Oct 2018



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BUSINESS

FDA Plans to Sharply Restrict Sales of Flavored E-Cigarettes

Agency also plans to require strict age verification for online sales of e-cigarettes

By *Jennifer Maloney*

 47 COMMENTS

Nov. 8, 2018 9:38 p.m. ET

The Food and Drug Administration plans to sharply restrict the sale of most flavored pod-style e-cigarettes, effectively pulling them from most convenience stores and gas stations and requiring strict age verification controls for online sales, according to senior FDA officials.

The biggest American cig

Largest investment in Altria's History (make Marlboro)

Values Juul at \$38 billion dollars (had been valued at \$15 billion)

New York (CNN Business) America's preeminent cigarette company, is looking

beyond tobacco for growth

Fresh off a \$1.8 billion investment in Canadian cannabis company Cronos Group (CRON), Altria on Thursday purchased a 95% stake in e-cigarette maker Juul, worth \$12.8 billion. The Wall Street Journal was the first to report that Altria (MO) was considering an investment.

The investment is the largest in Altria's history, and it values Juul at \$38 billion dollars. It pairs a company that controls half of the American tobacco market with startup Juul — which sells more than 70% of the cartridge-based e-cigarettes in the United States.



Employee bonuses



POLITICS

SHUTDOWN

U.S. NEWS

BUSINESS

WORLD

TECH & MEDIA

THINK



HEALTH NEWS

Juul now has '800-pound gorilla' to fight FDA, experts warn

"Big Tobacco just got bigger," said one anti-smoking advocate.

Altria also agreed to pay a \$2 billion bonus to Juul. The e-cigarette company plans to share it with its 1,500 workers, averaging about \$1.3 million each, people familiar with the matter said.

The biggest American cig

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Fresh off \$1.8 billion investment in Cronos Group

Deals

Marlboro Maker Gets Into Canadian Pot Industry

By [Tiffany Kary](#)

December 07, 2018 7:35 AM Updated on December 07, 2018 8:36 AM

LISTEN TO ARTICLE



SHARE THIS ARTICLE



Altria Group Inc., the maker of Marlboro cigarettes for the U.S. market, is pushing into the Canadian cannabis industry, marking the major tobacco company's first foray into the nascent sector. Shares of cannabis peers gained on the news.

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Price	Change	% Change
20,350.70	▲ 105.90	0.52%
2,075.57	▲ 10.30	0.49%
21,667.27	▲ 145.64	0.67%

Most Read

What can YOU do?

- Educate yourselves- continue your own research at home
- ***Have open, honest CONVERSATIONS with your kids-*** 10 minute car rides
- Meet with school leadership
- Local government- legislation



Talk with Your Teen About E-cigarettes: A Tip Sheet for Parents



BEFORE THE TALK

Know the facts.

- Get credible information about e-cigarettes and young people at E-cigarettes.SurgeonGeneral.gov.

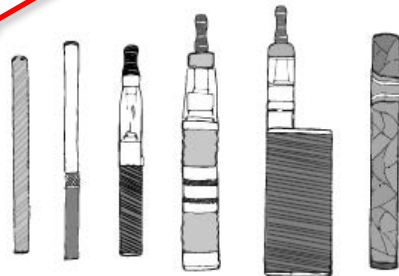
Be patient and ready to listen.

- Avoid criticism and encourage an open dialogue.
- Remember, your goal is to have a conversation, not to deliver a lecture. ★
- It's OK for your conversation to take place over time, in bits and pieces.

Set a positive example by being tobacco-free.

- If you use tobacco, it's never too late to quit. For free help, visit smokefree.gov or call 1-800-QUIT-NOW.

Ask- Don't Tell



START THE CONVERSATION

Find the right moment.

- A more natural discussion will increase the likelihood that your teen will listen. Rather than saying "we need to talk," you might ask your teen what he or she thinks about a situation you witness together, such as:
 - » Seeing someone use an e-cigarette in person or in a video.
 - » Passing an e-cigarette shop when you are walking or driving.
 - » Seeing an e-cigarette advertisement in a store or magazine or on the internet.



Ask for support.

- Not sure where to begin? Ask your health care provider to talk to your teen about the risks of e-cigarettes.
- You might also suggest that your teen talk with other trusted adults, such as relatives, teachers, faith leaders, coaches, or counselors whom you know are aware of the risks of e-cigarettes.
- These supportive adults can help reinforce your message as a parent.

ANSWER THEIR QUESTIONS

Here are some questions and comments you might get from your teen about e-cigarettes and some ideas about how you can answer them.

Why don't you want me to use e-cigarettes?

- Science shows that e-cigarettes contain ingredients that are addictive and could harm different parts of your body.
- Right now, your brain is still developing, which means you are more vulnerable to addiction. Many e-cigarettes contain nicotine, and using nicotine can change your brain to make you crave more nicotine. It can also affect your memory and concentration. I don't want that for you!
- E-cigarettes contain chemicals that are harmful. When people use e-cigarettes, they breathe in tiny particles that can harm their lungs.

- The cloud that people exhale from e-cigarettes can expose you to chemicals that are not safe to breathe.

What's the big deal about nicotine?

- Your brain is still developing until about age 25. The Surgeon General reported that nicotine is addictive and can harm your brain development.
- Using nicotine at your age may make it harder for you to concentrate, learn, or control your impulses.
- Nicotine can even train your brain to be more easily addicted to other drugs like meth and cocaine.

- I don't say this to scare you, but I want you to have the facts because nothing is more important to me than your health and safety.

→ **Aren't e-cigarettes safer than conventional cigarettes?**

- Because your brain is still developing, scientific studies show that it isn't safe for you to use any tobacco product that contains nicotine, including e-cigarettes.
- Whether you get nicotine from an e-cigarette or a cigarette, it's still risky.
- Some e-cigarette batteries have even exploded and hurt people.

→ **I thought e-cigarettes didn't have nicotine—just water and flavoring?**

- I used to think that too. But many e-cigarettes have nicotine. There are also other chemicals in them that can be harmful.
- Let's look at the Surgeon General's website on e-cigarettes (E-cigarettes.SurgeonGeneral.gov) together so you can see for yourself.

→ **I (or my friends) have tried e-cigarettes and it was no big deal.**

- I appreciate your honesty. In the future, I hope you (or your friends) will stay away from e-cigarettes and other tobacco products, including cigarettes. Science shows that e-cigarettes contain ingredients that are addictive and could harm different parts of your body.
- Next time we go to the doctor, let's ask about the risks of nicotine, e-cigarettes, and other tobacco products.

→ **You used tobacco, so why shouldn't I?**

- If I could live my life over again, I never would have started smoking. I learned that people who smoke cigarettes are much more likely to develop, and die from, certain diseases than people who don't smoke. This was really scary, so I quit smoking.
- Quitting was really hard, and I don't want you to go through that. The best thing is to not start at all.



KEEP THE CONVERSATION GOING

Many parents find that texting is a great way to reach their teens. Here are some suggestions for text messages that might catch your teen's attention. And, you can easily share pages of the website (E-cigarettes.SurgeonGeneral.gov) with your teen.



Look for this symbol, click it, type in the message you want or use the message provided, and share with your teen via Facebook, Twitter, or email.

Connect and encourage.

- You always liked science. Check out the science about e-cigarettes and young people. E-cigarettes.SurgeonGeneral.gov
- Getting off nicotine is hard but I'm so happy I quit. Don't make that mistake and get addicted. Smoking and tobacco use, including using e-cigarettes, are unsafe for young people.

Remind and repeat.

- Most teenagers don't use e-cigarettes. E-cigarettes with nicotine can mess with your brain, and your brain is still developing until you are at least 25.
- You might be tempted by e-cigarette flavors, but inhaling certain flavorings that have been found in some e-cigarettes can be harmful.

Share facts and resources.

- Just learned that many e-cigarettes have nicotine in them. That's the drug that makes cigarettes so addictive. Nicotine can also mess with your brain development.
- Just saw a report from the Surgeon General that e-cigarettes can mess with how your brain develops and might even affect your mood and focus. Please don't use any products that contain nicotine.
- Hope none of your friends use e-cigarettes around you. Even breathing the cloud they exhale can expose you to nicotine and chemicals that can be dangerous to your health.



Centers for Disease Control and Prevention
Office on Smoking and Health



Exceptionally Thorough- Covers EVERYTHING- 15 pages

3. https://truthinitiative.org/sites/default/files/Truth_E-Cigarette_FactSheet_FINAL.pdf#page=1



truth initiative
INSPIRING
TOBACCO-FREE
LIVES

E-CIGARETTES

BACKGROUND

Electronic nicotine delivery systems go by many names. The most common name is “e-cigarettes,” but others such as **e-cigs, vapes, vape pens, mods and tanks are also common terms**. Most recently, new products, such as JUUL, have created brand-centric terms for product use (“JUULing”). For this resource, the entire category will be referred to as “e-cigarettes.”

WHAT IS AN E-CIGARETTE?

- E-cigarettes are devices that operate by **heating a liquid solution** to a high enough temperature so that it produces an **aerosol that is inhaled**.¹
- Solutions, sometimes called e-liquids, typically include nicotine, flavoring and a humectant, such as propylene glycol, to retain moisture and create an aerosol when heated.^{1,2}

While using an e-cigarette

<https://www.centeronaddiction.org/e-cigarettes>

EXPERT VIEWS
E-CIGARETTES

ABOUT E-CIGARETTES RECREATIONAL VAPING TOBACCO REPLACEMENT

E-Cigarettes

Separate the myths from the facts. Developed by Center on Addiction, a trusted authority on addiction research.

About E-Cigarettes

E-Cigarettes seem to be everywhere these days. But are they safe? Get the facts.

Recreational Vaping

Vaping is often touted as smoking without the negative effects: no bad breath, no cigarette burns, less risk

Tobacco Replacement

Quitting smoking is difficult – nicotine is one of the most addictive substances available.

<https://www.lung.org/assets/documents/stop-smoking/e-cigarettes-teens.pdf>

 AMERICAN LUNG ASSOCIATION.



E-cigarettes, "Vapes", and JUULS What Teens Should Know

What are e-cigarettes?

Electronic cigarettes, or e-cigarettes, include "vapes", hookah pens, or JUULS. They are battery-powered devices that heat an e-liquid sometimes called "e-juice" that often contains nicotine. E-cigarettes are inhaled like regular cigarettes and produce an aerosol cloud of nicotine or other substances. They are not proven to be a safer alternative to cigarettes.

Is there a difference between using e-cigarettes and JUULing?

- No. JUULS may look different, but they're actually a type of e-cigarette.

Every JUUL pod contains highly addictive nicotine. JUUL does not make any nicotine-free pods. Some JUUL pods claim to have roughly as much nicotine as an entire pack of cigarettes.

- The aerosol cloud produced by a JUUL might not look as thick as other e-cigarettes' or regular cigarette smoke, but it still contains many of the same chemicals and has the same health risks.

Aren't e-cigarettes less harmful than tobacco? Isn't it just water vapor?

- The aerosol produced by e-cigarettes isn't water vapor and it isn't harmless.

The aerosol inhaled from these products is often a mixture of harmful chemicals like nicotine, formaldehyde and acrolein.

- Virtually all e-cigarettes contain nicotine – even the ones labeled "nicotine free". This is because there are no rules about how e-cigarettes or "e-juice" are made. There is no way to know exactly what is in an e-cigarette.
- "E-juice" and JUUL pods flavored like fruit or other treats carry the same health risks as the unflavored products. Also, the flavorings used are typically not safe to be inhaled into the lungs.

What are the health risks of e-cigarettes?

- E-cigarettes contain chemicals that can cause irreversible lung damage and alter teen brains.

E-cigarettes contain harmful chemicals such as formaldehyde, which is known to cause cancer, and acrolein which is used as a weed killer and can cause irreversible lung damage.

- Nicotine is highly addictive and exposure during adolescence can harm the developing brain.
- Youth who use e-cigarettes are more likely to go on to use traditional cigarettes.
- In the short term, e-cigarette aerosol can irritate your lungs, throat and eyes. It can also make it more likely that you'll catch colds or get the flu.



Is it legal for people to sell e-cigarettes to youth or for youth to buy or use them?

- In the majority of states, the minimum age of sale for e-cigarettes is 18; in three states the minimum age is 19 and in six states and DC the minimum age is 21.

In many states, it is illegal for retailers to sell youth e-cigarettes, and in some states it is also illegal for youth to possess e-cigarettes.

- Many schools have added e-cigarettes to their tobacco-free school policies and the consequences for using them on school grounds are often the same as smoking traditional cigarettes.

Can e-cigarettes help someone quit?

- No e-cigarette has been found to be safe and effective to help people quit smoking.
- If you know someone who wants to quit smoking, they can call 1-800-LUNGUSA (1-800-586-4872) or visit www.Lung.org to learn about quitting safely.

Learn more:

Contact your local American Lung Association office for information on youth leadership groups and other youth tobacco initiatives. 1-800-LUNGUSA or www.Lung.org

1-800-LUNGUSA | Lung.org

 AMERICAN LUNG ASSOCIATION.

<https://www.lung.org/assets/documents/stop-smoking/external-e-cigarette-resources.pdf>

 AMERICAN LUNG ASSOCIATION.



External Resources on E-Cigarettes

- American Lung Association's Statement on E-cigarettes
[lung.org/ecigs](https://www.lung.org/ecigs)
- US Department of Health and Human Services. [cdc.gov/tobacco/data_statistics/sgr/e-cigarettes/pdfs/2016_sgr_entire_report_508.pdf](https://www.cdc.gov/tobacco/data_statistics/sgr/e-cigarettes/pdfs/2016_sgr_entire_report_508.pdf)
- American Lung Association's Truth About E-Cigarettes Brochure
[kramesstore.com/index.php/associations/american-lung-association.html](https://www.kramesstore.com/index.php/associations/american-lung-association.html)
- U.S. Surgeon General's Know the Risks: E-cigarettes and Young People
[e-cigarettes.surgeongeneral.gov](https://www.e-cigarettes.surgeongeneral.gov)
- Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion's Facts about Electronic Cigarettes
[cdc.gov/tobacco/basic_information/e-cigarettes/](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/)
- U.S. Food & Drug Administration's Vaporizers, E-Cigarettes and other Electronic Nicotine Delivery Systems (ENDS)
[fda.gov/tobaccoproducts/labeling/productsingredientscomponents/ucm456610](https://www.fda.gov/tobaccoproducts/labeling/productsingredientscomponents/ucm456610)
- "The Real Cost" Youth E-Cigarette Prevention Campaign
[fda.gov/TobaccoProducts/PublicHealthEducation/PublicEducationCampaigns/TheRealCostCampaign](https://www.fda.gov/TobaccoProducts/PublicHealthEducation/PublicEducationCampaigns/TheRealCostCampaign)
- Minnesota's Department of Health E-Cigarettes and Other Vaping Products
[health.state.mn.us/ecigarettes](https://www.health.state.mn.us/ecigarettes)
- The National Academies of Sciences Engineering Medicine Health and Medicine Division's Public Health Consequences of E-Cigarettes
[nationalacademies.org/hmd/Reports/2018/public-health-consequences-of-e-cigarettes](https://www.nationalacademies.org/hmd/Reports/2018/public-health-consequences-of-e-cigarettes)
- American Nonsmokers' Rights Foundation Electronic Cigarettes
[no-smoke.org/smokefree-threats/electronic-cigarettes/](https://www.no-smoke.org/smokefree-threats/electronic-cigarettes/)
- Public Health Law Center/Tobacco Control Legal Consortium E-Cigarettes
[publichealthlawcenter.org/topics/tobacco-control/e-cigarettes](https://www.publichealthlawcenter.org/topics/tobacco-control/e-cigarettes)
- Public Health Law Center's Model for a Tobacco-free Environment in Minnesota's K-12 Schools
[publichealthlawcenter.org/sites/default/files/resources/phlc-fs-tobaccofreek-12school-policy-2011.pdf](https://www.publichealthlawcenter.org/sites/default/files/resources/phlc-fs-tobaccofreek-12school-policy-2011.pdf)
- Campaign for Tobacco-Free Kids Taking Down Tobacco
[takingdowntobacco.org](https://www.takingdowntobacco.org)
- Stanford's Tobacco Prevention Toolkit
[med.stanford.edu/tobaccopreventiontoolkit](https://www.med.stanford.edu/tobaccopreventiontoolkit)
- CATCH My Breath E-Cigarette Prevention Program for Schools
[catchinfo.org/modules/e-cigarettes/](https://www.catchinfo.org/modules/e-cigarettes/)

1-800-LUNGUSA | Lung.org

Resources for Parents

<https://www.centeronaddiction.org/e-cigarettes>

<https://www.lung.org/assets/documents/stop-smoking/external-e-cigarette-resources.pdf>

<https://www.lung.org/assets/documents/stop-smoking/external-e-cigarette-resources.pdf>

https://truthinitiative.org/sites/default/files/Truth_E-Cigarette_FactSheet_FINAL.pdf#page=1

https://e-cigarettes.surgeongeneral.gov/documents/SGR_ECig_ParentTipsheet_508.pdf

Thank You