The New Generation of Tobacco Addiction, Vaping and its Effects on the Developing Adolescent

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Funders & Partners
Learning Objectives:

• Identify different types of electronic nicotine delivery systems (ENDS)
• Discuss prevalence and trends among youth and adolescents.
• Recognize the short and long term effects of END use on the developing adolescent brain.
• Understand the cycle of nicotine addiction
• Utilize effective strategies to help parents recognize the signs their children may be using ENDS and communicate.
• Implement validated, evidence-based screening instruments to identify patients with substance use concerns and make appropriate referrals to the Hub or your local Quit Center.
Electronic Nicotine Delivery System (ENDS)

AKA: e-cigarettes, vape pens, hookah pens, tanks, mods, JUUL etc.

Battery-powered heating devices

Originally designed to deliver liquid nicotine to users in the form of a “aerosol” (instead of smoke)

- The “aerosol” comes from heating liquid nicotine and flavoring.

Unintended Injuries/Death

- Defective e-cig batteries have caused fires, explosions, and life threatening injuries.
  - Death in Florida May 2018
  - Second death 2019
  - Serious burns, requiring skin graphing
  - Loss of teeth
  - House fires

Exposure to liquid nicotine can be toxic. Children and adults have been poisoned by swallowing, or absorbing e-liquid.


ENDS aerosol is NOT harmless "water vapor"

- Labeling is NOT always a reliable indicator of nicotine content
- About 99% of ALL e-cigs sold at convenience stores, supermarkets and similar outlets contain nicotine.

### E-liquid Ingredients

- ENDS also contain propylene glycol or glycerin and flavorings.
- Some ENDS manufacturers claim these ingredients are safe because they meet the FDA definition of “Generally Recognized as Safe” (GRAS) for food additives **NOT** inhalation
  - Effects of many of these inhaled ingredients are largely unknown
  - Lung inflammation and disease (i.e.: popcorn lung)
  - **75%** of e-cigarette flavors tested contained diacetyl

SOURCE: CDC, 2018.

### Advertising

- By 2016, nearly **4 in 5** middle and high school students saw a e-cig ads.
  - More than **20 million** youth exposed to ads
  - Between 2014 and 2016, exposure to retail e-cig advertising among youth increased to nearly **20%**.
  - $115 million on e-cig ads in 2014.

Where young people are most likely to see e-cigarette ads

- **Retail Stores**: 68%
- **Internet**: 41%
- **Television**: 38%
- **Newspapers and Magazines**: 24%

New Toys...Old Tactics

E-cigs traditionally have been an unregulated industry
- Nicotine concentration, other contents
- Online sale to minors
- Products made overseas
- Advertising

E-cig marketing tactics similar to tobacco
- Misleading claims of being healthy & safe
- Cessation device
- Promote that e-cigarette can be used anywhere (indoors)
- Proven to have increased use by youth
  - candy flavored products
  - themes of rebellion, glamour
  - sexy celebrity endorsements
  - sports and music sponsorships
  - discounts

Youth & ENDS

- Over 3.6 million youth are current e-cig users.
- Among current youth e-cigarette users 68% used flavors in 2018 compared to 61% in 2017
- Youth overall tobacco use has increased. – by 27.1% in high school students and 7.2% in middle school students from 2017 to 2018
- E-cigarettes have been the most commonly tobacco product used among youth since 2014

Epidemic Levels

SURGE IN YOUTH CURRENT E-CIGARETTE USE — 1.5 Million More Students Used E-Cigarettes in 2018 vs 2017

78% Increase Among High School Students
11.7% 2017
20.8% 2018

48% Increase Among Middle School Students
3.3% 2017
4.9% 2018


Increase Use & Trends

AMONG HIGH SCHOOL CURRENT E-CIGARETTE USERS — Rise in Frequency and Use of Flavors

More Used E-Cigarettes on 20 or More Days
28% in 2018
29% in 2017

More Used Flavored E-Cigarettes
68% in 2018
61% in 2017

Tobacco/ENDS Use, NJ Students 2016

Past 30 day use by tobacco product among NJ High School Students: 2008-2016

Current Tobacco Use in NJ High School Students

E-cigarettes | Hookah | Cigars | Cigarettes | SLT
9.6 | 7 | 6.8 | 4.7 | 2.9

Tobacco product use among US high school students, 2018

https://www.cdc.gov/vitalsigns/youth-tobacco-use/

Dual Use

- The vast majority of current e-cigarette users are also current smokers.
  - 65% of youth who had used an e-cig in the last 30 days also reported using another tobacco product in the same timeframe.
- This raises additional concerns beyond the potential health effects of e-cigarettes alone.
- Research suggests that using e-cigarettes may lead youth to start smoking traditional cigarettes.

The National Academies of Sciences, Engineering, and Medicine, 2018.
E-cigarettes: Reversing Previous Declines

Among current e-cig users aged 18-24:

- 40% never smokers
- 43% were current smokers
- 17% were former smokers

Highest age group of adult nonsmokers to use e-cigs

Young adults who use e-cigs are more than 4X as likely to begin smoking traditional cigarettes within 18 months as their peers who do not vape.

What’s CUUL?

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

- 1 Juul pod contains 0.7 ml with 5% nicotine by weight // approximately equivalent to about 1 pack of cigarettes

CALIFORNIA PROPOSITION 65 WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.


Nicotine Salts

Nicotine for e-liquid begins as free base nicotine. To change to a nicotine salt, an e-liquid maker adds an acid to lower the pH – usually benzoic acid. Initial patent for JUUL nicotine salt technology obtained in 2015.

JUUL claims that their nicotine salt formulation increases the rate and amount of nicotine delivered into the blood, compared with other formulations.

- Delivery 2.7 times faster than other e-cigs

JUUL on the Rise

JUUL, MarkTen, Vuse, Blu and Logic control 97% of the e-cig market

- As of December 2018, JUUL controls about 80% of the market

Pop-culture Phenomenon

JUUL's original marketing campaign included billboards, YouTube videos, advertising in Vice Magazine, launch parties and a sampling tour.

One of the first major e-cig brands to rely heavily on social media to market and promote its products

Selena Gomez and other celebrities are “juuling” too!

Back to school promotional sale. Photo taken outside a North Jersey convenient store.
JUUL Flavor & Substance Use

- JUUL users largely report use of fruity and sweet flavors.
- Of youth who have ever used JUUL, 1 in 3 used marijuana with the device.


JUUL Update

November, 2018 JUUL temporary removed flavored pods from retail stores with exception of mint and tobacco flavors. However, flavored pods will continue to sell online. Beware of completing products that resemble JUUL devices and pods that are on the rise.

- Ex: Myle, KandyPens Rubi, etc.
Altria-JUUL

Dec. 20th: Tobacco giant Altria has invested $12.8 billion for a 35% stake in JUUL and valued the company at $38 billion. The Altria-Juul deal shows how far the tobacco industry will go to maximize profits and sell as many products as possible, including cigarettes. The FDA and other policymakers must be equally aggressive in working to reduce tobacco use and save lives.

Where are youth getting it?

While Internet was not the most common, 89% of youth who attempted to purchase online were successful.

5 Signs your child/patient is vaping

- The Scent
  - Smelling of a fruity sweet scent, especially males
- Pens/USB that are neither
  - Putting thick markers or pens in their mouth
  - Lanyards or hoodies that may be hiding vaping devices
- Increased Thirst
- Nosebleeds
- Passing on Caffeine
- Mood changes before and after leaving the room

FDA & ENDS Regulations

- Deemed all tobacco products including ENDS
  - Min. age 18
  - Ban free samples & vending machines
  - Warning Label (2018)
- FDA & FTC took joint action against several e-liquid companies that marketed their products to look like candy, juice, cookies, etc. to remove from the market
- FDA gave JUUL and other e-cig manufactures 60 days to report how they’re product does not appeal to youth use
- Congress enacted TCA to grant the FDA rights to regulate all tobacco products including ENDS
- FDA extended e-cig premarket approval from Aug. 2018 to Aug. 2022
- FDA seized documents from JUUL in surprise raid

State & Local Action

In 2010, **NJ’s Smoke free Air Act** was revised to include a ban on electronic smoking devices in indoor public places and workplaces. 
Age of sale in NJ to purchase e-cigs increased from 19 to **21**

- Online sale

Many NJ municipalities have banned the use of e-cigs in city owned parks, playgrounds, and outdoor recreation areas.


Free NJ Cessation Resources

**MOM’S QUIT CONNECTION FOR FAMILIES**

- Pregnant or Mother with children 7 years old and younger
- Family members of child 7 years old and younger
- Does NOT need to be ready to quit
- Face-to-face counseling in their community
- Telephone counseling for Northern and Central NJ

**NEW JERSEY QUITLINE**

- Resident of New Jersey
  - Must be ready to quit
  - No age restriction
  - 2 weeks of Nicotine Patch to qualified callers
  - 18 years or older for free nicotine patches
  - Telephone based counseling
**FAX Form:**

**New Jersey QuitLine**

The provider is asked to only fax refer patients to the NJ Quitline who are in a stage where they are at least thinking about making a quit attempt in the near future.

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**Mom’s Quit Connection**

**For Families**

**Family Health Initiatives**

**Southern NJ Perinatal Cooperative**

Available for pregnant or parenting women, their family members, and caregivers of children 7 years old and younger.

Face-to-Face counseling in Southern NJ

Telephone counseling in Northern and Central NJ

Registration and counseling available:

- Monday – Friday  8:30am – 5pm
- Fax referral 1-856-665-7711
- Self referral 1-888-545-5191
- Web referral [www.momsquit.com](http://www.momsquit.com)
- Facebook referral
Fax To Quit

Clients do not have to be ready to quit, MQC accepts clients in any stage of readiness.

*See bottom left corner*

Talking to Your Teen: Tip Sheet for Parents

Talking Points to Share with Parents

Before the Conversation
- Know the facts
- Be patient and ready to listen
- Set a positive example by being tobacco-free

Start the Conversation
- Find the right moment
- Ask for support

Answer their Questions
- Why don’t you want me to use e-cigarettes?
- What’s the big deal about nicotine?
- Aren’t e-cigarettes safer than conventional cigarettes?
- I (or my friends) have tried e-cigarettes and it was no big deal?
- You used tobacco, so why shouldn’t I?

SOURCE: Surgeon General
Know the Facts: E-cigarettes and Youth People

Additional Quitting Resources

Free texting smoking cessation
- Truth—Text QUIT to 706-222-QUIT.
  - Specifically to quit vaping
- Smoke free Teen—Text QUIT to 47848
  - To quit smoking

Tobacco Free for a Healthy NJ Youth Tobacco Action Group Project.
- NJPN – regional prevention offices will have youth groups working on advocacy.
- Youth cessation.
Nicotine Addiction

The adolescent brain is uniquely vulnerable to the rewarding effects of nicotine.


Nicotine Addiction

Electronic Nicotine Delivery Systems (ENDS) can deliver higher levels of nicotine than traditional cigarettes.

Pod system e-liquids (including JUUL):

59 mg/ml

Of JUUL users do not know that the product always contains nicotine.

63%
Brain Development

Nicotine is dangerous and highly addictive for youth at any age because the brain is still developing.

Nicotine effects brain circuits that control attention, learning, mood, impulse control, and increase susceptibility to addiction and other drugs use.

In addition to nicotine exposure, ENDS use can be harmful due to the other chemicals/substances present in ENDS devices.

- Nearly 1 in 11 middle and high school vaped cannabis in the US.

The Cycle of Nicotine Addiction

Nicotine is highly addictive, by activating areas of the brain involving feelings of pleasure (dopamine).

Addiction is a *Pediatric* disease!

Compton et al., 2007
Morbidity & Mortality

Addiction:
- Sexually transmitted infections
- HIV/Hepatitis C
- Psychosocial impairment
- Motor vehicle accidents
- Suicide
- Overdose

Long Term Health Impacts

• The health effects are not completely understood
• There is evidence that completely switching to ENDS from cigarettes reduces exposure to toxicants and carcinogens. (National Academies Report)
• Concerns with:
  • Inhalation of ultrafine particles deep into the lung
  • Exposure to heavy metals in e-cigarette aerosol (nickel, lead, tin)
  • Exposure to volatile organic compounds
Youth use of ENDS products is a public health concern, 2016 US Surgeon General Report

“Tobacco use among youth and young adults in any form, including e-cigarettes, is not safe”

e-cigarettes.surgeongeneral.gov

AAP Policy Statements

AAP Tobacco Control and E-cigarette policies:

- **Electronic Nicotine Delivery Systems**
  - AAP Policy Statement
- **Public Policy to Protect Children From Tobacco, Nicotine, and Tobacco Smoke**
  - AAP Policy Statement
- **Clinical Practice Policy to Protect Children From Tobacco, Nicotine, and Tobacco Smoke**
  - AAP Policy Statement
- **Protecting Children From Tobacco, Nicotine, and Tobacco Smoke**
  - AAP Technical Report
Changes You May Wish to Make in Practice

- Screen all patients for tobacco exposure, and include ENDS in your screening.
  - Ask the right questions: “Do you smoke?” is a less effective way to get patients talking. Also ask patients, “Do you vape or use electronic cigarettes?”
- Educate patients and families about the health risks of ENDS.
- Refer patients/families to the NJ Quitline/MQC

Counsel About Health Risks

- Defective e-cigarette batteries have caused fires and explosions.
- Children and adults have been poisoned by swallowing, breathing or absorbing e-cigarette liquid through their skin or eyes.
- Some ingredients in e-cigarettes could be harmful to the lungs in the long-term.
- Nicotine is addictive and can harm the developing brain.
- Scientists are still learning about the long-term health effects of e-cigarettes.
Collaborative Hub Procedure

Referring to the Hub: After required routine screening and/or based on clinical judgement following the exam, providers can fax the PPC Hub. Providers should send a complete consult form, screening tools, and any other clinically relevant information.

What Does the Hub Staff Need? All of the information the PPC Hub staff needs is on the referral form. Some providers may choose to send notes from previous visits as well, which can be very helpful, but is not required.

Communicating with the Family: Please be sure you have discussed the PPC Hub with the patient and family prior to faxing a referral to the PPC Hub, so that the family is aware that a Hub staff psychologist/LCSW/other mental health specialist will be contacting them to discuss current concerns and suggestions for support/treatment.
Collaborative Hub Procedure Cont’d

What will the PPC Hub Staff Do? Hub staff will call the patient’s family and complete a clinical intake. The family will discuss their main concerns. Case managers will evaluate for severity and level of care. Depending on the patient’s needs, Hub staff will:

- Recommend an appropriate level of care (inpatient, PHP, IOP, or outpatient) - the family is sent a list of referrals for therapy services to address current mental health concerns.
- Match the patient with a therapist based on their insurance and geographical location – the referrals are researched by staff psychologists/LCSWs, and most often accept patient insurance.

“Closing” the Loop: Hub staff will communicate with you, sending you notes on what occurred with the family. They will also encourage the family to call them back if they need another resource. Hub staff will also follow-up with referred families 3 and 9 months after initial referral.

Thank You!

Questions?
Please contact:

NJAAP
Mental Health Collaborative
609-842-0014
mhc@njaap.org
Statewide Campaign

www.DontGetVapedIn.com
- Website for youth with factual information
www.facebook.com/dontgetvapedin
https://www.instagram.com/dontgetvapedin/
https://twitter.com/dontgetvapedin

More Resources

www.e-cigarettes.surgeongeneral.gov
https://truthinitiative.org/sites/default/files/Truth_E-Cigarette_FactSheet_FINAL.pdf
www.tobaccofreenj.com
www.teen.smokefree.gov
www.njquitline.org
http://chnj.njpn.org/tobacco-free-for-a-healthy-nj/