

Vaping, Nicotine, and Marijuana Use in Adolescents

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Riley Children's Health
Indiana University Health

Disclosures / Conflicts of Interest

- None



Objectives

1. Review current trends and epidemiology of e-cigarettes, nicotine, and marijuana use in adolescents.
2. Discuss the health effects of e-cigarettes, nicotine, and marijuana use in adolescents.
3. Discuss options for screening and managing of e-cigarette, nicotine, and marijuana use in adolescents.



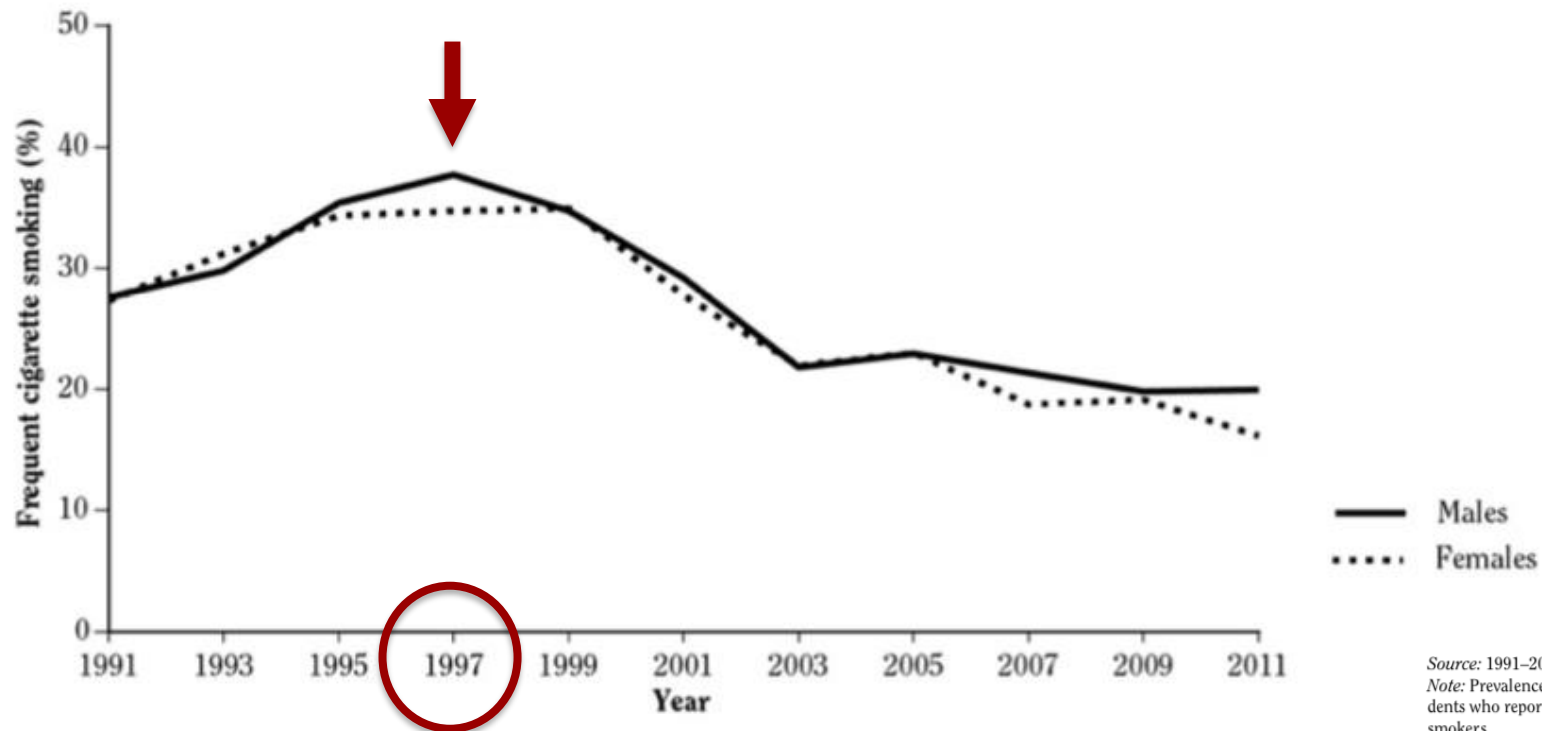
Trends in e-cigarette, nicotine, & marijuana use among adolescents



Cigarette use among adolescents (1991-2011)

Figure 13.8 Trends over time in the prevalence of current cigarette smoking among high school students, by gender and race/ethnicity; National Youth Risk Behavior Survey (YRBS) 1991–2011; United States

A. Gender

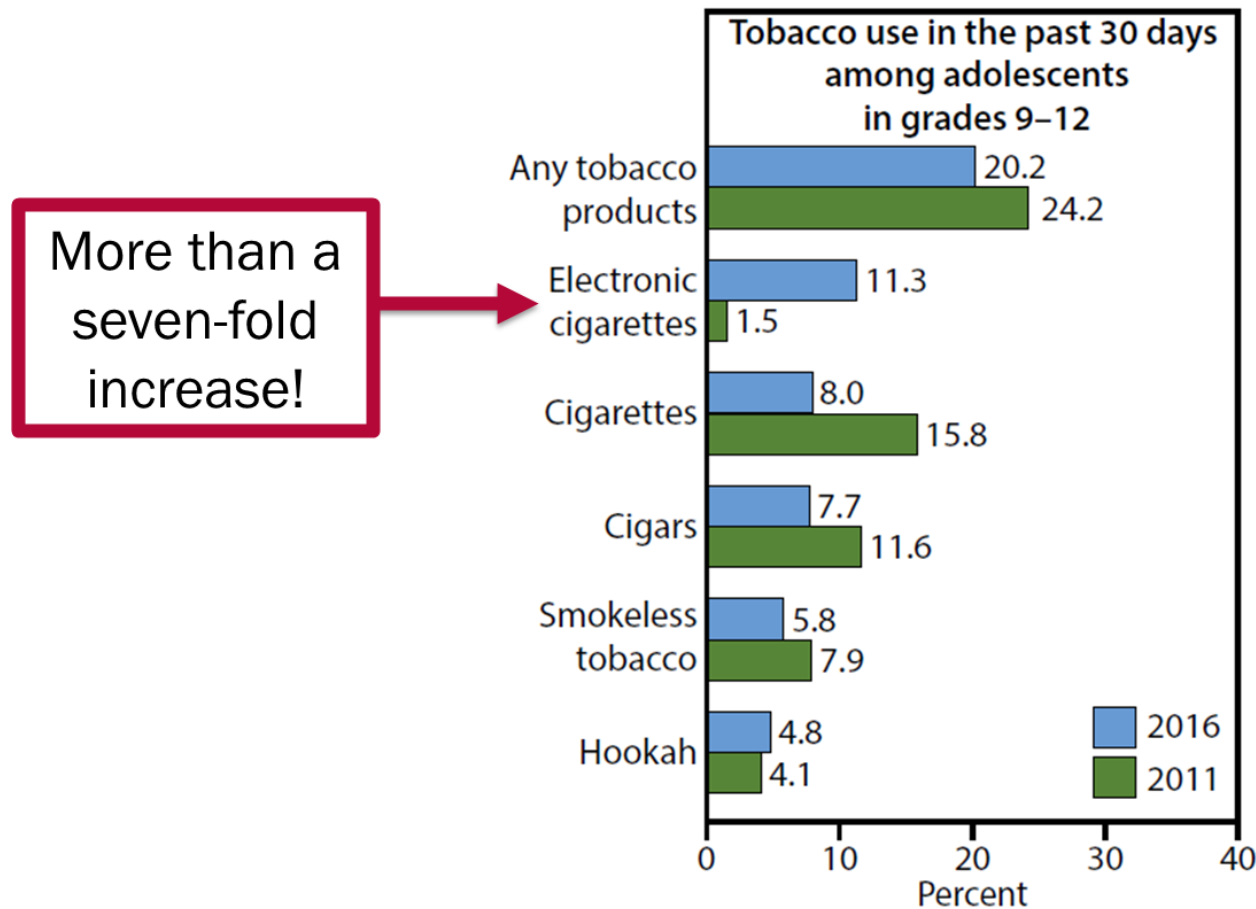


Source: 1991–2011 National YRBS, Centers for Disease Control and Prevention.

Note: Prevalence based on responses to the question “During the past 30 days, on how many days did you smoke cigarettes?” Respondents who reported that they had smoked cigarettes on at least 1 day during the 30 days before the survey were classified as current smokers.



Tobacco use among adolescents (2011 vs 2016)

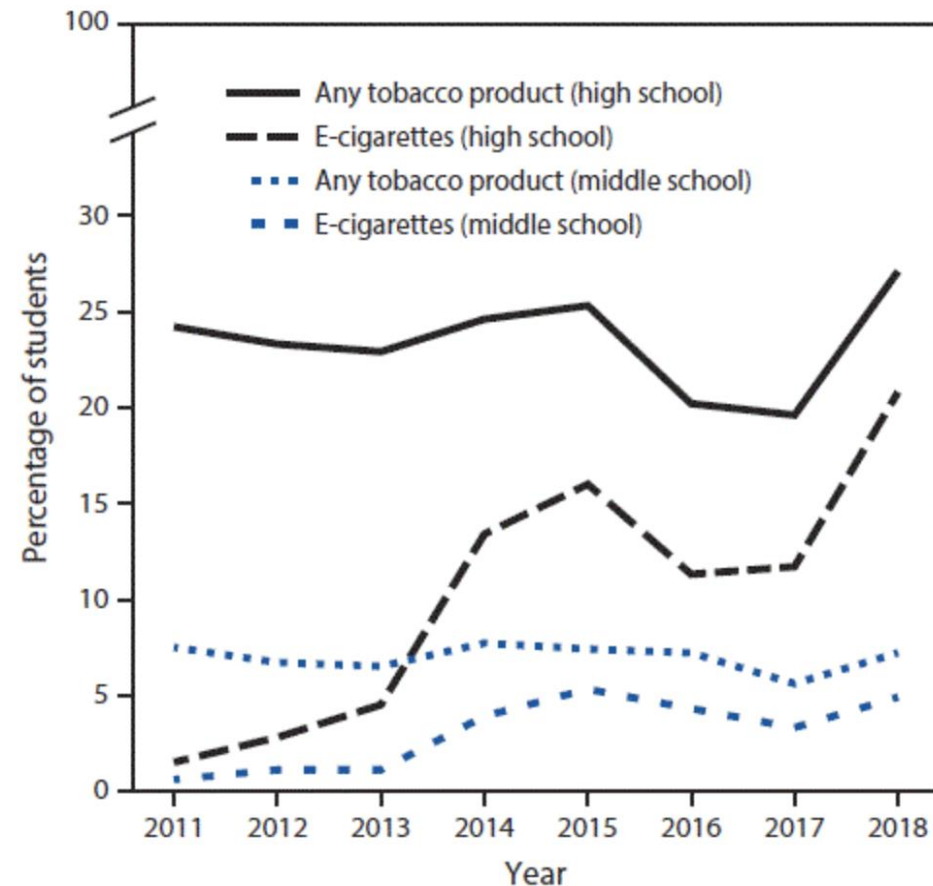


NCHS, Health, United States, 2017, Figure 5. Data from the National Health Interview Survey (NHIS) and CDC, National Youth Tobacco Survey (NYTS).



Overall tobacco use among adolescents increases in 2018

- For the first time in over 20 years, tobacco use among adolescents started trending up
- Due to the significant increase in e-cigarette use



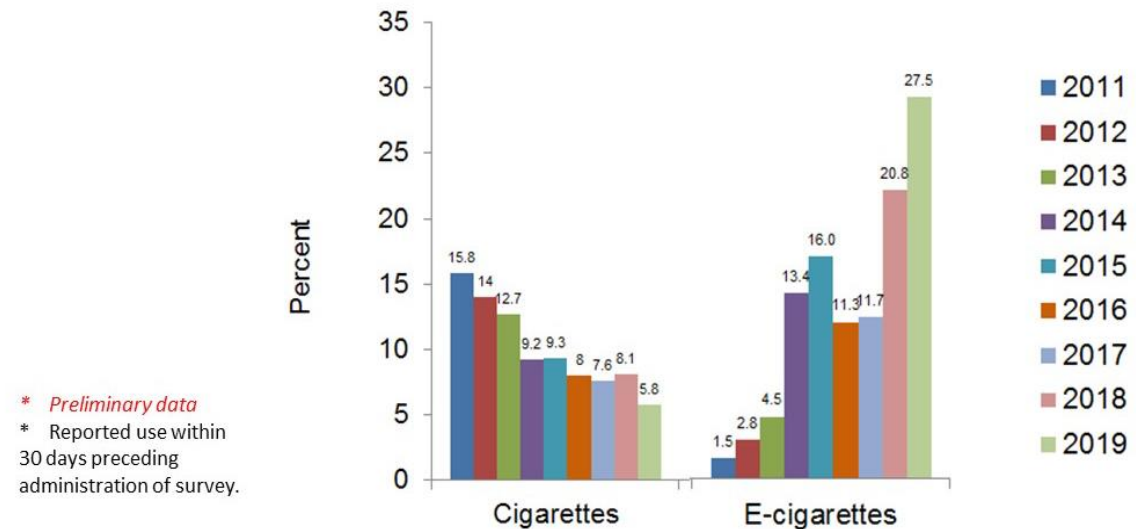
Cullen et al. MMWR Morb Mortal Wkly Rep 2018



Adolescent tobacco use 2019

- E-cigarette use increased from 20.8% in 2018 to **27.5% in 2019** for high school students
- 10.5% of middle school students** reported current e-cigarette use
- E-cigarettes were the most commonly used tobacco product among youths²

NATIONAL YOUTH TOBACCO SURVEY*: YOUTH USE OF E-CIGARETTES CONTINUES TO CLIMB



1. National Youth Tobacco Survey 2018. 2. AAP policy statement: E-cigarettes and similar devices. Jan 2019



E-cigarette use among adolescents (2020)

- 19.6% of high school students & 4.7% of middle school students reported current e-cigarette use
- 1.8 million fewer U.S. youths currently using e-cigarettes compared to 2019
 - ➔ HOWEVER, 3.6 million U.S. youths continued to use e-cigarettes
- Disposable e-cigarette use increased by ~1,000% among high school and ~400% among middle school current e-cigarette users

Wang et al. MMWR Morb Mortal Wkly Rep 2020

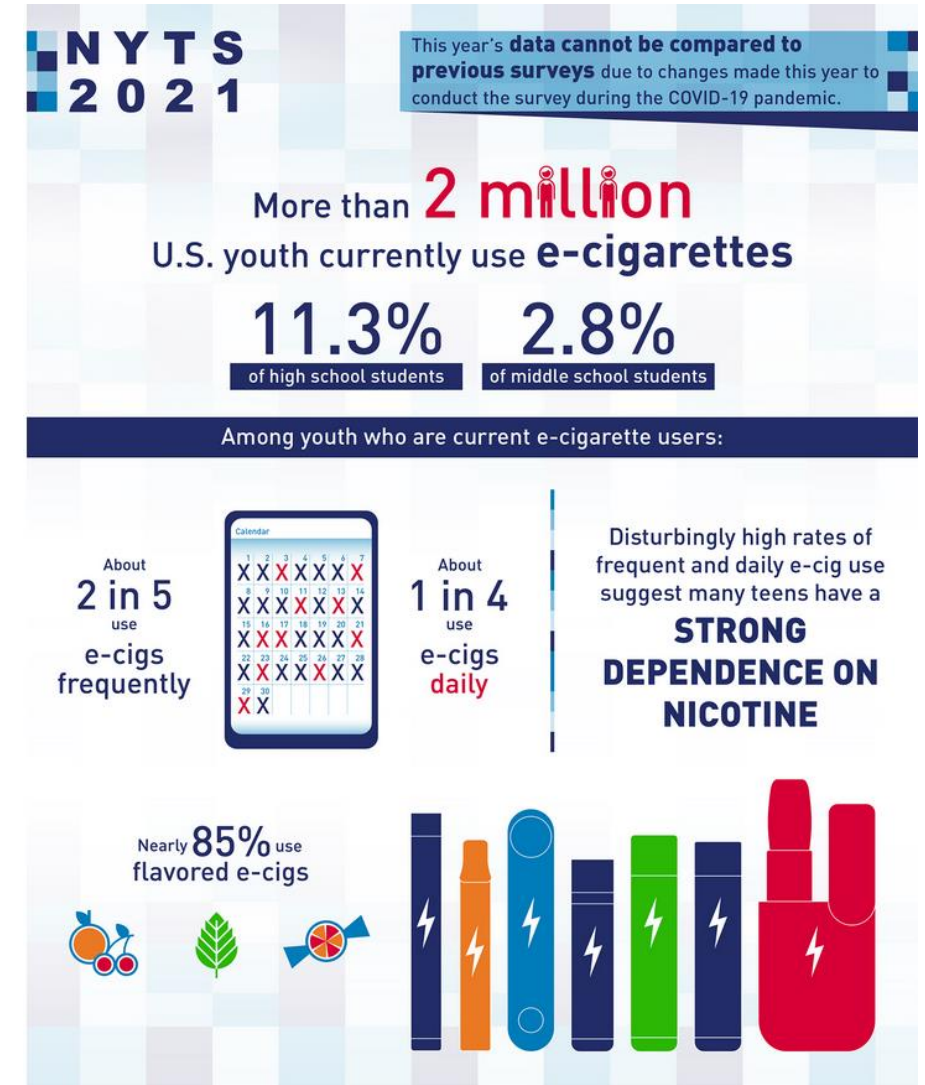


NYTS 2021

- Approx. **1 in 8** high school students & **1 in 25** middle school students reported using a tobacco product in the preceding 30 days.
- **E-cigarettes remain the most used tobacco product** among middle school and high school students.
- The most common reason for first trying e-cigarettes cited by students who ever used them was “**a friend used them**” (57.8%).

†† Youths who reported participating in a school building or classroom reported a higher prevalence of e-cigarette use compared with youths participating at home or at some other place; 15.0% of high school students who took the survey in a school building or classroom reported currently using e-cigarettes compared with 8.1% of those who took the survey at home or at some other place ($p < 0.001$).

(1) Gentzke AS, Wang TW, Cornelius M, et al. Tobacco Product Use and Associated Factors Among Middle and High School Students — National Youth Tobacco Survey, United States, 2021. MMWR Surveill Summ 2022;71(No. SS-5):1–29. DOI: <http://dx.doi.org/10.15585/mmwr.ss7105a1>



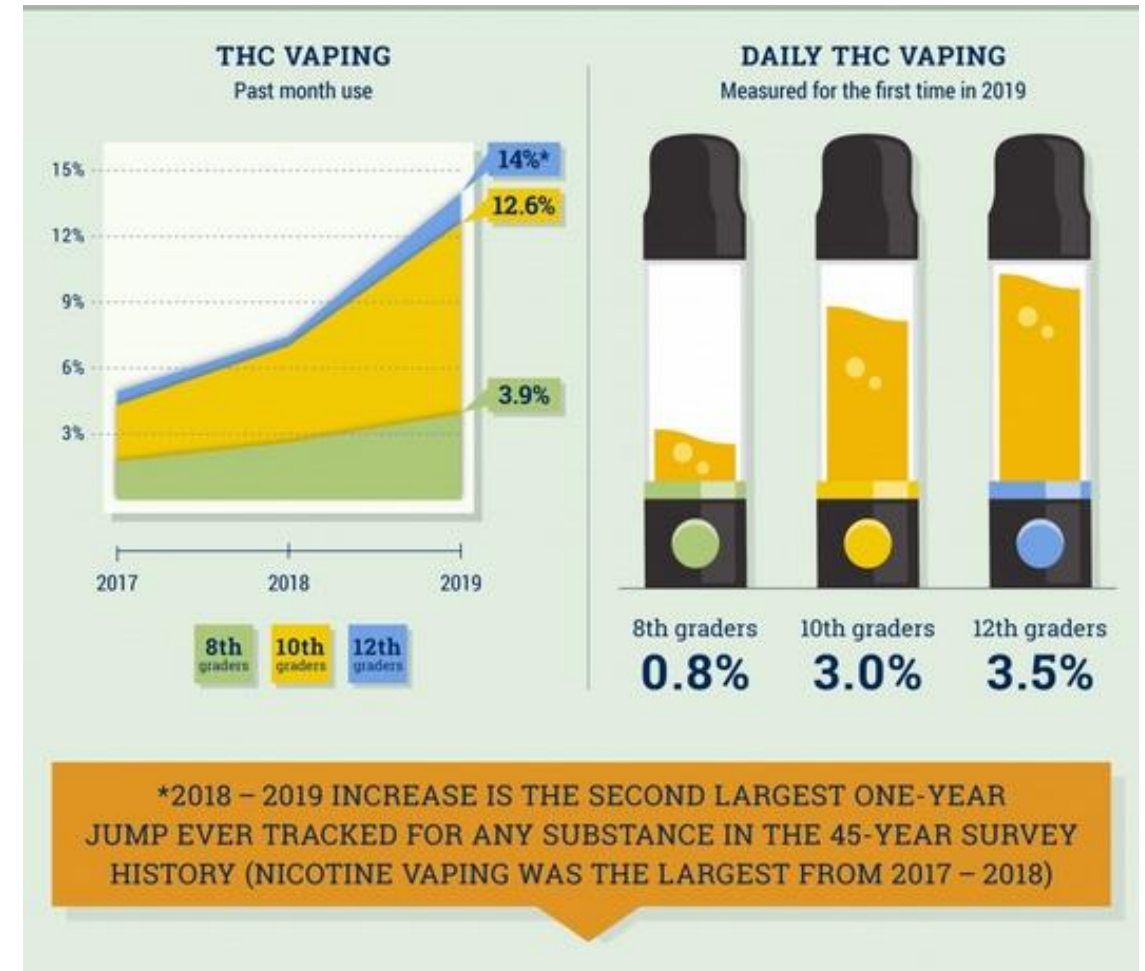
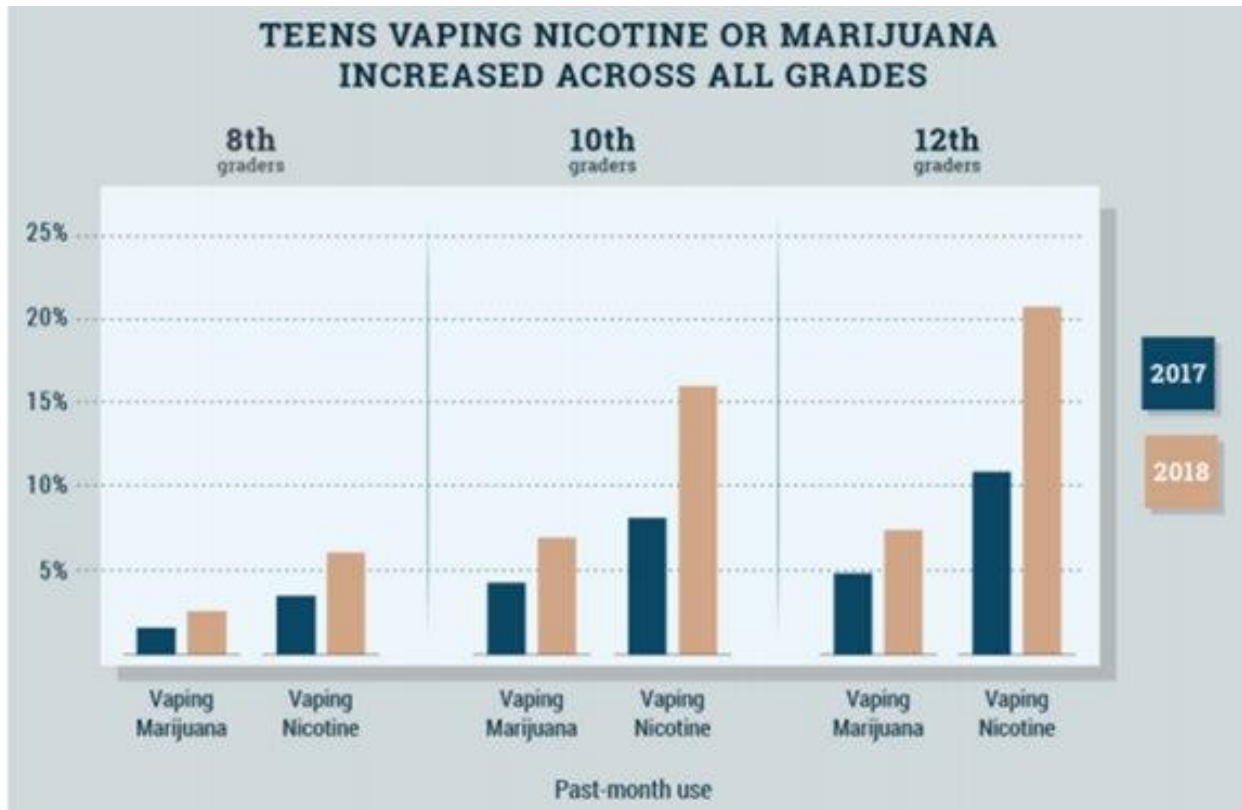
Vaping & Mental Health

- The NYTS 2021 showed that among current e-cigarette users, the most cited reasons for current use were “I am feeling anxious, stressed, or depressed” (43.4%) and “to get a high or buzz from nicotine” (42.8%)¹
- Depressive symptoms positively associated with comorbid vaping and cigarette use across 8th, 10th, 12th grade students surveyed in the 2017-2019 Monitoring the Future surveys²
- 8th grade adolescents with depressive symptoms had increased odds of vaping nicotine with & without cigarette use²
- Of the patients in our database who were admitted to Riley for EVALI 2019-2020, 29% had a reported history of depression and/or anxiety at presentation

1. Gentzke et al MMWR 2022 2. Gorfinkel et al Journal of Adolescent Health 2022



Similar Trends for THC Vaping



NIH Monitoring the Future 2018 & 2019 Survey Results

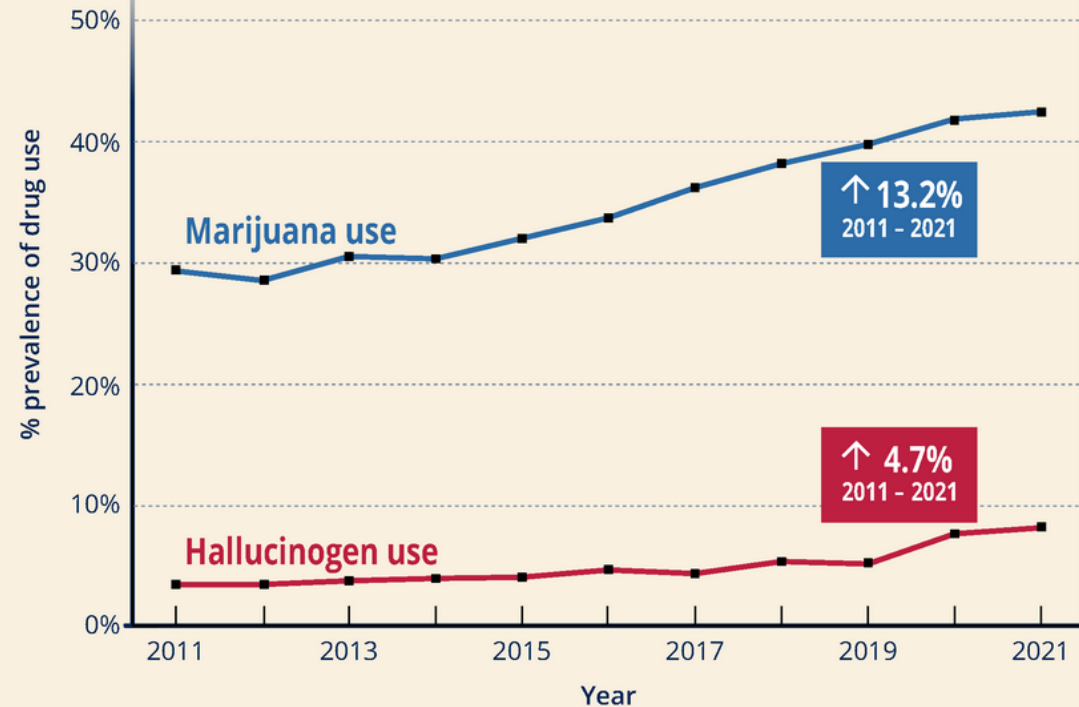


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Historic Highs in Past-Year Marijuana and Hallucinogen Use Among Young Adults (Ages 19-30) in 2021



Source: 2021 Monitoring the Future Panel Survey



nida.nih.gov

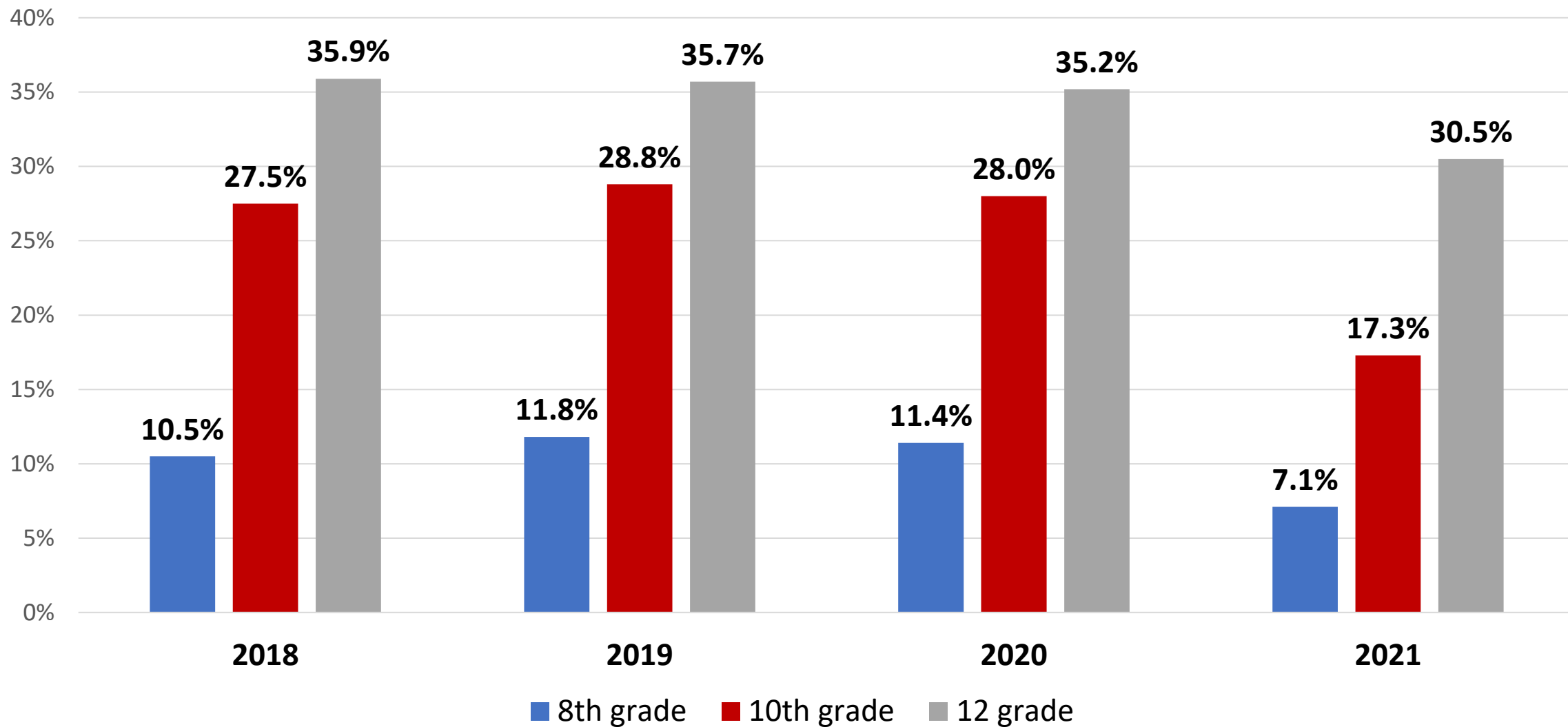


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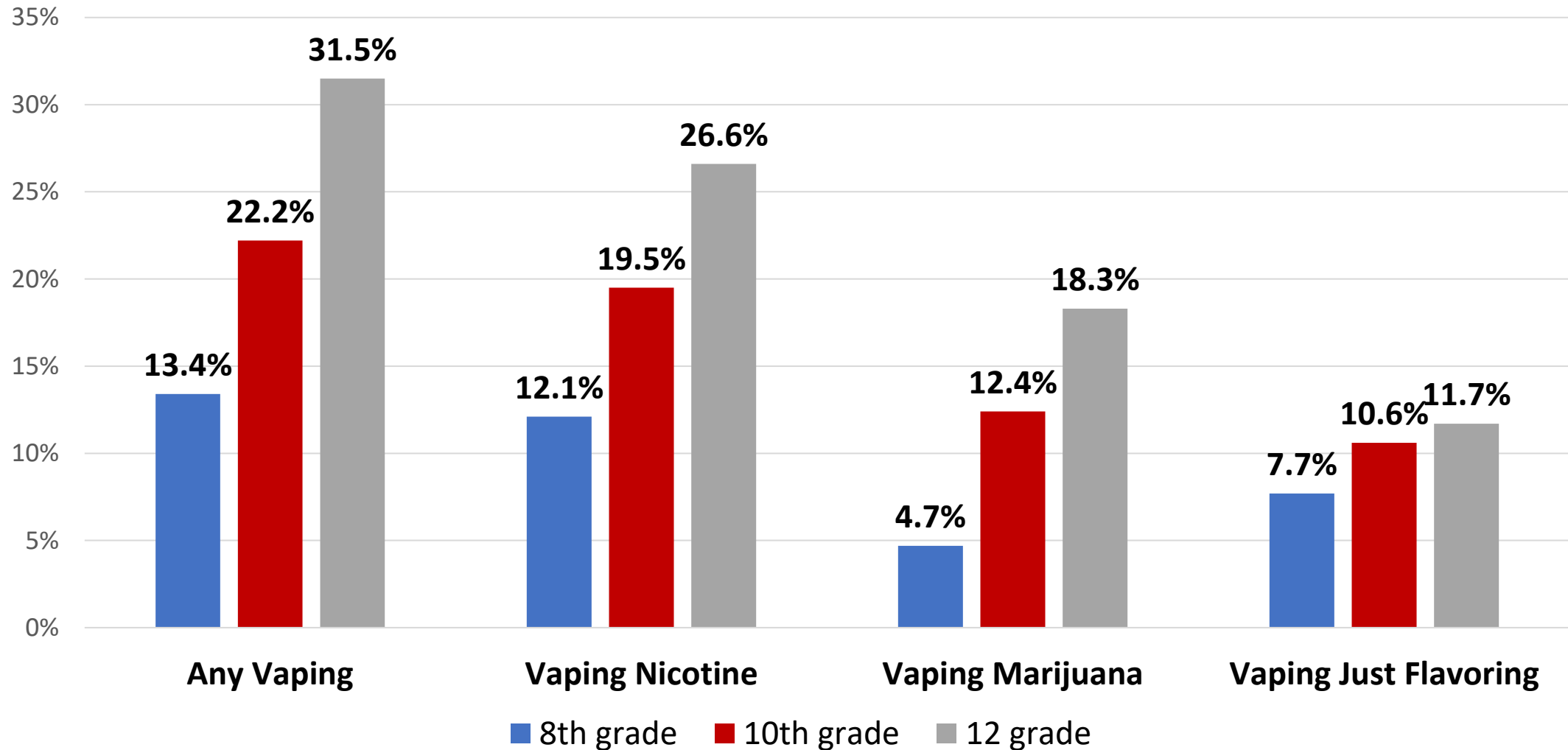
Report of Marijuana/Hashish in the past 12 months



Data adapted from : <http://monitoringthefuture.org/data/21data/table2.pdf>



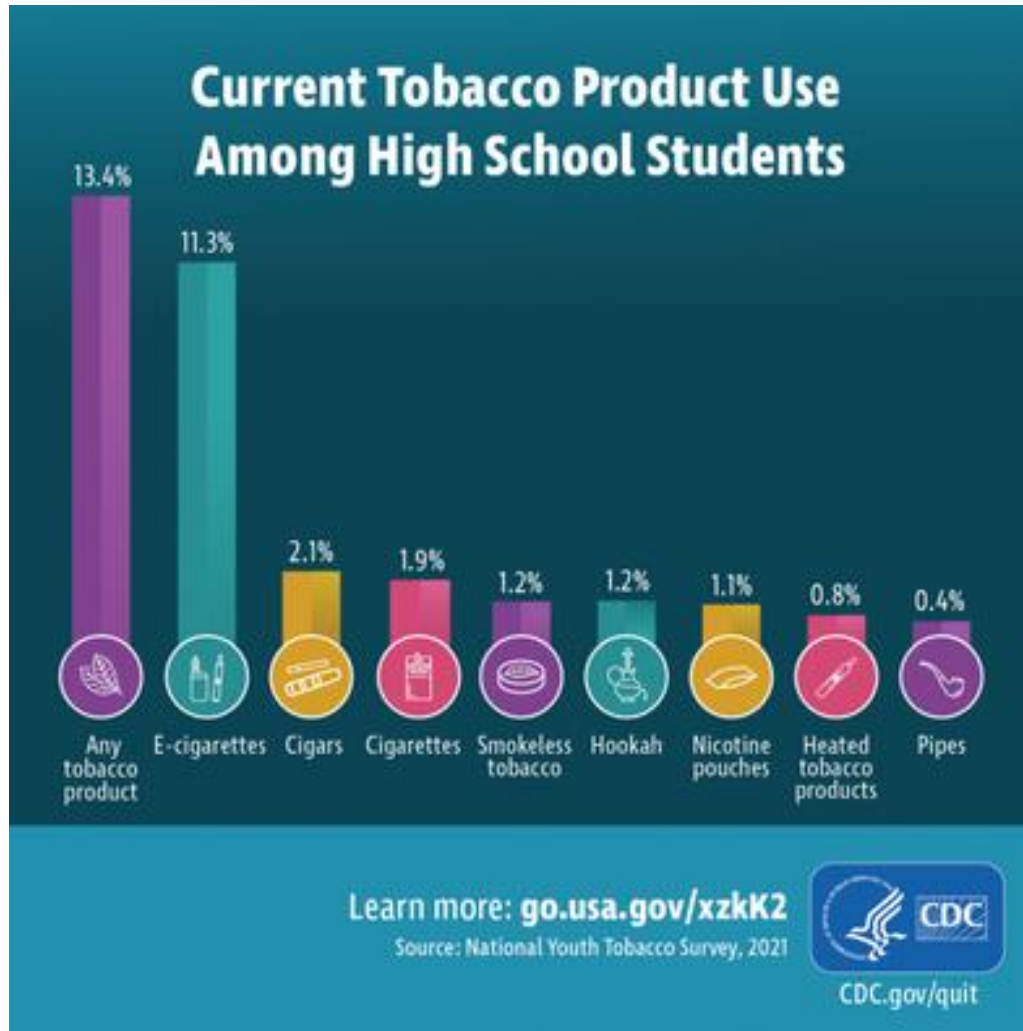
Report of Vaping in the past 12 months (2021)



Data adapted from : <http://monitoringthefuture.org/data/21data/table2.pdf>



Many adolescents use two or more tobacco products (2021)



- ~2% of middle school students & ~4% high school students reported current use of two or more tobacco products in the past 30 days
- 4% of middle school students & ~15% of high school students reported they had ever tried two or more tobacco products

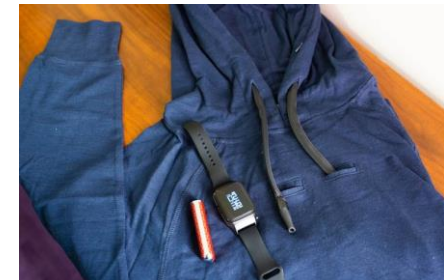
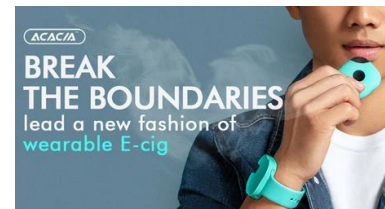
Youth who use multiple tobacco products are at higher risk for developing nicotine dependence & to continue using tobacco into adulthood.

https://www.cdc.gov/tobacco/data_statistics/fact_sheets/youth_data/tobacco_use/index.htm



E-cigarettes & associated health effects



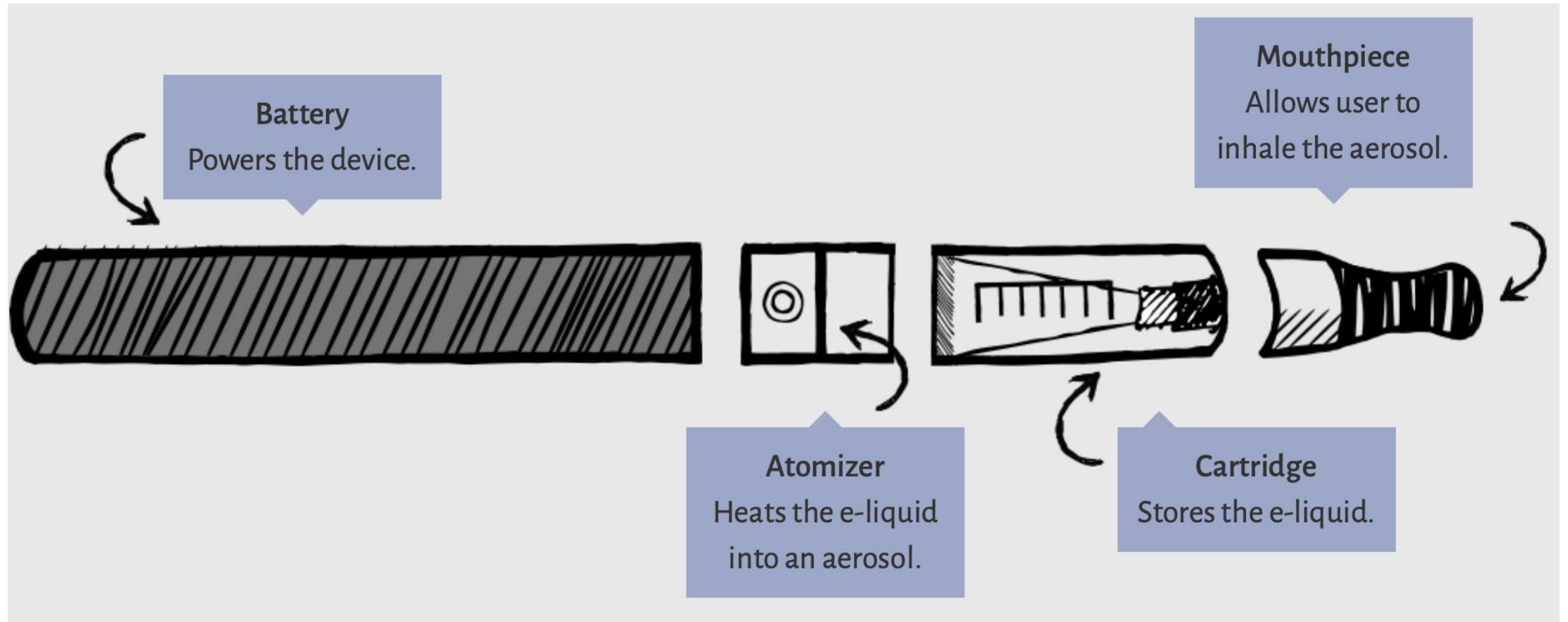


- **Electronic** devices
- Typically handheld
- **Produce an aerosol by heating a liquid**
- E-cigarette products include devices, liquids, flavorings, refill pods, cartridges



A red wagon with the name "Riley" written on it in white. Two children are sitting in the wagon: a boy on the left and a girl on the right. The boy is holding a stick.

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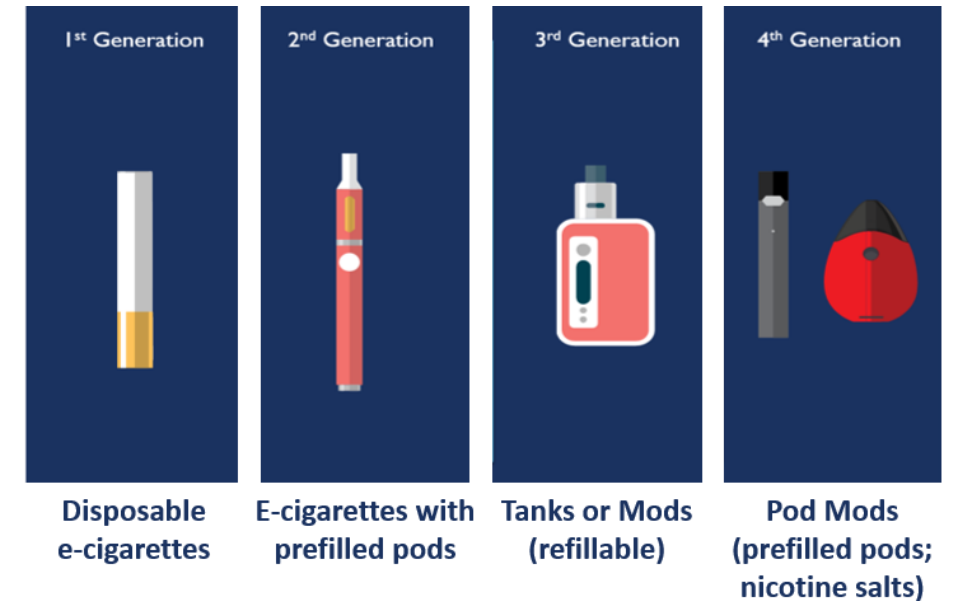


<https://e-cigarettes.surgeongeneral.gov/getthefacts.html>



E-cigarettes: What are they?

- Introduced into the US market in the mid-2000s
- Wide variety of devices
- Wide range of prices
- Variable concentrations of nicotine delivered across devices



Images Courtesy of CDC



Generations of E-cigarettes

•1st generation / “cig-a-likes”

- Resembles a cigarette
- Disposable or rechargeable
- Manual or automated heating elements



•2nd generation / “vape pens”

- Pen-shaped
- Larger
- Rechargeable w/ reservoir or tank system & manual heating button



•3rd generation / “MODS”

- Refillable
- Customizable



•4th generation / Pod-Based devices

- Sleek/discrete w/ “high-tech” designs
- Deliver high nicotine concentrations via nicotine salts
- Easily hidden



•5th generation / Disposables

- Flavor work around
- Continued delivery of high nicotine concentrations via nicotine salts & synthetic nicotine



Non-nicotine e-cigarettes


- E-cigarettes which claim to not contain nicotine
- Products are often advertised as “wellness vapes” or as methods to vape vitamins or supplements.
- These products are **NOT safe** & **NOT approved** by the FDA




• BE ON THE LOOKOUT •

NON-NICOTINE E-CIGARETTES

NEW METHODS OF TEEN E-CIGARETTE USE




WHAT ARE THEY?
E-cigarettes that supposedly don't contain nicotine. They might be advertised as a way to vape vitamins and supplements.



WHAT DO THEY LOOK LIKE?
Most look like sleek, colorful USB sticks or cylindrical pens. Popular brands include Cloudy and VitaminVape.




ARE TEENS USING?
YES. A recent survey found that a sizable number of US teens are using these products, and co-using them with nicotine e-cigarettes.



ARE THEY SAFE?
NO.
E-cigs still contain harmful chemicals (e.g., PG/VG, hidden heavy metals). Further, the health effects of inhaling vitamins are UNKNOWN.



ARE THEY REGULATED?
These products are currently not regulated by the FDA. There are no federal age restrictions on purchasing these products.



BOTTOM LINE?
There is no safe e-cigarette. Talk to your teens and protect lung health by avoiding all e-cigarette products!

Stanford MEDICINE Reach Lab

TOBACCO PREVENTION TOOLKIT

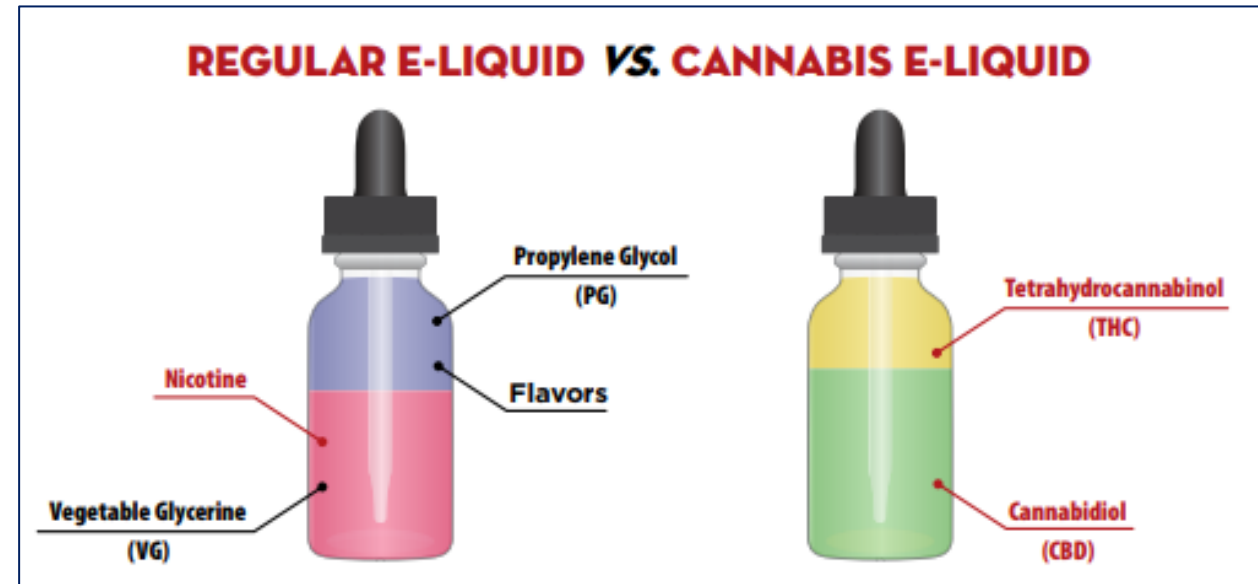
For more information on e-cigarettes, please visit the [Stanford Tobacco Prevention Toolkit](#).



E-liquid

- Types:
 - Commercial refillable e-liquid
 - Commercial non-refillable e-liquid
 - Homemade or street sources
- Contents **variable**
- Typically contains flavoring, +/- nicotine, +/- THC, other additives
- **Most often contents unknown**

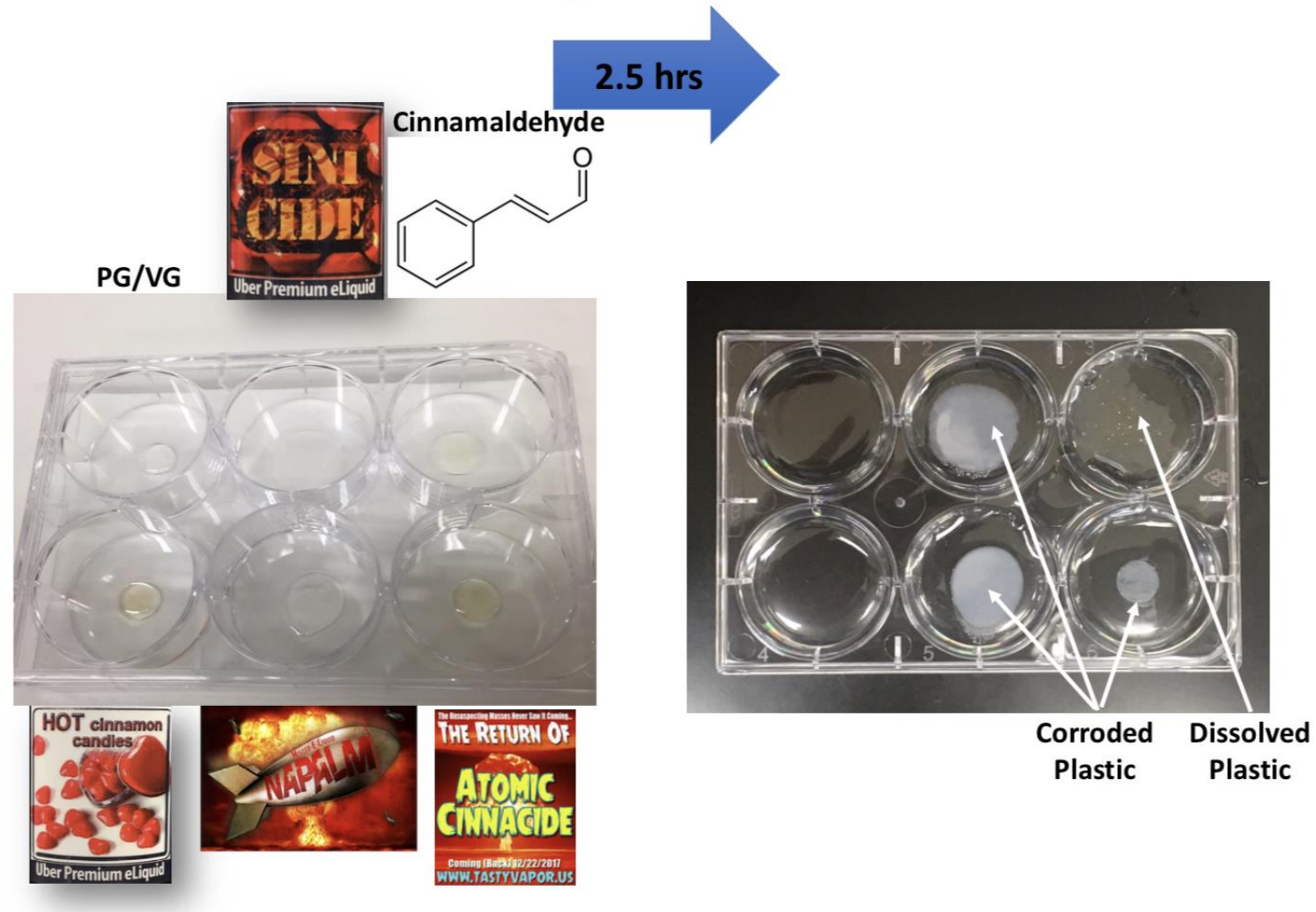
☠ Nicotine	☠ Tobacco alkaloids
☠ Flavorings	☠ Polycyclic aromatic hydrocarbons
☠ Aldehydes	☠ Heavy metals
☠ Diacetyl	☠ Cannabinoids (THC)
☠ Propylene glycol	☠ Cannabidiol (CBD)
☠ Vegetable glycerin/glycerol	☠ Butane hash oil (BHO)
☠ Tobacco-specific nitrosamines	☠ Other chemicals & substances



Images Courtesy of CDC



How Toxic Are E-cig Flavors?



Images Courtesy of Ilona Jaspers



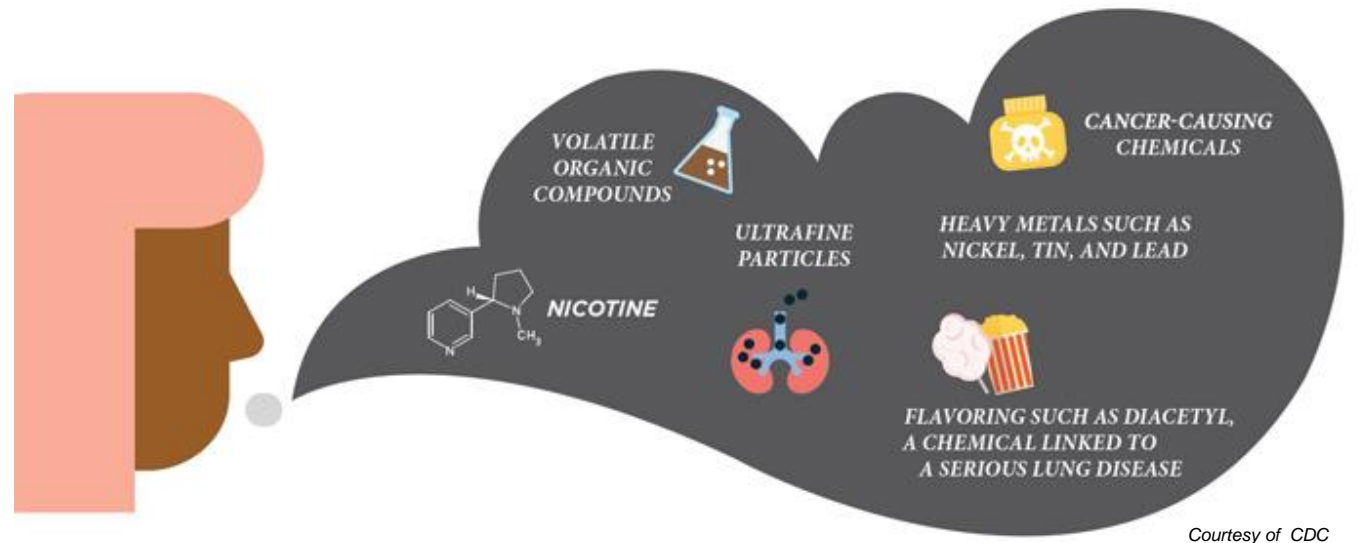
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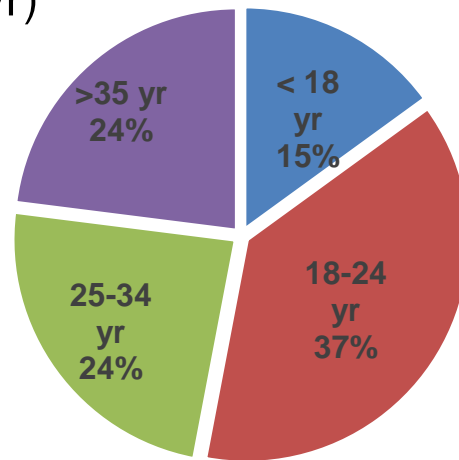
Aerosols contain harmful substances

- ☠ Nicotine
- ☠ Heavy metals
- ☠ Volatile organic compounds
- ☠ Ultrafine particles
- ☠ Cancer-causing chemicals
- ☠ Flavorings

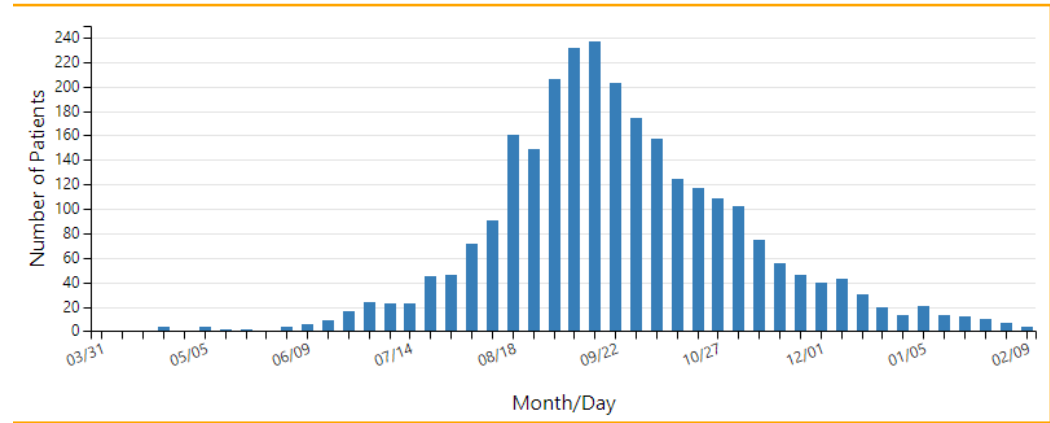


E-cigarette, or Vaping, Product use-associated Lung Injury (EVALI)

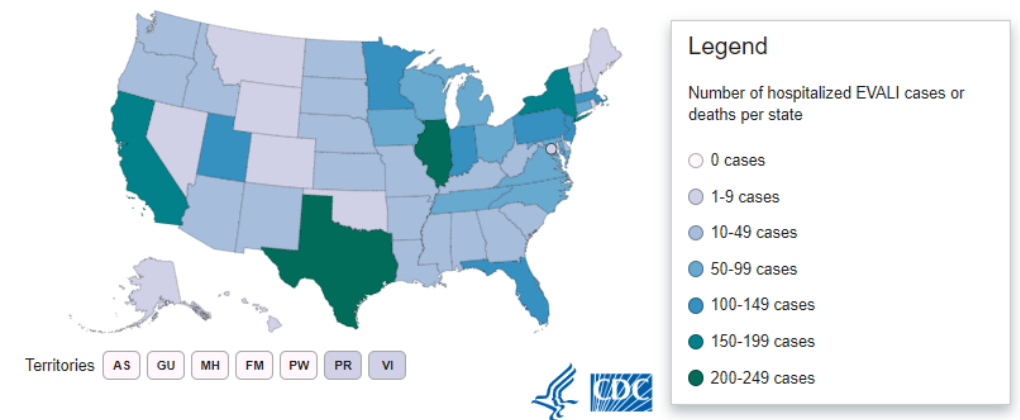
- **2,807 cases** reported to the CDC from all 50 states, Washington D.C., Puerto Rico, US Virgin Islands¹
- 66% male²
- Median age 24 yr (range 13 - 85 yr)²
- **68 deaths** in 29 states & DC¹
 - Median age 49.5 yr
 - Range 15-75 yr



Dates of symptom onset and hospital admission for patients with lung injury associated with e-cigarette use, or vaping — United States, March 31, 2019–February 15, 2020



Number of Hospitalized EVALI Cases or Deaths Reported to CDC as of February 18, 2020



1. CDC as of Feb 2020 2. CDC as of Jan 2020



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EVALI: Presentation

Signs/Symptoms:

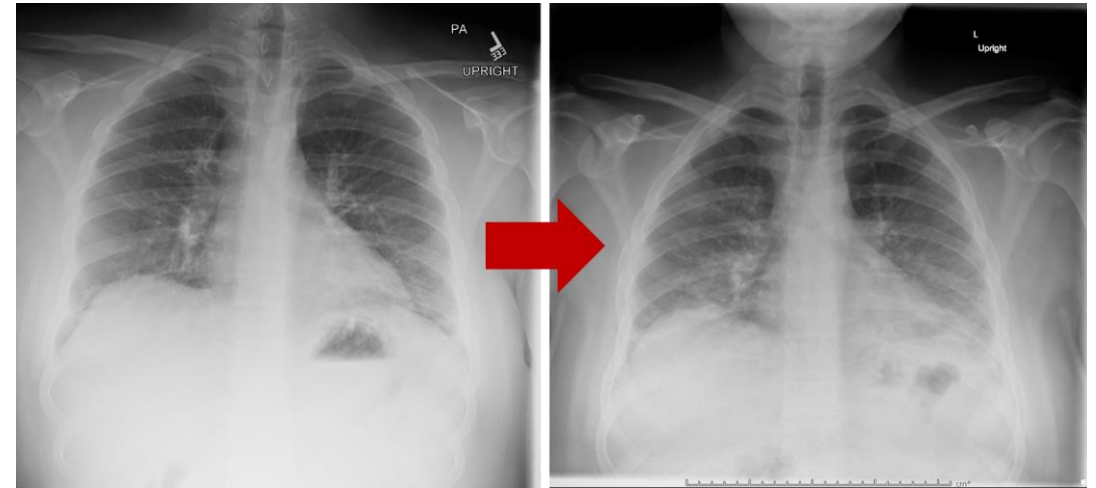
- Cough, Chest Pain, SOB (85-95%)
- Abdo pain, Nausea, Vomiting, Diarrhea (57-77%)
- Fatigue, Fever, Weight Loss (76-85%)
- Fever, Tachycardia (55%), Tachypnea (47%), Hypoxemia (57%)

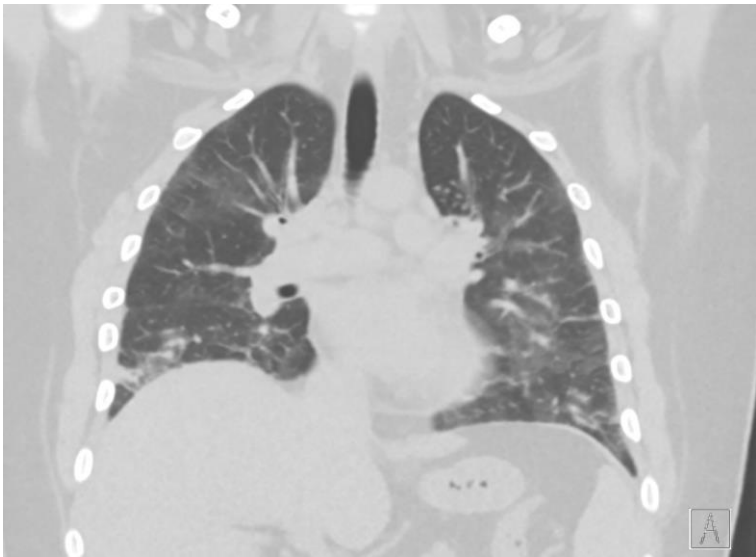
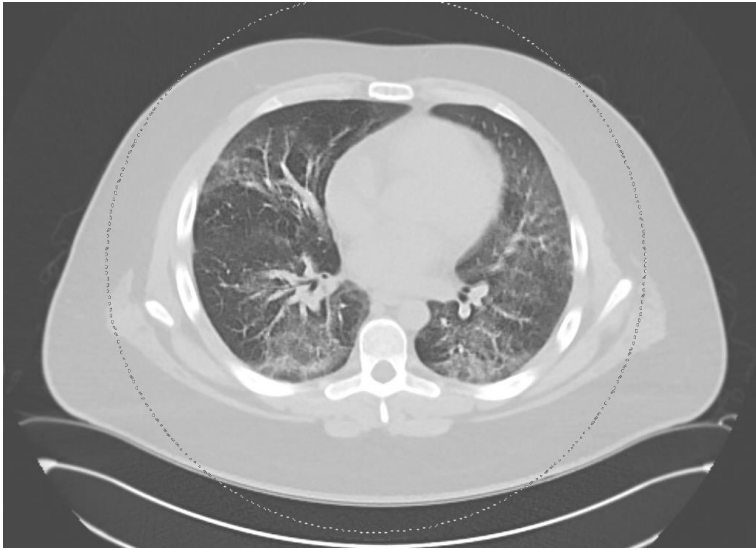
Labs:

- Serum leukocytosis with neutrophil predominance (87%)
- Elevated serum inflammatory markers (↑ESR (93%), ↑CRP)
- Transient, mild elevated serum transaminases (↑ALT, ↑AST) (50%)

Imaging:

- Abnormalities may or may not be present on initial imaging, but develop eventually
- Bilateral opacities on plain radiograph or ground-glass opacities on chest CT, often with sub-pleural sparing





Henry et al. NEJM2019



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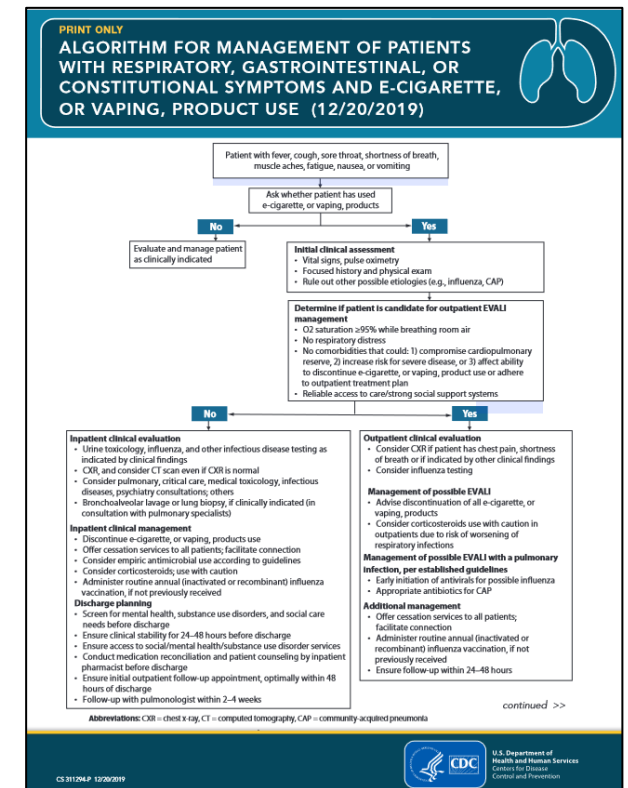
EVALI

- Work-up & Management:**

- Determine clinical stability & disposition (inpatient vs outpatient)
- Evaluate for other etiologies as clinically indicated
- Consider corticosteroids
- Advise discontinuation of products & offer resources

- Etiology:**

- THC-containing products, particularly from **informal sources** linked to most cases
- Vitamin E acetate** strongly linked to EVALI outbreak
- NOTE: Evidence is not sufficient to rule out contribution of other chemicals



Blout et al NEJM Dec. 2019



EVALI in the pediatric population

- Case series of 3 patients with **bronchiectasis** secondary to e-cigarette use and EVALI¹
- Case report of 17yoM h/o THC & nicotine e-cigarette use w/ EVALI requiring ECMO associated with **hemophagocytic lymphohistiocytosis** and **macrophage activation syndrome**²
- Case report of 20yoF h/o THC vape use w/ EVALI and **secondary pulmonary alveolar proteinosis**³
- Numerous reports of **diffuse alveolar hemorrhage & hemoptysis** associated with vaping and EVALI

1. Mull et al. Peds Pulm 2020 2. Derespina et al Pediatrics 2020 3. Isreal et al AJRCCM 2020



EVALI in the pediatric population

- Very limited data on long-term effects
- Few case reports and case series reporting pre-discharge and follow-up lung function testing
 - Spirometry tends to be abnormal prior to hospital discharge
 - Obstructive defect most commonly reported abnormal spirometry finding
 - Diffusion capacity often decreased
- Data suggest pulmonary function, imaging, and respiratory symptoms improve with time
- Persistence or recurrence of respiratory symptoms often associated with return to vaping / e-cigarette use



E-cigarettes, EVALI, COVID-19, MIS-C

- Similar, overlapping clinical presentations
- Emphasizes importance of taking a good history and maintaining a broad differential diagnosis
- National survey of adolescents and young adults (13-24yrs)
 - COVID diagnosis 5 times more likely among e-cig only ever users & 7 times more likely among dual ever users
 - Past 30-day dual-users were 4.7 times more likely to experience COVID related symptoms and 9 times more likely to get COVID tested

Gaiha et al. Journal of Adolescent Health 2020



E-cigarette use is associated with respiratory symptoms in adolescents

- E-cigarette use is associated with **coughing** in children and adolescents¹
- Adolescents who use electronic cigarettes report having **cough, mucus** production, or **bronchitis** twice as frequently as nonusers²
- A 2021 cross-sectional study of 10,483 adolescents ages 13-21 years found self-reported e-cigarette use was positively associated with symptoms of **bronchitis** and **shortness of breath**³
- Among young adults 18-24 yrs former & current e-cigarette use was associated with higher odds of developing **respiratory symptoms & wheezing**⁴
- Case studies of **spontaneous pneumothorax** associated with e-cigarette use
- Case report of 17yoM who developed **bronchiolitis obliterans**⁵

1. Bourke et al Peds Pulm 2021 2. McConnell et al AJRCCM 2017 3. Chafee et al Prev Med 2021 4. Wubin et al AJRCCM 2022 5. Landman et al. CMAJ 2019



E-Cigarettes and Oral Health

- Significant association between vaping & **periodontal disease**¹
 - 36% of men & 29% of women who vaped had periodontal disease
- E-cigarette users at increased odds of being diagnosed with **gum disease** (OR 1.76 CI 1.12-2.76) & bone loss around teeth (OR 1.67, CI 1.06-2.63)²
- Daily e-cigarette use associated with increased odds of **permanent tooth loss** from nontraumatic causes in adults³
- Adolescent e-cigarette users at higher odds of **cracked/broken teeth, pain** in the tongue and/or inside cheek vs those who never used e-cigarettes³

1. Jeong et al. *J Periodontology*. 2020

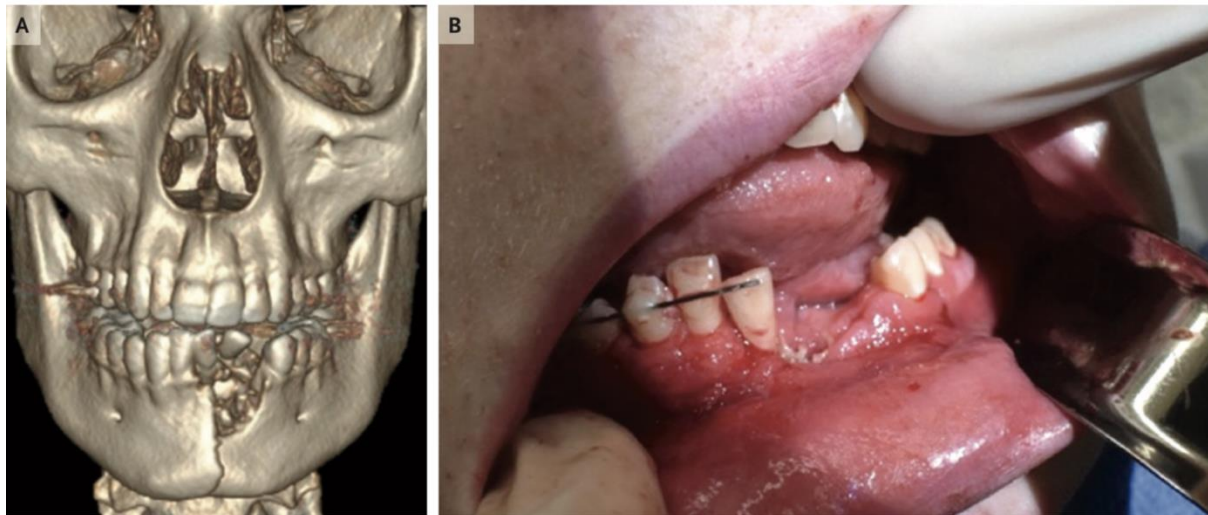
2. 1 Atuegwu et. al. *Int. J. Environ. Res. Public Health*. 2019

3. Andrikopoulos. *Toxic*. 2019



Risk of Injury From E-Cigarette Explosions

- 17yoM c/o pain & swelling in his jaw 2hr s/p e-cig exploded during use
- Circular puncture to the chin, extensive lacerations in mouth, multiple disrupted lower incisors, bony incongruity of the left mandible
- Head CT – comminuted & displaced mandibular fracture w/ disruption of the left central & lateral incisors



Katz and Russell. NEJM. 2019



Nicotine & associated health effects



Nicotine is Poisonous



- E-liquid nicotine can poison through ingestion or skin absorption
- Children are at risk for unintentional exposure
- Less than ½ a teaspoon of nicotine can be fatal to a toddler²
- Research indicates ingesting 1-4 mg of nicotine could be toxic to a child under 6 years, depending on the child's body weight.³
- Nicotine toxicity among youths of any age may lead to nausea, vomiting, abdominal pain, increased blood pressure and heart rate, seizures, respiratory failure, coma and death³

1. AAP policy statement: E-cigarettes and similar devices. Jan 2019 2. AAP Section on Tobacco Control. Dec 2018 3.

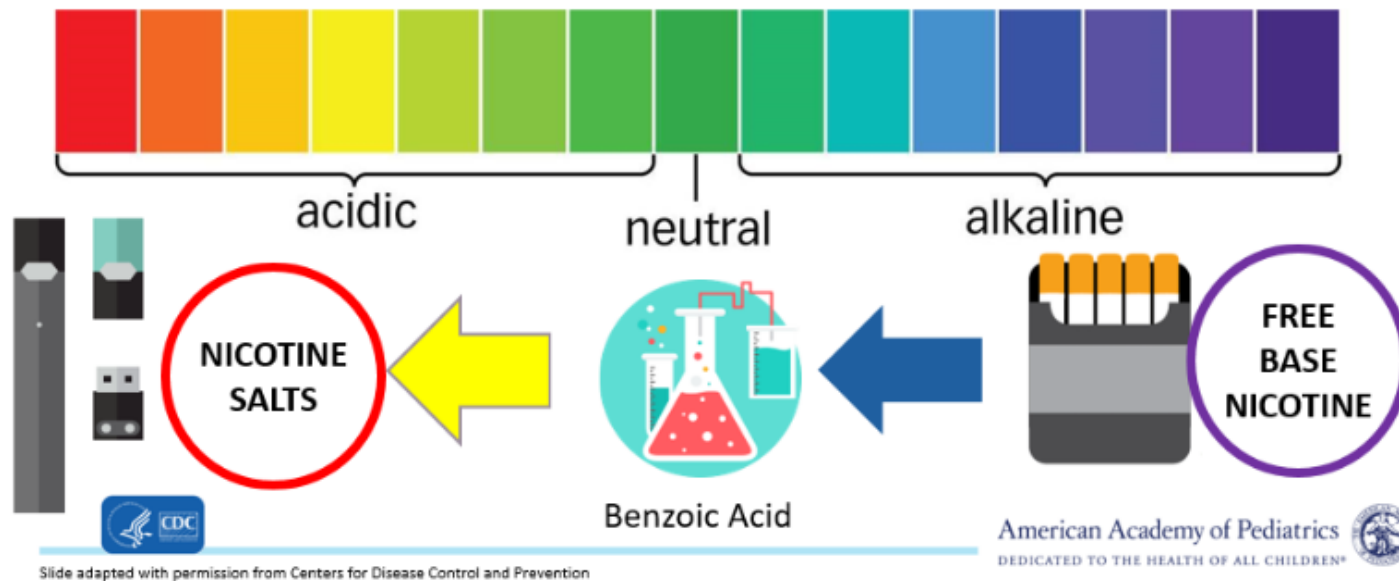


Misperception among adolescents that e-cigarettes with flavors do not contain nicotine



Nicotine Salts

- Designed to allow the user to inhale higher concentrations of nicotine with less throat irritation vs free-base nicotine
- Contributes to increased use & the potential for addiction



1 Pack of Cigarettes
≈20 mg of nicotine

1 JUUL pod
≈41.3 mg of nicotine

1 PHIX pod
≈75 mg of nicotine

1 Suorin pod
≈90 mg of nicotine



1 puff bar
~50mg of nicotine
~50 cigarettes

≈20
CIGARETTES

≈41
CIGARETTES

≈75
CIGARETTES

≈90
CIGARETTES



Stanford Tobacco Prevention Toolkit

1 puff max
>300mg of nicotine
>300 cigarettes

**PUFF
BAR**

500 Puffs
17 Flavors

Shop Now



**PUFF
PLUS**

1000 Puffs
20 Flavors

Shop Now



**PUFF
FLOW**

2000 Puffs
20 Flavors

Shop Now



**PUFF
MAX**

5000 Puffs
11 Flavors

Shop Now



Synthetic Nicotine

Tobacco-Derived Nicotine

1. Found in the tobacco plant
2. S-enantiomer of nicotine
3. Subject to FDA regulation per the 2009 Family Smoking Prevention and Tobacco Control Act
4. Abundant evidence supporting its addiction potential & other health-harming effects

Synthetic Nicotine

1. Marketed as being made in a lab & not derived from the tobacco plant
2. Can contain both S- & R- or solely R-enantiomers of nicotine
3. As of March 2022, included in the definition of a tobacco product & subject to FDA regulations
4. Limited research on addiction potential or other health harms

Kong G, Krishnan-Sarin S. Tobacco Free Nicotine (TFN): A New Public Health Challenge. *Tobacco Control* 2021
Jordt SE. Synthetic nicotine has arrived. *Tob Control* 2021



Non-tobacco Oral Nicotine Products

- Include nicotine pouches, lozenges, gummies, gum, tablets
- A recent study published in Pediatrics found these products were the **2nd most prevalent nicotine products used by adolescents after e-cigarettes**
- The same study found high school students who ever used combustible or noncombustible tobacco products had higher odds of ever using non-tobacco oral nicotine products.
- Flavored non-tobacco oral nicotine products were also **more frequently used by disadvantaged populations including sexual and gender minority youths**
- Don't forget to include oral nicotine products when screening for e-cigarettes and combustible tobacco product use



FIGURE 1
Examples of flavored non-tobacco oral nicotine products on the market. A, Nicotine pouches. B, Nontherapeutic nicotine gum. C, Nontherapeutic nicotine lozenges. D, Nicotine gummies.

Harlow et al. Pediatrics. 2022



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SHARE



FDA sends warning letter to manufacturer of nicotine-containing gummies

August 18, 2022
Steve Schering, Staff Writer

“Nicotine gummies are a public health crisis just waiting to happen among our nation’s youth, particularly as we head into a new school year. We want parents to be aware of these products and the potential for health consequences for children of all ages — including **toxicity to young children** and **appeal of these addictive products to our youth.**”

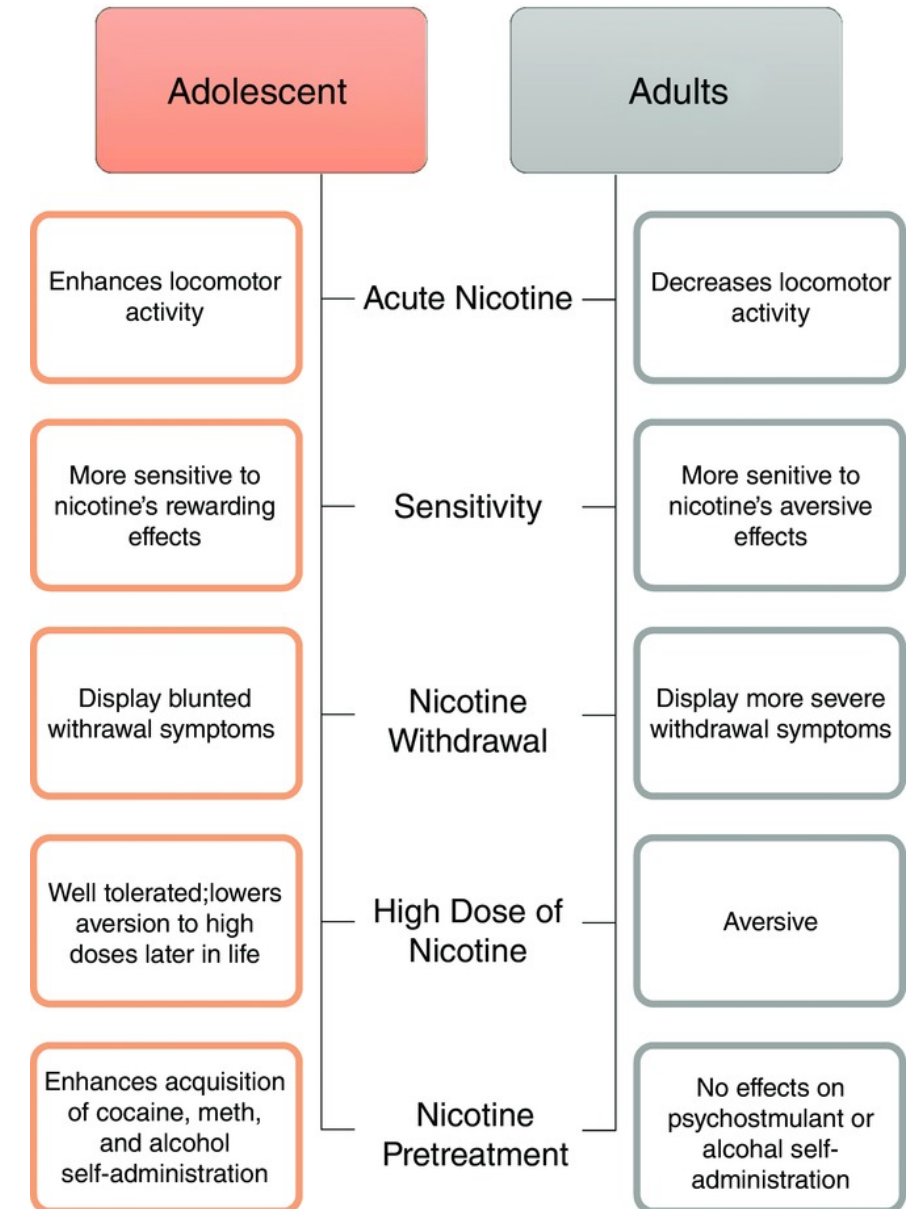
- FDA Commissioner Robert M. Califf, M.D.

<https://publications.aap.org/aapnews/news/22036/FDA-sends-warning-letter-to-manufacturer-of>



Nicotine is highly addictive & toxic to the developing brain

- Adolescents are **more likely to experiment** with substances & **more vulnerable to addiction**¹
- Nicotine **disrupts normal brain development** & primes behavioral susceptibility to drugs of abuse²
- Preclinical studies using rodent models indicate that nicotine produces age-specific behavioral responses²

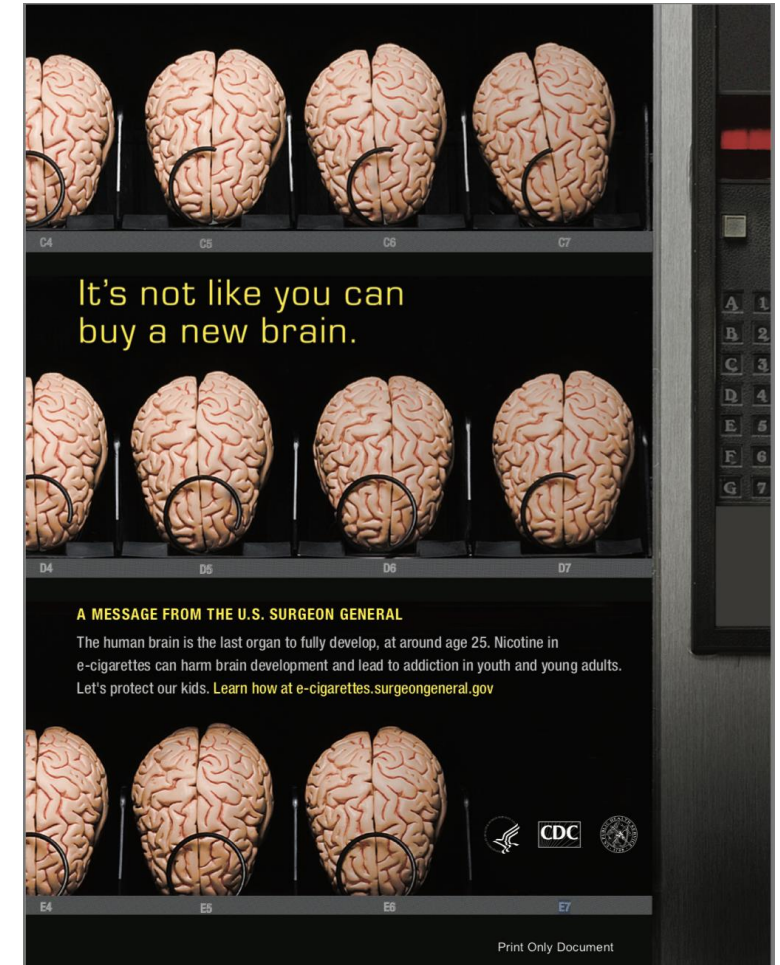


1. AAP policy statement: E-cigarettes and similar devices. Jan 2019 2. Menglu et al. Nicotine and the Adolescent Brain. 2015



Nicotine is highly addictive & toxic to the developing brain

- E-cigarette use is an **independent risk factor for cigarette smoking**¹
- E-cigarette use is associated with an **increased risk of future cigarette smoking initiation & current cigarette smoking**^{1,2}
- Adolescent electronic cigarette use was found to be **associated with an increased likelihood of future cannabis use**³



1. Soneji et al. 2017 2. Owotomo et al. Pediatrics. 2020 3. Sun et al. JAMA 2022



Nicotine is highly addictive & toxic to the developing brain

- 90% of adult smokers started using tobacco before 18 years of age¹
- The earlier an individual starts using nicotine-containing products, the stronger the addiction & more difficult it is to quit¹
- Initiation of tobacco use in late childhood (9-10yrs) is associated with inferior cognitive performance & brain development with sustained effects at 2yr follow-up²
- Of patients admitted to Riley with EVALI and who followed up in pulmonary clinic 25% reported they were still using e-cigarettes
- Of patients with more than one pulmonary clinic follow-up visit 100% reported re-initiation of inhaled products

1. AAP policy statement: E-cigarettes and similar devices. Jan 2019 2. Dai et al. JAMA Netw Open. 2022,



Marijuana & associated health effects



Cannabinoids

- Biologically active molecules
- Bind to receptors in the brain, nervous system, immune system
- Humans make endocannabinoids
- 3 FDA approved cannabinoids
 - Purified form of CBD for seizures associated with Lennox-Gastau or Dravet syndrome
 - Dronabinol for anorexia associated with weight loss in AIDS patients
 - Nabilone for nausea & vomiting associated with chemotherapy



Terminology

- **Cannabidiol (CBD)** → the major non-psychoactive cannabinoid in cannabis plants
- **Tetrahydrocannabinol (THC)** → the major psychoactive cannabinoid in cannabis plants
- **Hemp** → the stalk, fiber, and sterilized seeds of a cannabis plant; cultivated with low THC content (0.2% - 0.3%)
- **Purified Cannabidiol** → purified 98% oil-based CBD extract; available as FDA approved formula
- **CBD Oil** → concentrated solvent extract made from cannabis flowers or leaves; dissolved in edible oil; contains various levels of THC



Marijuana Plants

- Contain **more than 200 cannabinoids**
 - Tetrahydrocannabinol (THC)
 - Cannabidiol (CBD)
- **2 major species**
 - Sativa
 - Indica
- **Cross breeding can increase cannabinoid concentration**

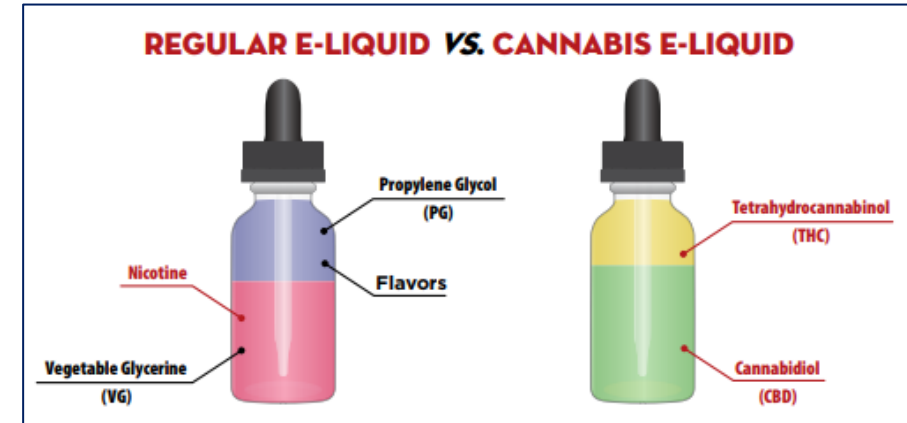


Photo by NIDA



Delta-9-tetrahydrocannabinol (THC)

- Extracted from marijuana as concentrates
- Derived products may contain very high dosages of THC
- Ingested, smoked, aerosolized



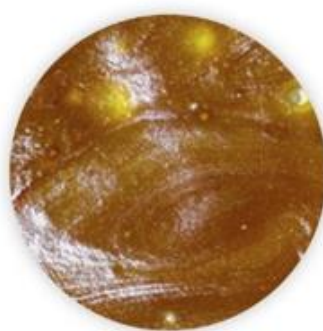
“Concentrates are very potent, so a little goes a long way.”



HASH



BUBBLE HASH



HASH OIL



WAX



SHATTER



LIQUID THC



Composition of THC Vaping Products

- THC concentrations in vaping products can be **4-30x higher** than dried cannabis leaves
 - Marijuana cigarettes: ~15-20% (increasing; 1995: 4%, 2014: 12%)
 - Solvent-based extracts: **~54-80+%**
 - Non-solvent-extracts: ~39-60%
- Vaping products can contain concentrated levels of **solvents, pesticides, toxins**
- Overheating of cannabis vaping products can lead to inhalation of **carbon-monoxide, tar, ammonia**

Morean et al., 2015; King, 2018



Devices used to aerosolize THC

- Tabletop units
- Disposable vape/dab pens
- Pre-filled cartridges
- Refillable Vaporizers



Vaping THC-containing products

- Results in **stronger effects** and **higher peak concentrations of THC** in blood compared with equal doses of smoked cannabis
- Blood THC concentrations **peak within 30 minutes** and return to baseline within 3 to 4 hours
- However, subjective drug effects such as cognitive and psychomotor impairments persist for **up to 6 hours on average**

Choi et al Annals ATS 2020



Associated Risks

- High risk of developing **dependence / addiction** with exposure to high concentrations of THC
- Higher doses associated with **anxiety, agitation, paranoia, psychosis**
- Butane extraction – burns, explosions
- **Cannabis hyperemesis syndrome**

NIDA, 2020; Freeman & Winstock, 2015; Choi et al 2020



Associated Risks

- THC-containing products, particularly from informal sources linked to most cases of EVALI
- Case reports and series of adolescents with a history of THC containing e-cigarette use and acute respiratory distress / complications
- Odds of reporting wheezing approximately 2 times higher among adolescents who used cannabis e-cigarettes¹
- Lifetime cannabis use with e-cigarettes associated with higher odds of respiratory symptoms in the past year¹
- Cannabis vaping in young adults associated with increased risk of bronchitic symptoms & wheeze²

1. Boyd et al. Journal of Adolescent Health. 2021 2. Braymiller et al JAM Netw Open. 2020



Associated Risks

- Difficulty thinking and problem solving
- Problems with memory and learning
- Impaired coordination
- Difficulty maintaining attention
- Decline in school performance
- Increased risk of mental health issues
- Increased likelihood of risk-taking behaviors (e.g. impaired driving)
- Increased risk of mental health issues including psychosis, depression, suicidality

<https://www.cdc.gov/marijuana/factsheets/teens.htm>



Recommendations

- **Screen** and assess for THC use
 - quantity, frequency, duration, products used, method, dosing;
 - **friends/peers use**
- **Educate** adolescents and parents on risks of high potency THC consumption
- **Recognize symptoms of cannabis overconsumption** (drowsiness, confusion, rapid heart rate, irritability, panic, anxiety, nausea/vomiting, short-term psychosis)
- **Treatment** for cannabis use disorder, when indicated
- **Counsel and encourage** cessation or continued avoidance

Struble, Ellis, & Lundahl, 2019



Information into Action



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DEDICATED TO THE HEALTH OF ALL CHILDREN™

POLICY STATEMENT

Organizational Principles to Guide and Define the Child Health
Care System and/or Improve the Health of all Children

Clinical Practice Policy to Protect Children From Tobacco, Nicotine, and Tobacco Smoke

SECTION ON TOBACCO CONTROL



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Clinical Practice Policy to Protect Children From Tobacco, Nicotine, & Tobacco Smoke

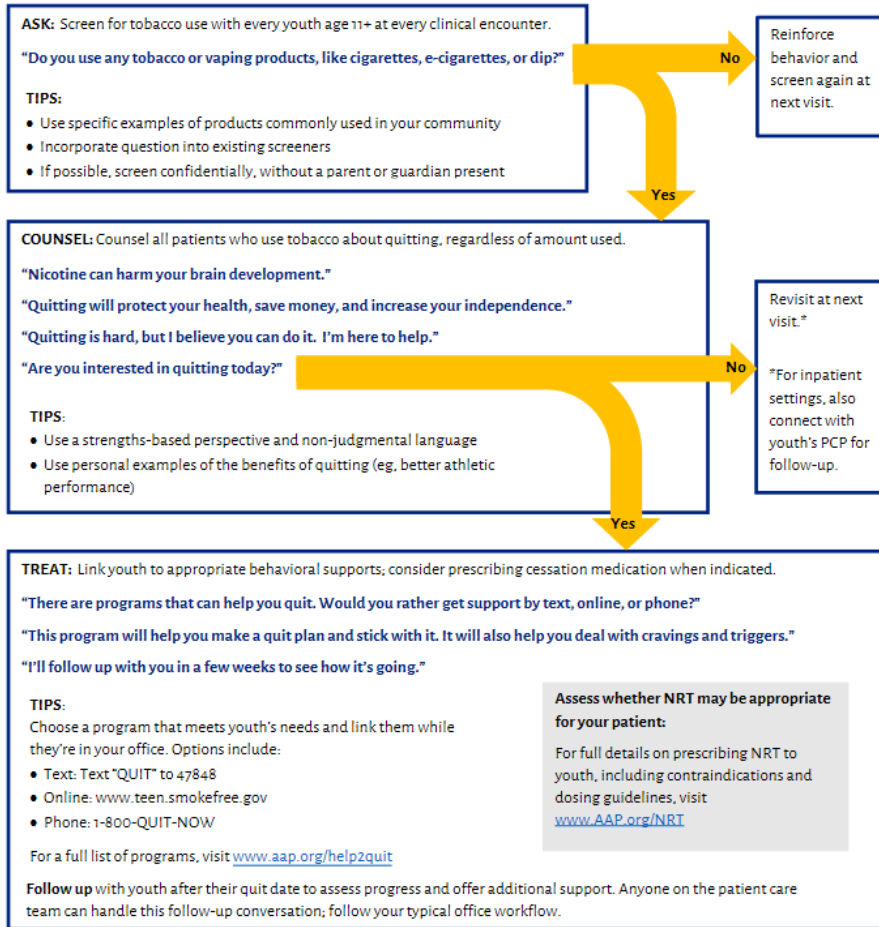
Recommended Actions for Pediatricians:

1. **Inquire about tobacco use and tobacco smoke exposure** as part of health supervision visits and visits for diseases that may be caused or exacerbated by tobacco smoke exposure.
2. Include **tobacco use prevention** as part of anticipatory guidance.
3. **Address parent/caregiver tobacco dependence** as part of pediatric health care.
 - 3.a. Recommend tobacco dependence treatment of tobacco-dependent parents and caregivers.
 - 3.b. Implement systems to identify and offer counseling, treatment, treatment recommendations, and/or referral for tobacco-dependent parents.
4. Offer **tobacco dependence treatment and/or referral to adolescents who want to stop smoking**.
 - 4.a. Tobacco dependence pharmacotherapy can be considered for moderate to severely tobacco-dependent adolescents who want to stop smoking.
5. Offer tobacco-dependent individuals **quitline referral**.
6. Consider potential for neuropsychiatric symptoms with tobacco dependence treatment.
7. **Do not recommend electronic nicotine delivery systems for tobacco dependence treatment**.
8. If the sources of a child's tobacco smoke exposure cannot be eliminated, **provide counseling about strategies to reduce the child's tobacco smoke exposure**.



Youth Tobacco Cessation: How to ACT (Ask-Counsel-Treat) in 2-3 Minutes

This tip sheet provides 3 easy steps that every pediatric health clinician should follow to address youth tobacco use at every clinical encounter. The steps are designed to allow for a meaningful intervention with minimal workflow disruption. For a full, detailed strategy for addressing youth tobacco cessation, please visit www.aap.org/youthcessation.



Updated June 2021
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A.C.T

ASK – Screen for tobacco use with every youth age 11+ at every clinical encounter

COUNSEL – Counsel all patients who use tobacco about quitting, regardless of the amount used

TREAT – Link youth to appropriate behavioral supports; consider prescribing cessation medication when indicated

https://downloads.aap.org/AAP/PDF/AAP_Cessation_ACT_Flowchart.pdf?_ga=2.259473292.701060760.1653344759-1321112084.1606777473



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The Clinical Effort Against Secondhand Smoke Exposure (CEASE)

The CEASE Program is the #1 program recommended by the AAP because of its effectiveness in tobacco cessation, and cost-efficiency for pediatric clinics wanting to tackle the tobacco burden. Housed in INAAP, and funded by the Indiana State Department of Health, our aim is to screen, counsel, and treat parents and teens on tobacco cessation in pediatric clinics across the state of Indiana.

If interested in learning more about the program, please contact Kelsey Back (kb@inaap.org).

WHY CEASE?

- ✓ *Eliminate smoking in future pregnancies and reduce high infant mortality rates*
- ✓ *Eliminate the #1 cause of preventable morbidity & mortality*
- ✓ *Seamlessly integrates into clinic check-in and exam routine*
- ✓ *Decrease the economic impact of smoking on families*
- ✓ *Decrease teen smoking rates*
- ✓ *All program materials and training's come with no cost to clinic*
- ✓ *Full support of INAAP and the CEASE team, Lisa Wegner and Clare Burkert*
- ✓ *Easy opportunity for Maintenance of Certification (MOC) Part 4 credit (50 points available)*





<https://www.quitnowindiana.com/>

<https://www.lung.org/quit-smoking/helping-teens-quit/not-on-tobacco>

American Lung Association. Call the Lung Helpline Ask a Question

Shop Blog LUNG FORCE Help & Support Login

Search TRANSLATE IN

Lung Health & Diseases Quit Smoking Clean Air Research & Reports Policy & Advocacy Get Involved DONATE

Home > Quit Smoking > Helping Teens Quit Smoking and Vaping > N-O-T: Not On Tobacco—Proven Teen Smoking and Vaping Cessation Program

N-O-T: Not On Tobacco—Proven Teen Smoking and Vaping Cessation Program

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[Home](#) → [This is Quitting](#)

THIS IS QUITTING

The first-of-its-kind program to help young people quit vaping, This is Quitting has helped nearly 500,000 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.

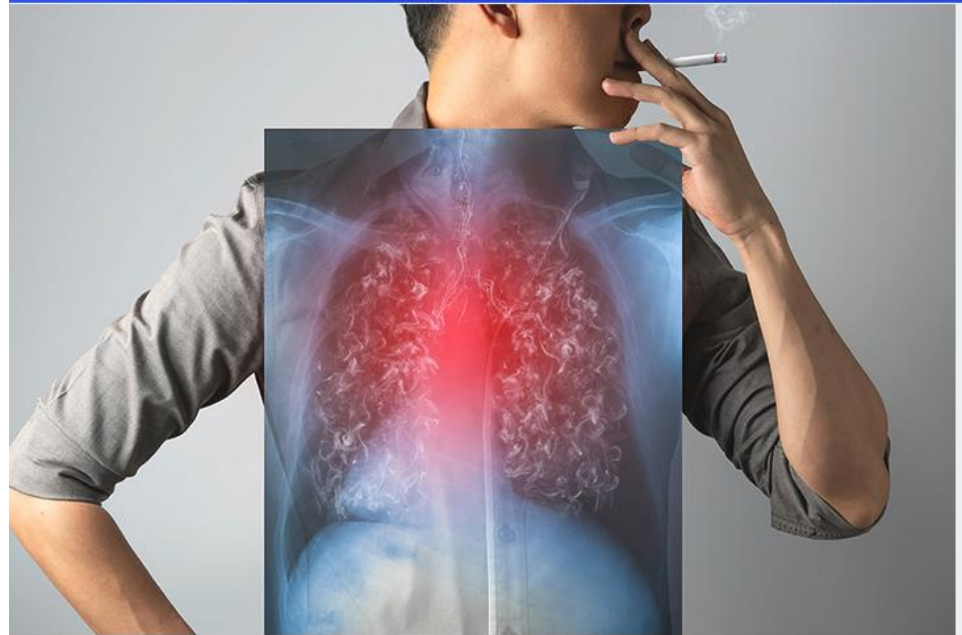
Teens and young adults can join for free by texting **DITCHVAPE** to **88709**

<https://truthinitiative.org/thisisquitting>



Tobacco Control and Prevention

[Home](#) / [Patient Care](#) / Tobacco Control and Prevention



<https://www.aap.org/en/patient-care/tobacco-control-and-prevention/>



The FDA Tobacco Education Resource Library Offers Free Tobacco Education Materials

The FDA Tobacco Education Resource Library can help you keep your community informed about tobacco-related issues.

truth initiative
INSPIRING LIVES FREE FROM SMOKING, VAPING & NICOTINE

WHO WE ARE ▾ WHAT WE DO ▾ OUR TOP ISSUES ▾ RESEARCH & RESOURCES ▾ GET INVOLVED ▾ SEARCH 🔍

Youth Vaping Prevention & Resources to Quit

To educate America's students about the health dangers of e-cigarette use and reverse the pervasive youth vaping epidemic, Truth Initiative and Kaiser Permanente in collaboration with the American Heart Association, have launched a national youth vaping prevention curriculum called **Vaping: Know the truth**. This free digital learning experience is being developed as part of Truth Initiative's nationally recognized **truth** campaign and will be made available to schools by leading social impact education innovator, EVERFI.

In addition to encouraging students to live vape-free lives, this self-led interactive-curriculum offers resources to help young people who are currently using e-cigarettes to quit through **truth**'s first-of-its-kind text message youth quit vaping program called **This is Quitting** already helping nearly 500,000 youth and young adults on their journeys to quit.

IN.gov Vape-Free Indiana About Vape-Free Indiana Parents Youth Educators Health Care Professionals Subscribe to our newsletter Contact Us SEARCH

Online Services ▾ I Want To ▾ FAQs ▾ Find an Agency Gov. Eric J. Holcomb

About Vape-Free Indiana

Indiana teens are more likely to use vaping devices than cigarettes. The increase in vaping among youth is rising at such an alarming rate that the U.S. Surgeon General is calling it an epidemic that "demands action to protect the lives of young people."

Learn More

Parents Youth Educators Health Care Professionals

Scroll for more

SCHOLASTIC SHOP ▾ BOOK CLUBS BOOK FAIRS EDUCATORS

Spanish version of this site • Versión en español de este sitio

Sponsored Educational Materials

The Real Cost of Vaping

ELA • Math • Science/Technology/Health • Social Studies
Grades 6–12

LESSONS & ACTIVITIES | DIGITAL TOOLS | MORE RESOURCES

In Summary

1. E-cigarettes continue to be the most commonly used tobacco product among adolescents & young adults although new products may be on the rise
2. E-cigarette, nicotine, and marijuana products & regulations are constantly changing
3. E-cigarettes, nicotine, and marijuana have adverse health effects
4. Adolescents should be screened for, educated about, and counseled against e-cigarette, nicotine, and marijuana use



Questions?

Thank you!

