

# Impact of Youth E-Cigarette Use on Individuals and Communities

Peak Alliance for a Sustainable Future

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Grace H. Houser, MD

Associate Professor, Pediatric Pulmonology, University of  
Colorado School of Medicine

Pediatric Pulmonary Program and Population Health Director,  
Colorado Springs Network of Care/Briargate

Children's Hospital Colorado

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# Objectives

- Review background information about “vaping”, or e-cigarette use
- Describe the alarming statistics around youth vaping in Colorado and specifically in El Paso County
- Analyze evidence about the individual health risks of e-cigarette use
- Recognize the potential population health effects of vaping/e-cigarette use
- Discuss strategies to reduce youth e-cigarette use

# What is vaping?

*Review background information about “vaping”, or e-cigarette use*

# Vaping, or ENDS

- ENDS: electronic nicotine delivery system
- Alternate names:
  - Electronic cigarettes (e-cigs)
  - Electronic cigars (e-cigars)
  - Electronic hookah (e-hookah)
  - Vape pens
  - Pod mods
  - JUUL (specific brand) – 70% of US e-cig market
- Verbs: vaping, juuling
- Components:
  - Handheld device
  - Solution, or “juice”
    - Nicotine
    - Flavoring chemicals
    - Solvent (propylene glycol or vegetable glycerin)
  - Flow sensor
  - Battery
- Emits an aerosol (not “water vapor”)
  - 2<sup>nd</sup>/3<sup>rd</sup> hand exposure
- Other substances can be used









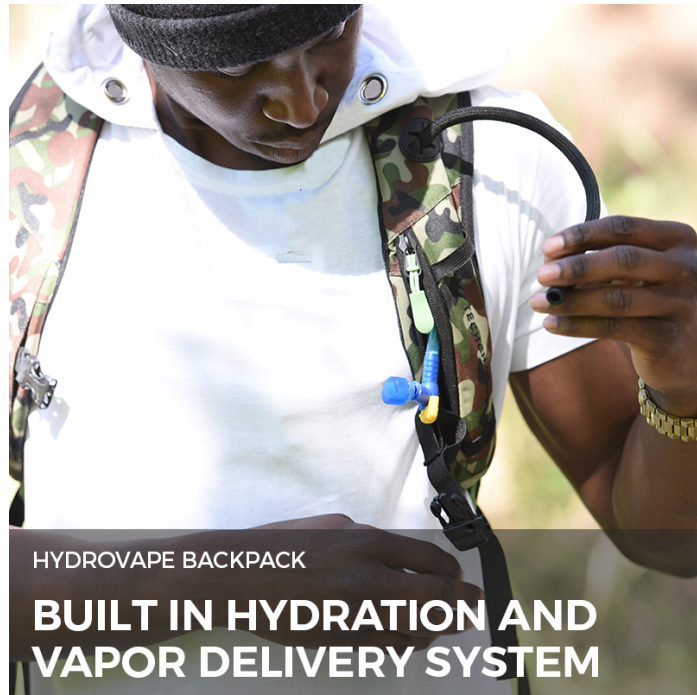






MOUNTAIN SERIES

**COLORADO  
SKI BADGE HOODIE**



HYDROVAPE BACKPACK

**BUILT IN HYDRATION AND  
VAPOR DELIVERY SYSTEM**



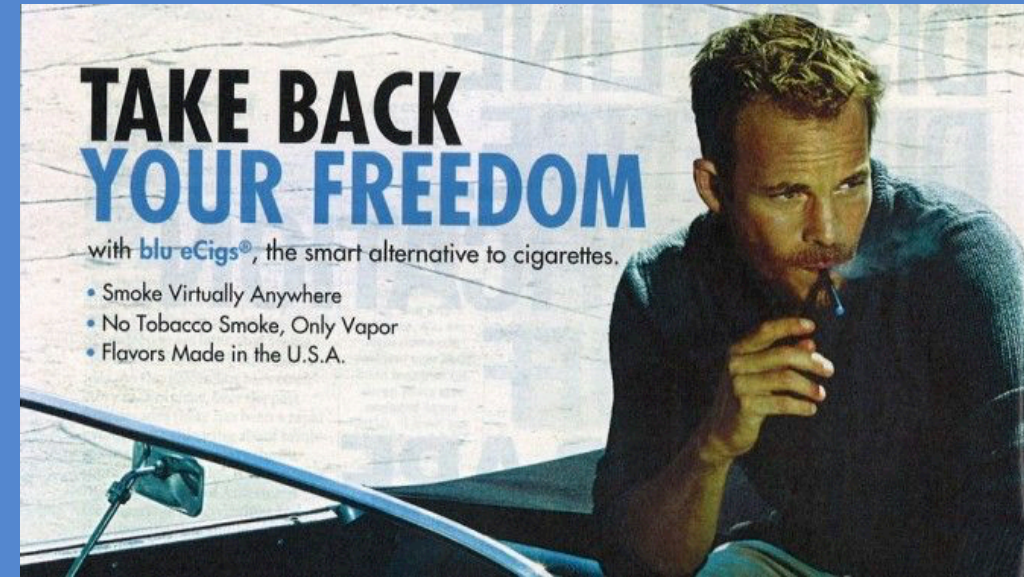
VAPE  
ANYTHING  
VAPE  
ANYWHERE

LIVE LIFE ELEVATED

DISCREET  
DRAWSTRING™

# Marketing

- Flavors
- Social media - Instagram, snapchat, twitter, YouTube
- By 2016, nearly 4 out of 5 middle and high school students - more than 20 million youth - saw at least one e-cigarette advertisement
- “Made for adults to quit smoking” - JUULs
- “Healthy Alternative”





# What are the numbers?

*Describe the alarming statistics around youth vaping in Colorado and specifically in El Paso County*



# National

- 2017: vaping was the most common use of any tobacco-like product among adolescents
  - Rapid rise from near-zero prevalence of vaping in 2011
- From 2017 to 2018: 78% increase in vaping among 12<sup>th</sup> graders (11% prevalence in 2017 to 20.9% prevalence in 2018)
  - Translates into ~ 1.3million additional U.S. adolescents who vaped in 2018 as compared to 2017
  - Largest ever absolute increase in prevalence in the 44 years of this study tracking dozens of substances
  - Less pronounced but still concerning increases in 10<sup>th</sup> graders and 8<sup>th</sup> graders

# In Colorado

- 44% of Colorado (and El Paso County) high school students report trying e-cigarettes at least once
- 1 in 4 CO students report current vaping (28% in El Paso County)
  - Colorado is #1 in the country for youth vaping!
- Teens don't know that vaping/e-cigarette use is risky
  - 87% (85% in EPC) aware that smoking traditional cigarettes is risky
  - 50% (47% in EPC) aware that vaping is risky
- 63% of youth don't know that JUUL contains nicotine
  - Reality: 1 JUUL pod contains as much nicotine as 1 pack of cigarettes!
- Teens who vape are more likely to engage in other high-risk behaviors, including substance use and risky sexual behaviors

# Protective Factors – El Paso County Data

- Youth who have the following factors in their life are less likely to engage in tobacco use and vaping:
  - Having clear rules in the family
  - Having a trusted adult they can ask for help
  - Feeling safe at school
  - Participating in extracurricular activities
  - Having a parent or guardian who knows where they are and who they are with
  - Not having skipped school in the past month



# What's the medical evidence?

*Analyze evidence about the individual health risks of e-cigarette use*

# Effects of nicotine use

- Highly addictive
- Adolescent developing brain: at risk of addiction, mood disorders, lowered impulse control, decreased attention and learning ability
- Increased potential for addiction to other substances
- Long term: lung cancer, cardiovascular disease, stroke, chronic lung disease
- Youth who use e-cigarettes are 4x more likely to go on to use traditional cigarettes

# Respiratory effects of e-cig use

- Inhalation of carcinogens and toxic substances
  - Propylene glycol is converted into propylene oxide during aerosol inhalation (a class 2B carcinogen)
  - Glycerol is converted into formaldehyde (a class 1 carcinogen)
  - Heavy metals: nickel, lead, cadmium, tin (35 different kinds detected)
    - Can be deposited in the pulmonary alveoli and lead to cough, dyspnea, chest pain, pulmonary edema, acute respiratory failure
  - Volatile organic compounds which irritate the skin and mucus membranes
- 2<sup>nd</sup> and 3<sup>rd</sup> hand exposure to e-cig smoke
  - Conclusive evidence of increased airborne concentrations of particulate matter and nicotine in indoor environments
  - Increased risk of asthma exacerbations
  - Evidence from traditional cigarettes: kids exposed to SHS have increased risk of SIDS, asthma, recurrent wheezing, recurrent respiratory illness, impaired lung development, COPD as adult



# Other medical effects of e-cig use

- Acute adverse effects: cough, mouth or throat irritation, anxiety, depressed mood, nausea, insomnia
- Potential link to asthma: adolescents with asthma had a higher prevalence of current e-cig use (12.4%) as compared to non-asthmatic peers (10.2%)
- Flavorings induce endothelial cell dysfunction, could lead to increased risk of cardiac dysfunction, heart attack and death
- Potential for ingestion, death
- Potential risk for explosion, death
- **No evidence for “safety”**

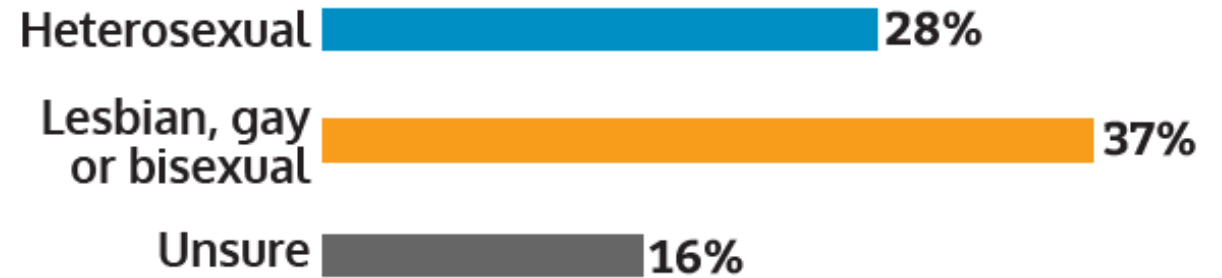
How does the teen e-cigarette epidemic affect our community?

*Recognize the potential population health effects of vaping/e-cigarette use*

# Health Disparities in El Paso County

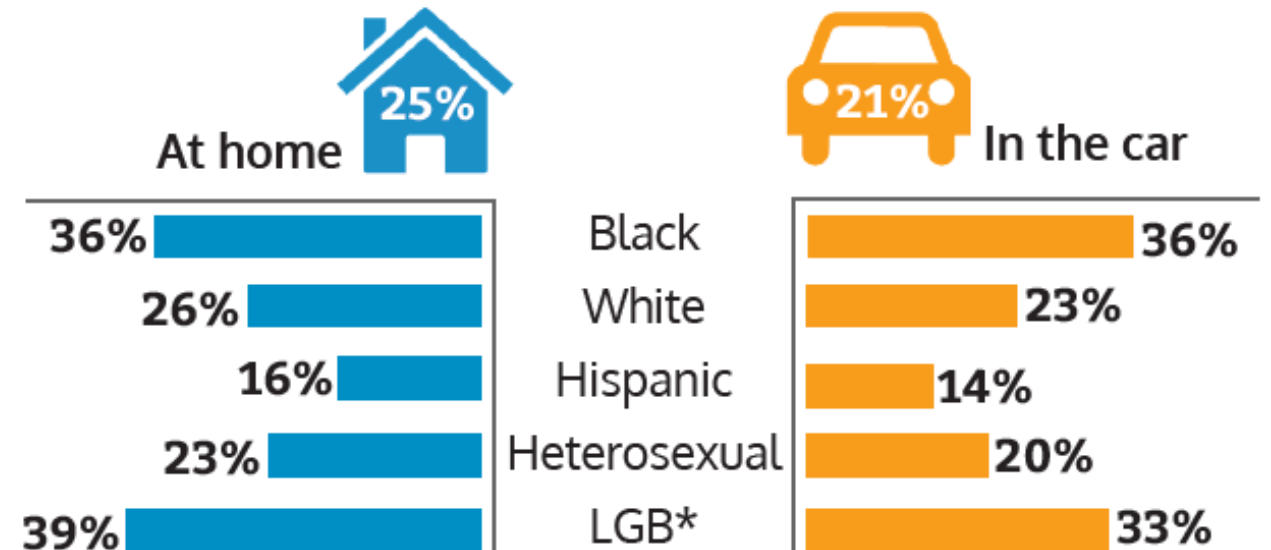
## HEALTH DISPARITIES

### CURRENT TOBACCO USE BY SEXUAL ORIENTATION



### SECONDHAND SMOKE EXPOSURE

Youth exposed to cigarette, cigar, or pipe smoke or e-cigarette vapor in the last week.



\*Lesbian, gay or bisexual



# Public Health Effects of E-Cigarette Use

- Conclusive evidence:
  - E-cig use increases airborne concentration of particulate matter and nicotine
  - Injury risk for explosions, burns, projectile injuries
  - Adverse health effects of intentional or accidental exposure to e-liquids (from drinking, eye contact, or dermal contact) can result in seizures, anoxic brain injury, vomiting, lactic acidosis, fatalities
- Substantial evidence:
  - Nicotine intake from e-cig devices among experienced adult e-cig users can be comparable to that from combustible tobacco cigarettes
  - E-cig use increases risk of ever using combustible tobacco cigarettes among youth and young adults

# Public Health Effects of E-Cigarette Use

- Conclusive evidence:
  - Completely substituting e-cigarettes for combustible tobacco cigarettes reduces users' exposure to numerous toxicants and carcinogens present in combustible tobacco cigarettes
- Substantial evidence:
  - Except for nicotine, exposure to potentially toxic substances from e-cigarettes is significantly lower compared with combustible tobacco cigarettes

# Public Health Effects of Nicotine Use

- Evidence from traditional tobacco products:
  - Premature death from smoking-related cancers, cardiovascular and metabolic diseases, pulmonary diseases
  - Impacts on fetal health: prematurity, adverse brain development
  - Cancers: lung, liver, colorectal; increased mortality in cancer survivors
  - Respiratory diseases: COPD, asthma, infectious diseases
  - Secondhand smoke: increased risk of stroke, lung cancer, coronary heart disease, respiratory infection, sudden infant death syndrome (SIDS)
- As of 2014: “If current trends continue, 5.6 million U.S. youth who are currently younger than 18 years of age will die prematurely during adulthood from their smoking.”

# What is being done, and what can I do?

*Discuss strategies to reduce youth e-cigarette use*



# Nationally

- FDA regulations:
  - 2009: cigarettes, smokeless, and roll-your-own tobacco
  - 2016: extension of regulatory authority to all tobacco products
  - 2018: required warning on all tobacco-containing products
  - 2021-2022: tobacco product review applications due
- FDA intends to pursue limiting nicotine content, increased compliance checks on retailers, limit/prohibit flavored products, threatened to pull e-cigs from market completely
- FDA has seized documents from JUUL headquarters
  - Additional requests from Congress

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

# “Tobacco 21” Initiatives

- 28 states, 450+ cities & counties nationally
  - In Colorado: Aspen (2017) followed by Basalt, Avon, and Edgewater
- US House of Representatives: Introduced bill “Reversing the Youth Tobacco Epidemic Act”
  - Raise minimum age to purchase tobacco products to 21yr
  - Make it unlawful for companies to market cigarette and e-cigarette products to youth under age 21
  - Require “graphic health warnings” on cigarette advertisements and packages
  - Barr non face-to-face tobacco sales
- Retailers: Walmart, Walgreens, Rite-Aid – no tobacco sales under age 21
  - CVS: no tobacco products in retail stores at all
- For more information: [tobacco21.org](http://tobacco21.org)

# Statewide and Locally

- Governor Hickenlooper – “Vape Free November”
  - Concrete steps within executive authority
  - Suggestions for legislature for 2019 session
- January 2019: El Paso County Board of Public Health passed a resolution recognizing youth vaping as a public health crisis in El Paso County
- Colorado Legislative Session 2019:
  - HB 1033: Local Governments May Regulate Nicotine Products – signed into law
  - HB 1076: Update Colorado Clean Indoor Air Act – passed, awaiting Governor Polis’s signature
  - HB 1333: Cigarette Tobacco & Nicotine Products Tax – passed in House, failed in Senate

# Action Steps

- Quit smoking
  - 1-800-QUIT-NOW or [coquitline.org](http://coquitline.org)
  - CO Quit Line will support youth as young as 12yo (may receive treatment without parental consent)
- Become educated & share your knowledge
  - With your family and friends
  - With your organization:
    - TEPP: [www.elpasocountyhealth.org/service/tobacco](http://www.elpasocountyhealth.org/service/tobacco) or [healthinfo@elpasoco.com](mailto:healthinfo@elpasoco.com)
    - TEPP – vaping presentations and SWAT (Students Working Against Tobacco): Jenny Best, [jennybest@elpasoco.com](mailto:jennybest@elpasoco.com) or 719-575-8447
    - Me: Grace Houser, MD, [grace.houser@childrenscolorado.org](mailto:grace.houser@childrenscolorado.org)
- School resources:
  - <http://www.scholastic.com/youthvapingrisks/>
  - <https://e-cigarettes.surgeongeneral.gov/>
  - <https://med.stanford.edu/tobaccopreventiontoolkit.html>

# Questions?? – and a few References

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