Hot Topics in Teen Health: Vapes, JUULs, Weed, and Mental Health

Chester County School Nurse Breakfast
July 18, 2018

Laura Offutt MD, FACP
Real Talk with Dr. Offutt, LLC
Founder, Global Teen Health Week
Who has heard about JUULs?
Who knew about JUULs a year ago?
"I know it's an e-cigarette, but I don't like to call it that because you can JUUL and not be addicted to nicotine" 18 year old.
**Teens: Time for you to teach ME something about vapes!**

12/21/2017

You know I like to spend my time sharing my knowledge with you so that I can help you be healthy and happy. So, I have a request for you. One of the things I love most about what I do is when teens tell me honestly what you are thinking. So I have a question for you.

I know that vaping is super popular right now, and not just with teens... I get it for some reasons, but honestly not really for all. So if you can help me out, can you answer a few anonymous questions for me? Help me understand!

**Why and What I (or my friends) Vape.**

<table>
<thead>
<tr>
<th>What do you vape / Juul?</th>
<th>If something else, what?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine</td>
<td></td>
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<tr>
<td>Herb / bud</td>
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<tr>
<td>THC oil</td>
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<tr>
<td>Just vapor</td>
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<table>
<thead>
<tr>
<th>What vaping device do you like?</th>
<th>Why?</th>
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<table>
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<tr>
<th>What do you like about vaping / Juuling?</th>
<th>What else do you like about it?</th>
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<tbody>
<tr>
<td>I can sneak it at school</td>
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</table>
Why? In their words:

- “The technology is cool. It’s like when the iPod came out and everyone started listening to music that way”.
- “It’s clean”.
- “All my friends do it”.
- “I can do it at home and my parents don’t know”.
- “It’s just vapor”.
- “It’s funny to sneak it in class.”
- “I like the rush it gives me.”
- “It’s social”
This survey has been done since 1975. It measures drug, alcohol, and cigarette use and related attitudes among adolescent students nationwide. Students report their drug use behaviors across three time periods: lifetime, past year, and past month. 44,482 students from 392 public and private schools participated in the 2018 survey.
TEENS USING VAPING DEVICES IN RECORD NUMBERS (2018)

PAST-YEAR VAPING

- 8th graders: 17.6%
- 10th graders: 32.3%
- 12th graders: 37.3%

WHAT DO TEENS SAY THEY ARE VAPING?

- Nicotine
- Marijuana or Hash Oil
- Just Flavoring

Past-year use
TEENS USING VAPE DEVICES IN RECORD NUMBERS

PAST-YEAR VAPEING

<table>
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WHAT DO TEENS SAY THEY ARE VAPEING?

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</tr>
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<td>Marijuana or Hash Oil</td>
<td>10%</td>
<td>15%</td>
<td>20%</td>
</tr>
<tr>
<td>Just Flavoring</td>
<td>5%</td>
<td>5%</td>
<td>10%</td>
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(2018)

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

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<td>13.3%</td>
<td>23.9%</td>
<td>27.8%</td>
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When asked what they thought was in the e-vaaporizer mist students inhaled the last time they smoked, these were their responses:

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(2017)

NEARLY 1 IN 3 STUDENTS IN 12TH GRADE REPORT PAST-YEAR USE OF E-VAPOORIZERS, RAISING CONCERNS ABOUT THE IMPACT ON THEIR LONG-TERM HEALTH.
TEENS VAPING NICOTINE OR MARIJUANA INCREASED ACROSS ALL GRADES

- **8th graders**
  - Vaping Marijuana: [2017] [2018]
  - Vaping Nicotine: [2017] [2018]

- **10th graders**
  - Vaping Marijuana: [2017] [2018]
  - Vaping Nicotine: [2017] [2018]

- **12th graders**
  - Vaping Marijuana: [2017] [2018]
  - Vaping Nicotine: [2017] [2018]

Past-month use
2018 findings (finally) alarmed government officials.
How Did We Get Here?
HIGH TEEN EXPOSURE TO E-CIG ADVERTISING

- **52.8%** middle school students exposed to retail ads
- **56.3%** high school students exposed to retail ads
- **35.8%** middle school students exposed to internet ads
- **42.9%** high school students exposed to internet ads
- **34.1%** middle school students exposed to TV/movie ads
- **38.4%** high school students exposed to TV/movie ads
- **25.0%** middle school students exposed to newspaper & magazine ads
- **34.6%** high school students exposed to newspaper & magazine ads

Fun with Friends?

You've got what it takes. Salem Spirit

Enjoy the fun. Share the spirit.

Warning. The Surgeon General Has Determined That Cigarette Smoking is Hazardous to Your Health.

blu ELECTRONIC CIGARETTES

NOT FOR SALE TO MINORS (C) 2003 SIRI, Inc.
Advertising to teens

- As of 2016, advertising e-cigarettes directly to minors is illegal and regulated. But....
  - Online advertising is not regulated in the same way and effectively reaches teens.
- Click-Bait
  - Nearly 12% of US adolescents (2.9 million) engaged with online tobacco marketing in 2013–2014
  - Engagement with online advertising increases use.
- Flavors
  - In 2009 it became illegal to promote tobacco products with flavors other than menthol.
  - Advertising flavoring had not been illegal in e-cigarettes initially but the FDA and FTC are revisiting this.
Flavors

JUUL PODS MANGO MINT CUCUMBER FRUIT MEDLEY COOL MINT CLASSIC MENTHOL ALL NEW!
- AUTHENTIC SAME DAY FREE SHIP LTD EDITION BLUE AKARD
- Brand New
- $25.95
- Free Shipping
- 265+ Sold

JUUL PODS MANGO MINT CUCUMBER FRUIT MEDLEY CREME BRULEE CLASSIC MENTHOL ALL NEW!
- AUTHENTIC OVER 400 PACKS SOLD
- Brand New
- $7.94
- Free Shipping
- 385+ Sold

JUUL PODS- ALL flavors New!
- YOUR SELECTION
- Type: Bottles
- Type: JUUL Pods

PRICE
- $14.99
- Buy It Now
- Free Shipping
- 367+ Sold

FLAVOR GROUP
- Tobacco
- Menthol
- Fruit
- Dessert & Creme
- Other

Any 6 for $89.70 (tax code)
- JUUL Cool Mint Flavor Pods (Pack of 4)
- JUUL Virginia Tobacco Pods (Pack of 4)
- JUUL Creme Brulee Flavor Pods (Pack of 4)
- JUUL Cool Cucumber Flavor Pods (Pack of 4)

Any 6 for $89.70 (tax code)
- JUUL Mango Flavor Pods (Pack of 4)
- JUUL Cool Cucumber Flavor Pods (Pack of 4)

10ml V4 Liquid Fruit Juice e Vape 0mg - Different Flavors
- Brand New
- $12.99
- Buy It Now
- Free Shipping
- 119+ Sold

DESERT and FRUIT Flavors S.E.L.E.C.T. Cg Juice-Vape-Liquid By HC (9 Flavors)
- Brand New
- $22.45
- Free Shipping
- 176+ Sold

Vape-Liquide: Purple Cloudz
#JUUL: How social media hyped nicotine for a new generation

By Michael Nadelman, Roni Selig and Arman Azad, CNN
Updated 5:30 PM ET, Wed December 19, 2018

(CNN) — Leading e-cigarette company Juul Labs has tried to distance itself from a vast social media presence that experts say drives its popularity among teens. But a CNN investigation sheds new light on how the company was encouraging — and at times paying for — social media users to promote its nicotine-filled product
FD A responds to E-Cigarette Trends:

- Steps taken to remove products that are marketed to children and/or appealing to youth.
  - popular children’s cartoon or animated characters, names of products favored by kids like brands of candy or soda, kid-appealing imagery that mimicked juice boxes, lollipops and other foods.
- Public health education campaign
  - Online ads, posters for schools, TV PSAs
- Fines, warning letters, etc for violations
- New requirement for manufacturers and importers to file submissions to FDA within 10 months.
How do vaporizers work?

1. User inhales from the mouthpiece, turning on the device and activating the LED light.

2. Battery sends charge to the atomizer and heater, which vaporize liquid from replaceable cartridge, producing flavored, nicotine-containing vapor, which is consumed and exhaled by the user.
What about JUUL?

QUICK START GUIDE

START WITH YOUR JUUL POD
Remove colored cap & insert cartridge end into device. Voila - it becomes your mouthpiece as well as the flavorful engine that powers JUUL. No buttons or switches, just draw to get it going - carefully at first, it may seem strong to first-timers.

BATTERY LEVEL INDICATORS
The indicator glows during use to reflect pull strength and while charging. When pod is inserted, gently tap device twice to show charge level.

- green = high
- yellow = medium
- red = low

CHARGE IT
Stand device in magnetic USB charger. Reaches full charge in 1 hour.
What exactly do teens inhale?

- Vapor
- Flavoring
- Nicotine
- Marijuana
"But it’s just vapor....."

- The heated metal coils release small metal flakes.
  - When inhaled, these metal flakes go deep into the lungs.
  - Cause inflammation and can cause asthma like symptoms, popcorn lung and other pulmonary pathology.

- E-liquid usually has propylene glycol and glycerol
  - When these are heated, they break down into formaldehyde, which is a known carcinogen.
  - There’s much more (~7x) formaldehyde in vapor than in cigarette smoke.
What is the nicotine concentration?

Each JUULpod contains 0.7mL with 5% nicotine by weight, approximately equivalent to 1 pack of cigarettes or 200 puffs.

How many cigarettes = 1 pack

One JUULpod is approximately equivalent to 1 pack of cigarettes or 200 puffs. Each JUULpod contains 0.7mL with 5% nicotine by weight.
JUULs and nicotine

- "I know it's an e-cigarette, but I don't like to call it that because you can JUUL and not be addicted to nicotine" 18 year old.

- There are NO non-nicotine pods for sale
  - US JUULs - 5% nicotine
  - EU caps JUULs at 1.5% nicotine
This is why we worry about nicotine:

**Teen e-cigarette users are more likely to start smoking.**

Start Smoking Within 6 Months

- **30.7%** E-Cig User
- **8.1%** Non User

*Includes combustible tobacco products (cigarettes, cigars, and hookahs)*
Signs a student is vaping

- You can look for these clues:
  - They’re drinking a lot more water, juice or other beverages. Because vaping can make them thirsty.
  - You smell sweet smells near them – but they aren’t eating candy or chewing gum.
  - They stop drinking as much caffeine as before. Nicotine can make them more sensitive to caffeine.

- But, honestly, it is difficult to know if they want to hide it.
What are you looking for?
Vaporizer Devices can be small
Where to buy

im 16, how can i get a vape pen without my parents knowing?

Wait two years

If you're not a smoker, why do you even want to start vaping?

Order online, they come in a discrete package most the time

Buy one with cash from someone at school for just a few dollars. If you don't look like a freshman, one place doesn't care if you're 16.
In their own words:

Where do you buy it?

- From a friend at school
- From a gas station or convenience store
- At a vapes store
- Online
FDA and FTC address sales practices

- Use heightened age verification for online sales
- Sell flavors (other than menthol, mint and tobacco) in person and to those older than 21
- Escalate enforcement against retailers who illegally sell to minors.
  - Warning letters to 4 companies who used social media influencers for advertising violations
    - Failure to include mandated nicotine warning language
- Social media influencers must be compliant with advertising regulations for e-cigarettes.
Age verification example

2018

JUUL Labs' mission is to eliminate cigarettes. Our product is intended for adult smokers who want to switch from combustible cigarettes.

You must be at least 21 years old to purchase products on juul.com.

I AM 21+ AND AGREE TO BE AGE VERIFIED

I AM NOT 21+ OR DO NOT AGREE TO BE AGE VERIFIED

When you check out on juul.com, you'll go through an age verification process. This process will confirm your address, identify and age via multiple searches of trusted public databases, as well as review by our internal specialists.

It is illegal to sell or resell our product to minors. For more information on Juul Labs' youth prevention efforts, click here.

If you are requesting support or warranty service, please click here for our support page.

2019

WARNING: This product contains nicotine. Nicotine is an addictive chemical.
Hopefully these actions will help, but...

Since, remember the answers to “Where do you buy it?“:

- From a friend at school
- From a gas station or convenience store
- At a vapes store
- Online
TEENS VAPING NICOTINE OR MARIJUANA INCREASED ACROSS ALL GRADES

- 8th graders
- 10th graders
- 12th graders

Vaping Marijuana
Vaping Nicotine

Past-month use

2017
2018
It’s not only Nicotine that is vaped.

- Marijuana oils
- Synthetic marijuana
- Wax
- Herbs (often marijuana leaves)
Dab Pens

4 Best Dab & Wax Pens — A Beginner’s ...
vapingdaily.com

All About Marijuana Vape Pens: What ...
cannabischeri.com

Disposable Cannabis Vape Pens ...
leafly.com
Information is current as of Nov. 7, 2018.

Marijuana Legalization Status
- Green: Medical marijuana broadly legalized
- Green: Marijuana legalized for recreational use
- Gray: No broad laws legalizing marijuana
Legal ≠ Good For You
DAILY MARIJUANA USE MOSTLY STEADY

2008 - 2018

2018

8th graders 0.7%
10th graders 3.4%
12th graders 5.8%
3 out of 4 teens between the ages of 12 and 17 perceive "no great risk" from smoking pot once a month

Behavioral Health Barometer (SAMHSA 2016)
Facts about marijuana that may surprise teens:

- Marijuana is one of the top 3 drugs causing addiction.
  - The risk of addiction is higher the younger the age of exposure
  - About 1 on 6 teens who smoke marijuana will go on to struggle with addiction.

- 1/3 of teens don’t think driving after smoking marijuana is a problem, but actually it **DOUBLES** the risk of having a car accident.

- Marijuana can affect **mental health**
  - Can trigger certain illnesses (psychosis) in people with risk factors
  - Can cause anxiety symptoms
Cannabis Hyperemesis Syndrome

- Vomiting in patients who use cannabis chronically and almost daily.
- Patients are not sick in any other way.
- The classic symptom: Vomiting is relieved with hot showers.
- The diagnosis is found with resolution of the symptoms after abstaining from cannabis.
What about when....

Experimenting and pushing limits....... becomes

Need and craving...
What should raise a concern for addiction?

- Consider changes in:
  - Behavior
  - Mood or personality
  - Hygiene or appearance
  - Health
  - School life (academics or social life)
Addiction is not weakness. It is a medical problem.

- Nearly one in three Americans suffer from addiction
- Addiction doesn't discriminate by age, sex, socioeconomic status, or moral standings.
- Dopamine is a “pleasure” chemical:
  - In nature, rewards usually come only with time and effort.
  - Addictive drugs provide a shortcut, flooding the brain with dopamine and other neurotransmitters.
  - Addictive drugs can release up to 10 times the amount of dopamine that natural rewards do, and they do it more quickly and more reliably.
  - Our brains rewire to try to go after what it was that trigger the biochemical reward.
Risk factors for addiction

- Genetics
- Psychological factors:
  - stress, personality traits like high impulsivity or sensation seeking, depression, anxiety, other psychiatric disorders
- Environmental factors
  - exposure to abuse or trauma, substance abuse in the family or among peers, easy access to an addictive substance; popular culture references that encourage substance use
- Starting alcohol, nicotine or other drug use at an early age
  - Brain development and reward pathways are build until early 20s
Detection is good, but…..

- Heavy emphasis on punishment in schools
- Just detecting and punishing doesn’t help teens.
- We need to consider a few things.

After all:
- They can get “it” behind our backs.
- Every generation can “fool” their parents.
- Our generation wasn’t any different, although the details may change.
Don’t forget to consider:

WHY?
Risk factors for addiction

- Genetics
- Psychological factors:
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- Environmental factors
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- Starting alcohol, nicotine or other drug use at an early age
  - Brain development and reward pathways are build until early 20’s
Stress and mental health

Here's to National Stress Awareness Day for being the only holiday I celebrate 365 times a year.
What if it’s more than just stress?

Numbers:

- 13% (or ~1 in 8 teens) have experienced a major depressive episode in the past year.
- 32% (or ~1 in 3 teens) have experienced anxiety in the past year.
- 50% of all lifetime cases of mental illness begin by 14.
- Suicide is a leading cause of death in young people.
Text HOME to 741741 for free, 24/7 crisis support in the US.

Crisis Text Line

Text from anywhere in the USA to text with a trained Crisis Counselor.
As before, detection is good, but.....

- There are significant barriers and costs to accessing mental health care for adolescents.
- There is a well documented shortage of mental health providers in general, and especially for children and teens.
- Pediatricians may be less comfortable treating depression in children and teens than internists are in treating depressed adults.
- We need to tackle this problem together (vote, advocate, advise legislators) because we need to have places to point our youth who need mental health care.
Online Resources for Teens

- NIDA for Teens: https://teens.drugabuse.gov/
- Suicide Prevention Lifeline: https://suicidepreventionlifeline.org/
- Crisis Text Line: https://www.crisistextline.org/
- OK2Talk about Mental Health: http://ok2talk.org/
- Real Talk with Dr. Offutt: http://realtalkwithdroffutt.org
- Teens Health from Nemours: http://kidshealth.org/en/teens
Teen Health Week is growing up!

- 2016:
  - #PATeenHealthWeek

- 2018:
  - #2018teenhealth

- 2020:
  - #IAHW2020
INTERNATIONAL
ADOLESCENT HEALTH WEEK

An annual, international week of dynamic participatory events to recognize that adolescent health is our wealth, and to inspire adolescents and their communities to advocate for a successful transition into adulthood.
Laura Offutt MD, FACP

- Education:
  - B.A. Columbia University, New York
  - M.D. Northwestern University Medical School, Chicago

- Professional experience
  - Internal Medicine Residency. Thomas Jefferson University Hospital, Philadelphia
  - Academic practice and training of medical students and residents
  - Extensive experience in clinical research, drug development, medical consulting
  - Volunteer internal medicine physician
  - Creator and author of *Real Talk with Dr. Offutt*, a digital teen health resource
  - Expert in Adolescent eHealth Literacy
  - Youth mentor and advocate
  - Founder and Creator of *Teen Health Week*

- Professional Memberships
  - Invited Fellow, American College of Physicians
  - Society of Adolescent Health and Medicine
  - Pennsylvania Medical Society, Delaware County Medical Society

- Mother of two adolescents