Adolescent Tobacco-Use Prevention and Cessation: What SBHC Providers, Educators, and Adult Allies Should Know
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Youth Engagement Project Coordinator, California School-Based Health Alliance
For audio, dial
For higher quality, dial a number based on your current location from your webinar invitation link

The webinar is being recorded

Supporting materials will be shared
Putting Health Care in Schools

The California School-Based Health Alliance is the statewide non-profit organization dedicated to improving the health & academic success of children & youth by advancing health services in schools.

Learn more: schoolhealthcenters.org
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Adolescent Tobacco and Marijuana Use Prevention: What SBHC Providers, Educators and Adult Allies Should Know

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Special Thanks to Our Funders

NIH
National Institutes of Health

Tobacco-Related Disease Research Program

California Department of Education

NCPC
UC Merced Nicotine & Cannabis Policy Center

CVS Health Foundation

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Maternal & Child Health Research Institute

CASA – Los Gatos

DONORS

Pathway Society Inc.
Disclosures

• Expert scientist in some e-cigarette litigation
• Expert for some city, state, and federal-level policies
E-cigarette Products
Tobacco Products
E-cigarette Products

WARNING: THIS PRODUCT CONTAINS NICOTINE. NICOTINE IS AN ADDICTIVE CHEMICAL.
Anatomy of an E-Cigarette

Battery

Atomizer/coil

Absorbent material/cotton:
- Nicotine
- Propylene glycol
- Vegetable glycerin
- Flavorants

Nicotine aerosol

Image Credit: Dr. Gideon St. Helen
E-Juice/E-Liquid
Anatomy of a Pod-Based System

These cartridges/pods do contain **NICOTINE**!

devices with rechargeable battery

`tobaccopreventiontoolkit.stanford.edu`
Marijuana/Cannabis Products
Aerosolizing or “Vaping”

- THC concentrate is aerosolized
- 5-10 seconds to feel the effect
- High lasts 30 minutes to several hours
- THC concentration depends on liquid; often mislabeled
- Not harmless
Dabbing

- Concentrated THC wax is heated, the aerosol is then inhaled
- 5-10 seconds to feel the effect
- High lasts 30 minutes to several hours
- ~80% THC concentration
- One of the methods most associated with emergency room visits
Edibles

- Cannabis infused foods and drinks
- 20 min – 2 hours to feel the effects
- High typically lasts for hours
- THC concentration varies greatly and is difficult to measure accurately
- Very easy to over consume
Other Products
Nicotine Toothpicks
Nicotine Gum
Ripple Vape: Focus

**FOCUS**

- mango aroma
- bacopa + guarana
- single use diffuser
- 0% nicotine
- 400 puffs

**mango aroma**

- Uplifts mood

**+bacopa**

- Boosts mental clarity

**+guarana**

- Supports energy levels
Use Rates
National 2019 Data

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

Source: U.S. Department of Health and Human Services, 2019
New National Data on Tobacco Use

• YRBS 2019 Data on Past 30-day Tobacco Use:
  – 32.7% - E-cigs
  – 6.0% - Cigarettes
  – 5.7% - Cigars
  – 3.8% - Smokeless tobacco (higher in more rural areas!)

• NYTS 2020 Data
  – Current e-cigarette users
    • 19.6% HS students (3.02 million)
    • 4.7% MS students (550,000)
  – Among current e-cigarette users
    • HS youth
      Past 30 days: 38.9%
      Daily use: 22.5%
    • MS youth
      Past 30 days: 20%
      Daily use: 9.4%
2019 National Youth Cannabis Use (Monitoring the Future)

ANY/LIFETIME USE
- 8th Grade: 15.2%
- 10th Grade: 34%
- 12th Grade: 43.7%

PAST YEAR USE
- 8th Grade: 11.8%
- 10th Grade: 28.8%
- 12th Grade: 35.7%

PAST MONTH USE
- 8th Grade: 6.6%
- 10th Grade: 18.4%
- 12th Grade: 22.3%

DAILY USE
- 8th Grade: 1.3%
- 10th Grade: 4.8%
- 12th Grade: 6.4%
Past 30-Day Co-Use of Tobacco and Marijuana Use

12th grade students in Los Angeles: Tobacco only 3.1%, Marijuana only 13.9%, Co-use 9.9%

11th or 12th grade students in Southern California communities: Tobacco only 7.2%, Marijuana only 15.0%, Co-use 11.3%

High School students in Northern and Southern California: Tobacco only 3.0%, Marijuana only 15.2%, Co-use 7.3%

Nhung, ...., Halpern-Felsher, 2019
Youth Vaping and Cannabis

- 33% of high school students who ever used e-cigs reported using cannabis in their e-cigs.

- 23% of middle school students who ever used e-cigs reported using cannabis in their e-cigs.

- Youth who vape are 3.5 times more likely to use cannabis than vape-free youth.


What’s in E-Cigs?
Which Chemicals Are Found in E-Cig/Pod-Based Aerosol?

<table>
<thead>
<tr>
<th>Chemicals Found in E-Cig/Pod-Based Aerosol</th>
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<tbody>
<tr>
<td>• Propylene glycol</td>
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<tr>
<td>• Glycerin</td>
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<tr>
<td>• Flavorings (many)</td>
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<tr>
<td>• Nicotine</td>
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<td>• NNN</td>
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<td>• Ethylbenzene</td>
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<td>• Acetaldehyde</td>
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<td>• Formaldehyde</td>
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<tr>
<td>• Naphthalene</td>
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<td>• Styrene</td>
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<td>• Benzo(ghi)perylene</td>
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<td>• Zinc</td>
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<tr>
<td>• Sulfur</td>
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<tr>
<td>• Vanadium</td>
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<td>• Rubidium</td>
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</tbody>
</table>
E-Cigs = Tobacco

E-cigs/JUULs=Nicotine
Nicotine comes from Tobacco
E-cigs/JUULs=Tobacco Products

Nicotine=Nicotine Dependence
E-cigs are addictive!
For more information, visit: www.tobaccocontrol.stanford.edu

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Cigs in a Pod

1 Pack of Cigarettes ≈ 20 mg of nicotine
1 JUUL pod ≈ 41.3 mg of nicotine
1 Puff bar ≈ 50 mg of nicotine
1 Suorin pod ≈ 90 mg of nicotine

NEWER PRODUCTS CONTAIN SALT-BASED NICOTINE

= 20 CIGARETTES
= 41 CIGARETTES
= 50 CIGARETTES
≈ 90 CIGARETTES
THC Concerns

• Different methods, different risks

• Difficult to determine the amount of THC being consumed

Weed is getting stronger
Average THC percentage in federal seizures of imported marijuana, 1985 – 2013

Source: White House Office of Nat’l Drug Control Policy
Why Are We Concerned?
The Body When Vaping

Rewires and changes the brain

Trouble breathing & damage to lungs

Heart beats faster due to “fight or flight” response
Nicotine Effects

- **Highly addictive** substance
- Causes changes in brain chemistry – stimulates pleasure centers, alters normal brain function
- As nicotine levels in the brain drop, the brain craves nicotine to feel pleasure and relieve feelings of anxiety and stress (withdrawal)
Nicotine Effects

- Slows development of learning, memory, attention and behavior
- Mood disorders like anxiety and depression
- Permanent lowering of impulse control
- Increased risk of other addictions
The Adolescent Brain

Image Credit: Pixabay.com
Addiction

90% of those who struggle with addiction, started before the age of 21
Tobacco and the Lungs

Inflammation and Irritation of the Airways

Destruction of Air Sacs in the Lungs

Weaker Immune Response to Infection
Pulmonary Effects

- Inhaled flavorings associated with (animal and human models):
  - Respiratory illness/bronchitis
  - Life-threatening respiratory failure
- Largely due to diacetyl, a buttery flavoring agent used in microwaveable popcorn
  - Generally Recognized as Safe (GRAS) – for oral but not inhalation
Smoking/Vaping & COVID-19

- Lungs weakened from breathing in smoke or aerosol
- Novel coronavirus attacks the lungs
- Weakened lungs at greater risk for attack and more severe infection
- Also, bringing hand to mouth or sharing
The Body on Cannabis

Altered brain development, anxiety, paranoia, slowed reactions, poor memory

Increased heart rate by 20-50 beats per minute

Lung inflammation, cell damage, chronic cough, slowed breathing, respiratory infections

Poor muscle coordination, imbalance, falling

Increased appetite, nausea, vomiting

Slide Created in Collaboration with:

Institute for Public Strategies
Cannabis & The Brain

• Addiction!
• Impaired learning, memory, attention, impulse control, decision-making
• Lower academic performance
• Loss of IQ Points with repeated use
• Sleep issues
• The higher the dose and more regular the use, the greater the impairment
• Brain impairment in youth does not resolve with abstinence
Marijuana & Respiratory Health

- Cough
- Phlegm
- Lung illness
- Lung infection
- Cannabis use impairs function of immune cells in lungs
- ?? Lung cancer??

- More human research needed to know the impact of marijuana use on respiratory health of youth, but studies show: NOT good
Inhalation

• Marijuana smoke is from biomass combustion, has 1000s of chemicals including fine particles
• Smoke is inhaled deep into the lungs
• Damages the respiratory system
• Blunts introduce nicotine, which is extremely addictive
• “Vaping” marijuana is not a safe alternative
# Marijuana & Respiratory Illness

**E-cigarette, or Vaping, product use** Associated Lung Injury (EVALI)

<table>
<thead>
<tr>
<th>Healthy lungs</th>
<th>Vape-injured lungs</th>
<th>17yo victim</th>
</tr>
</thead>
</table>

- Tryston Zohfeld, TX
  - 18 days in hospital
  - 10 days medically-induced coma
Vaping-related Lung Illness

As of February 18, 2020:

• 2,807 cases of e-cigarette, or vaping, product use associated lung injury (EVALI)
• 68 deaths in 29 states and the District of Columbia
• THC in most devices, but not all
• Vitamin E acetate is of concern
Fact or Opinion:
Cannabis can be addictive.

Fact

1 out of 6 youth users become addicted
In youth (<18) and young adults (18-24), cannabis use associated with:

- 50% increased risk of suicidal ideation
- 3.5% increased risk of suicide attempt

Secondhand and Thirdhand Aerosol/Smoke
SECONDHAND SMOKE

41,000
Secondhand smoke causes the premature death of 41,000 adults and more than 400 infants each year.

Secondhand smoke contains more than 7,000 chemical compounds.

2x
Dogs and cats are twice as likely to develop nasal cancer if their own smokes, as compared to animals in households without cigarette smoking.

42%
of Americans are not protected by smoke-free laws. Only 28 states and territories have enacted comprehensive smoke-free laws.

98.3%
of youth who live with a smoker have been exposed to secondhand smoke.

Some known carcinogens found in secondhand smoke:

- arsenic (used in pesticides)
- lead (formerly found in paint)
- polonium-210 (a radioactive element)
- formaldehyde (used to embalm the dead)
- benzene (a gasoline additive)

Clean indoor air laws reduce nonsmokers' secondhand smoke exposure by 28%.

Lower-income communities are less likely to be protected by smoke-free laws.

Blue-collar workers are more likely to be exposed to secondhand smoke at work.
Secondhand Aerosol

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Nicotine

Heavy Metals

Ultrafine Particles

Cancerous Chemicals

VOCs
Thirdhand Smoke

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Marijuana & Secondhand Smoke

- Contains cadmium, chromium, benzene
- 33+ on Prop 65 list of toxins
- Harmful effects on cardiovascular system
- Exposed children have detectable levels of THC
- Exposure also associated with headaches, dry mouth, coughing, breathing issues, ear infections, asthma and eczema…

Wilson et al., Pediatrics, 2018
Why Youth Use Tobacco?
Why Youth Use E-cigarettes

• Flavors
• Easy to hide
• Marketing
• Access
• Misperceptions
Why Youth Use E-cigarettes

- Flavors
- Easy to hide
- Marketing
- Access
- Misperceptions
NYTS 2020

• High School Youth
  • 87.4% (2.53 million) used flavored e-cigarettes
    – Fruit: 73.1% (1.82 million)
    – Mint: 55.8% (1.39 million)
    – Menthol: 37% (920,000)
    – Candy, desserts, other sweets: 36.4% (910,000)
• Middle School Youth
  • 73.9% (400,000) used flavored e-cigarettes
    – Fruit: 75.6% (290,000)
    – Candy, desserts, other sweets: 47.2% (180,000)
    – Mint: 46.5% (180,000)
    – Menthol: 23.5% (90,000)
Flavors

- Flavors mask the harsh taste of the tobacco
- Flavors mask the smell of tobacco and make them easier to hide
- Flavors mask the risks of the tobacco product
- Youth are more likely to report interest in trying tobacco if flavored
Flavors

- Youth report they would quit if flavors weren’t available
- Ads and packaging of flavored tobacco products are appealing to youth
- Youth are looking for flavors, in any product, and will switch products to get flavors.
Flavors of Vapes

15,500 tobacco flavors and counting

Whimsical flavors include: Key Lime Cookie, Jam Monster Apple, Chicken & Waffles, Booger Sugar, Banana Butt, Honey Doo Doo, Barney Pebbles, Dragon's Blood, and many more.

Inhale flavor: Curb cravings, lose weight.

Tastes your mouth crave for, which flavor you sneaker?
Why Youth Use E-cigarettes

• Flavors
• Easy to hide
• Marketing
• Access
• Misperceptions
Hidden in Plain Sight
Hidden in Plain Sight
Why Youth Use E-cigarettes

- Flavors
- Easy to hide
- **Marketing**
- Access
- Misperceptions
How Much is That?

5% strength of what?

How much is 5%?

This product contains nicotine which is a highly addictive substance.

5% TOBACCO
Social Media Targeting

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- Problematic memes and cartoons are also distributed via Twitter or Instagram, which give youth the impression that using is okay
Youth-Focused Ads

2 FREE MASKS with each order!

SuavinUSA.com has donated more than 5,000 masks to first responders.

What’s more is that we are including 2 FREE MASKS with each qualifying order.

We are a 21 years and older website. Be prepared for the age verification process after order is placed.

The force is strong with these flavors. May the 4th be with you, and Puff Bar with you, throughout our puff-tacular universe.

SHOP NOW

LIGHT OR DARK SIDE
Why Youth Use E-cigarettes

- Flavors
- Easy to hide
- Marketing
- Access
- Misperceptions
Access
Puff bar
$1 - 2.50

WARNING:
This product contains nicotine. Nicotine is an addictive chemical.
CBDfx Organic Hemp Capsules

#FEEL THE DIFFERENCE

8 ct pouches

25 mg in each capsule, 200 mg per pouch

POWER SUPPLY

Evod

$13.99
Why Youth Use E-cigarettes

- Flavors
- Easy to hide
- Marketing
- Access
- **Misperceptions**
Adolescents perceive e-cigarettes to be less risky and less addictive compared to all other tobacco products.

Maria Roditis, Ph.D. a, Kevin Delucchi, Ph.D. b, David Cash a, and Bonnie Halpern-Felsher, Ph.D. a,*

a Division of Adolescent Medicine, School of Medicine, Stanford University, Palo Alto, California
b Department of Psychiatry, University of California San Francisco, San Francisco, California

Article history: Received August 31, 2015; Accepted January 27, 2016
Keywords: Tobacco use; Risk perceptions; Decision making
Summary: Perfect Storm to Addict Youth

- Stealth/youth-focused products
- Very high nicotine levels
- Salt-based → less throat hit, easier to use
- Misperceptions of nicotine and harms
- Flavors
- Packaging, ads
- Cheap!
- HARMFUL
In short:

- We must protect the lungs and brains of our youth!
What You Can Do / Resources
Overall Recommendations

• Talk about tobacco
• Never smoke or use e-cigarettes in the house, car, or places where children and adolescents spend time
• Talk with a healthcare provider about ways to help you quit tobacco products
• If you are an e-cigarette user, always keep e-cigarettes and liquid nicotine locked and out of reach of children and adolescents
Starting the Conversation

• Goal: to have a conversation, not a lecture
  – Find the “right time”
  – Be patient and ready to listen
  – Avoid criticism and encourage open dialogue
• Avoid “we need to talk,” instead “What do you think about…”
• Avoid “you don’t vape, right…”
• Use the right words! (vaping, Juuling)
• Continue the conversation
  – In-person, or via text/email, etc.
    • Sharing articles is a great way to stay engaged
E-Cigarette Resources

**Become An Ex**
Tobacco and vaping cessation support for parents and teens from Truth Initiative

**The Vape Talk**
Includes a conversation guide for parents and teens from American Lung Association

**Surgeon General**
Includes a conversation guide and video for parents and teens from FDA; resources in Spanish

**This is Quitting**
Includes a texting service for vaping cessation support from Truth Initiative

**Tobacco Prevention Toolkit**
Includes a number of resources to help talk to youth, to recognize and help with addiction, and more
Tobacco Prevention Toolkit
Tobaccopreventiontoolkit.Stanford.edu

TOBACCO PREVENTION TOOLKIT

VISIT
Vaping Information, Solutions, and Interventions Toolkit

Cannabis Awareness & PREVENTION TOOLKIT
Cannabis Remote-Learning Curriculum
A free curriculum for teaching students remotely about the harms of using cannabis

Teach Topic 1: What We Know About Cannabis
Teach Topic 2: Health Outcomes of Cannabis Use
Teach Topic 3: High On Life/Cannabis-Free

Vaping Prevention Online Course
A free course for teaching students remotely about the harms of vaping

Teach Module 1: A Real Intro to E-Cigarettes
Teach Module 2: All of the Chemicals
Teach Module 3: What's the Damage
Teach Module 4: Central Problem of E-Cig Usage
Teach Module 5: What Are They Selling
Alternative Module: Cannabis Curriculum
Healthy Futures Overview

INTRODUCTION FOR EDUCATORS

### Comparison of Healthy Futures Curriculums

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<thead>
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<th></th>
<th>1 Hour</th>
<th>2 Hour</th>
<th>4 Hour</th>
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<tbody>
<tr>
<td>Check-in</td>
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<td>Warm Up Questions</td>
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- [1-Hour Healthy Futures Curriculum](#)
- [2-Hour Healthy Futures Curriculum](#)
- [4-Hour Healthy Futures Curriculum](#)
Thank you!

Bonnie.halpernfelsher@Stanford.edu
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