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Vaping Trends

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hildren's Hospital Colorado ere, it's different.™

Vaping Trends



Teen use and recent clinical trends Research needs and barriers

Policy trends



What is an e-cigarette?

- Entered the market about 13 years ago
- Diverse group of products which are typically battery-operated and designed to deliver a heated solution, or aerosol, of nicotine and other chemicals to the user
- Create aerosols that contain carcinogens and heavy metals like lead and arsenic
 - Found in both inhaled vapor and secondhand vapor
- Flavors like mango, gummy bear or cotton candy are often added to the product
- Marketed as a "safer alternative" to combustible cigarettes
 - Have not been approved as cessation devices so cannot be marketed as such, but many consumers believe they are
- THC, the psychoactive chemical in cannabis, can also be used in vaping devices
- Nicotine and THC liquid can be bought legally or illegally, which serious safety implications





How does vaping work?

Handheld device with:

- Battery
- Flow sensor
- Juice (solution) that can include nicotine, flavor chemicals, THC

How it works:

- User breathes in
- Sensor activates aerosol generator
- Generator brings juice from storage area
- Heats juice to create aerosol
- Users inhales aerosol, then exhales (secondhand exposure)



What are they called?

- ENDS (electronic nicotine delivery system)
- Electronic cigarettes
- E-cigarettes
- Vape pens
- JUUL (specific brand that holds 70% of US market)
- Pods
- Pod mods
- Juuling

Remember when they put toilets in the juul



10:08 AM - 19 May 2019

Vaping Statistics

- In 2017, 5.3% of Colorado adults reported e-cigarette use
- In 2017, more than a quarter of Colorado teens (27%) reported current ecigarette use - the highest in the country, among reporting states and twice the national average (13%)
 - 44% reported trying e-cigarettes at least once
 - 7% reported current use of traditional cigarettes
 - 50% believed vaping is risky; 87% believed smoking is risky
- Nationally, youth vaping rates skyrocketed between 2017 and 2019
 - 8th graders reporting use in last 30 days: 3.5% (2017) vs. 9% (2019)
 - 12th graders reporting use in last 30 days: 11% (2017) vs. 25.4% (2019)
- In 2018, 45.7% of 8th graders and 80.5% of 12th graders said it was "fairly easy" or "very easy" to get vaping devices
- 70-80% of youth who vape said they use e-cigarettes "because they come in flavors I like"
- Product designs makes it easy to vape discreetly







Risks of Teen E-cigarette Use

- Nicotine can harm brain development, which continues into early to mid-20s
- Nicotine exposure in adolescents increases risk of addiction, mood disorders, poor impulse control, decreased attention and learning ability
- Youth who reported recent vaping are 4 times more likely to begin smoking traditional cigarettes within a year than youth who did not
- In 2016, approximately 1/3 of US middle and high school students who have ever used an ecigarette reported vaping marijuana
- JUUL
 - Roughly 3/4 of US e-cigarette market at end of 2018
 - Higher levels of nicotine than most e-cigarettes (1 pod comparable to 1 pack of cigarettes)
 - Uses nicotine salts, which allow high levels of nicotine to be inhaled more easily and with less irritation than more common free-base nicotine
 - 2/3 of JUUL users age 15-24 do not know JUUL always contains nicotine



EVALI (Vaping-related Lung Injury)

- E-cigarette, or Vaping, product use Associated Lung Injury (EVALI)
 - Was initially known as Vaping Associated Pulmonary Injury (VAPI)
- As of October 31, 2019, 1,888 cases have been reported to CDC from 49 states (all except Alaska), the District of Columbia, and 1 U.S. territory
- 37 deaths have been confirmed in 24 states (as of October 31, 2019)
- CDPHE currently investigating 1 possible vaping-related death in Denver (18 year old)
- 86% of cases reported using THC-containing products (34% exclusive use of THC products); 64% reported using nicotine-containing products (11% exclusive use of nicotine products)
- FDA and CDC have not identified the cause or causes of the lung injuries in these cases, and the only commonality among all cases is that patients report the use of vaping products
- No one compound or ingredient has emerged as the cause of these illnesses to date; and it may be that there is more than one cause of this outbreak





Chest imaging of a patient with VAPI. Admission chest X-ray (A) was mildly abnormal, but this rapidly worsened over 12 hours (B). CT scan shows ground glass opacification with areas of consolidation bilaterally and relative subpleural sparing. -Layden et al 2019 NEJM

What do we need to address youth vaping?

Education

- Resources to support full-time position focused on youth, caregiver, and community education on vaping
- **Cessation Research**
- Limited resources for youth cessation counseling
- Current gold standard for adult cessation is nicotine replacement therapy
- No FDA-approved nicotine replacement for children under 18
- Marijuana Research
- High proportion of EVALI cases linked to THC products demonstrates need for research
- Colorado lawmakers have tried to ease restrictions at the state-level on marijuana research (House Bill 17-1367) but barriers remain due to its status as a Schedule I drug at the federal level
- DEA regulations require institutions receiving federal funds to procure marijuana for research purposes from University of Mississippi
 - May not be equivalent to THC products identified in EVALI case reviews



Colorado Policy Response

- Prior Administration Executive Order
 - Policy recommendations to tackle youth vaping
- Empowering Local Communities to Enact Tobacco Control
 - House Bill 19-1033
- Addressing Youth Normalization: Modernizing the Colorado Clean Indoor Air Act
 - House Bill 19-1076
- Closing the Vaping Tax Loophole and Raising the Cigarette Tax
 - House Bill 19-1333
- Marijuana Regulators Ban Certain Additives in THC Products
 - https://www.denverpost.com/2019/10/14/vaping-illnessregulation-marijuana-additives-colorado/
- Local Community Regulations
 - Tobacco retail licensure, Tobacco 21, flavor bans, and taxes



Federal Policy Response

- Congressional Activities
 - Online sales
 - Tobacco 21
 - Taxes
 - Flavors
- Executive Branch Activities
 - FDA
 - Jurisdiction and premarket review
 - Enforcement actions on youth use
 - Flavor ban announced but timing and scope unclear
 - CDC and FDA public health warnings



Litigation

- Young adult JUUL users and parents of teenage users have filed hundreds of lawsuits, potentially soon to be thousands, over vaping-related injuries in courts around the country, including both individual lawsuits and class actions. The plaintiffs make a variety of allegations against JUUL, including fraudulent marketing, marketing to youth, and product liability.
- Recent litigation connected to death of teenager who died from vaping related illness.
- At the state level, a growing number of attorneys general (AGs) including our own AG Phil Weiser last August - have launched investigations into JUUL and other e-cigarette manufacturers regarding the companies' alleged deceptive practices. Last May, North Carolina became the first state to take legal action against JUUL. Democratic North Carolina AG Josh Stein's lawsuit against JUUL faults the company for marketing to youth and misrepresenting the products' dangers. AG Stein has also filed lawsuits against eight additional e-cigarette companies in an attempt to shut them down in North Carolina.



Where do we go from here?

- Research
- Policy
 - Need a statewide Tobacco 21 policy that requires tobacco retailers to be licensed and includes robust enforcement
 - Need a ban on flavors including menthol and mint
 - Better regulation of online sales
 - Need an appropriate taxing structure for tobacco products including liquid nicotine

