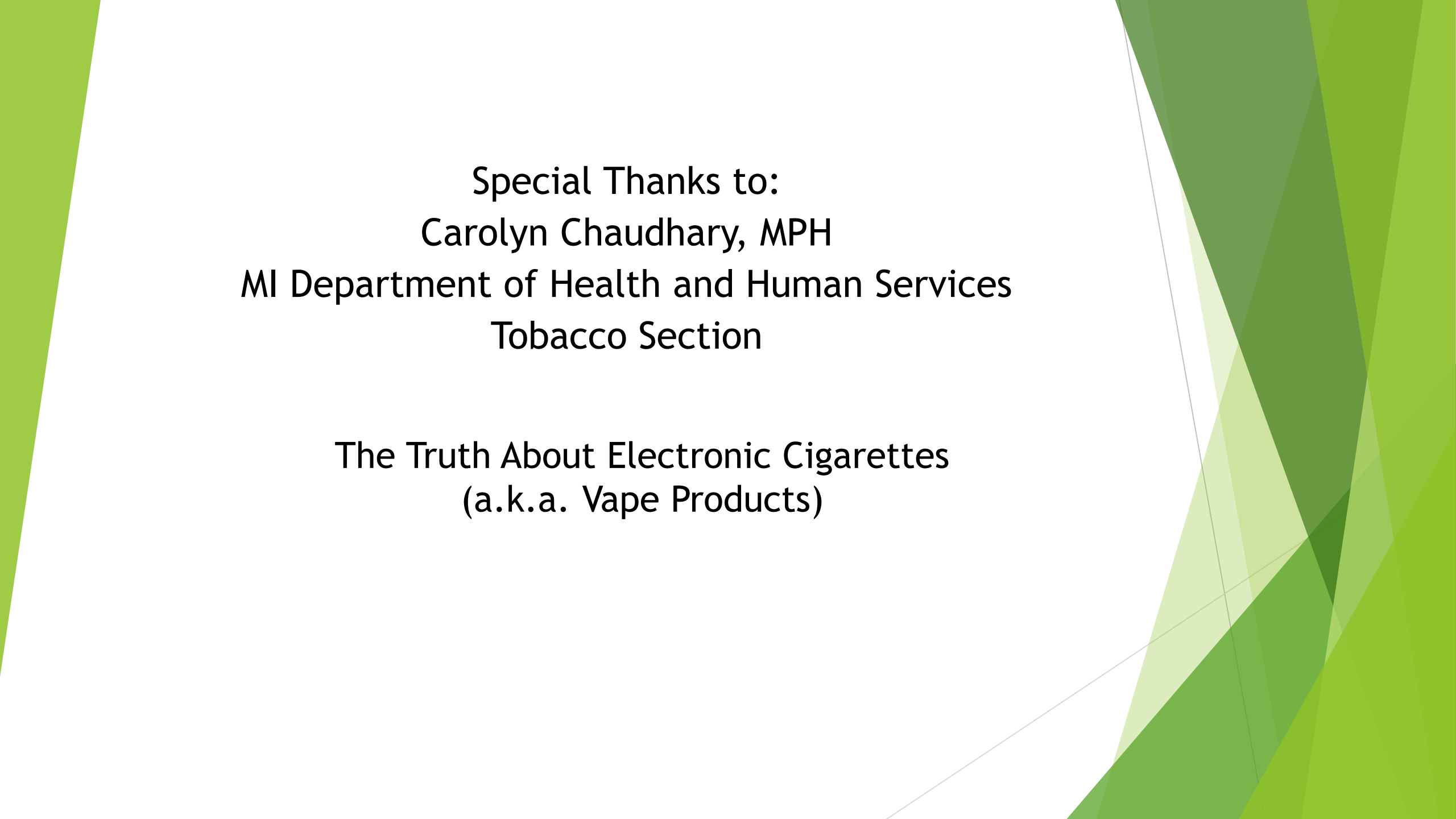


Electronic Cigarettes Basics and Behaviors

Brian Hartl, MPH

February 7, 2020

The background features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern, layered effect.

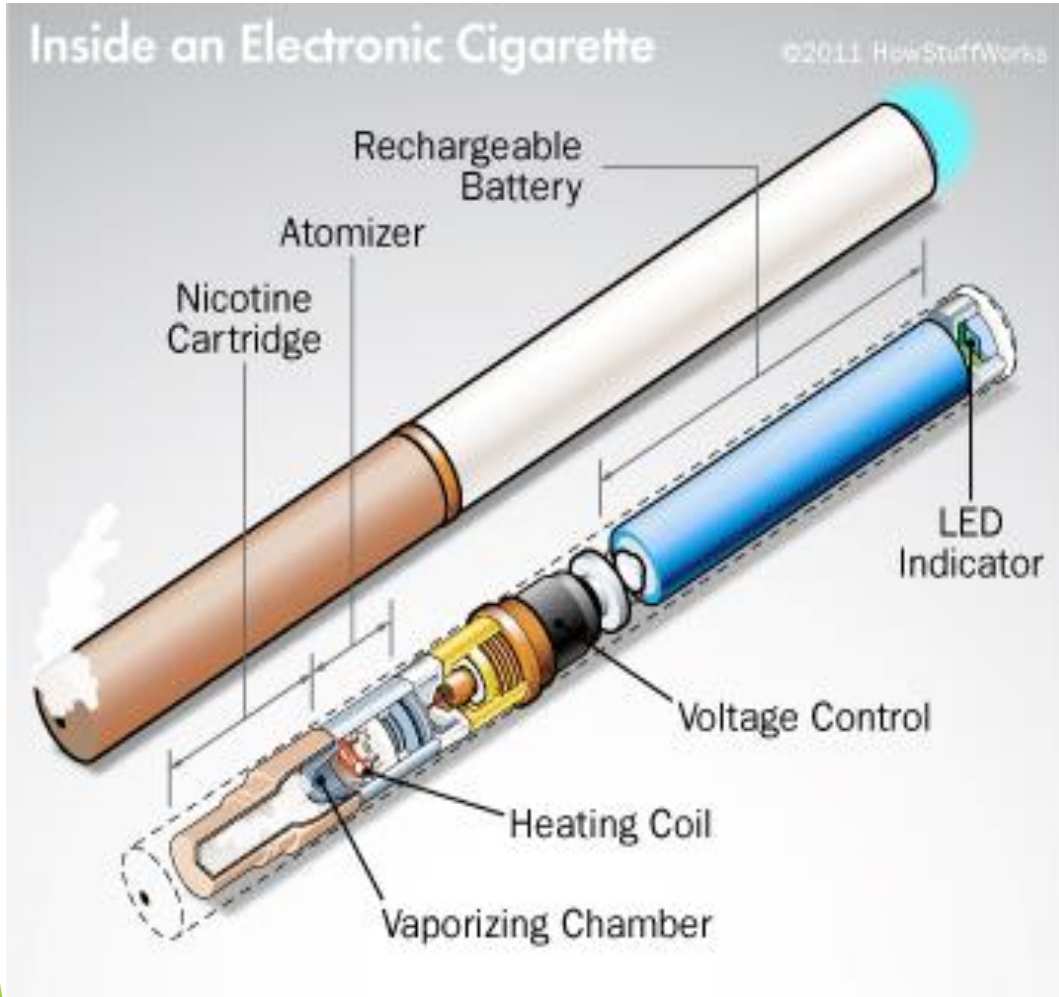
Special Thanks to:
Carolyn Chaudhary, MPH
MI Department of Health and Human Services
Tobacco Section

The Truth About Electronic Cigarettes
(a.k.a. Vape Products)

Overview

- ▶ How electronic cigarettes operate and examples of vaping devices
- ▶ Data on Vaping Behaviors
- ▶ Latest Update on E-Cigarette Vaping Associated Lung Illness (EVALI)

Electronic Cigarettes

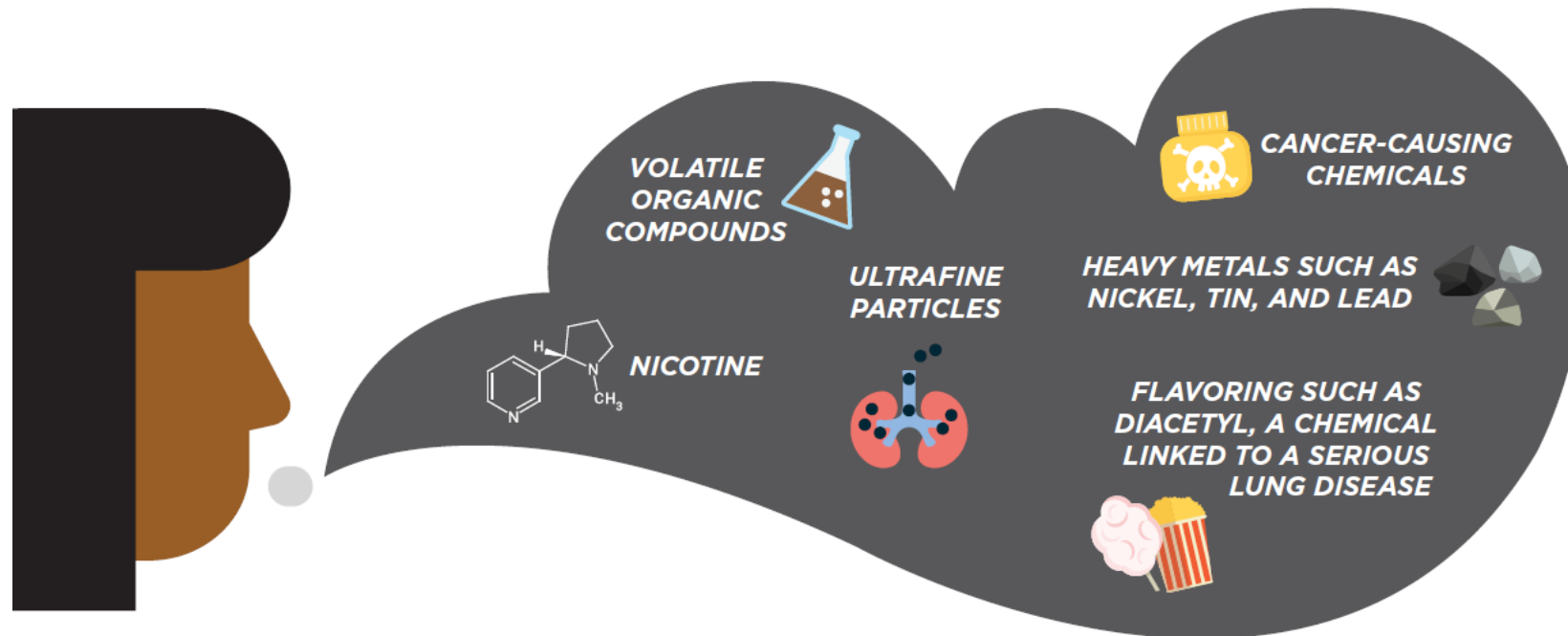


- Disposable or rechargeable and/or refillable.
- Contain a cartridge filled with liquid nicotine, flavorings and glycerin or propylene glycol.
- When coil heats, it converts the contents of the cartridge into an **aerosol**.
- Allows user to inhale **aerosol** containing nicotine and/or other substances.



WHAT IS IN E-CIGARETTE AEROSOL?

THE E-CIGARETTE AEROSOL THAT USERS BREATHE FROM THE DEVICE AND EXHALE CAN CONTAIN HARMFUL AND POTENTIALLY HARMFUL SUBSTANCES:



It is difficult for consumers to know what e-cigarette products contain. For example, some e-cigarettes marketed as containing zero percent nicotine have been found to contain nicotine.





Tank:

This product was very popular when e-cigarettes first hit the market.

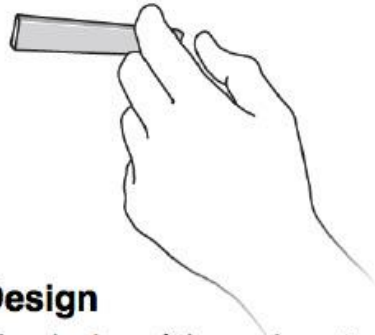
E-juice required

Very heavy compared to the new generation products



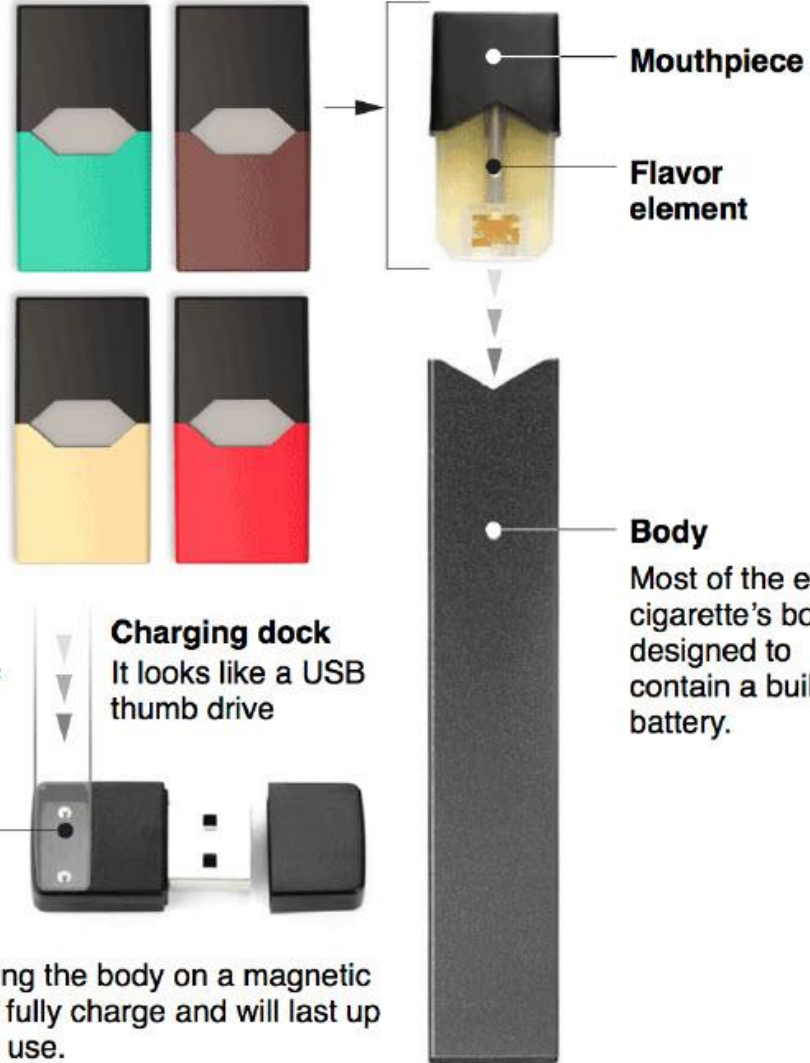
JUUL flavor pods

The juice-flavored pods contain 50 milligrams of nicotine, roughly equivalent to a pack of cigarettes.



Design

The design of the e-cigarette is about the same size as a cigarette and weighs a couple of grams.



Body

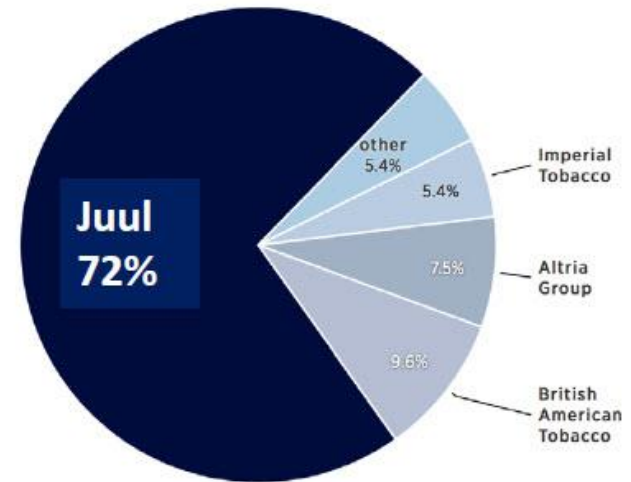
USB charging dock

The battery is charged by dropping the body on a magnetic USB adapter. It takes an hour to fully charge and will last up to 200 puffs, a full day of regular use.

JUUL

Juul dominates the U.S. e-cigarette market

Juul Labs represented 72.2 percent of dollar market share in the four-week period ended Aug. 11 2018, according to Nielsen data.



Source: [Wells Fargo](#)

CNBC

SOURCE: juulvapor.com

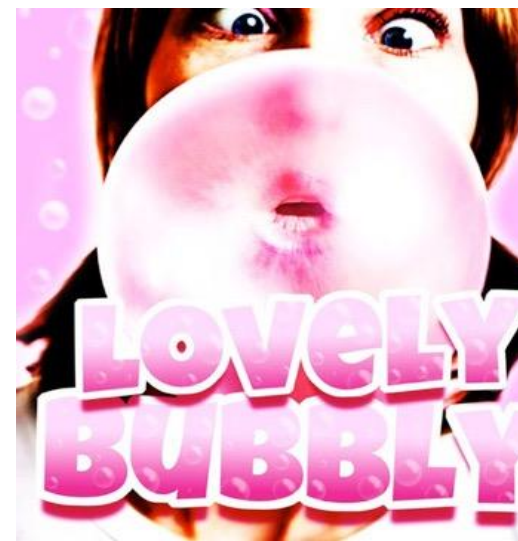
JAMES ABUNDIS / GLOBE STAFF

The “counterfeit” pods
which fit in both the JUUL
and the Suorin iShare

There is 1 additional pod
and pack of 5 costs less than
the JUUL pods

Price: \$14







Suorin Drop



Khree UFO

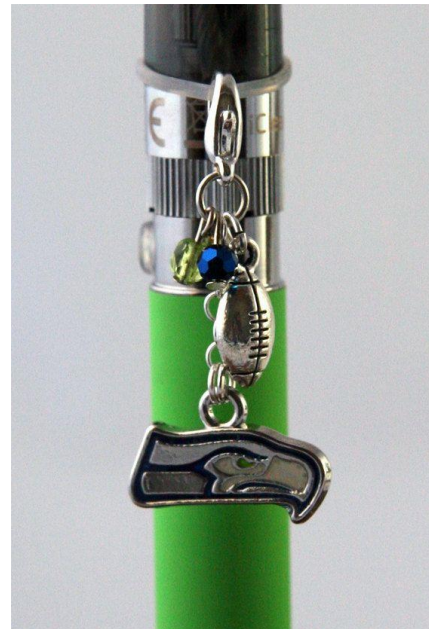


Suorin Air



SMOK Rolo Badge

“Trendy” Products



PUFFiT



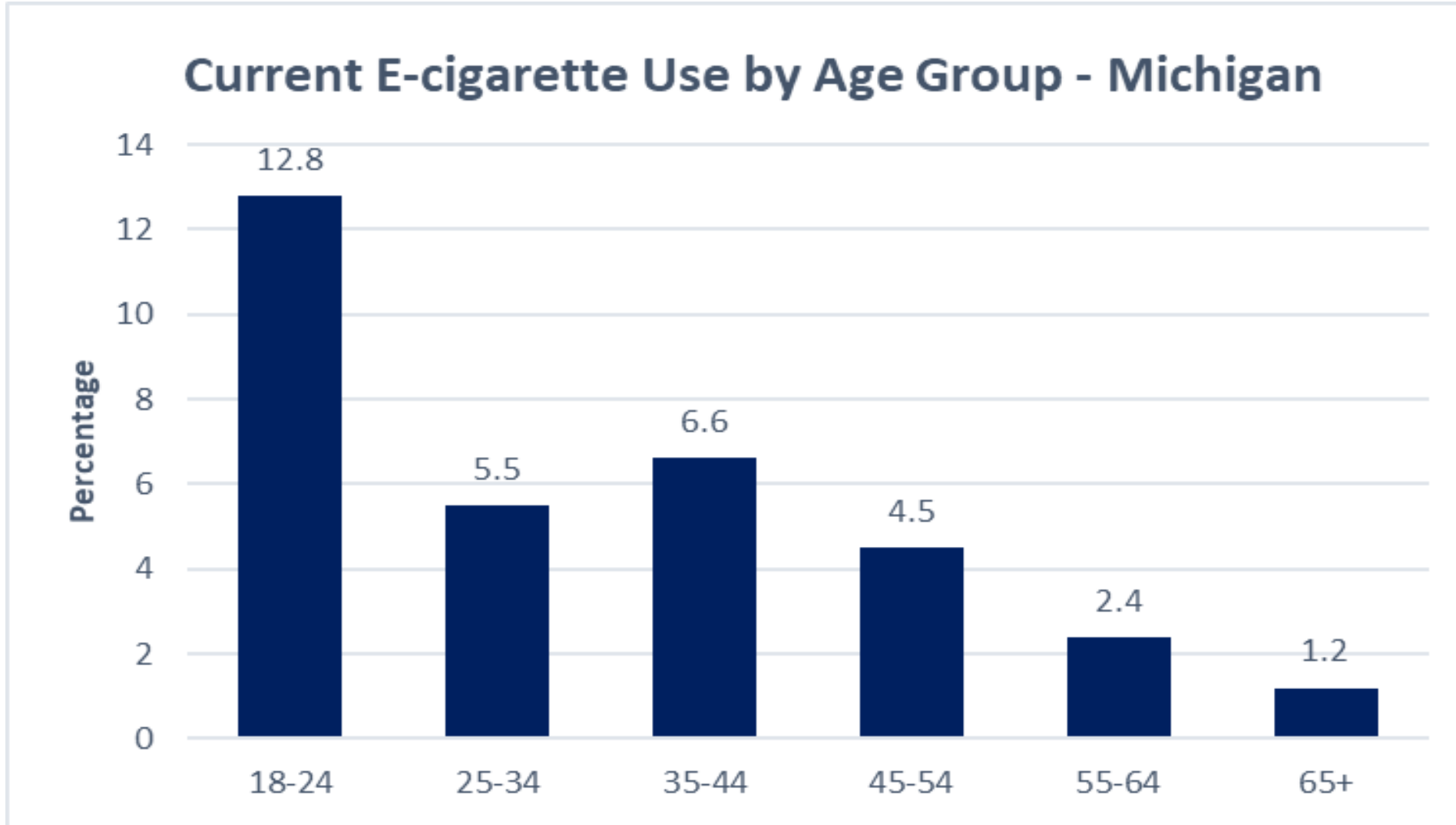
Zig Zag 335



Vaping Behaviors/Attitudes



2017 E-cigarette Data - Adults



TEEN VAPING CLIMBS SIGNIFICANTLY*

**Both Nicotine and Marijuana (THC)*

DAILY NICOTINE VAPING¹

Measured for the first time in 2019



NICOTINE VAPING

Past month use



1. Miech R, Johnston L, O'Malley PM, Bachman JG, Patrick ME. Trends in adolescent vaping, 2017–2019. *N Engl J Med* 2019; 381:1490-1491

2019 Past Month Nicotine Vaping Equates to:

1 IN 4 – 12TH GRADERS • 1 IN 5 – 10TH GRADERS • 1 IN 10 – 8TH GRADERS

To view information on other drugs from the 2019 Survey visit:

www.drugabuse.gov/related-topics/trends-statistics/infographics/monitoring-future-2019-survey-results-overall-findings



DRUGABUSE.GOV

TEEN VAPING CLIMBS SIGNIFICANTLY*

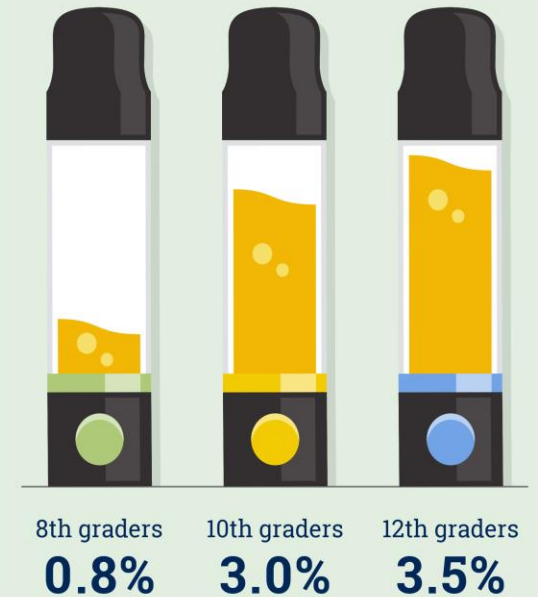
THC VAPING

Past month use



DAILY THC VAPING

Measured for the first time in 2019



***2018 – 2019 INCREASE IS THE SECOND LARGEST ONE-YEAR JUMP EVER TRACKED FOR ANY SUBSTANCE IN THE 45-YEAR SURVEY HISTORY (NICOTINE VAPING WAS THE LARGEST FROM 2017 – 2018)**

To view information on other drugs from the 2019 Survey visit:

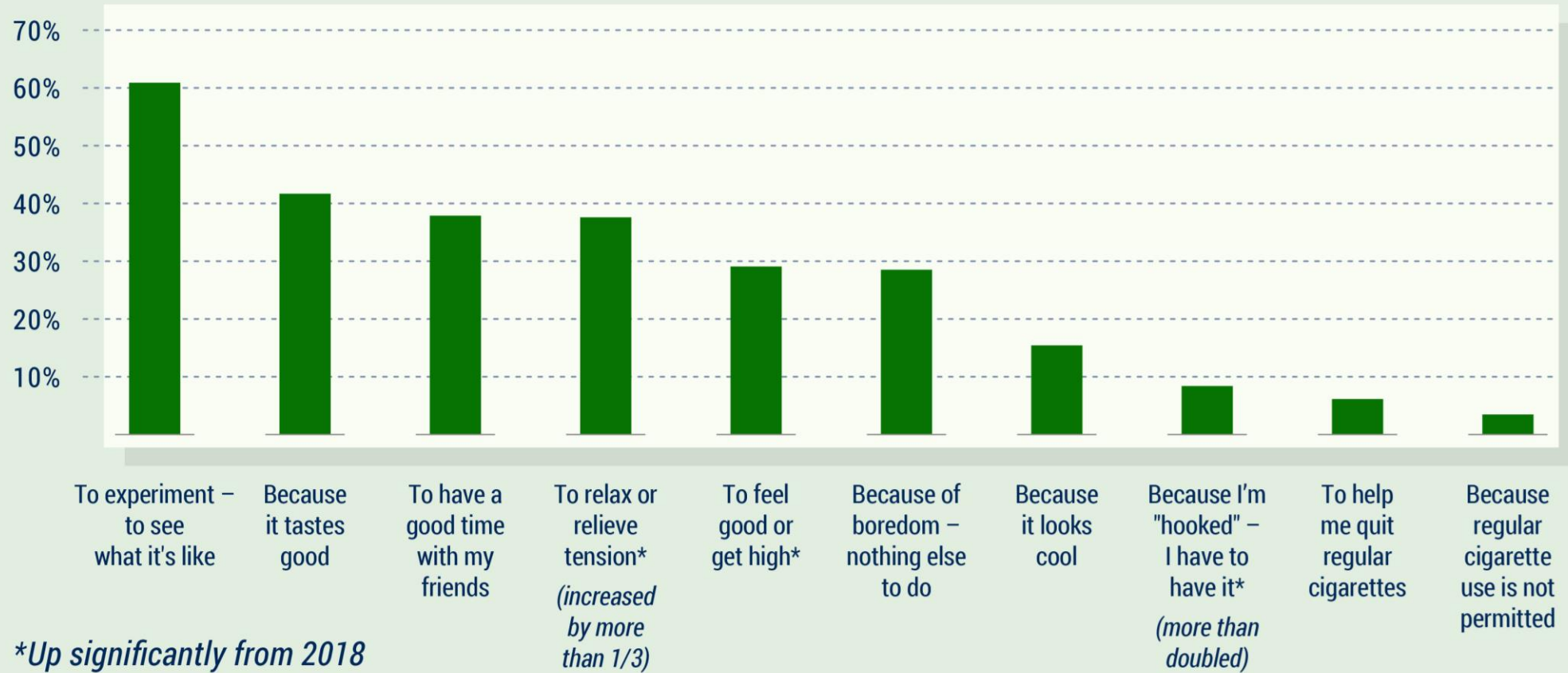
www.drugabuse.gov/related-topics/trends-statistics/infographics/monitoring-future-2019-survey-results-overall-findings



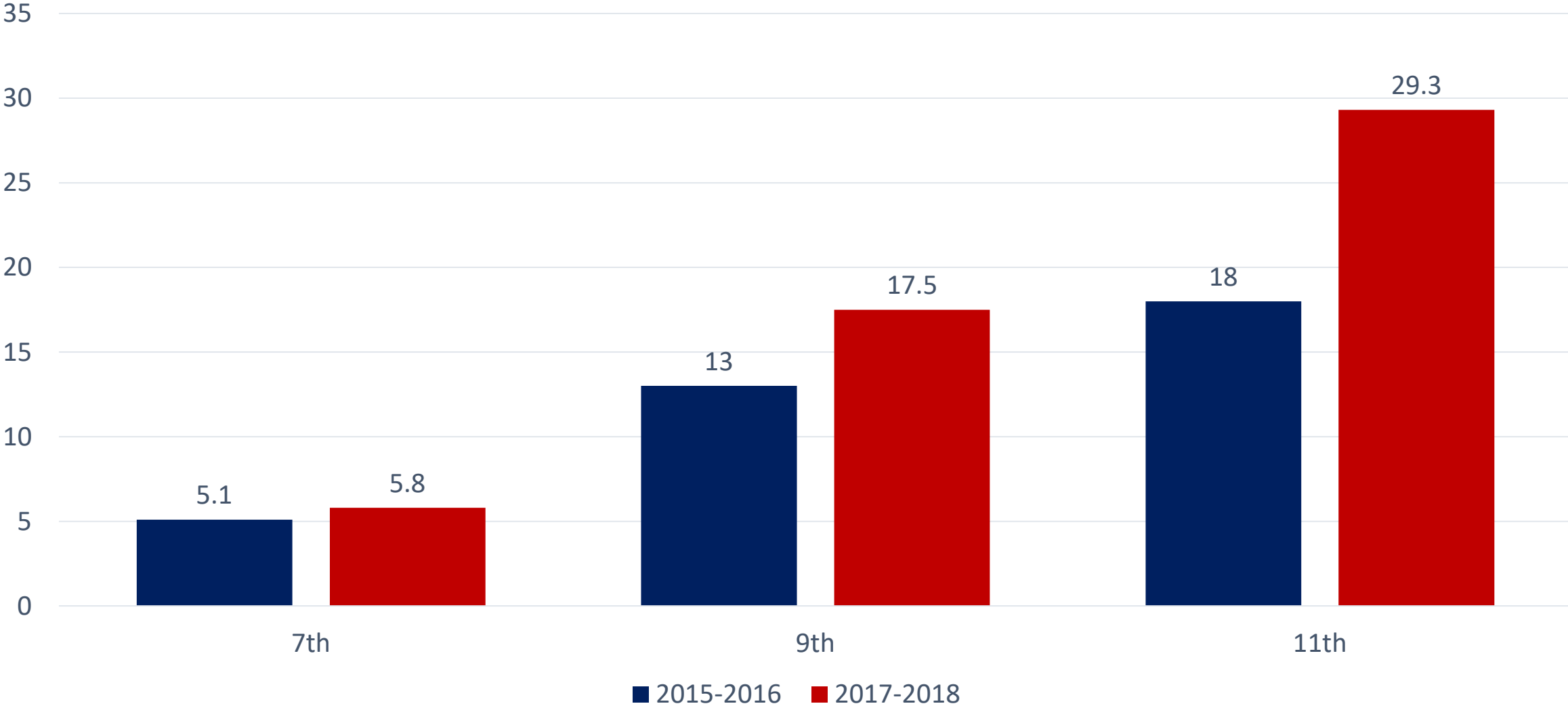
DRUGABUSE.GOV

TEEN VAPING CLIMBS SIGNIFICANTLY*

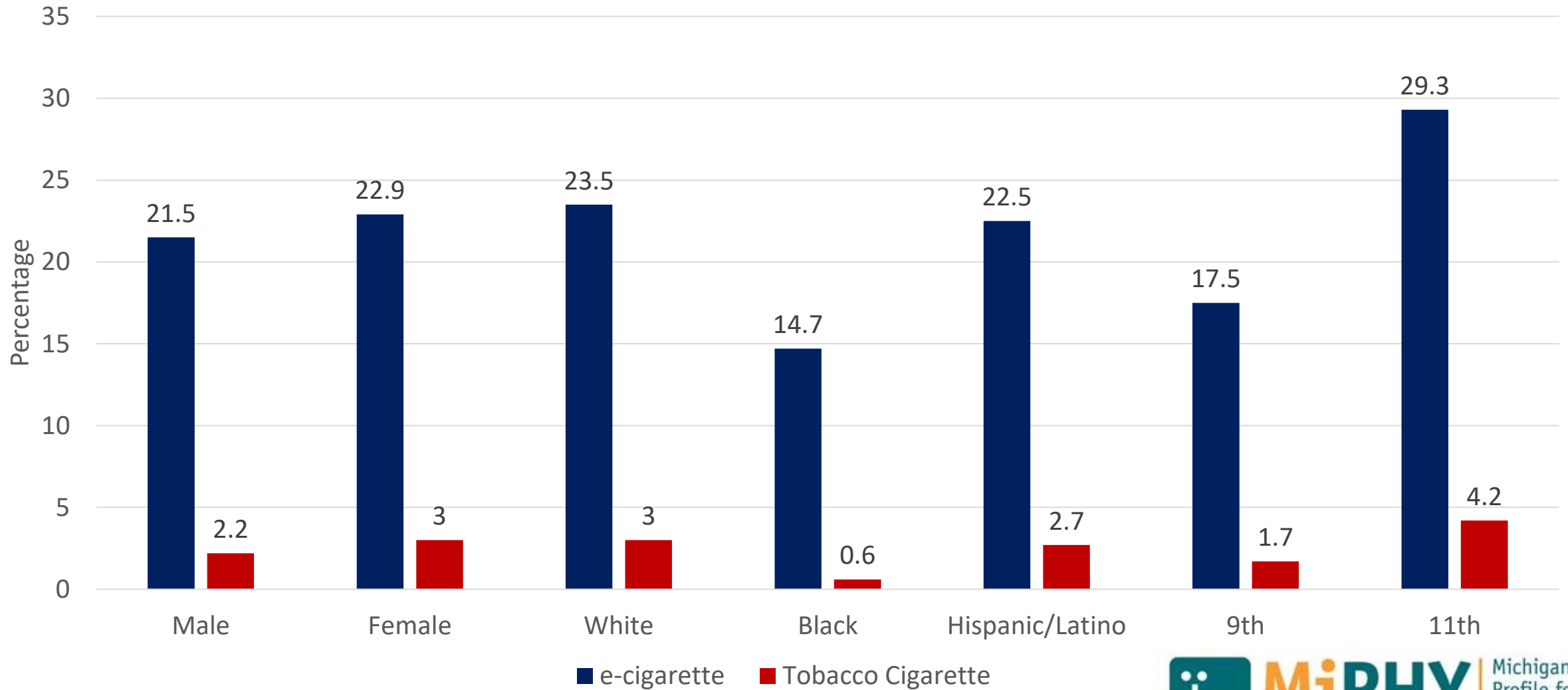
TEENS REPORT REASONS FOR VAPING



Past Month Use of E-Cigarettes, Kent County

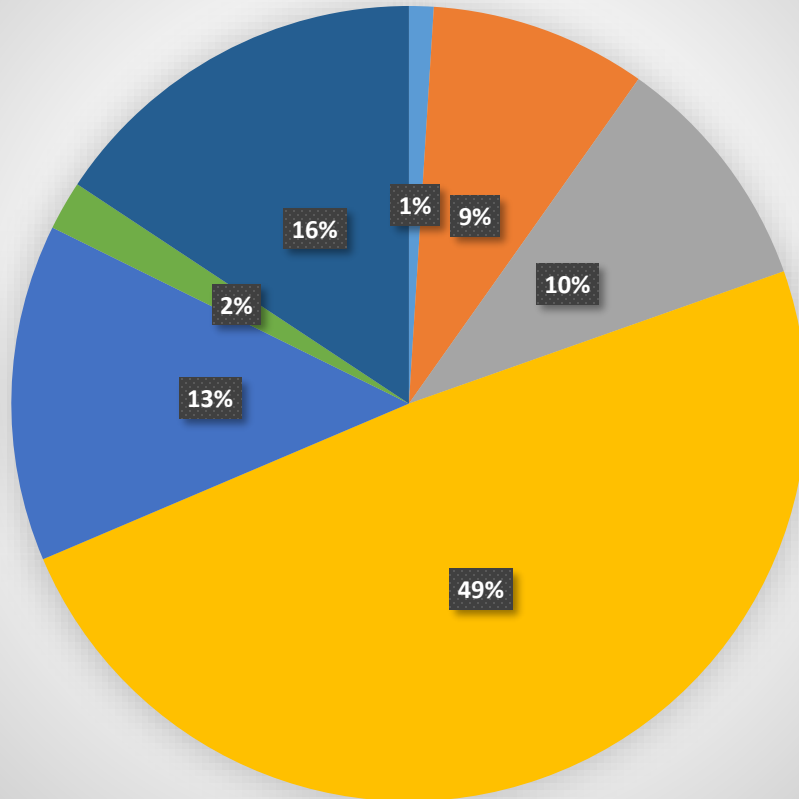


Past Month Use of Cigarettes by Demographics, Kent County, High School Students, 2018

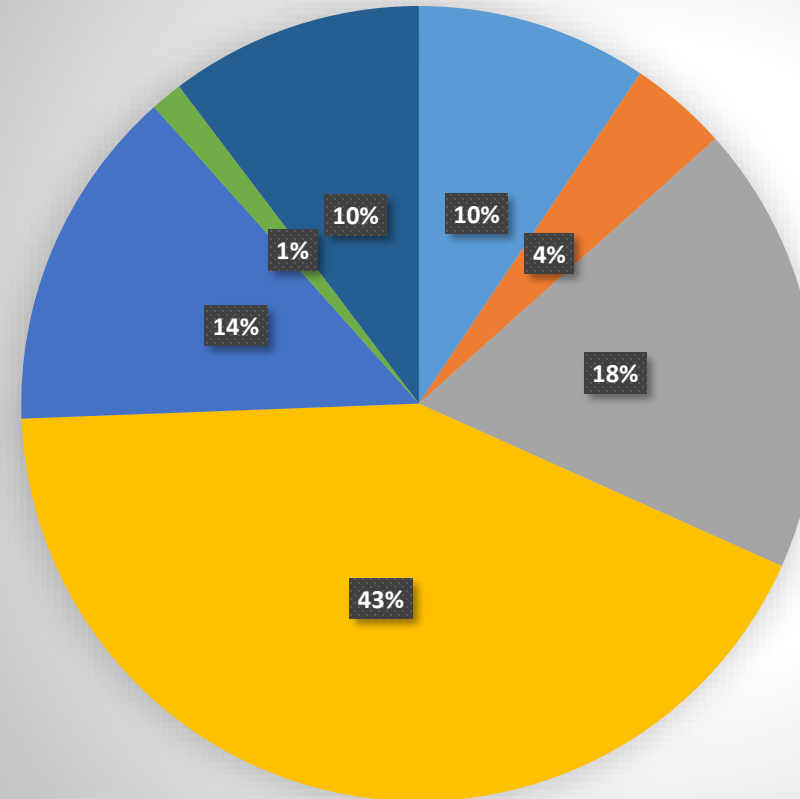


Access to Electronic Cigarettes, Kent County, 2018

Middle School



High School



- Buy in a store or gas station
- On the internet
- Give someone else money to buy
- Borrow from someone else
- From a person 18 years old or older
- Take from a store or another person
- Some other way

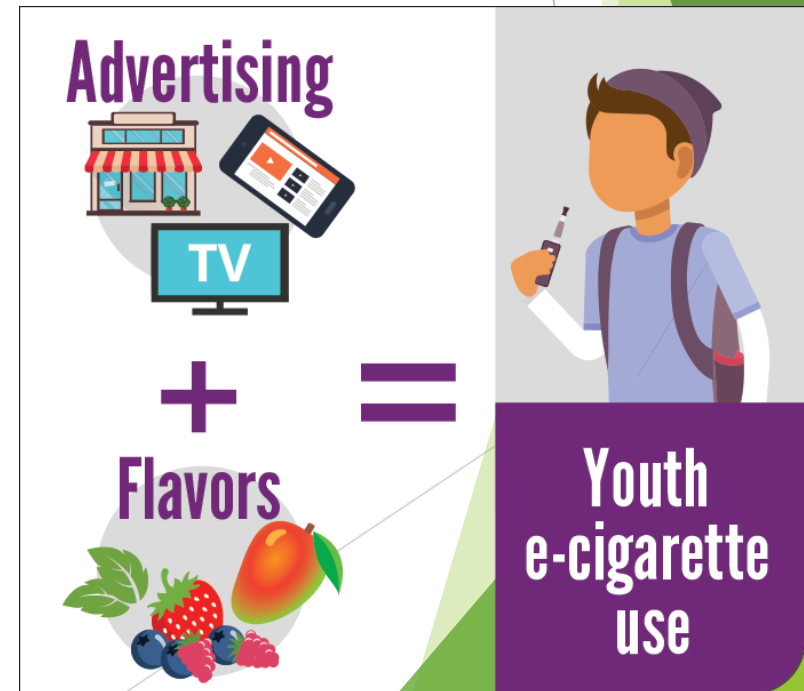
Percentage of high school students who used an electronic cigarette product
during the past 30 days

in 18 Counties in Michigan- MiPHY 2015-16 compared to 2017-18

	County	2015-2016	2017-2018	Rate of increase
1	Allegan	16.8	25.9	54%
2	Muskegon	17.5	24.9	42%
3	Berrien	19	24.5	29%
4	Ingham	11.5	20.3	77%
5	Jackson	16.7	23.8	43%
6	Branch	14.4	30.2	109%
7	Genesee	18.8	24.4	30%
8	St. Clair	20.6	31.9	55%
9	Wayne	15.1	24.2	60%
10	Macomb	14.8	29	96%
11	Oakland	16	28.4	78%
12	Manistee	16.2	31.1	92%
13	Chip/Luce/Mackinac	15.3	20.7	35%
14	Charlevoix	17.3	35.2	103%
15	Livingston	21.6	28	30%
16	Saginaw	14.4	19.9	38%
17	Kent	15.4	22.2	44%
18	Huron	18.3	30.9	69%

Why the Rise in E-cigarette Use?

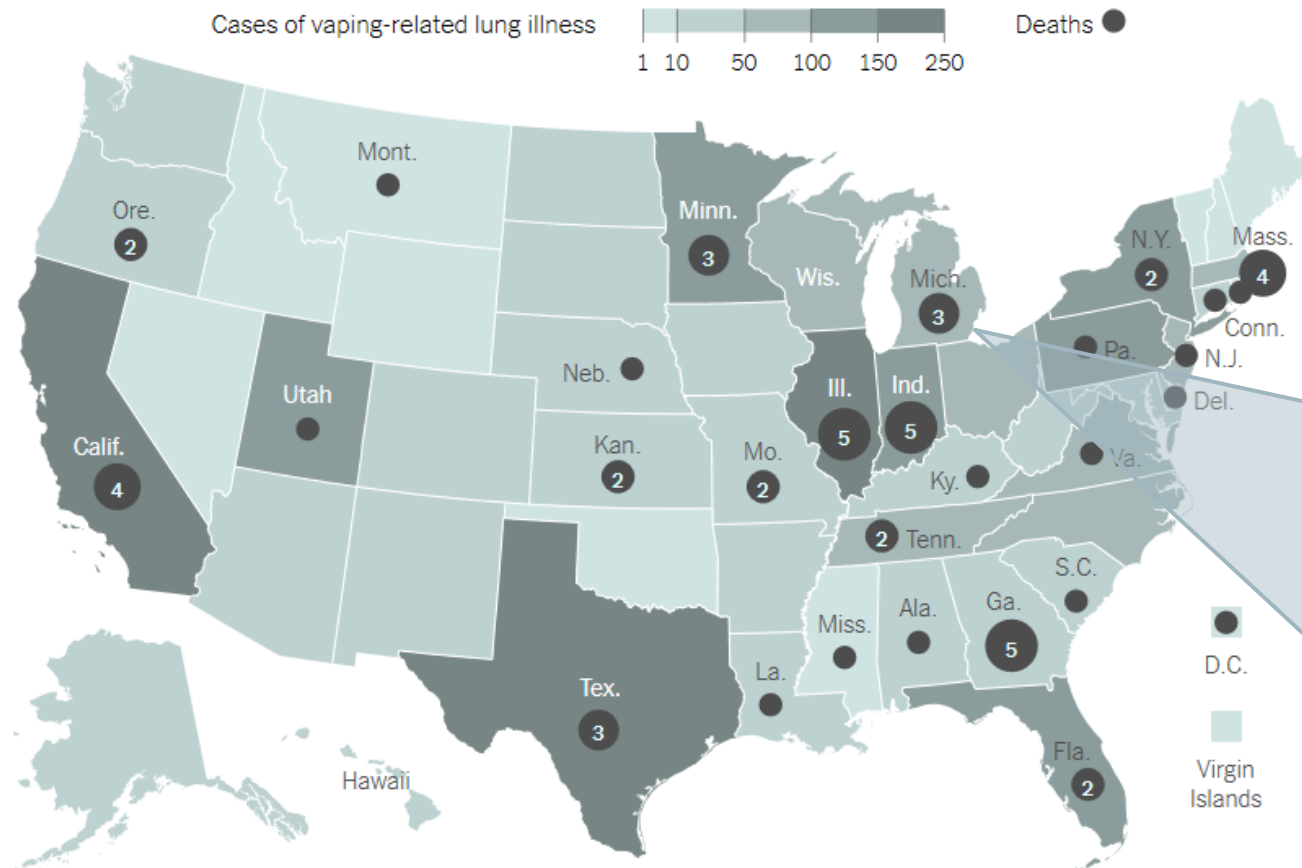
- ▶ Targeted tobacco industry marketing
- ▶ Flavors
- ▶ Lack of regulation



E-Cigarette
Vaping
Associated Lung
Illness (EVALI)



E-Cigarette Vaping Associated Lung Injury (EVALI)

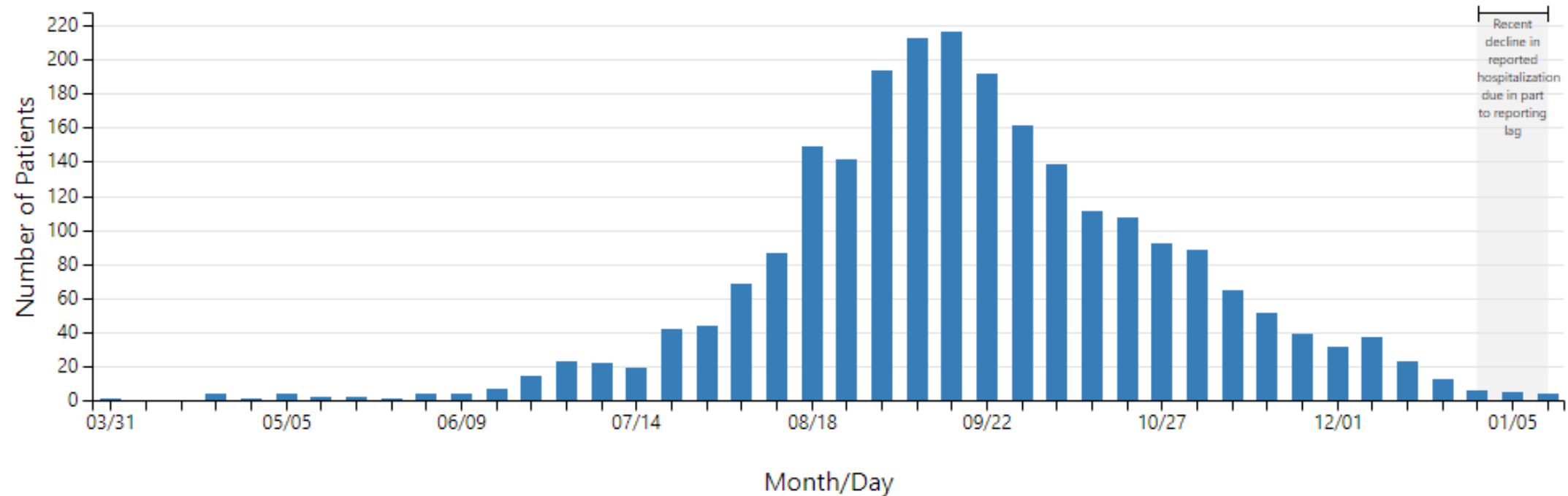


2,711 Cases
60 Deaths

65 Cases
3 Deaths

EVALI Timeline

Dates of symptom onset and hospital admission for patients with lung injury associated with e-cigarette use, or vaping — United States, March 31, 2019–January 18, 2020



Numbers do not sum to 2,711 due to missing admission dates.

Patient Demographics (as of 01/31/20)

- ▶ Among 2,688 patients with data on gender:
 - ▶ 66% of patients are male
- ▶ Among 1,364 patients with data on age:
 - ▶ The median age of patients is 24 years (13 to 75 years).
 - ▶ 76% of patients are under 35 years old.
- ▶ Among 2,022 patients with information on substances used:
 - ▶ About 82% reported using THC-containing products; 33% reported exclusive use
 - ▶ About 57% reported using nicotine-containing products; 14% reported exclusive use
- ▶ Product Source:
 - ▶ 78% reported using THC-containing products from an informal source
 - ▶ 94% of teen users reported using THC-containing products from an informal source

Findings and Limitations

- ▶ Patients have typically obtained their THC-containing e-cigarette, or vaping, products through informal sources, such as friends or illicit in-person and online dealers.
- ▶ Self-reported data is subject to recall bias, as well as social desirability bias because nonmedical marijuana is illegal in many states.
- ▶ Patients likely did not know the content of the e-cigarette, or vaping, products they used.
- ▶ Methods used to collect substance use data varied across states.

