

VAPING TOBACCO NICOTINE AND ORAL HEALTH

Presented by Dr. Catrina Ratliff



GENERATIONS OF E-CIGARETTES & VAPE PENS



CIG-A-LIKE (2007)

E-Cigarettes came onto the market around 2007. Most looked very similar to a traditional cigarette.

0mg/mL - 6mg/mL



MODS/TANKS (2012)

Large size, modifiable e-cigarettes allow for more aerosol, nicotine, and other chemicals to be breathed into the lungs at a faster rate. E-juice and e-liquid often put in externally.

0mg/mL - 36mg/mL



SINGLE-USE/DISPOSABLE* (2018-NOW)

These e-cigarettes are currently the most popular and range in sizes and color. They typically contain high nicotine content and are highly addictive.

0mg/mL - 50mg/mL



VAPE PENS (2009)

These have batteries that can reach higher temperatures, have refillable e-liquid cartridges, and allow users to regulate the frequency of inhalations.

0mg/mL - 18mg/mL



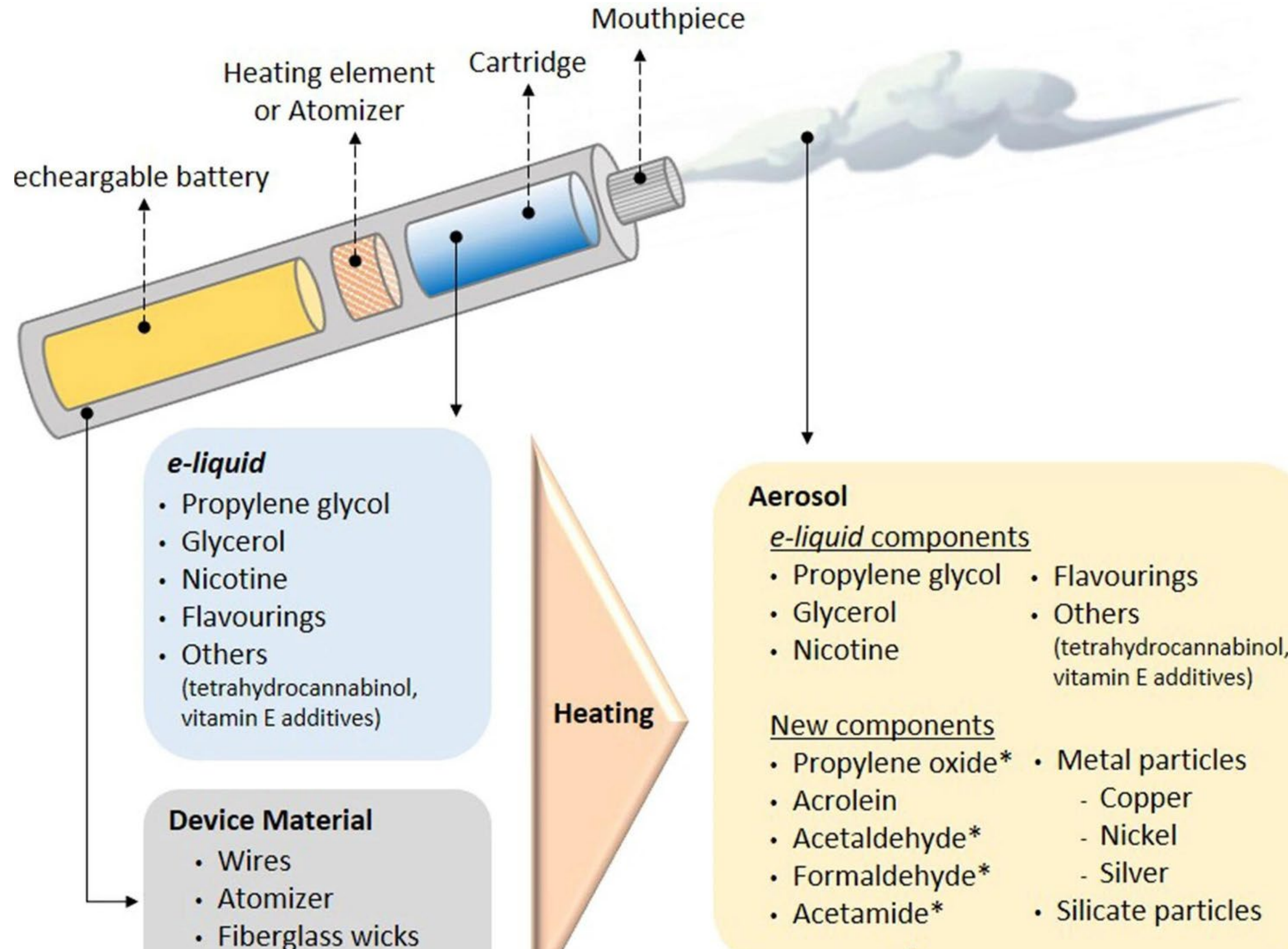
POD-BASED (2015-2017)

These e-cigarettes are shaped like USBs or different shapes, and contains pods with higher amounts of nicotine than previous generations.

0mg/mL - 50mg/mL

*Disposable vapes contain harmful chemicals and cannot be thrown away normally and should be disposed in proper manner.

E-CIGARETTE COMPONENTS



E-CIGARETTE
TYPES



THE DIFFERENCE BETWEEN

HEATS TOBACCO 

USES REAL TOBACCO 

NICOTINE NATURALLY PRESENT IN TOBACCO 

NO ASH, NO SMOKE 



HEATED TOBACCO

VS



E-CIGARETTE

 VAPORIZES E-LIQUID

 NO TOBACCO

 NICOTINE DERIVED FROM TOBACCO ADDED IN E-LIQUID

 NO ASH, NO SMOKE

SMOKE-FREE PRODUCTS ARE NOT RISK-FREE AND ARE ADDICTIVE. THE BEST CHOICE A SMOKER CAN MAKE IS TO QUIT CIGARETTES AND NICOTINE COMPLETELY.



PHILIP MORRIS INTERNATIONAL

VAPE AEROSOL TOXINS

NICOTINE – A HIGHLY ADDICTIVE SUBSTANCE THAT NEGATIVELY AFFECTS ADOLESCENT BRAIN DEVELOPMENT

PROPYLENE GLYCOL – A COMMON ADDITIVE IN FOOD; ALSO USED TO MAKE THINGS LIKE ANTIFREEZE, PAINT SOLVENT, AND ARTIFICIAL SMOKE IN FOG MACHINES

CARCINOGENS- CHEMICALS KNOWN TO CAUSE CANCER, INCLUDING ACETALDEHYDE AND FORMALDEHYDE

ACROLEIN – A HERBICIDE PRIMARILY USED TO KILL WEEDS, CAN CAUSE IRREVERSIBLE LUNG DAMAGE

DIACETYL – A CHEMICAL LINKED TO A LUNG DISEASE CALLED BRONCHIOLITIS OBLITERANS AKA "POPCORN LUNG"

DIETHYLENE GLYCOL – A TOXIC CHEMICAL USED IN ANTIFREEZE THAT IS LINKED TO LUNG DISEASE

HEAVY METALS SUCH AS NICKEL, TIN, LEAD

CADMIUM – A TOXIC METAL FOUND IN TRADITIONAL CIGARETTES THAT CAUSES BREATHING PROBLEMS AND DISEASE

BENZENE – A VOLATILE ORGANIC COMPOUND (VOC) FOUND IN CAR EXHAUST

ULTRAFINE PARTICLES THAT CAN BE INHALED DEEP INTO THE LUNGS

Where Else Can You Find These Chemicals?

Propylene glycol → Antifreeze



Acetone → Nail Polish Remover



Ethylbenzene → Paints, Pesticides



Formaldehyde → Embalming



Nicotine → Cigarettes



Rubidium → Fireworks

COMMON SIDE EFFECTS OF VAPING INCLUDE:

- COUGHING
- DRY/SORE MOUTH AND THROAT
- MOUTH AND THROAT IRRITATION
- WEAKENED TASTE
- BURNING OR SCRATCHY FEELING IN MOUTH, LIPS AND THROAT

E-LIQUID/"E-JUICE"



**E-Cigarette/Vape
Pen Liquid
Ingredients**

Propylene Glycol
Vegetable Glycerin
Nicotine
Flavoring Chemicals

CIGS IN AN E-CIG

1 Pack of Cigarettes
= -22mg of Nicotine

1 JUUL Pod
= -41.3mg of Nicotine

1 Flum Float
= -400mg of Nicotine

1 Elf Bar
= -650mg of Nicotine



AMOUNT OF NICOTINE IN

~20

CIGARETTES

AMOUNT OF NICOTINE IN

~37

CIGARETTES

AMOUNT OF NICOTINE IN

~363

CIGARETTES

AMOUNT OF NICOTINE IN

~590

CIGARETTES

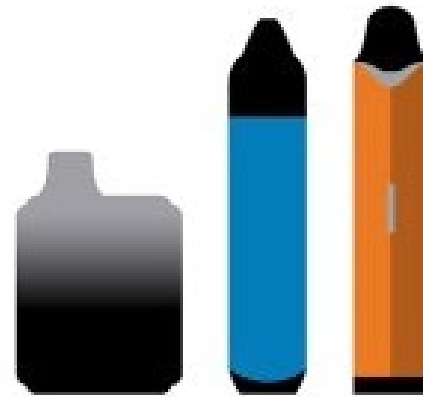


NYTS
2023

10% of students
reported current use of any tobacco product

Among those who currently use a tobacco product:

E-Cigarettes
were the most popular
product for the
10th year in a row



**Cigarette
and Cigar**



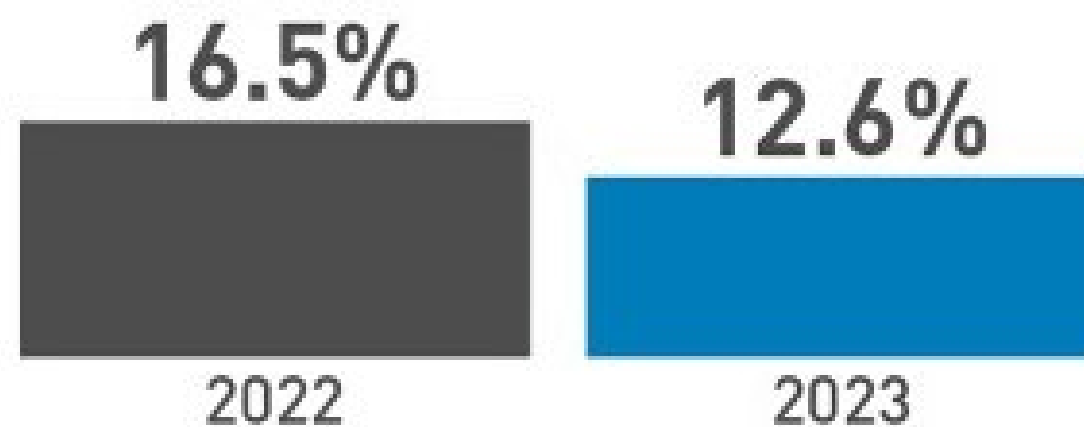
use remain at an all-time low

NYTS

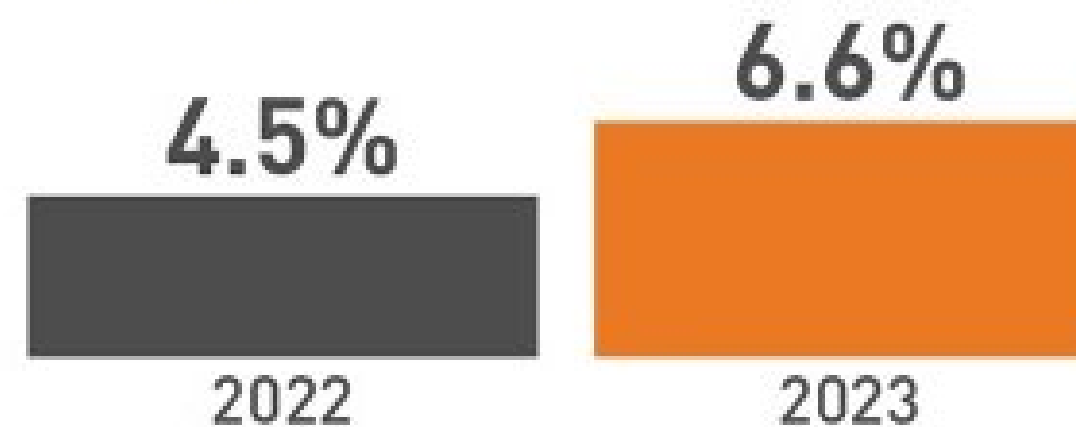
2023

About **2.8 million**
youth currently use any tobacco product

Any tobacco use **decreased** among
high school students



Any tobacco use **increased** among
middle school students



Driven by a **drop**
in high school e-cigarette use



MEDICAL NEWS IN BRIEF

NOVEMBER 22, 2023

E-CIGARETTE USE DOWN IN CHILDREN AND TEENS

EMILY HARRIS

ARTICLE INFORMATION

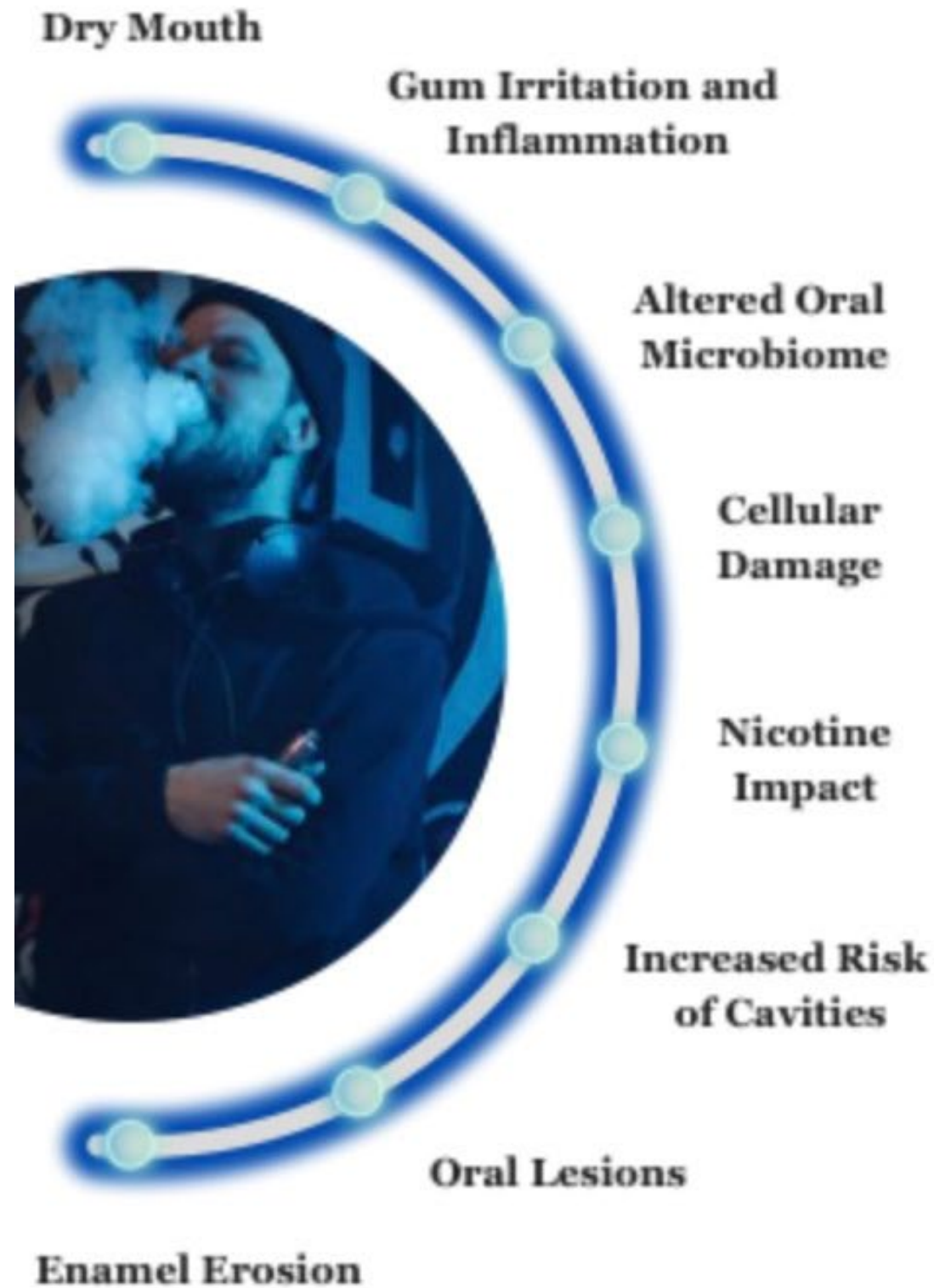
JAMA. 2023;330(22):2145. DOI:10.1001/JAMA.2023.22932

MORE THAN HALF A MILLION FEWER US MIDDLE AND HIGH SCHOOL STUDENTS USED TOBACCO PRODUCTS THIS YEAR COMPARED WITH LAST YEAR. THIS FINDING CAME FROM ESTIMATES BASED ON ANSWERS FROM 22 000 RESPONDENTS TO THE 2023 NATIONAL YOUTH TOBACCO SURVEY. E-CIGARETTES WERE THE MOST COMMON PRODUCT AMONG STUDENTS WHO REPORTED ANY TOBACCO USE, WITH ABOUT ONE-QUARTER VAPING E-CIGARETTES DAILY.

THE MAJORITY—ALMOST 90%—OF STUDENTS WHO REPORTED USING E-CIGARETTES USED FLAVORED PRODUCTS, ESPECIALLY FRUIT AND CANDY FLAVORS. IN ADDITION, 60% SAID THAT THEY USED DISPOSABLE E-CIGARETTES, WHICH ARE INEXPENSIVE AND CONTAIN A LARGE AMOUNT OF NICOTINE.

THE REPORT, WHICH WAS COPRODUCED BY THE US CENTERS FOR DISEASE CONTROL AND PREVENTION AND THE US FOOD AND DRUG ADMINISTRATION (FDA), FOLLOWS THE FDA'S FALL ANNOUNCEMENT THAT THE AGENCY WILL SEEK CIVIL MONEY PENALTIES FROM RETAILERS WHO SELL UNAUTHORIZED E-CIGARETTE PRODUCTS. "WE WILL NOT STAND BY AS BAD ACTORS PLACE PROFIT OVER THE HEALTH OF OUR NATION'S YOUTH," BRIAN KING, PHD, MPH, THE DIRECTOR OF THE FDA'S CENTER FOR TOBACCO PRODUCTS, SAID IN A STATEMENT.

AFFECTS OF VAPING ON ORAL HEALTH



DRY MOUTH - Caused by Propylene Glycol which steals moisture from its surrounding

GUM IRRITATION AND INFLAMMATION - Caused by Nicotine and flavorings which cause oxidative stress and inflammatory cytokine release at PDL level. Also the e-liquid by-products, such as the “-aldehydes” cause tissue irritation and inflammation

ALTERED ORAL MICROBIOME - Due to overgrowth of pathogens due to lessened immune response, potentially leading to earlier periodontal disease onset/progression

CELLULAR DAMAGE - Partly due to the restriction of blood vessels caused by Nicotine, as well as, DNA damage and the cells response to toxic aerosol chemicals

NICOTINE IMPACT - Restricts blood vessels and blood flow leading to gum tissue death and recession

INCREASED RISK OF CAVITIES - Due to consolidation of dry mouth and chemical exposure, as well as the lack of saliva

ORAL LESIONS - Can be caused by both chemical and physical burns and are manifestations of the cellular chemical damage

ENAMEL EROSION - Stems from the breakdown of Propylene Glycol into acids damaging the enamel

VAPES AND CIGARETTES

Different products. Same dangers.



GET THE FACTS



Some vape pods have as much nicotine as 20 cigarettes.



It's not water vapor—
aerosol from vaping has cancer-causing chemicals.



Nicotine can harm your brain, including your memory and ability to learn.



If you vape, you are 4 times more likely to smoke cigarettes.

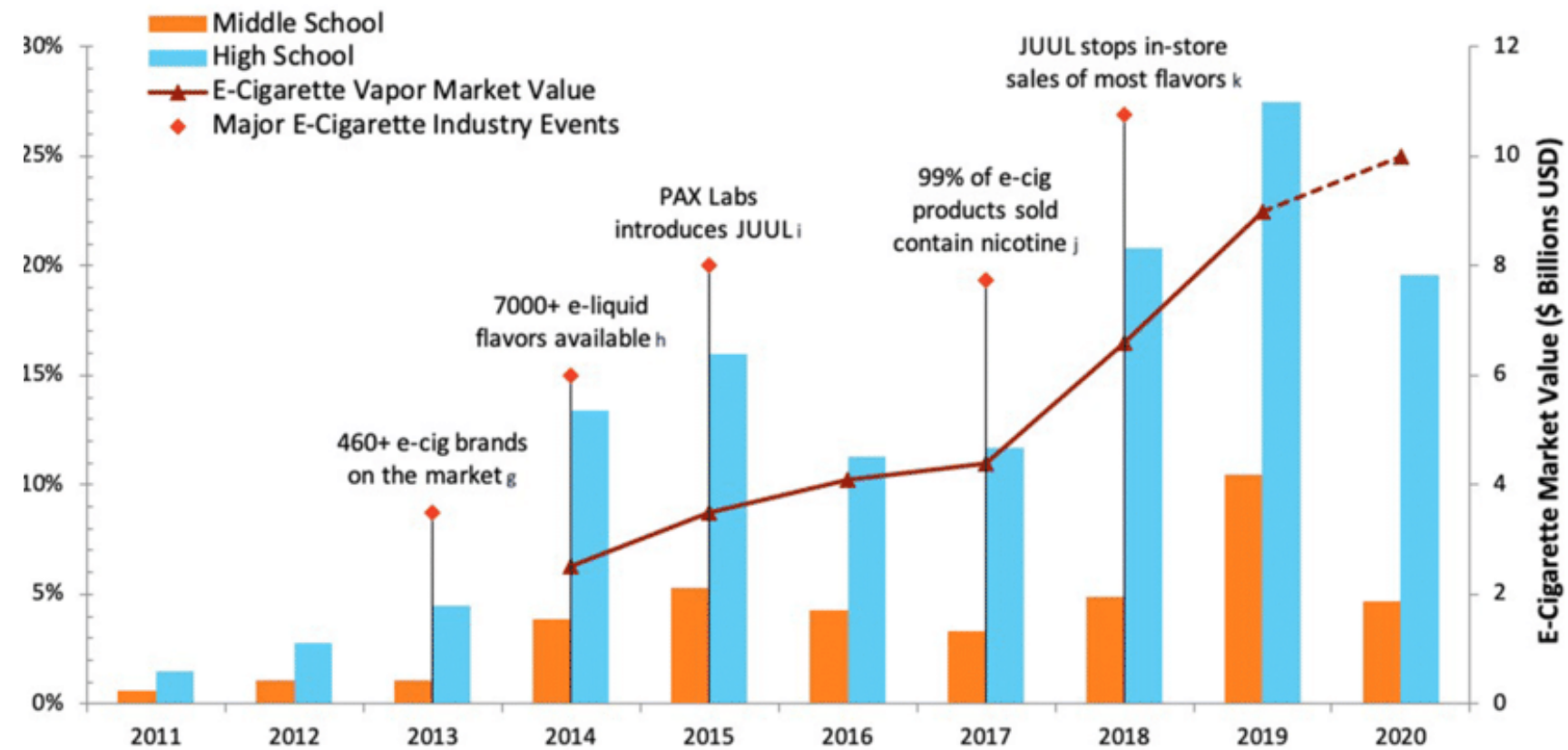
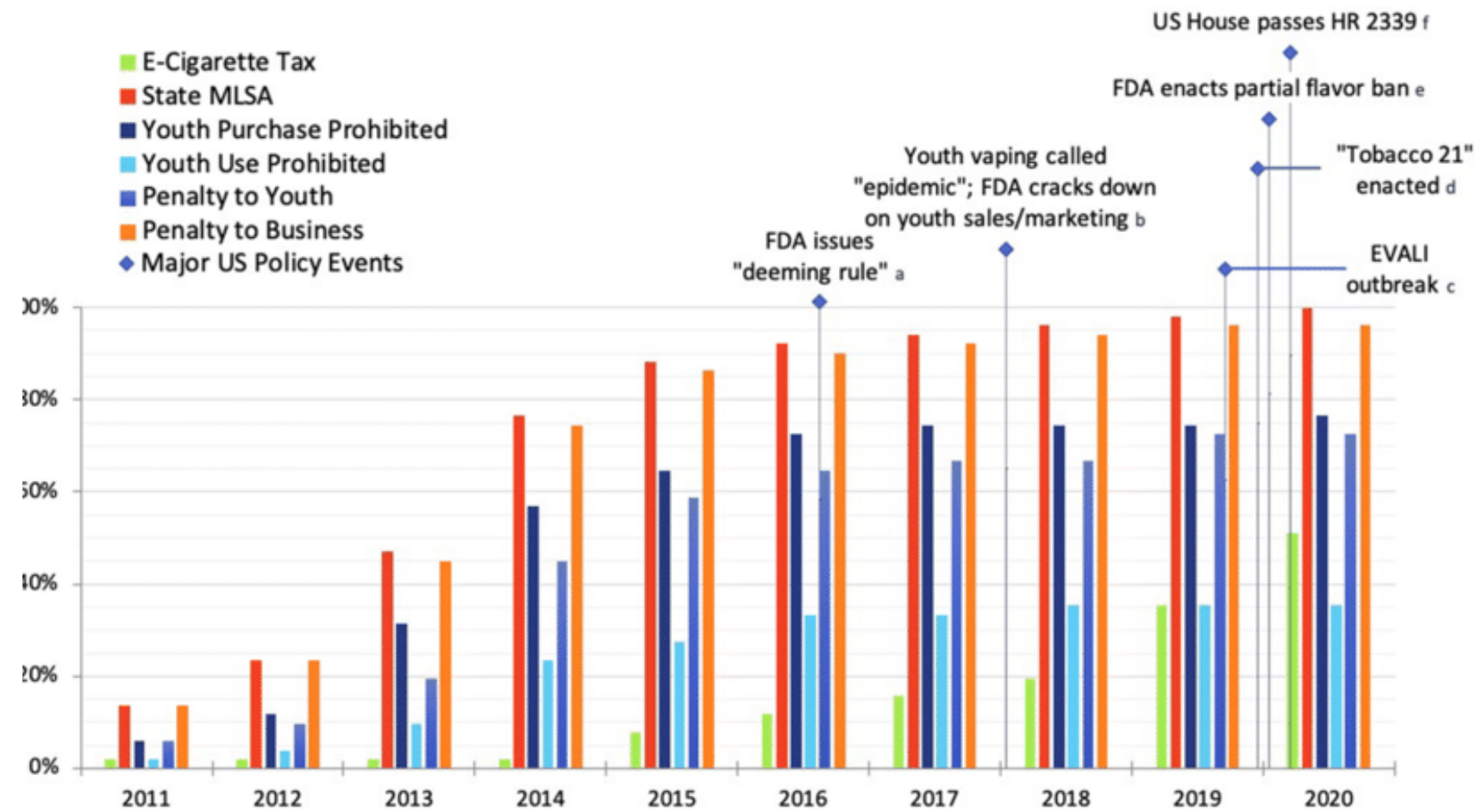
mass.gov/vaping

@GetTheVapeFacts

Massachusetts Department of Public Health



TC3481 04/2019





Vaping and Oral Health

Vaping by the Numbers

- More than **10 million** adults use e-cigarettes (“vape” tobacco products)
- There was a **78% increase** in use of e-cigarettes by high school students from 2017 to 2018
- **1 in 5** high schoolers report vaping

Vaping FAQ

Are e-cigarettes safer than traditional cigarettes?

E-liquids contain nicotine and other chemicals that affect the mouth and body. More research is needed to understand all of the safety concerns

What are the risks to vaping?

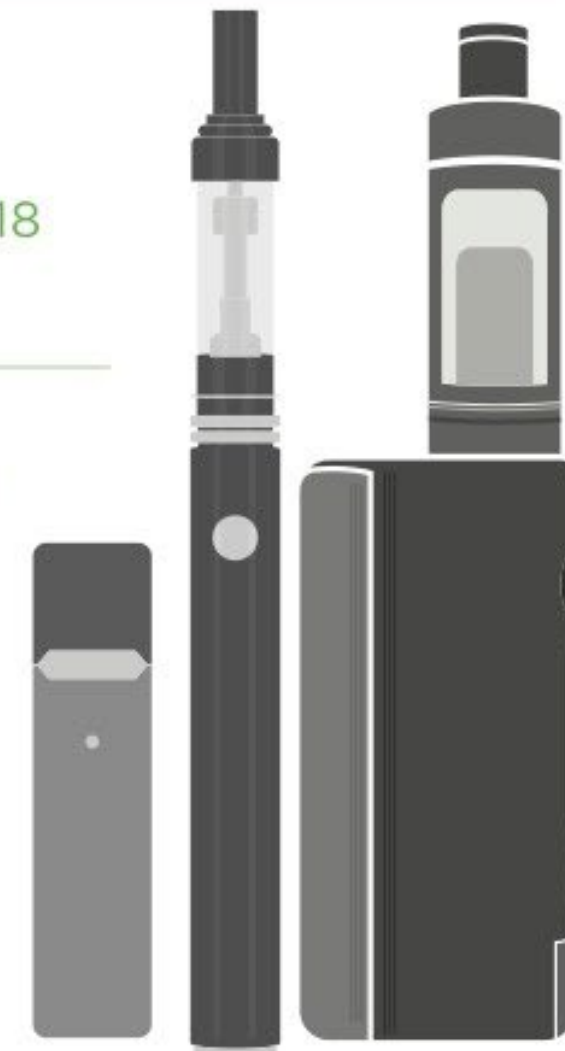
Since e-cigarettes are so new to the market, there is little research on the long-term effects. But the known risks include addiction, childhood nicotine poisoning and burns caused by device explosions.

Are e-cigarettes less addictive than regular cigarettes?

In fact, some e-liquid pods contain the same amount of nicotine in a single one as an entire pack of cigarettes. Nicotine affects concentration and executive decision-making skills, particularly in the adolescent brain.

Does vaping help you to quit smoking?

For teenagers, vaping increases the likelihood of smoking regular cigarettes. Other cessation options have more research to prove their effectiveness.



Learn more about how your oral health connects to your overall health at: DeltaDentalMN.org

* Study published in Oncotarget

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TEXT DITCHVAPE TO 88709

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THANK YOU