

North Carolina's Response to the Vaping Epidemic

Justus-Warren Heart Disease and Stroke Prevention Task Force

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N.C. Tobacco Prevention and Control

Division of Public Health

January 7, 2020

Tobacco use, Heart Disease, & Stroke

Almost **1/3** of deaths from coronary heart disease are attributable to smoking and secondhand smoke

Prolonged exposure to secondhand smoke increases the risk of a stroke by **20-30%**

Source: US Department of Health and Human Services. 50 Years of Progress: A Report of the Surgeon General, 2014. 2014. Available at: <http://www.surgeongeneral.gov/library/reports/50-years-of-progress/50-years-of-progress-bysection.html>.

NC State of North Carolina

E-cigarette use, flavorings may in

med.stanford.edu/news/all-news/2019/05/e-cigarette-use-and-flavorings-may-increase-heart-disease-risk.html

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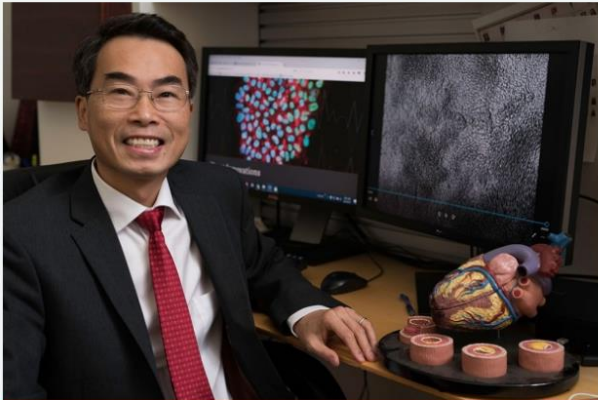
E-cigarette use, flavorings may increase heart disease risk, study finds

E-cigarette flavorings damage human blood vessel cells grown in the lab even in the absence of nicotine, Stanford researchers and their colleagues found. Cinnamon and menthol flavors were particularly harmful.

MAY 27 2019


The flavoring liquid for electronic cigarettes, or e-cigarettes, may increase the risk of cardiovascular disease when inhaled, according to a study led by researchers at the School of Medicine.

The scientists investigated the effect of the e-liquids on cells called endothelial cells that line the interior of blood vessels. They found that, when grown in a laboratory, endothelial



Joseph Wu is the senior author of a study that investigated the effect of e-cigarette liquids on endothelial cells, which line the interior of blood vessels.
Steve Fisch

RELATED NEWS



Tobacco and e-cig promotions spark teens' use of nicotine products
Many teens own e-cigarette samples, coupons or branded

May 17, 2019

Juul e-cigarettes pose addiction risk for young users


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NC State of North Carolina

Three more studies show how e-cigs increase heart disease risk

tobacco.ucsf.edu/three-more-studies-show-how-e-cigs-increase-heart-disease-risk

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Home > Three more studies show how e-cigs increase heart disease risk

November 15, 2019

Stanton A. Glantz, PhD

Three more studies show how e-cigs increase heart disease risk

The paper "Short-term e-cigarette vapour exposure causes vascular oxidative stress and dysfunction: evidence for a close connection to brain damage and a key role of the phagocytic NADPH oxidase (NOX-2)" recently published by Marin Kuntic and colleagues in the European Heart Journal is a real-tour de force that includes human, mouse, and isolated cell studies to not only show that e-cigarette use has adverse effects on blood vessels (in several places throughout the body), but defines the cellular and molecular pathways responsible for these effects.

Consistent with earlier studies, they found that e-cigarette smoking immediately compromised the ability of arteries to dilate (expand) in response to increases in the need for blood flow (called flow-mediated dilation). Significantly, they found this effect in smokers, which is consistent with our (paper 1, paper 2) and others' epidemiological findings that e-cigarettes pose an independent risk of having had a heart attack (myocardial infarction) in smokers.

Kuntic and colleagues also found that e-cigarette aerosol causes oxidative stress in the brain, the lung and in vessels, induces inflammation, and adversely affects lipids and tracked down the biological pathway for these effects (NADPH oxidase, NOX-2). They found that the e-cigarette product acrolein, a reactive aldehyde, was causing these changes in isolated blood vessels. They also found that heated aerosol was more toxic than the unheated e-liquid.

Here is the abstract:

Aims. Electronic (e)-cigarettes have been marketed as a 'healthy' alternative to traditional combustible cigarettes and as an effective method of smoking cessation. There are, however, a paucity of data to support these claims. In fact, e-cigarettes are implicated in endothelial dysfunction and oxidative stress in the vasculature and the lungs. The mechanisms underlying these side effects remain unclear. Here, we investigated the effects of e-cigarette vapour on vascular function in smokers and experimental animals to determine the underlying mechanisms.

Methods and results. Acute e-cigarette smoking produced a marked impairment of endothelial function in chronic smokers determined by flow-mediated dilation. In mice, e-cigarette vapour without



Stanton A. Glantz, PhD
Director, Center for Tobacco Research
Control & Education

Latest Blog Articles

Congress raises minimum age for tobacco use to 21

E-Cigarettes Significantly Raise Risk of Chronic Lung Disease

Next Smokefree Movies ad shows wide range of health organizations endorsing findings on smoking in movies in CDC MMWR

Pete and Devon Briger endow a fellowship to help fight the global tobacco epidemic

FDA did a good job of defining

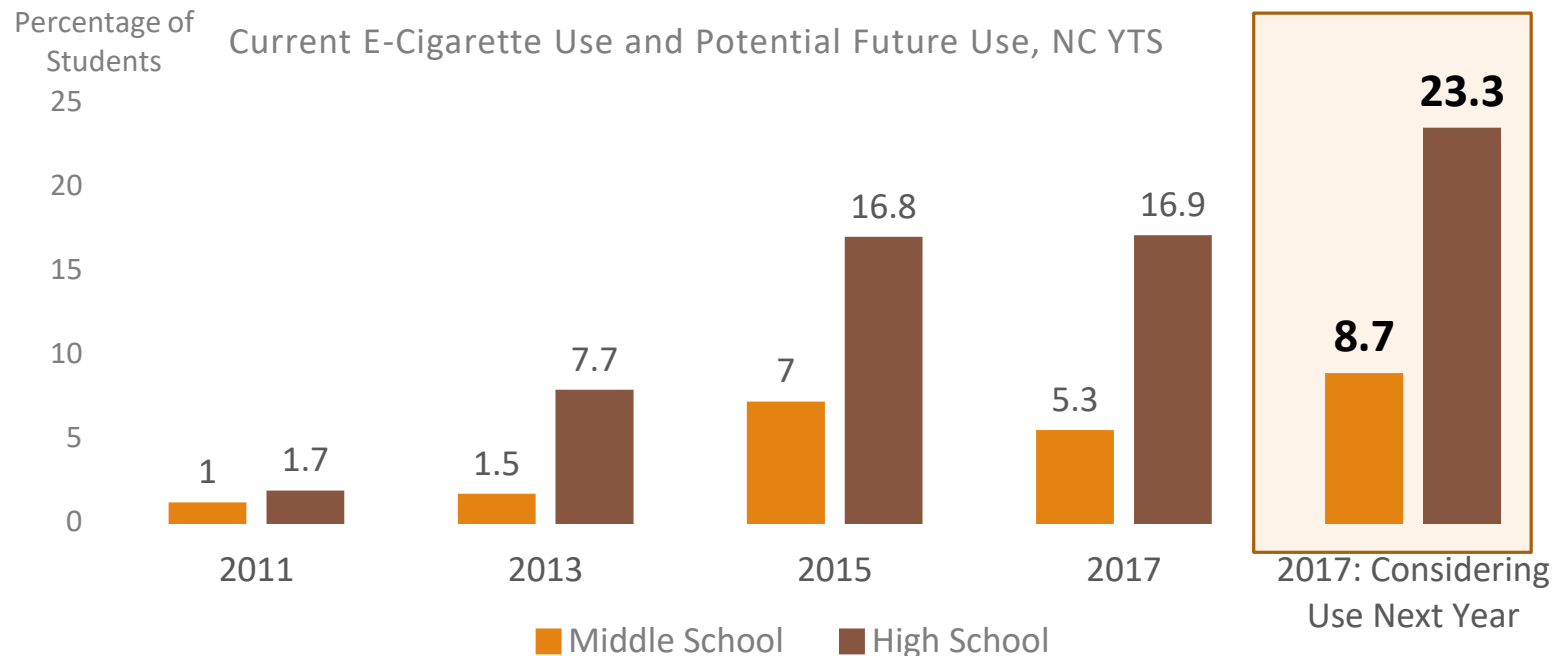
Windows taskbar with various application icons and system clock showing 12:05 PM

Between 2011-2017 Current Youth Use of E-Cigarettes Increased:

430% ↑
Middle School

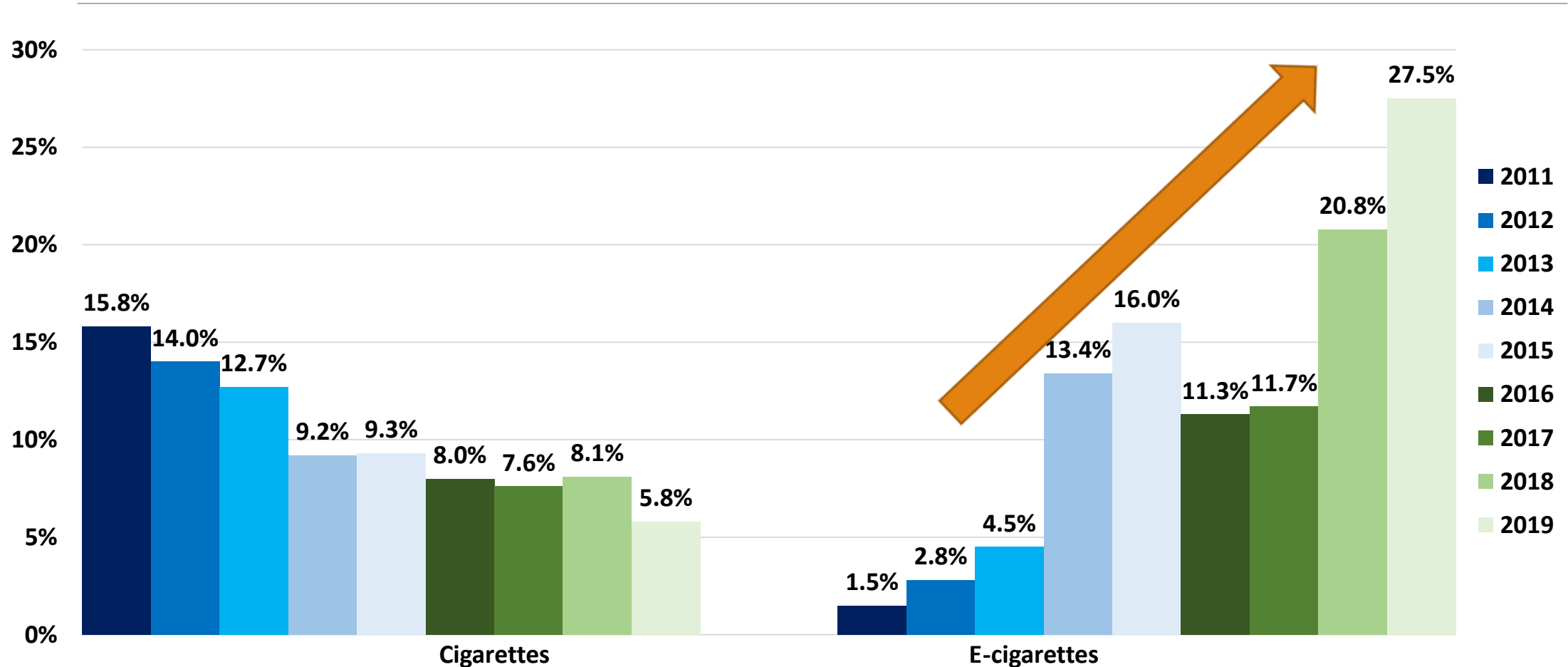
894% ↑
High School

In 2017 more students said they were considering using e-cigarettes in the next year than currently used them



Use of Cigarettes has Declined...but Reversed by Increase in E-cigarette Use

Percent of US high school students who reported cigarette or e-cigarette use in the past 30 days



JUUL Popular Among Youth

- Resembles a flash drive
- Each pre-filled pod is equal to about 1 pack of cigarettes. Reviews of the product suggest about 200 puffs.
- Marketed in several flavors
e.g. Mango, Fruit, Crème



Advertising and Flavors Entice Youth to Start Using E-cigarettes; the Nicotine Hooks Them

JUUL PODS & FLAVORS



NICOTINE LEVELS



Prevention is Critical

“Successful multi-component programs prevent young people from starting to use tobacco in the first place and more than pay for themselves in lives and health care dollars saved”.

Source: US Department of Health and Human Services. 50 Years of Progress: A Report of the Surgeon General, 2014. Available at: <http://www.surgeongeneral.gov/library/reports/50-years-of-progress/50-years-of-progress-bysection.html>.

LET'S MAKE THE NEXT GENERATION **TOBACCO-FREE**

Your Guide to the 50th Anniversary Surgeon General's Report on Smoking and Health



National, State and Local Calls to Action

Hearing on “Sounding the Alarm: The Public Health
Threats of E-Cigarettes”

Elizabeth Cuervo Tilson, M.D., M.P.H., State Health Director
and Chief Medical Officer of NC DHHS, testified to the U.S.
House Committee on Energy and Commerce, Subcommittee on
Oversight and Investigations on Wednesday September 25,
2019.

<https://energycommerce.house.gov/committee-activity/hearings/hearing-on-sounding-the-alarm-the-public-health-threats-of-e-cigarettes>



**Luka Kinard, 16, of
High Point, with
Surgeon General
Jerome Adams**



U.S. Surgeon General Advisory Recommendations

- Include e-cigarettes in smoke-free indoor air policies
- Restrict young people's access to e-cigarettes in retail settings (e.g. Tobacco 21)
- License retailers
- Implement price policies (e.g. tax)
- Develop educational initiatives targeting young people (e.g. media campaigns)
- Implement strategies to curb advertising and marketing that are appealing to young people
- Implement strategies to reduce access to flavored tobacco products by young people
- Help treat adults and youth with nicotine addiction

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NC Counties and Municipalities that **Specifically** Prohibit Use of E-Cigarettes

Counties (41)

- Alamance
- Beaufort
- Bertie
- Bladen
- Brunswick
- Cabarrus
- Catawba
- Chatham
- Chowan
- Clay
- Dare
- Duplin
- Durham
- Granville
- Guilford
- Haywood
- Henderson
- Hyde
- Iredell
- Jackson
- Lee
- Mecklenburg
- Nash
- New Hanover
- Orange
- Pasquotank
- Pender
- Person
- Pitt
- Randolph
- Rowan
- Rutherford
- Surry
- Swain
- Transylvania
- Tyrrell
- Vance
- Wake
- Wilkes
- Wilson
- Yadkin

Municipalities (63)

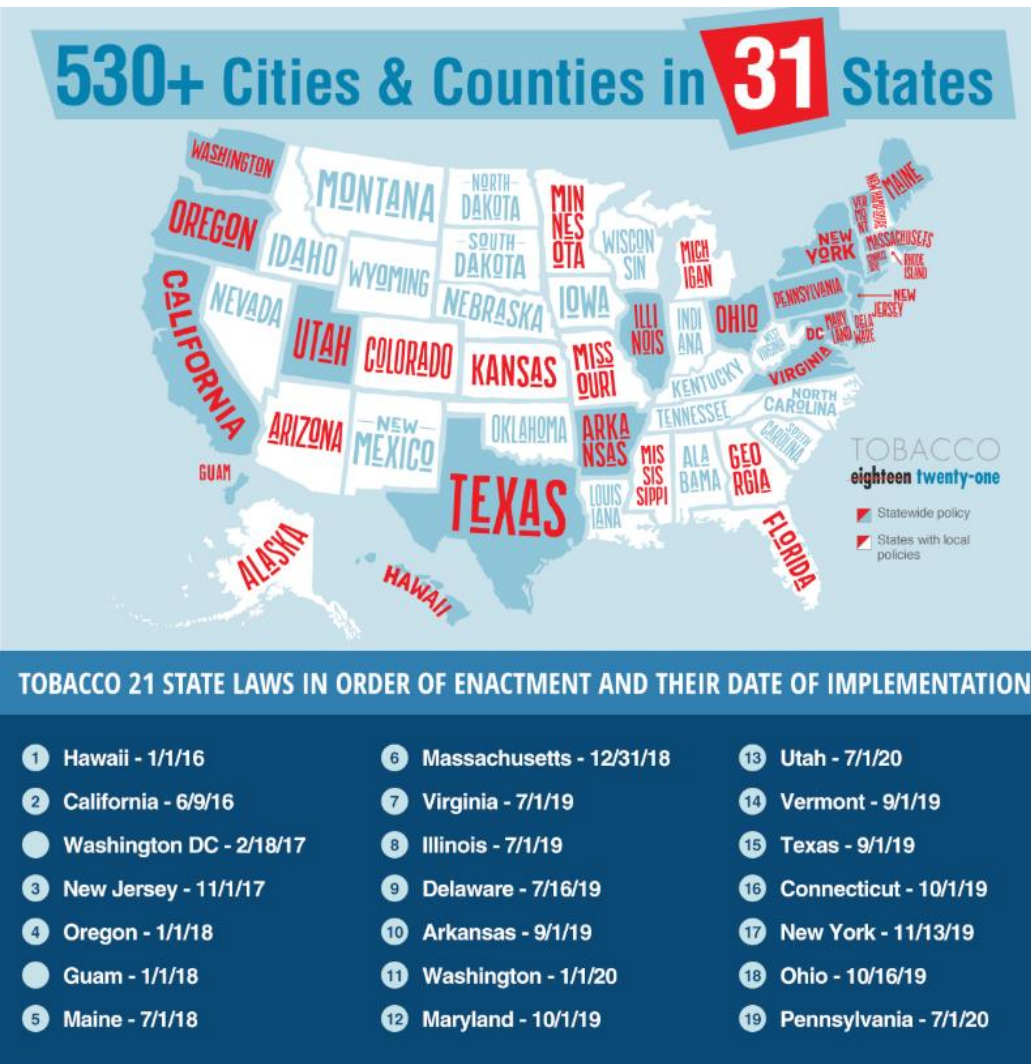
- Apex
- Asheville
- Ayden
- Bessemer City
- Bethel
- Brookford
- Burlington
- Butner
- Canton
- Catawba
- Chapel Hill
- Cherryville
- Conover
- Creedmoor
- Duck
- Dunn
- Durham
- Elon
- Fairview
- Graham
- Granite Falls
- Green Level
- Greensboro
- Grifton
- Hayesville
- Henderson
- High Point
- Jamestown
- Kannapolis
- Kill Devil Hills
- Kittrell
- Kitty Hawk
- Lewis
- Maiden
- Manteo
- Mebane
- Middleburg
- Morrisville
- Nags Head
- North Wilkesboro
- Oak Island
- Oxford
- Pleasant Garden
- Rolesville
- Ronda
- Roxboro
- Saluda
- Sedalia
- Siler City
- Southern Shores
- Stem
- Stovall
- Summerfield
- Surf City
- Valdese
- Waynesville
- Whiteville
- Whitsett
- Wilkesboro
- Wilmington
- Winterville

Source: Information compiled from ongoing reporting and documentation collected by the NC Tobacco Prevention and Control Branch. Updated **January 2020**.

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Tobacco 21 Policies



- Congress raises the age of tobacco sales to age 21
- Applies to the sale- not the possession
- Simplifies ID checks for retailers
- Plan for effective state T21 law change and license NC retailers

Tobacco Retailer Licensing

- Enables identification of businesses selling tobacco to consumers
- Helps prevent sales to minors
- Retailers selling tobacco products must comply with relevant laws or risk losing the privilege of selling these products.

U.S. Surgeon General Advisory Recommendations

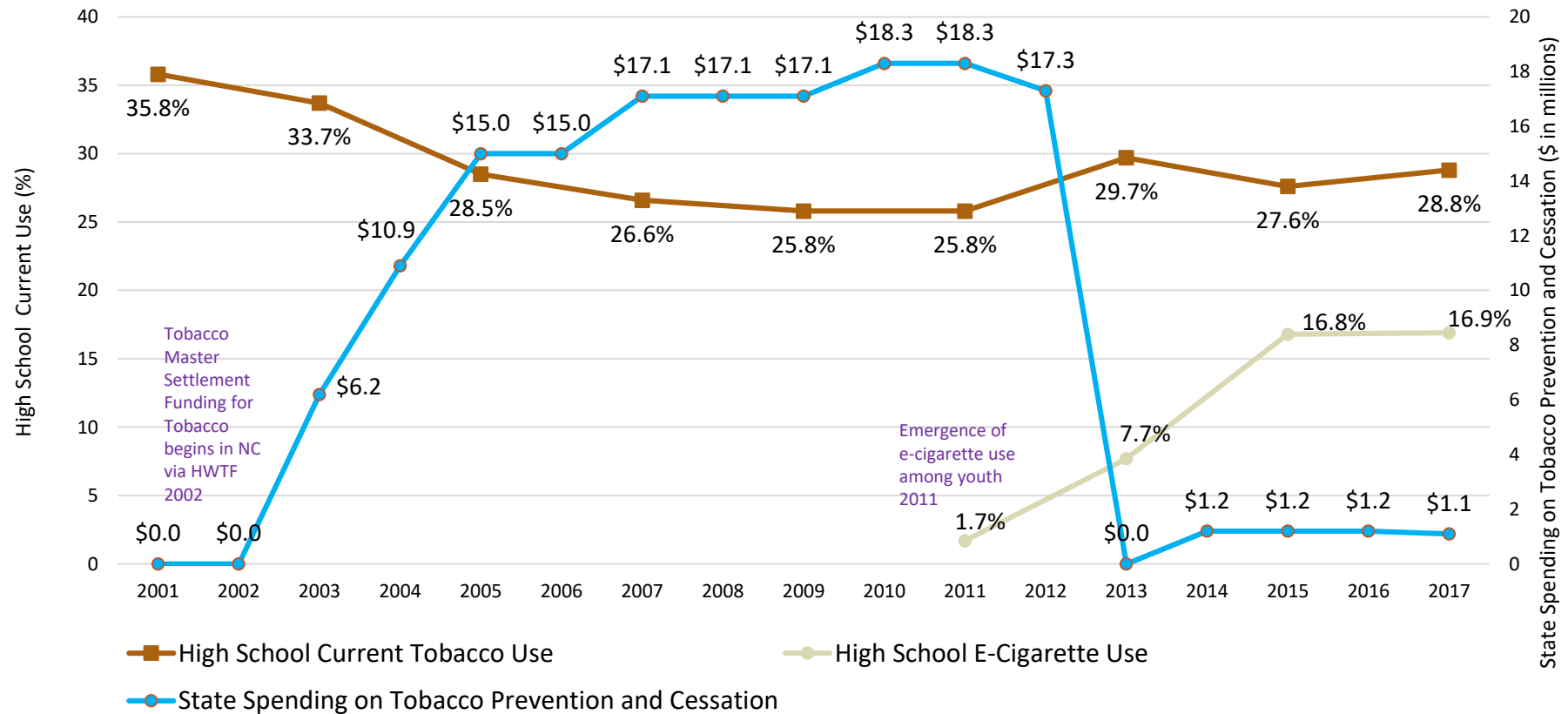
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Data on Tobacco Price Policies

Tobacco tax increases are effective in reducing smoking and other tobacco use, especially among kids

- **Every 10% increase in price, decrease in smoking by about 7% among youth and 4% overall**
- NC is 47th in the nation for cigarette tax at \$0.45 per pack
- NC taxes cigars and smokeless tobacco at 12.8% of wholesale price
- NC taxes e-cigarette liquid at 5 cents per ml
- NC law preempts local governments from increasing tobacco taxes

High School Tobacco Use and State Spending on Tobacco Prevention in North Carolina 2001-2017

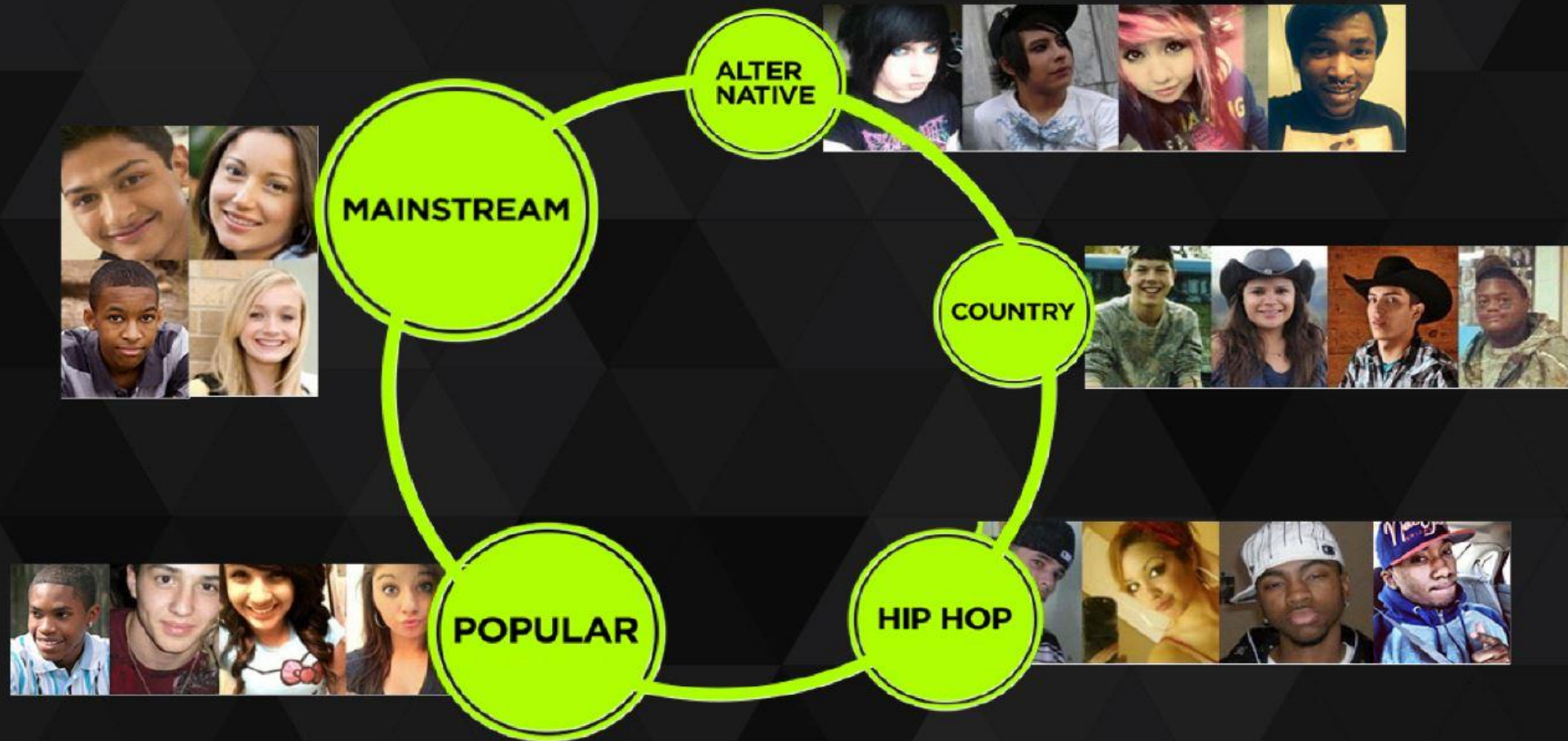


Since 2001, North Carolina has received an average of **\$149,825,874 per year** from the Tobacco Master Settlement Agreement

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THE FIVE TEEN PEER CROWDS



DOWN AND DIRTY

A TOBACCO
PREVENTION
CAMPAIGN FOR
“COUNTRY” TEENS



We Conducted a Study in Collaboration with CDC



**Online survey of
574 school staff**



**35 in-person semi-
structured interviews
with school staff**



**Environmental assessment:
collect e-cigarettes and
identify e-cigarette retailers
near schools**

This map of North Carolina displays county-level data for the percentage of the population aged 65 and over. The counties shaded in dark blue, indicating the highest percentage, are located in the western and central parts of the state, including counties like Swain, Graham, and others in the western region, and counties like Wayne, Jones, and others in the central region. The map also shows counties with lower percentages in lighter shades of blue and green.



Most School Staff Reported that E-cigarettes are Somewhat or very...

Percent of school staff

Problematic

88%

Harmful

95%

Contributory to
learning disruptions

84%

High priority issue for
school administration

90%



WELCOME TO OUR TOBACCO-FREE SCHOOL



**School Policy prohibits the use of tobacco
products, including electronic cigarettes:
Everywhere, By Everyone, At ALL Times.
THANK YOU FOR YOUR COOPERATION.**



1-800-QUIT-NOW

1 - 8 0 0 - 7 8 4 - 8 6 6 9



Stanford
M E D I C I N E

Tobacco Prevention Toolkit
Modules for tobacco and nicotine education

New Alternative to Suspension Program



INDEPTH is a new, convenient alternative to suspension or citation that helps schools and communities address the teen vaping problem in a more supportive way. Instead of solely focusing on punitive measures, INDEPTH is an interactive program that teaches students about nicotine dependence, establishing healthy alternatives and how to kick the unhealthy addiction that got them in trouble in the first place.

<https://www.lung.org/stop-smoking/helping-teens-quit/indepth.html>

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NC Preemptive Language

§ 14-313. Youth access to tobacco products, tobacco-derived products, vapor products, and cigarette wrapping papers.

(e)no political subdivisions, boards, or agencies of the State nor any county, city, municipality, municipal corporation, town, township, village, nor any department or agency thereof, may enact ordinances, rules or regulations concerning the sale, distribution, display or promotion of (i) tobacco products or cigarette wrapping papers on or after September 1, 1995, or (ii) tobacco-derived products or vapor products on or after August 1, 2013. This subsection does not apply to the regulation of vending machines, nor does it prohibit the Secretary of Revenue from adopting rules with respect to the administration of the tobacco products taxes levied under Article 2A of Chapter 105 of the General Statutes.

FDA Announcement—January 2, 2020

- FDA issued a policy on enforcement of flavored cartridge-based e-cigarette products, including fruit and mint flavors, that appeal to kids.
- Under this federal policy, companies that do not cease the manufacture, distribution and sale of unauthorized flavored cartridge-based e-cigarettes (other than tobacco or menthol flavors) within 30 days risk enforcement actions by FDA.
- The FDA plans to share more on the specific details of the policy and its implementation.

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NORTH CAROLINA TOBACCO TREATMENT STANDARD OF CARE

FDA Approved Pharmacotherapy¹

12 weeks of varenicline (Chantix®)

or

12 weeks of combination therapy
(nicotine patches and nicotine gum or
nicotine lozenge)

Other pharmacotherapy includes bupropion,
nicotine nasal spray and nicotine inhaler



Evidenced-Based Counseling

In order of effectiveness:

- Face to face individual counseling
- Group counseling
- QuitlineNC – telephonic, texting,
and web-based counseling

100% TOBACCO FREE ENVIRONMENTS HELP PEOPLE QUIT.

Adapting Standard of Care Tobacco Treatment to Young People

With the e-cigarette epidemic among young people, clinicians must keep up with and adapt to the changing landscape and capture any tobacco use in the medical records.

Behavioral Counseling is still the first line of treatment for tobacco users under the age of 18. Talking to young people and using brief motivational interviewing can increase quit attempts.

Assessment tools are being adapted to young audiences and e-cigarettes to assess tobacco use and dependence. (Fagerstrom scale for nicotine addiction and the “Hooked on Nicotine Checklist” “HONC” for youth use)

The American Academy of Pediatrics recently released: ***Nicotine Replacement Therapy and Adolescent Patients: Information for Pediatricians:***

- Given the effectiveness of NRT for adults and the severe harms of tobacco dependence, AAP policy recommends that pediatricians consider off-label NRT for youth who are moderately or severely addicted to nicotine and motivated to quit.
- Close follow up is recommended.



NRT gum, patch, and lozenge

