Massachusetts Health Council

Vaping: Addiction & the Adolescent Brain

Wednesday, May 22, 2019
9:30 am - 2:30 pm
Bentley University
Waltham, MA
Disclosures

• Credit Commensurate with Participation in the entire program and submission of evaluation
• There is no conflict of interest for anyone with the ability to control content for this activity
• This continuing nursing education activity was approved by the American Nurses Association Massachusetts, an accredited approver by the American Nurses Credentialing Center’s Commission on Accreditation.
Learning Outcomes

• The conference will educate those working with adolescents about the health hazards of vaping nicotine.

• Attendees will be able to discuss current evidence as it pertains to public health concerns and implications for health policy and best practice of these devices.
Vaping and E-cigarette Use Among Youth

May 2019

Monica Bharel, MD, MPH

Commissioner, Massachusetts Department of Public Health
Massachusetts Tobacco Cessation and Prevention Program

- Preventing youth initiation of tobacco and nicotine
- Helping current tobacco and nicotine users quit
- Protecting everyone from secondhand smoke
- Identifying & eliminating tobacco-related disparities
What is Vaping?

- Inhaling and exhaling the aerosol (often called vapor) produced by an e-cigarette or similar battery-powered device
- Called e-cigs, vape pens, e-hookahs, e-pipes, tanks, mods, vapes, electronic nicotine delivery systems, or ENDS, and more
- Sometimes referred to by brand names such as JUUL (Juuling), BO, Blue, and others
What is Vaping?

- Produces an aerosol that contains:
  - Nicotine
  - Ultrafine particles that can be inhaled deep into the lungs
  - Volatile organic compounds
  - Cancer-causing chemicals
  - Flavoring such as diacetyl, a chemical linked to a serious lung disease
  - Heavy metals such as nickel, tin, and lead

From: https://e-cigarettes.surgeongeneral.gov/getthefacts.html
Youth vaping is a public health crisis

Nationally (2018)

- 1.5 million more youth e-cigarette users in 2018 than 2017
- 1 in 5 high school students (20.8%) reported using e-cigarettes in the past month – up from 1.5% in 2011
- 4.9% of middle school students reported using e-cigarettes in the past 30 days - up from 0.6% in 2011
Youth vaping is a public health crisis

Massachusetts (2017):

- **41%** of high school students reported using an e-cigarette
- **20%** of high school students reported using e-cigarettes in the past 30 days
- Almost **10%** of middle school students reported using an e-cigarette
Dangers of e-cigarettes

- These products lack full FDA regulation
- Vape pens and e-cigarettes contain nicotine and other harmful chemicals known to have cancerous properties
- Nicotine is highly addictive
- Potential long term effects of these products not yet known
- E-cigarettes were meant as a substitute for current adult smokers but scientists still have a lot to learn about whether e-cigarettes are effective for quitting smoking.
Risks to youth

- Nicotine can harm brain development which occurs into mid 20s
- Nicotine affects parts of the brain that control attention, learning, mood and impulse control
- Many youth don’t realize these products contain nicotine
- Vaping can lead to future addiction, including future use of cigarettes
- Youth may try vaping to see what it’s like – and now they can’t stop
Marketing tactics target youth

- Cheaply priced to encourage impulse purchases
- Easy to get – available at gas stations, corner stores, mini-marts and other convenient locations
- Nearly 8,000 flavors, many sweetened to appeal to young palates
- Companies discount starter kits and products to get youth to try them
- Ads delivered on social media designed to appeal to a youth audience
E-cigarette use among youth is rising as e-cigarette advertising grows

What’s old is new again
What’s old is new again
Progress on Tobacco

Current Use* of Cigarettes
Among High School Students: Massachusetts, 1995-2017

* Current use is within the past 30 days

Source: MYRBS
What we’re doing about it
• Tobacco 21 Law
  • raised purchase age for tobacco and vape products from 18 to 21
  • sale of tobacco prohibited in pharmacies
  • vaping included in Smoke-Free Workplace Law now illegal to vape where it is illegal to smoke

• Governor’s proposed assessment on e-cigarettes and vaping products
• Local efforts to restrict flavors
DPH Public Awareness Campaign for Parents

The New Look of NICOTINE ADDICTION
TALK WITH YOUR KIDS ABOUT THE DANGERS OF VAPEING

Get the Facts
Information on vaping and what vaping products look like.

For Parents
How to talk with your kids about vaping and how to engage your community.

For Schools
A toolkit to address the use of vaping products in schools and communities.

En Español

GET OUTRAGED!
DPH Public Awareness Campaign for Parents

VAPES AND CIGARETTES
Different products. Same dangers.

ADDICTION
NICOTINE
CANCER-CAUSING CHEMICALS
Education and Outreach

- Legislative testimony
- Letter to school superintendents
- Funding for regional Tobacco-Free Community Partnership programs
- Operation of the Massachusetts Smokers Helpline and Quitworks referral programs
Education and Outreach

- Public presentations
- Published opinion pieces
- Letters to the editor
- Social media
- www.getoutraged.org
Working with the Medical Community

• Encouraging pediatricians to screen patients for e-cigarettes and vaping when screening patients for the use of other tobacco products

• Educate patients about the risks of all forms of tobacco product use, including e-cigarettes, for young people

• Encourage patients to quit. For free help, patients can visit Massachusetts Smokers Helpline
Information for Parents

✓ Learn about the different shapes and types of e-cigarettes and the risks of all forms of e-cigarette use for young people at https://e-cigarettes.surgeongeneral.gov/.


✓ Let your child know that you want them to stay away from all tobacco products, including e-cigarettes, because they are not safe for them. Seek help and get involved.
Support for Youth Leaders
Check out the 84Movement

Twitter: @The84Movement
Instagram: @The84_Movement
Facebook: The 84 Movement
Snapchat: @The84Movement
Connect with DPH

@MassDPH

Massachusetts Department of Public Health

DPH Blog

https://blog.mass.gov/publichealth

www.mass.gov/dph
Thank You!

Mass.gov/vaping
Vaping, JUULing and e-cigarettes: an update

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Pediatric Addiction Medicine Fellow
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Division of Developmental Medicine
Boston Children’s Hospital
May 22, 2019
Disclosures

• None
1. The “vaping epidemic”
2. Vaping products
3. Nicotine and the teen brain
4. Health effects of e-cigarettes
5. Screening and brief intervention
6. Treatment strategies
Jeremy

- 15 years old, high school, soccer player, oldest of three children
- Severe persistent asthma, last hospitalization 6 months ago
- Caught vaping in the bathroom at school
Jeremy

- Uses a JUUL he found at school, and has recently started smoking a “few cigarettes a week”
- Likes the social aspect of “JUULing”
- Uses high nicotine concentration pods/e-liquids
- Says he would quit smoking, but is not interested in quitting vaping “it helps with my anxiety”
- During your encounter with him, he complains of a headache and asks permission to use his JUUL “I was with my mom and I couldn’t vape all day”
Jeremy

• What would you tell Jeremy about smoking/vaping?
• What other questions would you like to ask him?
• How could you help him quit smoking/vaping?
The “vaping epidemic”
Growing concern over teens addicted to vaping as usage soars

JAN. 8, 2019 / 01:28

How many teens vape?

TEENS USING VAPING DEVICES IN RECORD NUMBERS

PAST-YEAR VAPING

<table>
<thead>
<tr>
<th>Grade</th>
<th>Nicotine</th>
<th>Marijuana or Hash Oil</th>
<th>Just Flavoring</th>
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</thead>
<tbody>
<tr>
<td>8th</td>
<td>17.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10th</td>
<td>32.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12th</td>
<td>37.3%</td>
<td></td>
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</tbody>
</table>

WHAT DO TEENS SAY THEY ARE VAPING?

Past-year use

1 in 5 high school students report using an e-cigarette in the past year 30 days.

Progress Erased: Youth Tobacco Use Increased During 2017–2018

- National Youth Tobacco Survey: nationally-representative sample of middle/high schoolers
- Conducted annually, school-based, self-administered, private/public schools

Source: [https://www.cdc.gov/media/releases/2019/p0211-youth-tobacco-use-increased.html](https://www.cdc.gov/media/releases/2019/p0211-youth-tobacco-use-increased.html)
Percentage of U.S. middle/high school students who report using tobacco products in past 30 days

In 2018...
- 27.1% any tobacco prod.
- 20.1% e-cigarettes

↑ 38.3% from 2017
- 1.5%

↑ 1,240% from 2011
- 7.2% of middle schoolers

Increasing frequent* e-cigarette use

High school e-cigarette users are using them more often.

*Among e-cig users, percent using >20 days in past 30 days

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>20%</td>
</tr>
<tr>
<td>2018</td>
<td>28%</td>
</tr>
</tbody>
</table>
Use of tobacco and vaping products in Massachusetts

Ever Use of Tobacco Products
Among MA Middle School Students, 2017

Source: MA YRBS

Current† Use of Tobacco and Vaping Products by MA High School Youth, 2017

Source: MYHS
E-cigarettes and...

Those who use only e-cigs are potentially a new group of youth who would not have smoked otherwise (Dutra, 2017)

E-cigarettes are positively and independently associated with progression to current established smoking (Chaffee, 2018)

E-cigarette use predicts subsequent marijuana use in youth (Dai, 2018)

E-cigarette use is strongly associated with use of alcohol and other drugs (Curran, 2018)
Odds ratio of endorsing depressive and suicidal symptoms with past-year e-cigarette and/or marijuana use

- No use
- E-cigarettes only
- Marijuana only
- E-cigarettes and marijuana

Depression Suicidality

No use
E-cigarettes only
Marijuana only
E-cigarettes and marijuana
E-cigarettes for smoking cessation?

- There is **substantial evidence** that:
  - E-cigarettes increase the risk of using tobacco cigarettes in youth/young adults

- E-cigarettes should **NOT** be used for smoking cessation in adolescents

Position of the American Academy of Pediatrics

Statement: E-Cigarettes and Similar Devices (2019)

• “...strong and consistent evidence finds that children and adolescents who use e-cigarettes are significantly more likely to go on to use traditional cigarettes”

• “E-cigarette manufacturers target children with enticing candy and fruit flavors....”

• “Numerous toxicants and carcinogens have been found in e-cigarette solution.”

• “Nonusers are involuntarily exposed to the emissions of these devices with secondhand and thirdhand aerosol.”
Advertising + Flavors = Youth e-cigarette use
E-cigarette use among youth is rising as e-cigarette advertising grows

Dollars spent on e-cigarette advertising

Past 30-day e-cigarette use among youth

Marketing e-cigarettes to youth

SOURCE: STANFORD SCHOOL OF MEDICINE, 2016,
http://tobacco.stanford.edu/tobacco_main/main_ecigs.php
E-juice flavors

Marketing of e-cigarettes

Addictive Behaviors: (Auf, 2018):
- E-cigarette marketing exposure is associated with increased rates of ever/current use of cigarettes, cigars and hookah
  - Adjusted OR: 1.3-1.5
  - Increases risk of poly-tobacco products

E-cigarette marketing exposure and combustible tobacco use among adolescents in the United States
Rehab Auf, Mary Jo Trepka, Moaz Selim, Ziyad Ben Taleb, Mario De La Rosa, Miguel Ángel Cano
Vaping products
Inside the e-cigarette...

- Propylene glycol
- Glycerin
- Nicotine
- Water
- Flavoring
- Potentially toxic contaminants and vaporization by-products
- Heating element
- Nicotine cartridge
- Battery
- Mouthpiece

Heating element in the atomization chamber vaporizes the nicotine solution.

Nicotine cartridge holds the nicotine solution. The nicotine content may be high, medium, low, or none.
Electronic nicotine delivery systems
About the JUUL...

The Juul Is Too Cool

Kids will keep Juuling until we make vaping as uncool as smoking. Is the Juul craze almost over? Probably not!
The JUUL

• Pods contain e-liquid with highly absorbable nicotine salts
  – Heated into vapor and inhaled
• 1 JUUL pod = 0.7mL of nicotine (5% concentration)
  – Nicotine equivalent of 1 pack of cigarettes (≈200 puffs)

• Youth-friendly flavors:
New and emerging products
JUUL: Access

Youth who used JUUL flavor pods in the past 30 days said they obtained the device in the following ways:

- **74%** Physical retail location
- **52%** Social source
- **6%** Internet

*Youth could select multiple answers

FDA response

FDA takes new steps to address epidemic of youth e-cigarette use, including a historic action against more than 1,300 retailers and 5 major manufacturers for their roles perpetuating youth access.

Warning letters and civil money penalty complaints to retailers are largest coordinated enforcement effort in agency history: FDA requests manufacturers provide plan for mitigating youth sales within 60 days; warns it may restrict flavored e-cigarettes to address youth epidemic.
FDA education campaign – September 2018

Interactive online education platform (video game format):  [https://whatsinavape.com/](https://whatsinavape.com/)
Surgeon General’s Advisory on E-cigarette Use Among Youth

I, Surgeon General of the United States Public Health Service, VADM Jerome Adams, am emphasizing the importance of protecting our children from a lifetime of nicotine addiction and associated health risks by immediately addressing the epidemic of youth e-cigarette use. The recent surge in e-cigarette use among youth, which has been fueled by new types of e-cigarettes that have recently entered the market, is a cause for great concern. We must take action now to protect the health of our nation’s young people.

KNOW THE RISKS. TAKE ACTION. PROTECT OUR KIDS.

The E-cigarette Epidemic Among Youth

Considerable progress has been made in reducing cigarette smoking among our nation’s youth. However, the tobacco product landscape continues to evolve to include a variety of tobacco products, including smoked, smokeless, and electronic products, such as e-cigarettes. E-cigarettes are designed to deliver nicotine, flavorings, and other additives to the user via an inhaled aerosol.

40% of teens using e-cigarettes unaware that they contain nicotine (Boykan, 2019)

Source: Monitoring the Future Survey, 2018
Vaping marijuana?

“Premium wax vaporizer”

“Liquid shatter” pen
More than 1/4 of e-cigarette users (MTF, 2018)

Teens often use highly concentrated products (THC/hash oils)

“Dab pens”: Vaporizers specially designed to vape cannabis concentrates

Vaping marijuana?
Nicotine and the teen brain
Brain maturation
Rational thinking gap

Reward and pleasure center

Functional Development

Age

Adolescent

Adult

Rational brain
Adolescents are **developmentally primed** to seek big rewards.
Nicotine and the teen brain

- Nicotine takes 10-15 seconds to reach the brain
  - Effects last approximately 30 minutes
  - **Short-term stimulant** properties
- Acts on Ach receptors – produce **dopamine, serotonin and glutamate**
  - **Pleasure center** activation
  - **Highly addictive:** more than alcohol and cannabis; similar to cocaine
Substance use and the teen brain

Activation of the reward pathway by addictive drugs

- Pre-frontal cortex
- Amygdala
- Nucleus accumbens
- Alcohol
- Cocaine
- Heroin
- Nicotine
Nicotine and the teen brain: long term effects

• Produces persistent changes in the brain
• **Long term** impacts:
  – Increased risk for drug addiction
    • including nicotine, marijuana, alcohol and cocaine
  – Impairments in **attention** capacity and **working memory**
  – Associated with **mood** disorders and poor **impulse control**
Nicotine effects vs withdrawal

**Nicotine Effects**
- Alertness (short term)
- Reduced appetite
- Palpitations
- Increased blood pressure and heart rate

**Nicotine withdrawal symptoms**
- Headaches
- Anxiety, irritability
- Difficulty concentrating
- Restlessness
- Hunger
- Tremor
- Sweating
- Dizziness

Teens usually have less severe withdrawal symptoms than adults, but they happen much earlier.
Health effects of e-cigarettes
Surgeon general report: 2016
E-cigarettes: what are the risks?

• Brain risks
• Addiction
• Behavior risks:
  – Use of two or more tobacco products
  – Use of alcohol and other drugs
• Lung exposure to toxic chemicals/carcinogens
• Burn risks
Vapor vs. Aerosol

E-cigarettes produce an aerosol, **NOT** water vapor.
Chemicals found in first, second and third hand e-cigarette aerosol

- **Diacetyl**
  - Artificial Flavoring

- **Acrylonitrile**
  - Poison

- **Formaldehyde**
  - Embalming Fluid

- **Acrylamide**
  - Wastewater Treatment

- **Crotonaldehyde**
  - Volcanic Emission

- **Propylene oxide**
  - Irritant
Nicotine Toxicity

- Stomach pain
- Dizziness
- Headaches
- Decreased Concentration
Dripping

- Thicker vapor
- Higher nicotine concentration (more addictive)
- Increased concentration and absorption of chemicals
- Burn risks with handling hot e-liquid
E-cigarettes: burn risks

16 year-old, 2nd degree burn
20 year-old, 2nd degree thigh burn
Screening and brief intervention
A few words about SBIRT...

- **Screening:** Universal or targeted screening for assessing use and severity of alcohol; illicit drugs; and prescription drug use and disorders

- **Brief Intervention:** An interpersonal interaction whose primary **impact is motivational**, working to trigger a decision and commitment to change.

- **Referral to Treatment:** Referrals to specialty care for adolescents with substance use disorders
School SBIRT in Massachusetts

The state of Massachusetts has recently adopted a law requiring all schools to offer SBIRT to all middle and high school students by the end of the 2017-2018 academic year.

House Bill No. 4056: The Commonwealth of Massachusetts
An Act relative to substance use, treatment, education and prevention.
Section 15: Subject to appropriation, each city, town, regional school district, charter school or vocational school district shall utilize a verbal screening tool* to screen pupils for substance use disorders. Screenings shall occur on an annual basis and occur at 2 different grade levels as recommended by the department of elementary and secondary education, in consultation with the department of public health.

*Screening protocols must be approved by the Department of Public Health – the MA DPH has stated that SBIRT is the only approved screening protocol for use in middle and high schools.
Screening in clinical practice

• Most pediatric providers report routine substance use screening; few physicians report using a validated screening tool

• Screening tools:
  • **CRAFFT** (1.0 or 2.0/2.1 N) - (Knight, 2002)
  • Brief Screener for Tobacco, Alcohol, and other Drugs (BSTAD) - (Kelly S, 2014)
  • **S2BI** (Screening to Brief Intervention) *(Levy, 2014)*
Screening, Brief Intervention and Referral to Treatment (SBIRT)

Use validated screening tool to identify risk level and appropriate intervention

- Abstinence: Positive Reinforcement
- Substance use without a disorder: Brief Health Advice
- Mild/moderate substance use disorder: Brief Intervention

Referral to Treatment

In the past year, how many times have you used:

- Tobacco, nicotine or e-cigarettes like JUUL?
- Alcohol?
- Marijuana?

• Weekly
• Monthly
• Once or twice
• Never

Screening to Brief Intervention (S2BI)

The 5 As

- Ask about use
- Advise to quit
- Assess readiness to quit
- Assist in quit attempt
- Arrange follow-up

SBIRT

1. SCREEN
2. BRIEF INTERVENTION
3. REFERRAL TO TREATMENT

Brief intervention

- Use a patient-centered strengths-based approach
- Advise adolescents to consider cessation
- Provide information about health consequences
- Use a non-judgmental approach
- Determine readiness/willingness to quit (scale from 1 to 10)
Brief intervention: eliciting change using motivational interviewing
Some terms you might hear...

- **Vaping/e-cigarette products:**
  - Brands: JUUL/JUULing, Vuse, MarkTen, blu e-cigs, and Logic, etc.
  - E-liquids, e-juice
  - Dabs, dab pens, dab cards – (marijuana)

- **Techniques:**
  - Drip, dripping or juicing – using e-liquids directly on heating coil
  - Ghosting – hiding e-cigarette vapor in the mouth/airways
  - JUUL challenges, stacking, “blinkers” – using one or many JUULs to reach very levels of vapor/nicotine in the lungs

- **Health effects/problems:**
  - Getting “nicked” – Euphoria with high doses of nicotine
  - Getting “nic sick” – Heart palpitations, nausea/vomiting, light-headedness with nicotine e-cigarette overuse
Treatment strategies
### Table 1. Efficacy of Methods Used to Treat Tobacco Dependence: Meta-analyses From the Cochrane Database of Systematic Reviews

<table>
<thead>
<tr>
<th>Method</th>
<th>Nonpharmacologic Methods vs Minimal or Usual Care, Risk Ratio (95% CI)</th>
<th>No. of Trials in Meta-analysis</th>
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<tbody>
<tr>
<td>Nonpharmacologic methods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking cessation counseling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual</td>
<td>1.39 (1.24-1.57)</td>
<td>22</td>
</tr>
<tr>
<td>Group</td>
<td>1.98 (1.60-2.46)</td>
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<tr>
<td>Telephone quit line</td>
<td>1.37 (1.26-1.50)</td>
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<tr>
<td>Physician intervention</td>
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<td></td>
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<tr>
<td>Brief advice to quit vs no advice or usual care</td>
<td>1.66 (1.42-1.94)</td>
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<tr>
<td>Brief counseling vs No advice or usual care</td>
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<tr>
<td>Brief advice</td>
<td>1.37 (1.20-1.56)</td>
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</table>

#### Pharmacologic Methods vs Placebo or No Treatment

<table>
<thead>
<tr>
<th>Pharmacologic methods</th>
<th>Nonpharmacologic Methods vs Minimal or Usual Care, Risk Ratio (95% CI)</th>
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</thead>
<tbody>
<tr>
<td>First-line drugs</td>
<td></td>
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<tr>
<td>Bupropion SR</td>
<td>1.69 (1.53-1.85)</td>
<td>36</td>
</tr>
<tr>
<td>Varenicline</td>
<td>2.27 (2.02-2.55)</td>
<td>14</td>
</tr>
<tr>
<td>Nicotine replacement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patch</td>
<td>1.66 (1.53-1.81)</td>
<td>41</td>
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<tr>
<td>Gum</td>
<td>1.43 (1.33-1.53)</td>
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<tr>
<td>Lozenge</td>
<td>2.00 (1.63-2.45)</td>
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<tr>
<td>Inhaler</td>
<td>1.90 (1.36-2.67)</td>
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<tr>
<td>Nasal spray</td>
<td>2.02 (1.49-3.73)</td>
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<td>Second-line drugs</td>
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<tr>
<td>Nortriptyline</td>
<td>2.03 (1.48-2.78)</td>
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</tr>
<tr>
<td>Clonidine</td>
<td>1.63 (1.22-2.18)</td>
<td>6</td>
</tr>
</tbody>
</table>

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

- **Screen** all patients for tobacco exposure
- **Advise** patients to abstain from all forms of tobacco
- Do not recommend e-cigarettes for smoking cessation/reduction
- **Offer** counselling for nicotine cessation as a first step
- **Consider** pharmacotherapy for adolescent daily smokers
Nicotine Replacement Therapy (NRT)

• Can be used to help teens quit or cut down
  – Short acting: lozenges and gums
  – Long acting: patches
  – Sprays and inhalers not recommended in teens
• Safe and minor side effects
  – Skin irritation, dry mouth
Efficacy of Pharmacotherapy for Smoking Cessation in Adolescent Smokers: A Meta-analysis of Randomized Controlled Trials.

<table>
<thead>
<tr>
<th>Study</th>
<th>RR (95% CI)</th>
<th>Weight (%)</th>
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<tbody>
<tr>
<td>2003 Hanson</td>
<td>1.11 (0.49, 2.50)</td>
<td>25.02</td>
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<tr>
<td>2004 Killen</td>
<td>1.05 (0.31, 3.52)</td>
<td>11.24</td>
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<tr>
<td>2004 Niederhofer</td>
<td>3.00 (0.77, 11.74)</td>
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<tr>
<td>2005 Moolchan</td>
<td>4.50 (0.59, 34.29)</td>
<td>3.99</td>
</tr>
<tr>
<td>2006 Roddy</td>
<td>2.50 (0.51, 12.28)</td>
<td>6.50</td>
</tr>
<tr>
<td>2007 Muramoto</td>
<td>2.38 (0.87, 6.51)</td>
<td>16.22</td>
</tr>
<tr>
<td>2008 Rubinstein</td>
<td>0.16 (0.01, 3.06)</td>
<td>1.86</td>
</tr>
<tr>
<td>2011 Gray</td>
<td>2.51 (0.52, 11.97)</td>
<td>6.73</td>
</tr>
<tr>
<td>2014 Scherhof</td>
<td>1.42 (0.57, 3.55)</td>
<td>19.63</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td><strong>1.62 (1.08, 2.44)</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>
Plasma nicotine concentrations for smoking, NRT and e-cigarettes

Other medications

• **Bupropion**
  - Limited evidence in youth
  - Best if combined with counseling/NRT
  - Contra-indications: Seizures, eating disorders

• **Varenicline**
  - Highest quit rates in adults
  - Limited evidence in youth; no longer recommended for ≤ 16 y.o.
  - Adverse effects: Possible increase in suicidality, vivid dreams
Treatment strategies for e-cigarette use

How to best assist adolescents who want to quit vaping is currently unknown.
Clinicians across the country report using the following techniques (currently not evidence-based):

- **Patch**
  - 1+ pod/day: 21 mg
  - ½-1 pod per day: 14mg
  - A few “hits” a day: 7mg
- **Lozenges and gums**
  - As needed
- **Switching to lower nicotine concentration products**
- **Biofeedback**
- **CBT and MI**
**E-Cigarettes and Vaping: What Clinicians Need to Know**

**Facts about E-Cigarettes:**
- E-cigarettes produce an aerosolized mixture containing flavored solution and nicotine that is inhaled by the user. The solution can contain 0-59 mg/mL of nicotine.
- E-cigarettes have many names, including e-cigs, vape pens, e-hookah, e-cigars, mechanical mods, and pod systems.
- E-cigarettes are battery-powered. They can be disposable or rechargeable via a USB port.
- E-cigarettes come in many forms. They can resemble combustible cigarettes, cigars, pipes, flash drives, or pens.
- E-cigarettes contain a liquid nicotine solution that is often flavored. Most flavors appeal to children, including fruit, candy, peppermint, bubble gum and many others.

**Health Harms:**
- E-cigarette solutions contain harmful chemicals and carcinogens.
- The nicotine in e-cigarettes is addictive and has neurotoxic effects on developing brains.
- Animal data shows that exposure to secondhand e-cigarette vapor harms lung growth and function.
- Long-term health effects on users and bystanders are still unknown.
- These products can also be used to vaper marijuana, herbs, waxes, and oils.

**JUULing: What Pediatricians and Families Need to Know**

**What is a JUUL?**

JUUL (pronounced “jewel”) is a brand of e-cigarette made by JUUL Labs Inc.

JUUL has grown quickly in popularity since introduction to the market in 2015, fueled by a serious following among youth and young adults.

JUUL’s popularity among youth raises significant concerns for pediatric health.

**JUUL Characteristics:**
Electronic Cigarettes

What’s the bottom line on the risks of e-cigarettes?

Get the facts now.

Get the facts about electronic cigarettes, their health effects and the risks of using e-cigarettes.

E-cigarettes are sometimes called “e-cigs,” “vapes,” “e-hookahs,” “vape pens,” and “electronic nicotine delivery systems (ENDS).” Some e-cigarettes look like regular cigarettes, cigars, or pipes. Some look like USB flash drives, pens, and other everyday items.
Additional Resources

For help quitting:
• Thisisquitting.com from the Truth Initiative: digital quitting program
• Massachusetts Smokers’ Helpline at 1-800-QUIT-NOW for free coaching: now available for youth with vaping problems

www.GetOutraged.org
• Facts
• For parents (tips on talking with your kids)
• For schools
  – Toolkit divided into information for Administrators (this presentation!); teachers; school health services

Massachusetts Health Promotion Clearinghouse (DPH)
• Print materials
• https://massclearinghouse.ehs.state.ma.us/category/Vaping.html:
WHAT YOU NEED TO KNOW ABOUT VAPING & E-CIGARETTES

Wednesday - October 17th
7:00-9:00 PM
Cary Hall
1605 Mass Ave. Lexington
A presentation and Q&A discussion with Nicholas Chadi, M.D.

Sponsored by: Lexington Human Services Department, Department of Health, and the School Health Advisory Council

Pediatrician Specialized in Adolescent Medicine
Boston Children’s Hospital

https://videoplayer.telvue.com/player/c0gKv9ZUF0uidDafFfESDZA5Ekkp7L/media/388188?autostart=true&showtabssearch=true&fullscreen=false
Adolescent Substance Use and Addiction Program (ASAP)

Boston Children’s Hospital
Outpatient clinics in Boston and Waltham
Adolescents and young adults up to age 23
Call us at: (617)-355-2727
Email: ASAP@childrens.harvard.edu

http://www.childrenshospital.org/centers-and-services/programs/a-_e/adolescent-substance-abuse-program
Nicotine use disorder: treatment
Take home messages

E-cigarette use is very common in adolescents and rates are increasing.

E-cigarettes carry important risks for teens’ health.

E-cigarettes should not be used as a smoking cessation tool in adolescents.

Parents, schools and health providers can help teens quit.
Back to Jeremy...

- Jeremy accepts to use a 14mg nicotine patch
- He is offered nicotine gums and lozenges (he chooses lozenges)
- He manages to quit smoking, but continues to vape “socially”
- Recently started vaping using high concentration “medicinal” THC oil, “it’s purer and after all, it’s legal in Massachusetts”
Questions?
Thank you!
Massachusetts Health Council

Vaping: Addiction & the Adolescent Brain
Tobacco-Free Community Partnerships
Tobacco-Free Community Partnerships

• Help people quit using tobacco/nicotine
• Protect everyone from secondhand smoke
• Prevent youth from starting to use tobacco/nicotine

Funded by the Massachusetts Tobacco Cessation and Prevention program, a Community Partnership in your region can provide free resources to your community.
<table>
<thead>
<tr>
<th>Area</th>
<th>TFCP Group</th>
<th>Name</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>MetroWest and South Shore Area</td>
<td>Greater Boston</td>
<td>Mary Cole</td>
<td><a href="mailto:mcole@baystatecs.org">mcole@baystatecs.org</a></td>
</tr>
<tr>
<td>Berkshire Area</td>
<td>Berkshire County</td>
<td>Joyce Brewer</td>
<td><a href="mailto:jbrewer@berkshireahec.org">jbrewer@berkshireahec.org</a></td>
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<tr>
<td>Hampden County</td>
<td>Hampden County</td>
<td>Sara Moriarty</td>
<td><a href="mailto:smoriarty@gandaracenter.org">smoriarty@gandaracenter.org</a></td>
</tr>
<tr>
<td>Northeast Area</td>
<td>Northeast</td>
<td>Diane Knight</td>
<td><a href="mailto:dknight@glfhc.org">dknight@glfhc.org</a></td>
</tr>
<tr>
<td>Northampton Area</td>
<td>Hampshire-Franklin</td>
<td>Melinda Calianos</td>
<td><a href="mailto:mcalianos@hcg-ma.org">mcalianos@hcg-ma.org</a></td>
</tr>
<tr>
<td>Boston Area</td>
<td>Metro Boston</td>
<td>Edgar Duran Elmudesi</td>
<td><a href="mailto:eduran@hria.org">eduran@hria.org</a></td>
</tr>
<tr>
<td>New Bedford &amp; Fall River Area, Cape Cod and the Islands</td>
<td>Southeast</td>
<td>Morissa Vital</td>
<td><a href="mailto:mvital@sevenhills.org">mvital@sevenhills.org</a></td>
</tr>
<tr>
<td>Central MA Area</td>
<td>Central Mass</td>
<td>Tina Grosowsky</td>
<td><a href="mailto:tina.grosowsky@umassmed.edu">tina.grosowsky@umassmed.edu</a></td>
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</tbody>
</table>
Massachusetts Health Council

Vaping: Addiction & the Adolescent Brain
Engaging Youth in Vaping Prevention

Carly K. Caminiti, M.S.
Health Resources in Action
Who we are
The 84 Movement is a program of the Massachusetts Department of Public Health (specifically in the Massachusetts Tobacco Cessation and Prevention Program) and is managed in partnership with Health Resources in Action.
The 84 Movement

- Mini-grants
- Statewide Events
- Statewide Leadership Team
- Trainings
- Activities & Local Policy
The 84 Movement Mini-grants Statewide Events Statewide Leadership Team Trainings Activities & Local Policy Racial Justice
Youth Participation in The 84
Statewide Leadership Team

- Youth-lead events
- Training
- Co-facilitation
- Extension of staff-decision making
- Professional development opportunities
Statewide Events

- **Kick Butts Day** – youth march to the statehouse to educate policymakers on what they are seeing in their communities
- **Youth Power Summit** – day-long training on topics such as racial justice, vaping, and tobacco industry targeting
Local Policy

- Training
- Community engagement
- Personal Connections
- Presenting to decision-makers
Including Menthol in Flavor Restrictions

- Flavors like menthol, mint, and wintergreen are currently left out of flavor restrictions
- Menthol and mint are popular vaping flavors among youth
- Menthol products are easier to start and harder to quit
- Disproportionately affects people of color
How to know quality programming

• If a tobacco or vaping company is involved, don’t use it!
• This includes resources, curricula, or cessation programs that are funded by or associated with the tobacco and vaping industries
• Best way to know.... ASK!
CATCH curriculum

E-CIGARETTE PREVENTION

CATCH collaborated with researchers at Michael & Susan Dell Center for Healthy Living at The University of Texas Health Science Center at Houston (UTHealth) School of Public Health to create CATCH My Breath™, a prevention program specific to middle and high schoolers’ use of E-cigarettes.
Get involved with The 84 Movement

FUNDING AVAILABLE!
April Activity of the Month Available Now!

Posted on April 19, 2019 | by The 84 Staff | Posted in Activity of the Month, Featured Story, General

If you were at Kick Butts Day, you might have heard the Commissioner of The Massachusetts Department of Public Health announce that they are launching a new vaping campaign. This campaign is aimed at youth to GET THE FACTS. You can learn more about the campaign by visiting mass.gov/vaping.

But, to make sure this campaign spreads to youth across the state, we need...YOU!

To find out more about how you can get involved AND get a $500 stipend for your Chapter, download our activity sheet! Get started today!
MA Tobacco Cessation and Prevention Program

The New Look of NICOTINE ADDICTION
TALK WITH YOUR KIDS ABOUT THE DANGERS OF VAPING

Get the Facts
Information on vaping and what vaping products look like.

For Parents
How to talk with your kids about vaping and how to engage your community.

For Schools
A toolkit to address the use of vaping products in schools and communities.

En Español
Twitter: @The84Movement
Instagram: @The84_Movement
Facebook: The 84 Movement
Snapchat: @The84Movement
Thank you!
Carly K. Caminiti
Associate Director
ccaminiti@hria.org
617-279-2282
Massachusetts Health Council

Vaping:
Addiction & the Adolescent Brain
Massachusetts Health Council

Vaping: Addiction & the Adolescent Brain
My Role at UMass is as Contract Manager in the Center for Tobacco Treatment Research & Training managing a MA DPH capacity building contract.

Our contract provides Technical Assistance and Training for health care providers to assist them in addressing tobacco use with the populations they serve.
A Recap: How Juul reshaped adolescent cessation programs

• **2017:** Invasion of Juul caught many of us off-guard due to it’s incognito persona!

• Prevailing attitude: Among Tobacco Treatment Specialists was that cessation for vaping should be treated the same as combustible tobacco; **problem was that almost no programs existed for adolescent smoking or vaping!**

• There was much to do: We were all busy catching up to Juul! Began educating the community, staff, parents & youth about the effects and risks from vaping!

• **2018:** DPH developed **Tool Kit New Look of Addiction** was developed to educate about and prevent vaping; it didn’t address cessation.
Attitudes began to shift...

• As stories surfaced about students and families suffering through **vastly different withdrawal symptoms from Juul** compared to withdrawal symptoms from cigarettes.

• Symptoms were **more intense and lasted longer** - similar to other addictive substances.

• It was time to address the lack of cessation resources in MA and focus on vaping cessation! Attitudes were shifting about Cessation for Vaping and so were ours!
An Assessment of Current Resources to Help Adolescents Quit Vaping

Karen Del'Olio, MPH, Nanette Vitali, MS & Lori Pbert, PhD
University of Massachusetts Medical School, Division of Preventive and Behavioral Medicine
Department of Population & Quantitative Health Sciences

Background

- E-cigarette use, more commonly known as vaping, has been a growing epidemic for adolescents in the United States. The U.S. Surgeon General’s recent advisory states we must act now to protect the health of our nation’s youth from a lifetime of nicotine addiction.
- A 2018 Center for Disease Control MMWR reported more than 3 million high school students (grades 9 – 12) and 570,000 middle school students (grades 5 – 8) in the U.S. are currently vaping, defined as using an e-cigarette on ≥1 days in the past 30 days.1
- Researchers from the Monitoring The Future Survey (MTF) report current e-cigarette use of a nicotine substance among middle school and high school students increased nationally by 78% from the year 2017 to 2018. This is the largest increase ever recorded for any substance in the 44 years the MTF has tracked adolescent drug use.2
- The 2017 Massachusetts Youth Risk Behavior Survey (MYRBS) found 41.1% of high schoolers ever used an e-cigarette and 20.1% of high schoolers currently used an e-cigarette in the past 30 days. The prevalence rate for middle schoolers ever using an e-cigarette was 9.3%.3

Methods

- Peer-reviewed articles published in 2018 from the PubMed database and materials retrieved from professional tobacco cessation organization websites in 2018 were reviewed. The search included “e-cigarette Cessation” and “Vaping Cessation” as a Medical Subject Headings (MeSH) for the PubMed literature review. The following search terms were used to search for professional organization websites: 2018 + vaping cessation + adolescents, vaping cessation, vaping + teens, youth vaping cessation and adolescent vaping cessation.
- The research questions for this literature and website review were: 1. Does this article or website provide any vaping/ e-cigarette cessation tools? 2. Do the authors recommend future research for vaping-/ e-cigarette cessation? 3. Does the authors recommend using current tobacco cessation programs to help adolescents quit vaping?

Results

- The review identified 14 published articles and 13 websites. Among the articles and websites reviewed, only one website was identified as providing a vaping/ e-cigarette cessation tool.

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Prevalence</th>
<th>Male</th>
<th>Female</th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Other</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>High School Students</td>
<td>Past 30 days</td>
<td>42.2%</td>
<td>40.1%</td>
<td>43.4%</td>
<td>40.1%</td>
<td>41.9%</td>
<td>41.9%</td>
<td>41.1%</td>
<td>41.1%</td>
</tr>
<tr>
<td>Middle School Students</td>
<td>Past 30 days</td>
<td>18.5%</td>
<td>18.8%</td>
<td>21.2%</td>
<td>15.0%</td>
<td>17.7%</td>
<td>19.8%</td>
<td>20.1%</td>
<td></td>
</tr>
</tbody>
</table>

Recommendations for future research on vaping cessation include:

- Adolescent use and long term health effects
- Vaping cessation using evidence-based methods
- Reduction of multiple tobacco/nicotine product use
- Frequency and intensity of e-cigarette use in association with dependence and cessation-related outcomes
- Routine screening on vaping use for adolescents at both school and well visits
- Vaping warnings directed towards and targeted to teenagers and their unique concerns
- Enhanced regulations
- Determining if different approaches to cessation are needed for e-cigarette users compared to conventional cigarette smokers

Resources to help adolescents quit vaping

[Image: Smokefree.gov](http://www.smokefree.gov) [Image: QuitSTART.net](http://www.quitSTART.net) [Image: SmokeFreeTeen.org](http://www.smokeFreeTeen.org) [Image: ThisIsQuitting.com](http://www.ThisIsQuitting.com) [Image: ThisIsQuittingApp](http://.ThisIsQuittingApp) [Image: ThisIsQuitTeens](http://ThisIsQuitTeens) [Image: ThisIsQuitAppSig](http://ThisIsQuitAppSig) [Image: ThisIsQuitTeen](http://ThisIsQuitTeen) [Image: QuitAndBeHealthy.com](http://QuitAndBeHealthy.com) [Image: CigaretteFilter.org](http://CigaretteFilter.org) [Image: QuittingIsGood.org](http://QuittingIsGood.org) [Image: MyLifeIsGood.org](http://MyLifeIsGood.org) [Image: QuitNow.org](http://QuitNow.org) [Image: ThisIsQuittingApp](http://ThisIsQuittingApp) [Image: ThisIsQuitTeens](http://ThisIsQuitTeens) [Image: ThisIsQuitAppSig](http://ThisIsQuitAppSig) [Image: ThisIsQuitTeen](http://ThisIsQuitTeen) [Image: QuittingIsGood.org](http://QuittingIsGood.org) [Image: MyLifeIsGood.org](http://MyLifeIsGood.org) [Image: QuitNow.org](http://QuitNow.org) [Image: ThisIsQuittingApp](http://ThisIsQuittingApp) [Image: ThisIsQuitTeens](http://ThisIsQuitTeens) [Image: ThisIsQuitAppSig](http://ThisIsQuitAppSig) [Image: ThisIsQuitTeen](http://ThisIsQuitTeen) [Image: QuittingIsGood.org](http://QuittingIsGood.org) [Image: MyLifeIsGood.org](http://MyLifeIsGood.org) [Image: QuitNow.org](http://QuitNow.org)
Resources to help adolescents quit vaping

quitSTART App
Smokefreeteen.org

“So, You’re Ready to Quit Vaping”
thetruth.org
www.thisisquitting.com
#vaping

SMOKESCREEN
www.smokescreengame.org
by Yale University

Stanford Medicine
http://med.stanford.edu/tobaccopreventiontoolkit/E-Cigs.html

Massachusetts Department of Public Health
Tool Kit for Schools
Makesmokinghistory.org
Getoutraged.org

The New Look of NICOTINE ADDICTION
TALK WITH YOUR KIDS ABOUT
New strategies on the horizon!
UMass Programs available for the 2019 School Year

The short-term resource
• Utilizing the *Truth Initiative Texting to Quit for Vaping* program with a human touch
• Support provided from the School Nurses
• Customized number for MA
• Tracking MA utilization
• Webinars in September to train school nurses on using this program

The long-term resource
• *Calling It Quits for Vaping (CIQ:V)*—an update of an earlier CIQ adolescent tobacco cessation program developed for and delivered by school nurses.
• Will be piloted in Natick at the start of the school year
Suggestions for Applying Best Practices for Tobacco Treatment

- Consider Stages of Change and Readiness to Quit
- Remember that tobacco dependence is a chronic relapsing condition; attending a diversion program for a day isn’t treatment
- Students caught vaping who exhibit signs of dependence or withdrawal will need a cessation program
- SBIRT is a good model to use for vaping cessation; even if it’s not required for tobacco, nurses should ask about vaping behavior same way you inquire about alcohol use in the past 30 days
Applying a System Approach to Vaping

1. Identify all aspects of the problem: Who is vaping, where & how?
2. Identify the staff that should play a larger role in addressing the problem. The most critical are the Principal/Vice Principal and the School Nurse. The nurse is uniquely qualified as the sole health care provider in the school and the VP is the sole disciplinarian and keeper of the rules/laws, etc.
3. Create a school health task force with representatives from administration, nursing, counseling, maintenance, athletics, etc.
4. Address the topic from the perspective of multiple stakeholders: What do students need to know, teachers, parents, administrators, community? Each stakeholder should have an understanding of the problem and how it will be addressed - education, prevention, cessation?
Working collaboratively is key for the school nurse and the principal/VP to ensure that the needs of the school and the student are addressed. Otherwise, the scenario might just repeat and each time that happens the student is more nicotine dependent.
Contact Information: For MA Cessation Resources

**Massachusetts Smokers Helpline:** Starting in July, the Helpline will have trained, dedicated staff to work with adolescents (vaping and smoking)


- For information about **Tobacco Systems** contact: Nanette.Vitali@umassmed.edu

For Staff Training Programs through **UMass Center for Tobacco Treatment Research & Training:** [info@cttrt.org](mailto:info@cttrt.org) or [https://www.umassmed.edu/tobacco](https://www.umassmed.edu/tobacco)
POLICIES AND PRACTICES TO PREVENT YOUTH EXPOSURE TO AND ACCESS TO E-CIGARETTES

CHERYL SBARRA, JD, DIRECTOR OF POLICY AND LAW
MASSACHUSETTS ASSOCIATION OF HEALTH BOARDS
MASSACHUSETTS HEALTH COUNCIL
MAY 22, 2019
SNAPSHOT OF MUNICIPAL GOVERNMENT IN MA

- 351 independent municipalities.
- All of whom have the legal authority to enact local public health laws through
  - Board of Health Regulations
  - Ordinance or By-Laws
- Crazy or Brilliant?
LOCAL POLICIES RESTRICTING FLavored "OTHER TOBACCO PRODUCTS" (OTP) TO ADULT-ONLY RETAILERS

| MUNICIPALITY AND EFFECTIVE DATE | AGAWAM | ALEXANDRIA | AMHERST | ANDOVER | ARLINGTON | ASHBURNHAM | AUBURN | AYER | AYERS | AIGHLAND | ATHOL | AITLAND | AVER | AYER | BEDFORD | BELMONT | BELLINGHAM | BOSTON | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTOW | BRISTO
147 CITIES AND TOWNS – 63% OF COMMONWEALTH’S POPULATION

• Courtesy of D.J. Wilson, J.D.
  • Massachusetts Municipal Association’s Public Health Liaison
• June 2009, FDA enacted regulations that prohibited the sale of ALL flavored cigarettes
  • Based largely on tobacco industry documents.
WHY RESTRICT THE SALE OF FLAVORED TOBACCO PRODUCTS?

• Same rationale the FDA used in 2009 when they banned flavored cigarettes.

• 59% of high school smokers in Massachusetts have tried flavored tobacco products and 96.1% of youth who smoked cigars reported smoking cigars that were flavored. (MA Dept. of Public Health 2015 Massachusetts Youth Health Survey; Delneve CD et al., Tob Control, March 2014: Preference for flavored cigar brands among youth, young adults and adults in the USA.)

• FDA and U.S. Surgeon General both stated that flavored tobacco products are considered to be “starter” products that help establish smoking habits that can lead to long-term addiction. (FDA 2011. Fact Sheet: Flavored Tobacco Products, Preventing Tobacco Use Among Youth and Young Adults: A report of the Surgeon General.)
PROJECT: Youth Cigarette - New concepts

APPLE FLAVOR

Apples connote goodness and freshness and we see many possibilities for our youth-oriented cigarette with this flavor. Apple cider is also a possibility.

SWEET FLAVOR CIGARETTE

We believe that there are pipe tobaccos that have a sweet aromatic taste. It's a well known fact that teenagers like sweet products. Honey might be considered.

Brown & Williamson (1972)
http://legacy.library.ucsf.edu/tid/wwq54a99
PM USA Research Center - Young Smokers Prevalence, Trends, Implications and Related Demographic Trends - March 31, 1981 by Myron B. Johnston

1. For over fifteen years certain demographic and social trends have been moving in directions favorable to industry growth. Now, one by one, these powerful social and demographic factors are turning against us, and by 1985 all will be operating against us.

   The trends are:
   1. After increasing for over a decade, the prevalence of teenage smoking is now declining sharply.
   2. After increasing for over a decade, the average daily consumption of teenage smokers is declining.
   3. After increasing 50 percent from 1971 to 1976, the absolute number of 16-19 year-olds who smoke daily increased 10 percent during the 1980s, with the period of sharpest decline beginning in 1983.
   4. Beginning in 1983 the absolute number of 20-24 year-olds (the group during which average daily cigarette consumption increases most rapidly) will begin to decline, after increasing for the past 20 years.

   These trends have important implications for Philip Morris.

   It is important to know as much as possible about teenage smoking patterns and attitudes. Today’s teenager is tomorrow a potential regular customer, and the overwhelming majority of smokers first begin to smoke while still in their teens. In addition the ten years following the teenage years is the period during which average daily consumption per smoker increases to the average adult level. The smoking patterns of teenagers are particularly important to Philip Morris.

Philip Morris (1981)

http://legacy.library.ucsf.edu/tid/fts84a00
AGGRESSIVE MARKETING OF FLAVORED TOBACCO PRODUCTS IN RETAIL ENVIRONMENT

- The tobacco industry spends more than 96% ($9 billion) of its total marketing budget in convenience stores, gas stations and other non-age restricted retail outlets. (Federal Trade Commission (FTC), Cigarette Report for 2017, 2019).

- 2/3 of teenagers visit a convenience store or other neighborhood retailer at least once a week. (Hendrickson, L. et al., Association of retail tobacco marketing with adolescent smoking, (American Journal of Public Health 94 (12)2081-3, 2004).

- Exposure to tobacco marketing in stores and price discounting increase youth smoking. (HHS, Preventing Tobacco Use Among Youth and Young Adults, A report of the Surgeon General, 2012).

- Smart, intentional marketing to youth demonstrated by the following body of evidence.
<table>
<thead>
<tr>
<th>BODY OF EVIDENCE REVIEWED BY THE SURGEON GENERAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-sectional studies on exposure to advertising and use of tobacco;</td>
</tr>
<tr>
<td>Longitudinal studies with non-susceptible, never-users of tobacco and subsequent initiation;</td>
</tr>
<tr>
<td>Examination of industry marketing efforts and use of specific brands;</td>
</tr>
</tbody>
</table>
RE-DEFINE “CHARACTERIZING FLAVOR”

• “A distinguishable taste or aroma, other than the taste or aroma of tobacco . . . Including, but not limited to tastes or aromas relating to any fruit, chocolate, vanilla, honey, candy . . . menthol, mint and wintergreen . . .”
  • “menthol, mint and wintergreen” language in FDA exemption.
  • Includes ALL mint flavors.

• Endorsed by the NAACP and the Urban League.
WHY?

• Same reason FDA banned flavored cigarettes in 2009.

• Mint is a flavor – the only flavored cigarettes left on the market.
  • Should have been banned in 2009.
  • Only reason FDA didn’t include it was because of lobbying efforts and ultimate “compromise”.
  • Even though FDA’s Tobacco Products Scientific Advisory Committee (TPSAC) concluded that “Removal of menthol cigarettes from the marketplace would benefit public health . . .”

• Industry has effectively been able to sell a flavored product (mint) for 10 years, even though the same arguments apply to apple that apply to mint.

• In fact, more compelling arguments apply to mint, than to apple.
MORE COMPELLING ARGUMENTS

• It’s not just a flavor.
  • Anesthetic quality which numbs user’s throat, making it easier to inhale harsh tobacco.

• “Healthier alternative” 1940’s ads for Julep
  • “Even if you’re a chain smoker, your mouth feels clean, refreshed at end of day.” (script)

• Kool (1933 – 1960) “Willie”
  • Smoking cartoon penguin (www.bestoldcommercials.com/kool-cigarettes-willie-penguin/)
  • “Snow Fresh” think skiing, skating, snow.
PHYSICAL SAFETY CONCERNS

• Conclusive evidence that e-cigarette devices can explode and cause burns and projectile injuries.

• Conclusive evidence that intentional or accidental exposure to e-liquids (from drinking, eye contact, or dermal contact) can result in adverse health effects including but not limited to seizures, anoxic brain injury, vomiting, lactic acidosis.
  • FDA investigating several dozen reports that users have experienced seizures.
    • Known side effect from nicotine seizures.
    • Mostly youth and young adults.
Electronic cigarette explosion and burn injuries, US Emergency Departments 2015–2017

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Abstract

Background Electronic cigarette (e-cigarette) battery failure can result in explosions and burn injuries. Previous attempts to quantify these events has been limited to compilations of case studies, federal agency reports and media reports. Although e-cigarette explosions and burn injuries are thought to be rare, current surveillance methods likely underestimate actual occurrences.

Methods Analyses were conducted on cross-sectional data from the US Consumer Product Safety Commission’s (CPSC) National Electronic Injury Surveillance System (NEISS). A keyword search of case narrative text was used to identify e-cigarette-related explosion and burn injuries presenting to US emergency departments from 2015 to 2017. Sampling weights were applied to make conservative national incidence estimates.

Results From 2015 to 2017, there were an estimated 2035 e-cigarette explosion and burn injuries presenting to US hospital emergency departments (95% CI 1107 to 2964).

Conclusions There are more e-cigarette explosion and burn injuries in the USA than estimated in the past reports. Improved surveillance of e-cigarette injuries and regulation of e-cigarette devices is urgently needed. NEISS could be a valuable resource for e-cigarette injury surveillance.

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YOUTH ADDICTION CONCERNS

- E-cigarette use has increased 900% among high school students in the U.S. (E-Cigarette Use Among Youth and Adults: A Report of the Surgeon General, 2016).
  - 3.6 million high school and middle school kids use e-cigarettes.
- Nicotine is highly addictive, notably high nicotine concentration in popular products, like Juul
- Kids are getting “nic sick”.
- E-cigarette use increases the risk of ever using combustible cigarettes.
  - Youth 12 – 17: e-cig use associated with more than 4X the odds of trying combustible products.
YOUTH ADDICTION CONCERNS (CONT.)

• The F.D.A. “...Won’t tolerate a whole generation of young people becoming addicted to nicotine as a trade-off for enabling adults to have unfettered access to these same products.” (Gottlieb).

• Jason Jeong, Junior at Cornell University in a column entitled “Juul Season is Over.”
  • “No analysis or criticism of our collective fervor for the Juul will ever be as compelling as the fact that we have all become addicted to nicotine.”
  • “It is time to address the Juul as what it is: the public health crisis of our generation.”

• “Wooo!! Juul!! I hit it from the moment I wake up to the moment I can’t go to sleep, and keep Juuling.”
OPPOSITION ARGUMENTS
“WE ARE THROWING ADULT SMOKERS UNDER THE BUS BY RESTRICTING E-CIGS TO ADULT-ONLY STORES.”

• Quote from Michael B. Seigel, MD, Professor, Community Health Sciences, Boston University School of Public Health in letters to Lynn, etc.

• NO, WE AREN’T.

• Quotes from Jonathan Winickoff, MD, MPH, Professor of Pediatrics, Harvard Medical School.
  • “If you compare the Juul to a thing [combustible cigarettes] that kills one out of every two users, of course it’s safer. . . And it’s not just Juul . . . There are hundreds of different companies.” (The New Yorker, The Promise of Vaping and the Rise of Juul, May 5, 2019).
Conclusive evidence that completely substituting e-cigs for conventional combustible cigarettes reduces adult users’ exposure to many toxicants and carcinogens present in conventional cigarettes. (NASEM – 2018 report).

Of the 700,000 (14%) of adult smokers in MA, 5.5% used e-cigs to try to quit and 30% used FDA approved medication, mostly prescribed by physicians. (BRFSS 2016).

But, let’s assume that e-cigs work for argument only.
ADULTS CAN STILL GET E-CIGS

• Nearly 75% of (US) daily vapers get their products online or from a vape shop (adult-only).

• **70% of (US) adult flavor users get their products online or from a vape shop.**
  

• The FDA “...Won’t tolerate a whole generation of young people becoming addicted to nicotine as a trade-off for enabling adults to have unfettered access to these same products.” (Gottlieb).

• They can still get them, just not with “unfettered access” in convenience stores.
YOUTH AREN’T GETTING THE PRODUCTS IN STORES

• Yes, they are.
  • See truth initiative survey results from 1000 12-17-year-olds.
    • 74% said they got them in brick and mortar stores.
  • Internet retailers that aren’t checking drivers’ licenses and public records for exact matches are being shut down.
  • Parents’ testimony.

• They are being targeted with marketing in these stores.
YOUTH WHO USED **JUUL FLAVOR PODS** IN THE PAST 30 DAYS SAID THEY OBTAINED THE DEVICE IN THE FOLLOWING WAYS.

- **74%** PHYSICAL RETAIL LOCATION
- **52%** SOCIAL SOURCE
- **6%** INTERNET

*Youth could select multiple answers

truthinitiative.org
SPECIFIC MA DATA (MYRBS ‘17) – 32.9% OF HIGH SCHOOL STUDENTS GET TOBACCO IN STORES VS FDA COMPLIANCE CHECKS
PUP LAWS, LIKE THOSE FOR ALCOHOL AND MARIJUANA IS THE WAY TO GO

• Not according to police.
  • Ticketing in ineffective, especially since enactment of Criminal Justice Reform Act
    • Purpose to support youngest and most vulnerable.
    • Expunges criminal records.
    • Decriminalizes first offense.
    • Immunity from prosecution now for minor in possession of alcohol.

• Virtually impossible to enforce.
  • Can target individuals.
WAIT FOR THE FDA TO COMPLETE THE RESEARCH THEY HAVE MORE RESOURCES

• Why don’t we wait for the FDA to determine that e-cigarettes are safe?

• Backfired in Billerica because one of the Board of Health members was a chemist with a PhD.

• Boards are enacting reasonable health regulations.

• If we wait for the FDA, my 10-month old grandbaby will be almost 11 years old.
  • Graphic warnings.
  • Gottlieb leaving.

• And what happens during those 10 years?
COURT FINDING

- U.S. tobacco companies violated civil racketeering laws (RICO) and engaged in a decades-long conspiracy to deceive the United States people about the health effects of smoking and their marketing to youth.

- Judge Kessler ordered the tobacco companies to publish statements telling the American public the truth about the deadly consequences of smoking and secondhand smoke.

- Tobacco companies fought for more than 11 years to delay doing this. (tobaccofreekids.org).

- Finally published in 2018 – in places youth don’t read. (the Boston Globe, etc.)
“85% OF ADULT VAPERS IN LYNN [OR ANOTHER CITY/TOWN] PREFER FLAVORED E-CIGARETTES”

• Quote from M. Siegel in letters to municipalities considering restricting all flavored tobacco products to adult-only retail stores.

• Inaccuracies:
  • NATIONAL data, not Lynn specific- attribution incorrect.
  • WHO CARES?
    • Most people who vape prefer flavors
      • 3% of adult population
      • More than 20% of youth
    • Youth are more than 6 times more likely to be current e-cig users than adults. (MA YRBS 2017).
“...[N]ATIONAL ESTIMATES SUGGEST THAT THERE ARE AT LEAST 2.5 MILLION ADULT VAPERS WHO RELY UPON E-CIGARETTES TO KEEP THEMSELVES OFF HIGHLY ADDICTIVE AND DEADLY TOBACCO-BURNING CIGARETTES.” (ANOTHER M. SIEGEL QUOTATION)
PROBLEMS WITH THIS STATEMENT

• Questionable accuracy
  • Not calculated by CDC or FDA or any government agency.
  • No “national” estimates.

• Data from a blogger who took results from the 2014 National Health Interview Survey (NHIS) to do a crude calculation of number of former smokers who vape.

• Blogger himself says he doesn’t know if these 2.5 million former smokers are actually vaping as a means of quitting.
Let’s assume the blogger got it right

• 3.6 million young people are now vaping.

• The number is growing exponentially.
  • Between 2017 and 2018, 1.5 million more kids started vaping.
  • That is a 71% increase.

• Houston, we have a problem.

• This is an epidemic.

• Preserving “unfettered access” to e-cigarettes for both adults and kids is threatening to undo a quarter century worth of tobacco control efforts, permit the industry to addict another generation of tobacco users.
“THE DATA ON CIGARETTE BRAND PREFERENCES AMONG YOUTH ALSO DO NOT PROVIDE A JUSTIFICATION FOR BANNING MENTHOL CIGARETTES.” (ANOTHER M. SIEGEL QUOTE)

NOT A BAN.
NOT A BRAND. MENTHOL CIGARETTES ARE FLAVORED CIGARETTES, NOT A BRAND OF CIGARETTES.
THE MAJORITY OF YOUTH SMOKERS PREFER NON-MENTHOL CIGARETTES.” (ANOTHER M. SIEGEL QUOTE)

- Actual quotes from the report: “Analysis of 2012-2016 National Youth Tobacco Survey data found that Marlboro, Newport and Camel were the most commonly reported usual brands smoked by middle and high school current (past 30 day) cigarette smokers.”

- “The proportion of current cigarette smokers who smoked Marlboro cigarettes . . . was highest among non-Hispanic whites . . . (54.6%) . . . Conversely, the proportion who smoked Newport cigarettes . . . was highest among blacks (58.4%) . . . A higher proportion of female smokers (27.2%) smoked Newport cigarettes than did male smokers…”

- Do we only care about non-Hispanic whites males? I don’t think so . .
RESTRICTING THESE PRODUCTS WON’T SOLVE THE VAPING PROBLEM

- Vaping rates are still rising even with hundreds of flavor restriction regulations in place in MA.
  - Still sold mint Juuls in convenience stores.
- It’s an epidemic.
  - Even more of a reason to strengthen these point of sale regulations.
- Public health laws take time to produce outcomes.
  - They don’t happen in a couple of years.
- It’s a reasonable public health regulation.
  - Incremental public health strategies are not arbitrary.
LAKE QUANNAPOWITT, WAKEFIELD EARTH DAY CLEAN-UP
AND NOW SHE IS A JUUL EMPLOYEE IN GOVERNMENT RELATIONS . . .
“LEAVES MOST DANGEROUS, COMBUSTIBLE PRODUCTS IN STORES” (ANOTHER M. SIEGEL QUOTE)

• Then RESTRICT **ALL** TOBACCO PRODUCTS TO ADULT-ONLY RETAIL TOBACCO STORES – HOWEVER:
  
• Incremental public health strategies are not arbitrary.
Massachusetts Health Council

Vaping:
Addiction & the Adolescent Brain