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# The Tobacco Epidemic In the U.S.

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HSERV 556  
Bia Carlini, PhD, MPH  
Fall 2020





Northwest (HHS Region 10)

**ATTC**

Addiction Technology Transfer Center Network  
Funded by Substance Abuse and Mental Health Services Administration

## Partnership with NW ATTC

- ✓ Serves Alaska, Idaho, Oregon, and Washington.
- ✓ Located at the University of Washington's Alcohol & Drug Abuse Institute
- ✓ The NWATTC seeks to accelerate community-based implementation of evidence-based practices (EBPs) for treatment and recovery by:
  - ✓ Sponsoring training online and in-person to enhance clinical knowledge and skills, and adoption of EBPs,
  - ✓ Providing intensive technical assistance to support systems change and organizational efforts to implement EBPs,
  - ✓ Offering consultation for systems-level change in the emerging new landscape for behavioral health care,
  - ✓ Disseminating science-based information on EBPs, cultural competence, and more.

<https://attcnetwork.org/centers/northwest-attc/home>





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# Look for NWATTC surveys in your inbox!

Every survey helps NWATTC to improve and continue offering programs.

It only takes **1 minute** to complete!



Northwest (HHS Region 10)

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# Agenda

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Background

Cigarette  
Epidemic

Disparities

Emerging  
Products  
And Diseases



# Agenda

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Background

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# The (Commercial) Tobacco Epidemic

## In the U.S.

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# Sacred Tobacco

- Indigenous people cultivated tobacco in Americas
- Traditional tobacco has been used by many indigenous people to:
  - Pray
  - Give thanks to the Creator and Mother Earth
  - Communicate with the spirits
  - Purify the mind and heal the body.



# Nicotine vs. Tobacco

Nicotine is very addictive

Tobacco use is the number 1 cause of preventable death in the US

**“It is this mix of chemicals—not nicotine—that causes serious disease and death in tobacco users, including fatal lung diseases, like chronic obstructive pulmonary disease (COPD) and cancer\*.”**

**[\(\\*\) https://www.fda.gov/tobacco-products/health-information/nicotine-addictive-chemical-tobacco-products](https://www.fda.gov/tobacco-products/health-information/nicotine-addictive-chemical-tobacco-products)**

Access on October 2, 2020



# Tobacco Products



Cigarettes



Cigars\*



Dissolvables\*



Hookah Tobacco\*



Nicotine Gels\*



Pipe Tobacco\*



Roll-Your-Own Tobacco



Smokeless Tobacco Products,  
including Dip, Snuff, Snus, and  
Chewing Tobacco



Vaporizers, E-Cigarettes, and  
Other Electronic Nicotine Delivery  
Systems (ENDS)\*

# Agenda

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Background

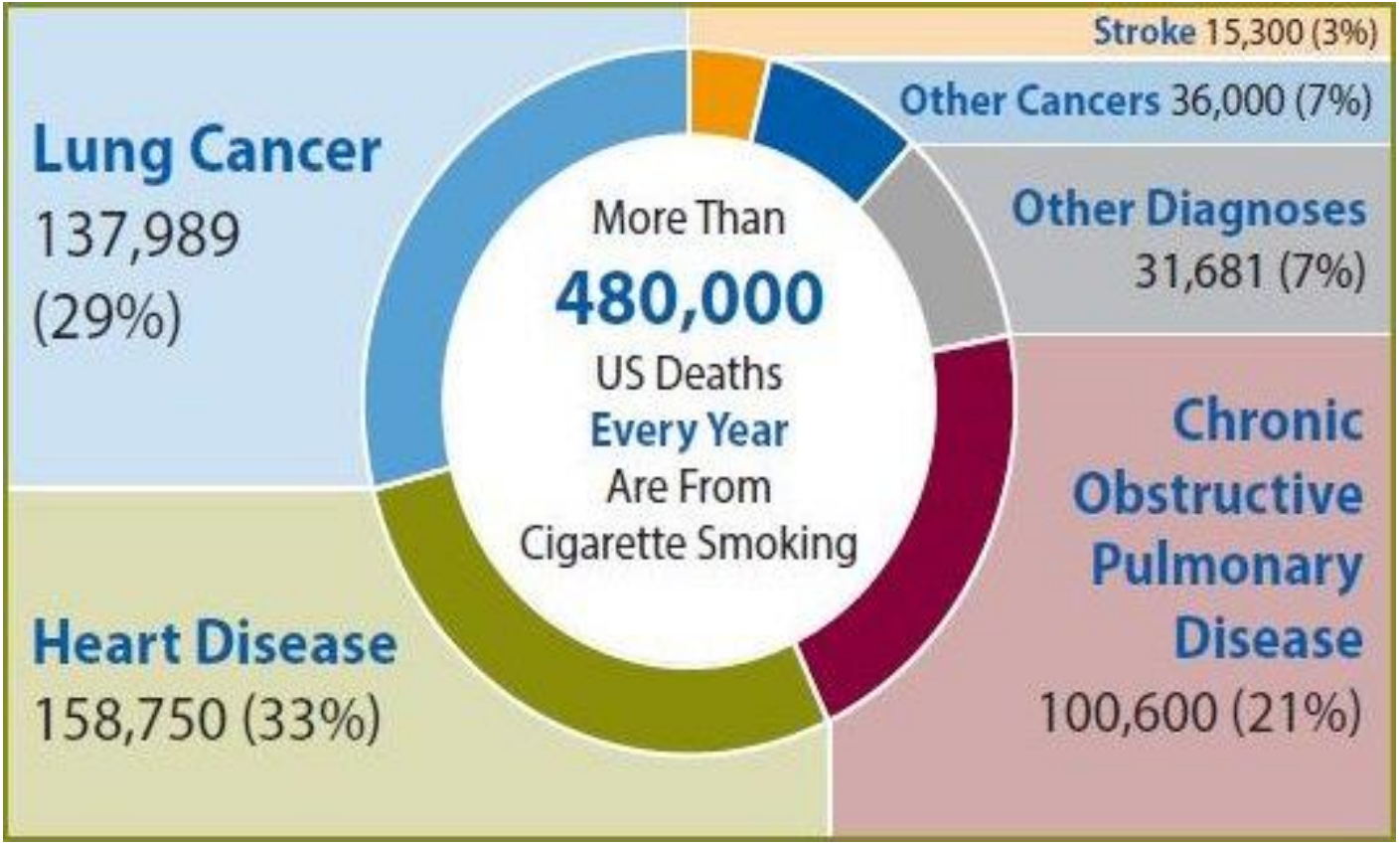
Cigarette  
Epidemic

Disparities

Emerging  
Products  
And Diseases



34.2 million people currently smoke cigarettes in the US -  
13.7% of all adults

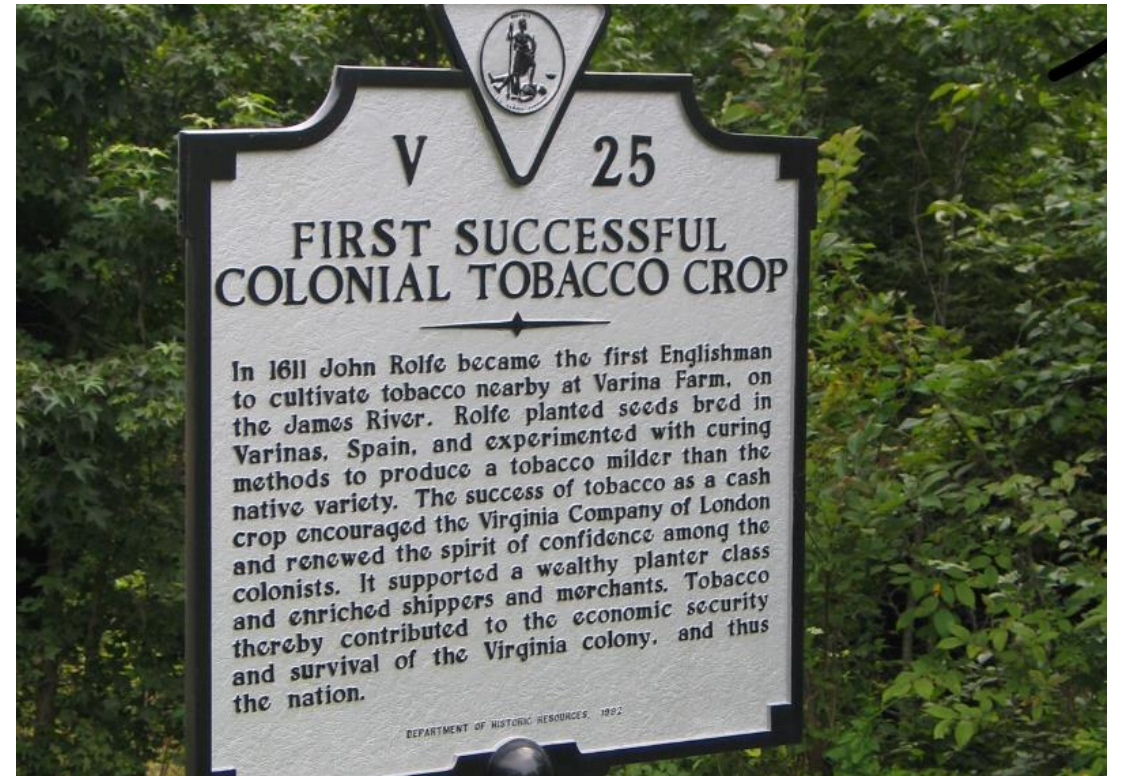


Average annual number of deaths for adults aged 35 or older, 2005-2009.  
Source: 2014 Surgeon General's Report. Table 12.4. page 660.



# 1600s – Tobacco Trade

- European colonialists exported tobacco to Europe, creating an American tobacco market in early 1600s
- Labor demand of tobacco plantations created slave market
- Cigars, pipes, snuff and chew



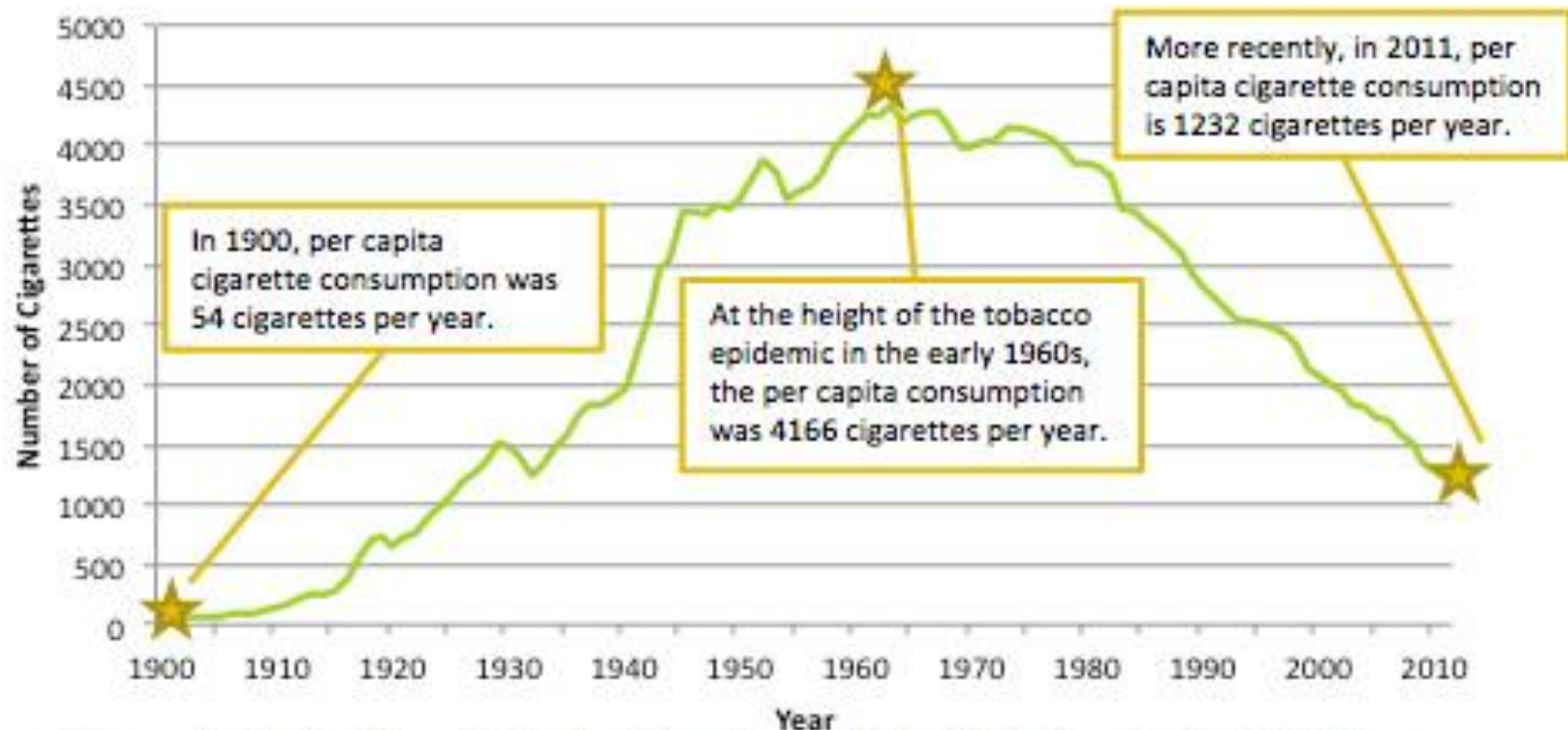
# 1800s – Cigarettes

- European Americans bred rot-resistant, easier to cure strains
- Flue curing process led to addictive version of tobacco
- US cigarettes originated during Civil War as cheap alternative to cigars, pipes, snuff and chew



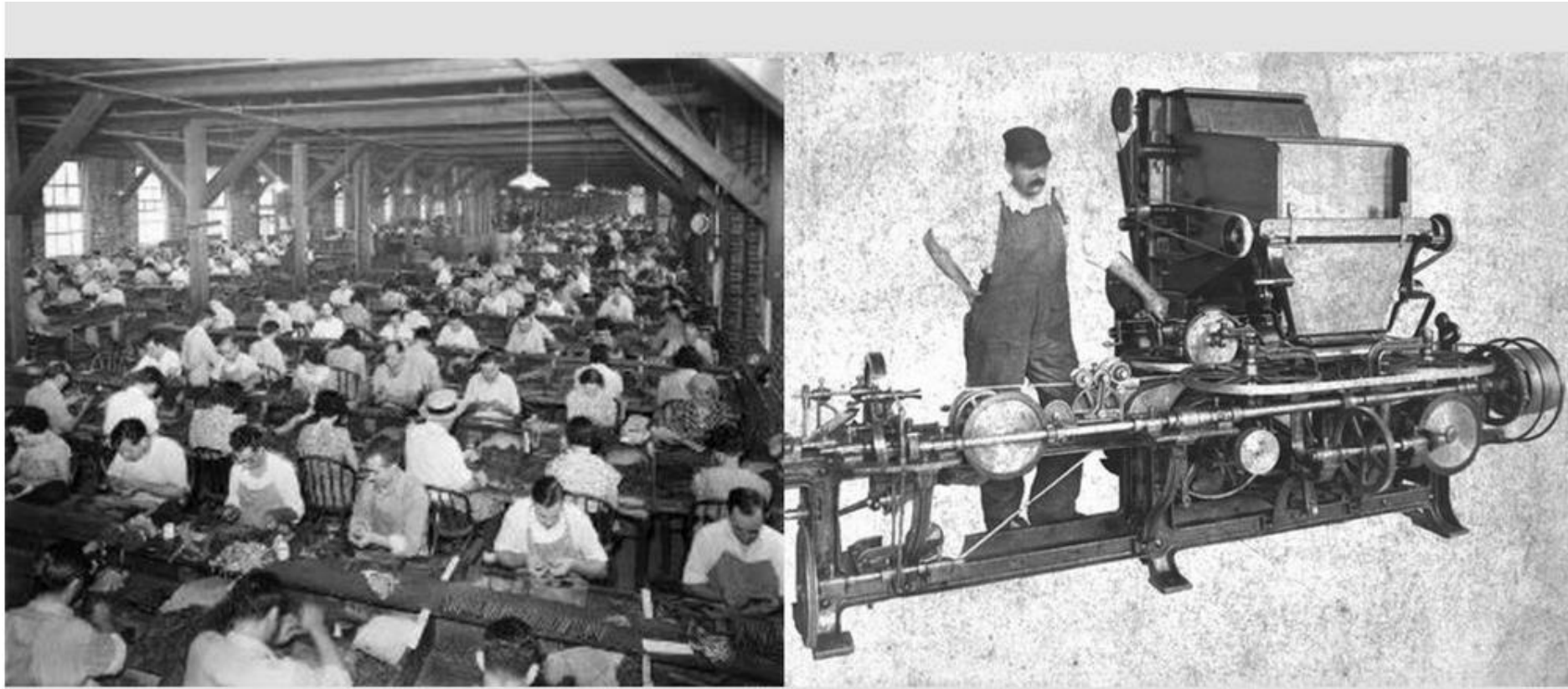
White burley tobacco monument to Mr. Webb at the Ohio Tobacco Museum

## Adult Per Capita Cigarette Consumption, 1900-2011

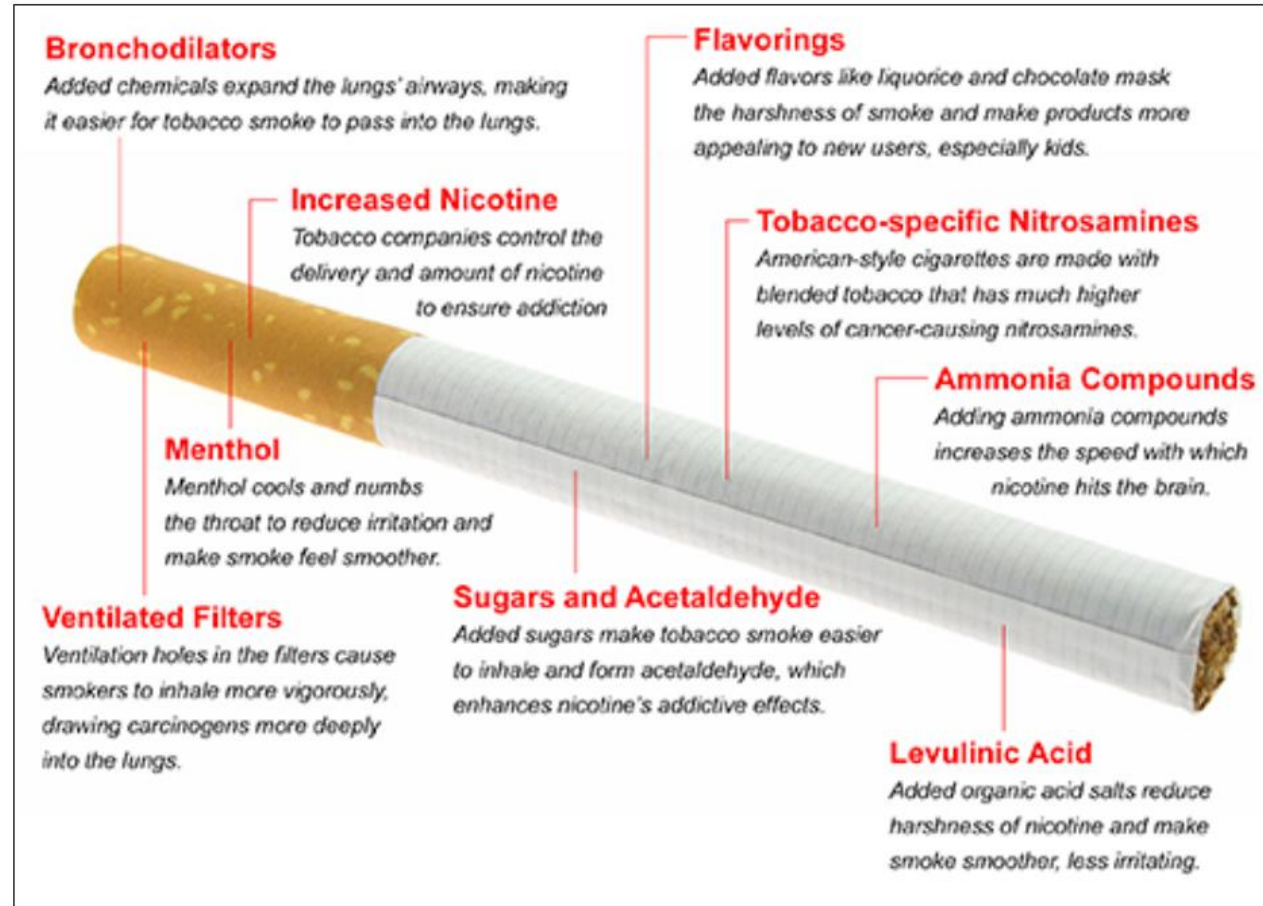


Sources: Centers for Disease Control and Prevention and United States Department of Agriculture

# 1900s – Mass production



# 1900s – Product development





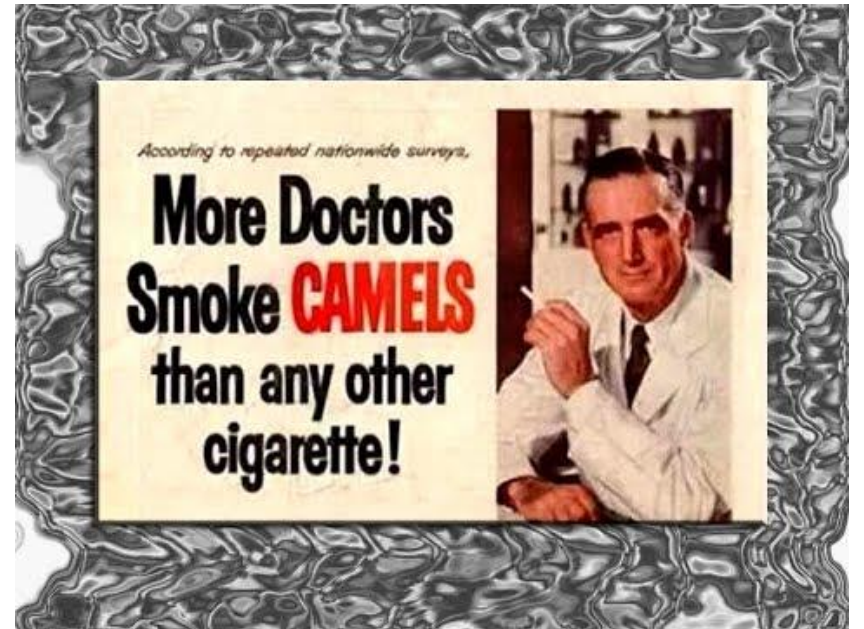
# 1950s – Marketing and Advertising



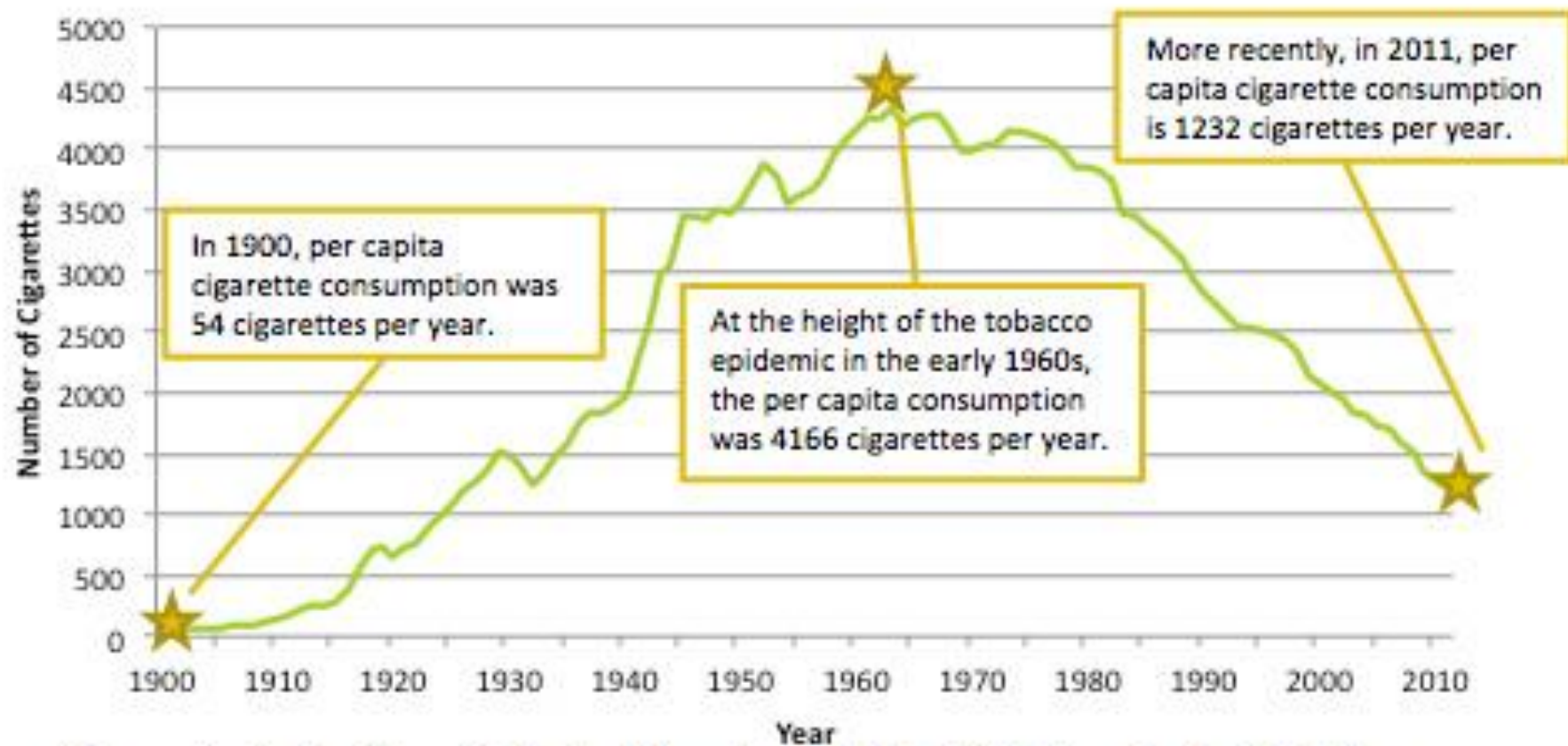
Trump Mocks C  
Thunberg on T  
She Jabs Back

... bemused and  
Joyce  
rary.  
to be a scientist  
that smoking  
in your teeth."

Santa Claus sells Pall  
Mall cigarettes in a  
1951 ad.

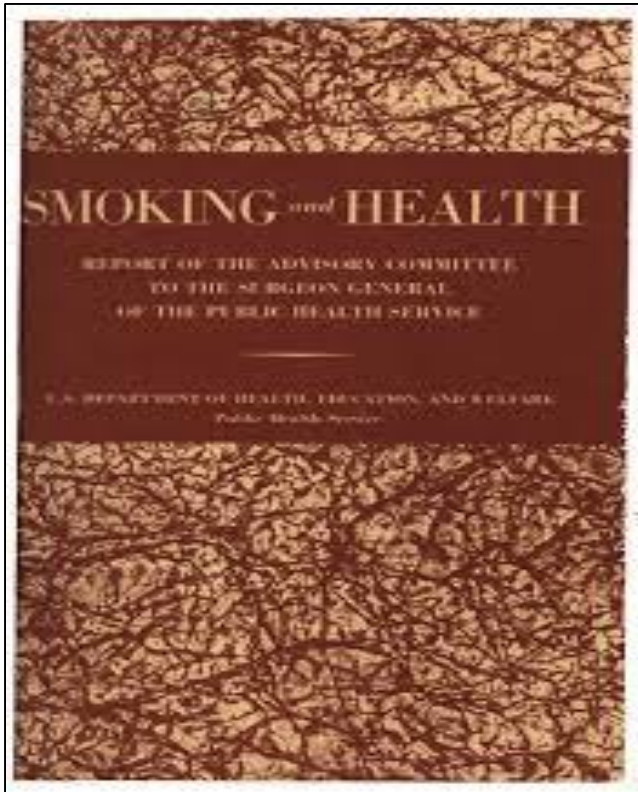


## Adult Per Capita Cigarette Consumption, 1900-2011



Sources: Centers for Disease Control and Prevention and United States Department of Agriculture

# Science



1964

- A cause of lung cancer and laryngeal cancer in men
- A probable cause of lung cancer in women
- The most important cause of chronic bronchitis

Source: [https://www.cdc.gov/tobacco/data\\_statistics/sgr/history/index.htm](https://www.cdc.gov/tobacco/data_statistics/sgr/history/index.htm)

# Science

The leading cause  
of preventable  
death

## Risks from Smoking


Smoking can damage nearly every part of your body

**Cancers**

- Oropharynx
- Larynx
- Esophagus
- Trachea, bronchus, and lung
- Acute myeloid leukemia
- Stomach
- Liver
- Pancreas
- Kidney and ureter
- Cervix
- Bladder
- Colorectal

**Chronic Diseases**

- Stroke
- Blindness, cataracts, **age-related macular degeneration**
- Congenital defects-maternal smoking: orofacial clefts**
- Periodontitis
- Aortic aneurysm, early abdominal aortic atherosclerosis in young adults
- Coronary heart disease
- Pneumonia
- Atherosclerotic peripheral vascular disease
- Chronic obstructive pulmonary disease, **tuberculosis**, asthma, and other respiratory effects
- Diabetes**
- Reproductive effects in women (including reduced fertility)
- Hip fractures
- Ectopic pregnancy**
- Male sexual function-erectile dysfunction**
- Rheumatoid arthritis**
- Immune function**
- Overall diminished health





# Legal Actions

## Master Settlement Agreement of 1998



**Four largest manufactures in America:**

- **- Pay billions for the damage caused**
- **- Impose restrictions in marketing and sponsorships**
- **- Release to public internal documents**

# Public Policies

- ❖ Preventing initiation of tobacco use among youth and young adults
- ❖ Promoting quitting among adults and youth
- ❖ Eliminating exposure to secondhand smoke

May 2019 Volume 28 Issue 3

Impact Factor 4.151

## TOBACCO CONTROL

**DON'T LET TOBACCO  
TAKE YOUR BREATH AWAY**



**CHOOSE HEALTH NOT TOBACCO**  
31 MAY WORLD NO TOBACCO DAY #NoTobacco

TOGETHER LET'S BEAT TOBACCO

FCTC

World Health Organization

tobaccocontrol.bmj.com

BMJ

## Policies and regulations



FDA regulates (2009)

- Marketing
- Distribution
- Manufacturing

Of tobacco products

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# Agenda

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Background

Cigarette  
Epidemic

Disparities

Emerging  
Products  
And Diseases

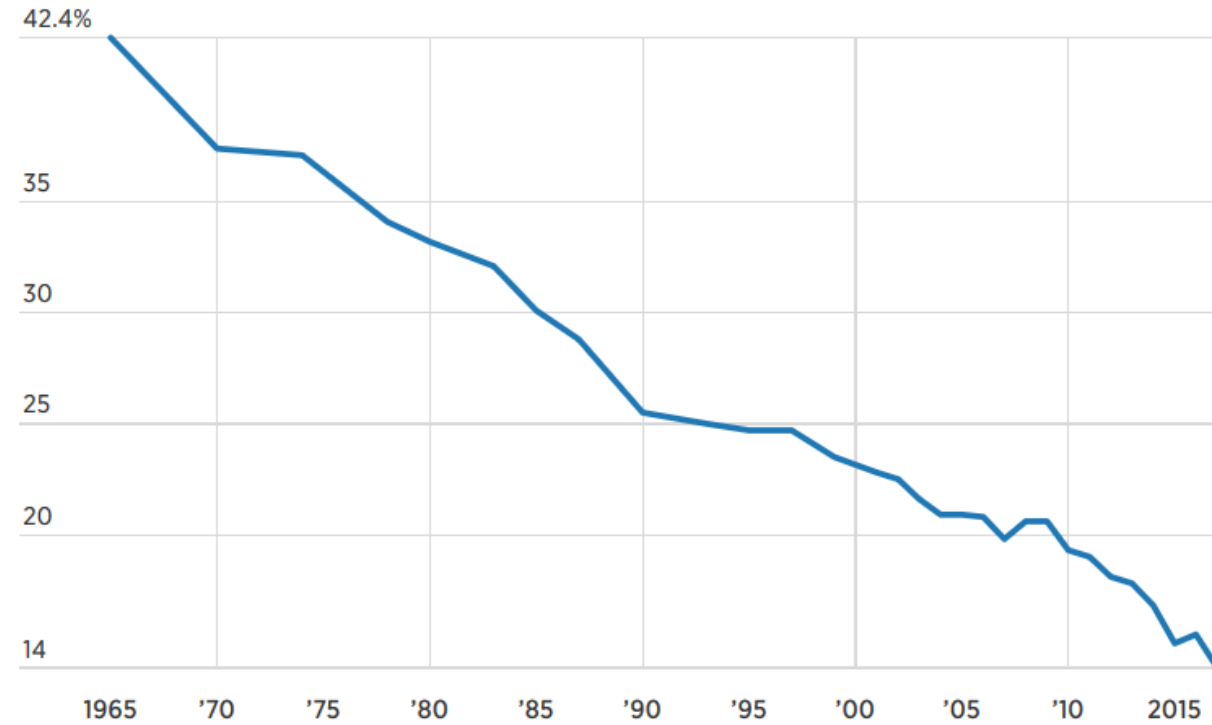






## Smoking rates have fallen to a record low

The cigarette smoking rate reached 14 percent in 2017, a record low and a 67 percent decline since 1965, when 42.4 percent of U.S. adults smoked cigarettes.



Source: [Centers for Disease Control and Prevention](https://www.cdc.gov)



# Tobacco is not an equal opportunity killer

Cigarette smoking is down, but about

# 34 MILLION

American adults still smoke

## Cigarette smoking remains high among certain groups



Men



Adults 25-64  
years old



Lower education



Below  
poverty level



Midwest  
and South



Uninsured  
or Medicaid



Disabled



Serious  
psychological  
distress



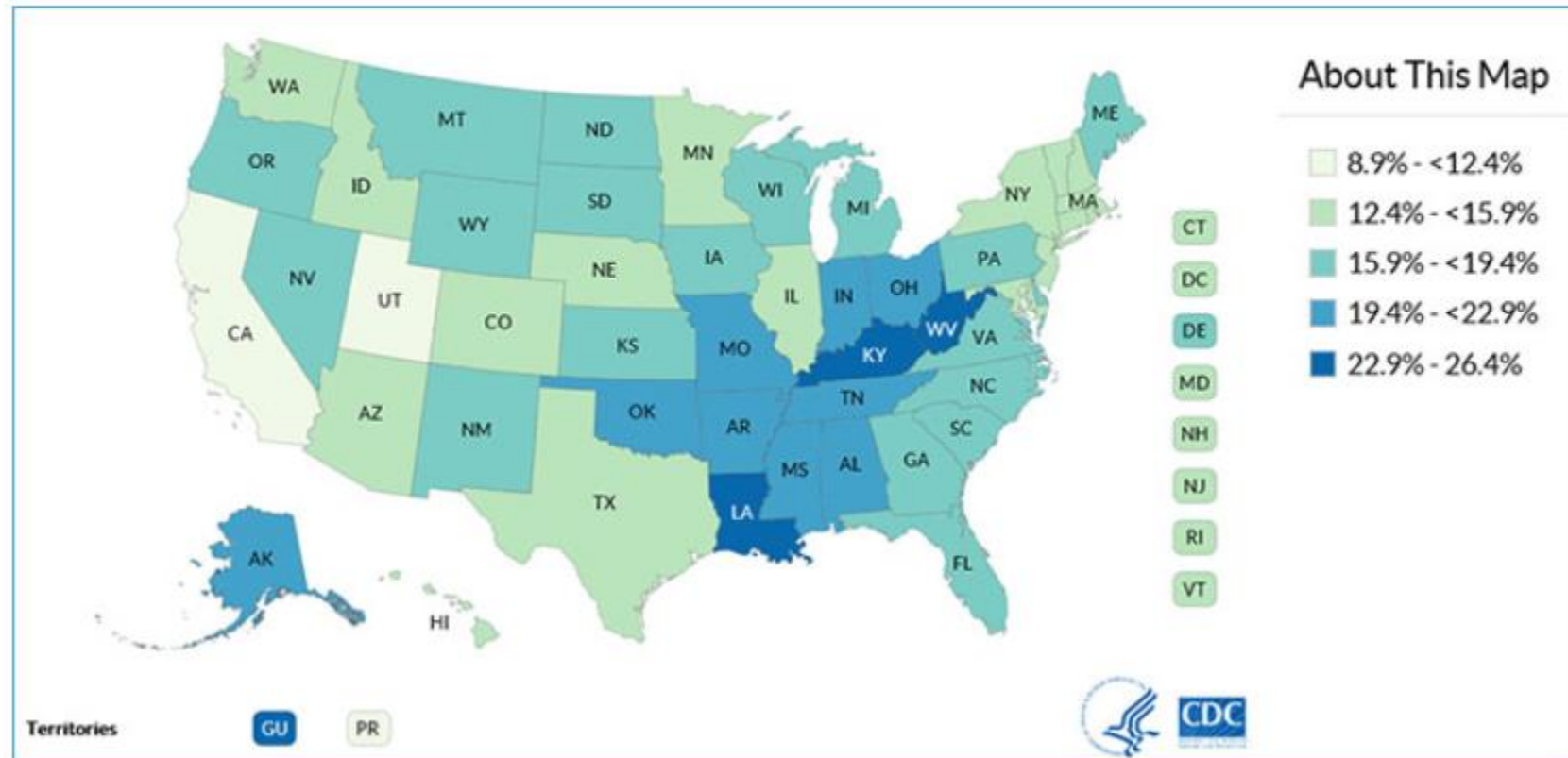
American Indians,  
Alaska Natives and  
Multiracial



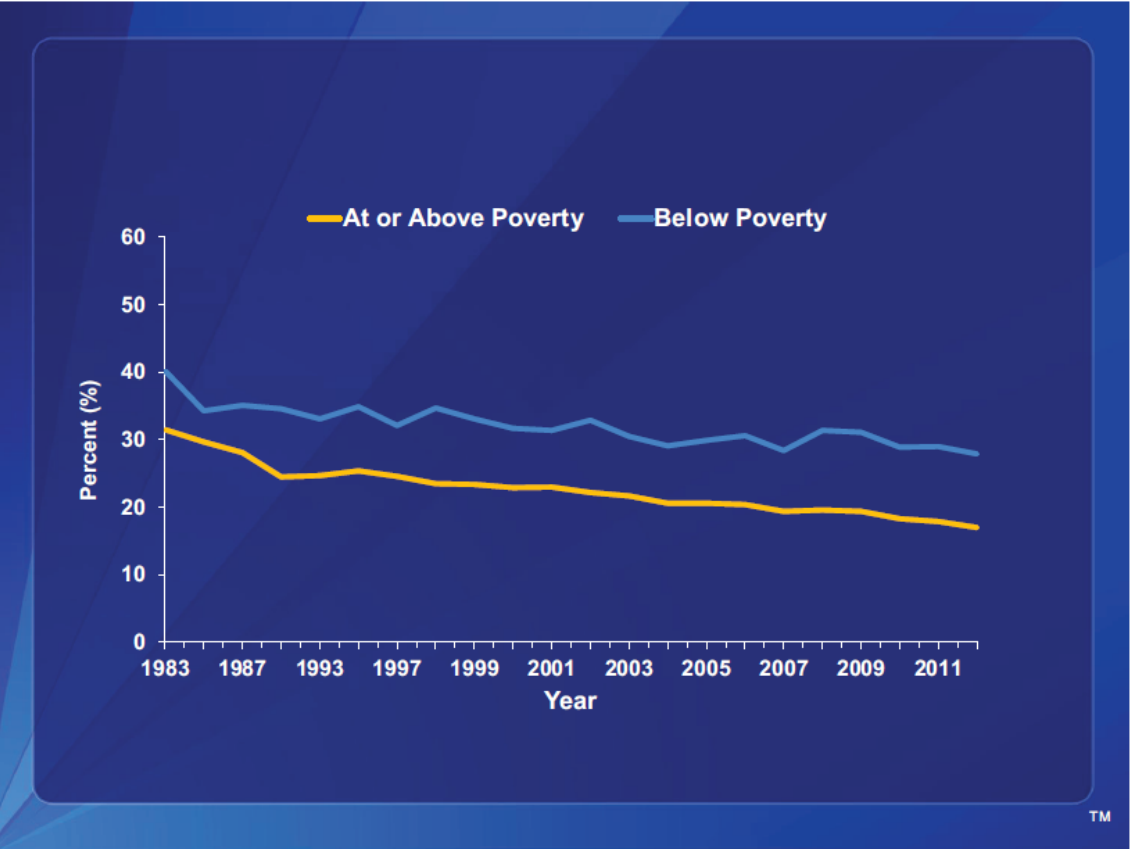
Lesbians, gays,  
and bisexuals

# Midwest and South of US

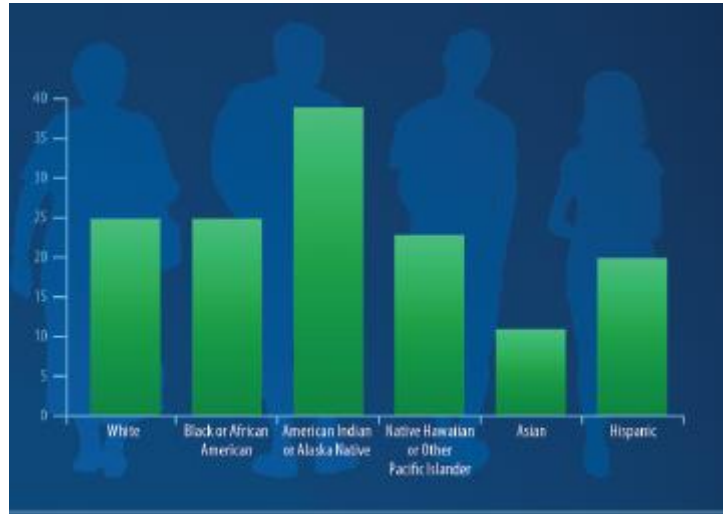
In 2017, current smoking ranged from nearly 9 of every 100 adults in Utah (8.9%) to 26 of every 100 adults in West Virginia (26.0%).<sup>3</sup>



# Lower SES



# Marginalized and stigmatized populations



# Industry targeting

Addictive Behaviors 95 (2019) 189–196



ELSEVIER

Contents lists available at ScienceDirect

Addictive Behaviors

journal homepage: [www.elsevier.com/locate/addictbeh](http://www.elsevier.com/locate/addictbeh)



## Online tobacco marketing among US adolescent sexual, gender, racial, and ethnic minorities



Samir Soneji<sup>a,b,\*</sup>, Kristin E. Knutzen<sup>b</sup>, Andy S.L. Tan<sup>c,d</sup>, Meghan Bridgid Moran<sup>e</sup>, JaeWon Yang<sup>f</sup>, James Sargent<sup>a,b</sup>, Kelvin Choi<sup>g</sup>

<sup>a</sup> Dartmouth-Hitchcock Norris Cotton Cancer Center, Geisel School of Medicine at Dartmouth, Lebanon, NH, United States of America

<sup>b</sup> The Dartmouth Institute for Health Policy & Clinical Practice, Geisel School of Medicine at Dartmouth, Hanover, NH, United States of America

<sup>c</sup> Division of Population Sciences, Dana-Farber Cancer Institute, United States of America

<sup>d</sup> Department of Social and Behavioral Sciences, Harvard T.H. Chan School of Public Health, Boston, MA, United States of America

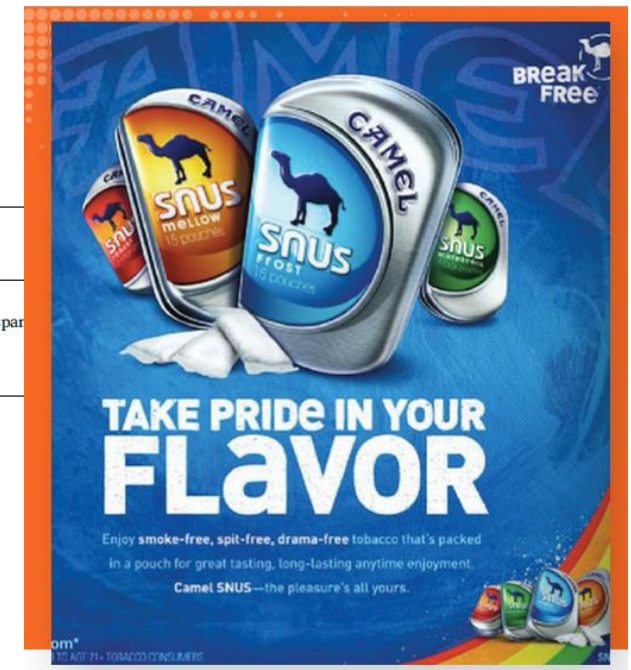
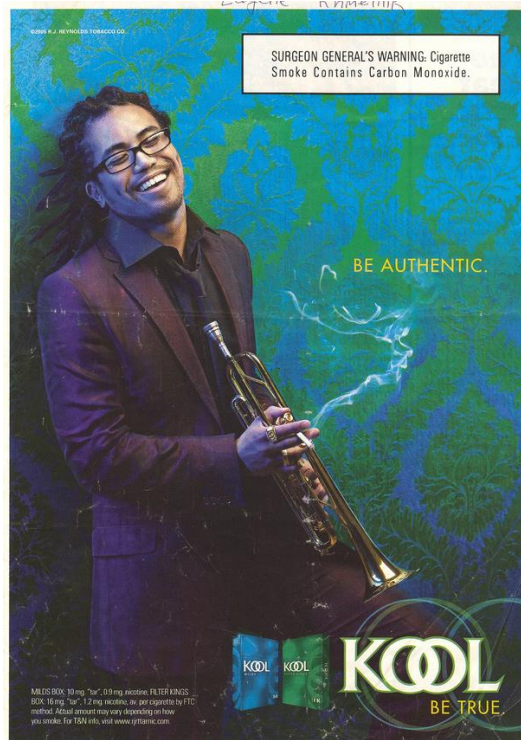
<sup>e</sup> Department of Health, Behavior and Society, Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD, United States of America

<sup>f</sup> Warren Alpert Medical School of Brown University, Providence, RI, United States of America

<sup>g</sup> Division of Intramural Research, National Institute on Minority Health and Health Disparities, Bethesda, MD, United States of America

### HIGHLIGHTS

- Leading form of engagement with online tobacco marketing was watching videos about tobacco products.
- Sexual/gender and racial/ethnic minority adolescents face higher risk of engaging with online tobacco marketing compared to their straight and non-Hispanic white counterparts.
- This risk may worsen existing disparities in tobacco use among some of these populations.



United States



Preventing Underage Use

Minimum age as stipulated by local laws.

**WARNING:** This product is intended to be used with e-liquid products containing nicotine. Nicotine is an addictive chemical.



smok\_tech • Following  
New York, New York



smok\_tech Big giveaway coming alert! ⚠️  
Are you ready? 😊  
Name top 6 items that you most wanted from the picture! 🙌  
We will pack it up and throw a huge vape contest soon after we got feedback from you guys! 🙌  
So chop-chop, leave your choices on the comment section! 😊  
#smok #toiletpaper #smoktech #smokshow #mask #sanitizer #facemasks #toiletroll #rpm80 #smokalike #rpm80pro #fetchpro #smoknord2 #smokhat #smoktshirt #smokfan #giveaway #giveaways #socialdistancing #stayhome #vapegiveaway

19h



3,177 likes

19 HOURS AGO

Add a comment...

Post

# Agenda

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Background

Cigarette  
Epidemic

Disparities

Emerging  
Tobacco Products  
And Diseases

“e-cigs,” “e-hookahs,” “mods,” “vape pens,” “vapes,” “tank systems,” and  
“electronic nicotine delivery systems (ENDS)”





# The Evolution of E-Cigarette, or Vaping, Products



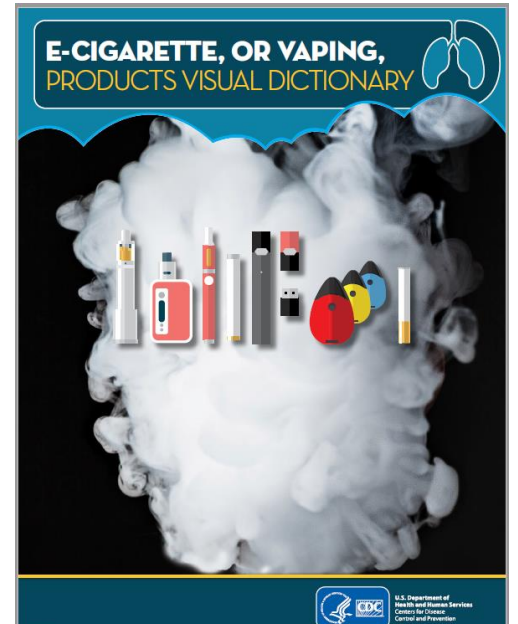
1<sup>st</sup>  
GENERATION

Disposable  
e-cigarettes



2<sup>nd</sup>  
GENERATION

E-cigarettes  
with prefilled  
or refillable  
cartridge



# The Evolution of E-Cigarette, or Vaping, Products



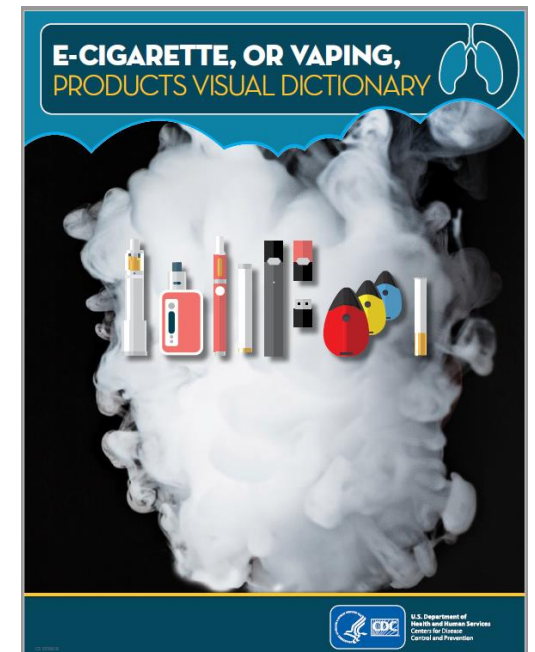
3<sup>rd</sup>  
GENERATION

Tanks or Mods  
(refillable)



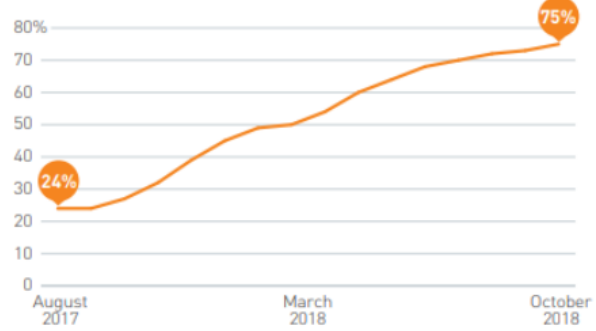
4<sup>th</sup>  
GENERATION

Pod Mods  
(prefilled or  
refillable)



# Fourth Generation

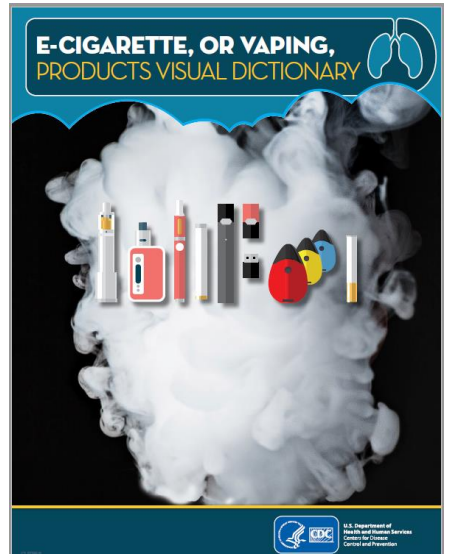
JUUL sales as a percentage of all e-cigarette sales



Source: Nielson: Tobacco "All Channel" Data, August 2017-October 2018



- Nicotine salts, which have a lower pH than free base nicotine, allow particularly high levels of nicotine to be inhaled more easily and with less irritation to the throat than freebase nicotine.



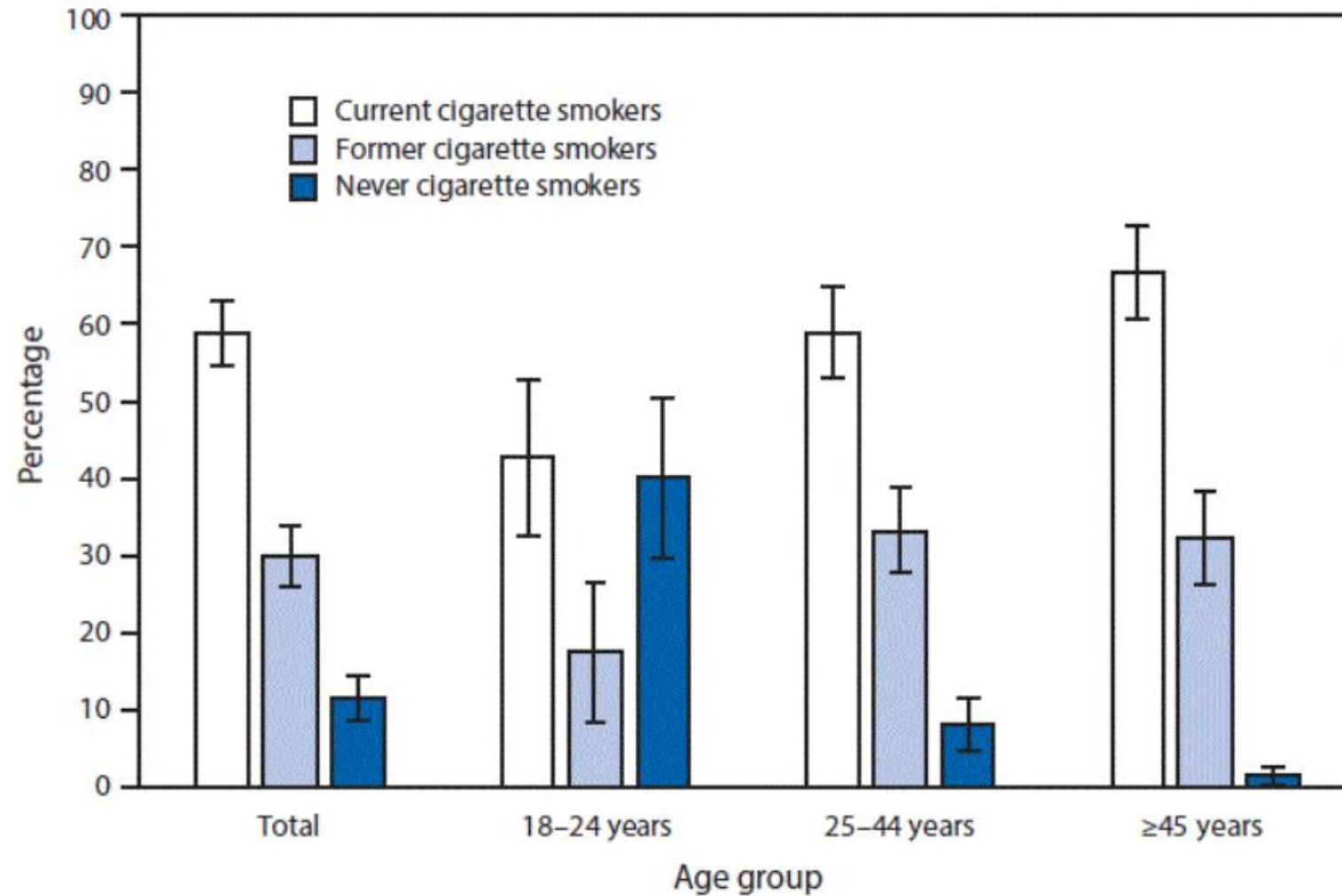
## Electronic Nicotine Delivery System (ENDS)

“E-cigarettes have the **potential** to benefit adult smokers who are not pregnant if used as a **complete substitute** for regular cigarettes and other smoked tobacco products.”

[https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/about-e-cigarettes.html](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/about-e-cigarettes.html)

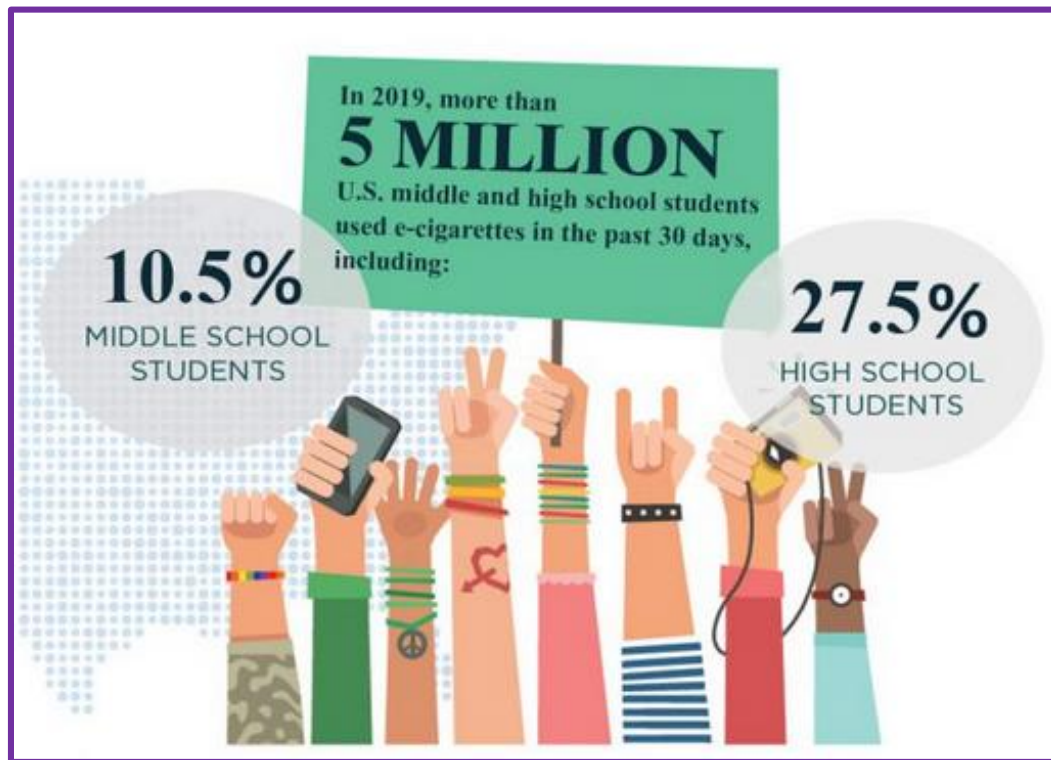
Feb. 24, 2020.

# Only 2.8% of adults in the US were current e-cigarettes users in 2017.



*QuickStats: Cigarette Smoking Status Among Current Adult E-cigarette Users, by Age Group* — National Health Interview Survey, United States, 2015. MMWR Morb Mortal Wkly Rep 2016;65:1177. <https://www.cdc.gov/mmwr/volumes/65/wr/mm6542a7.htm>

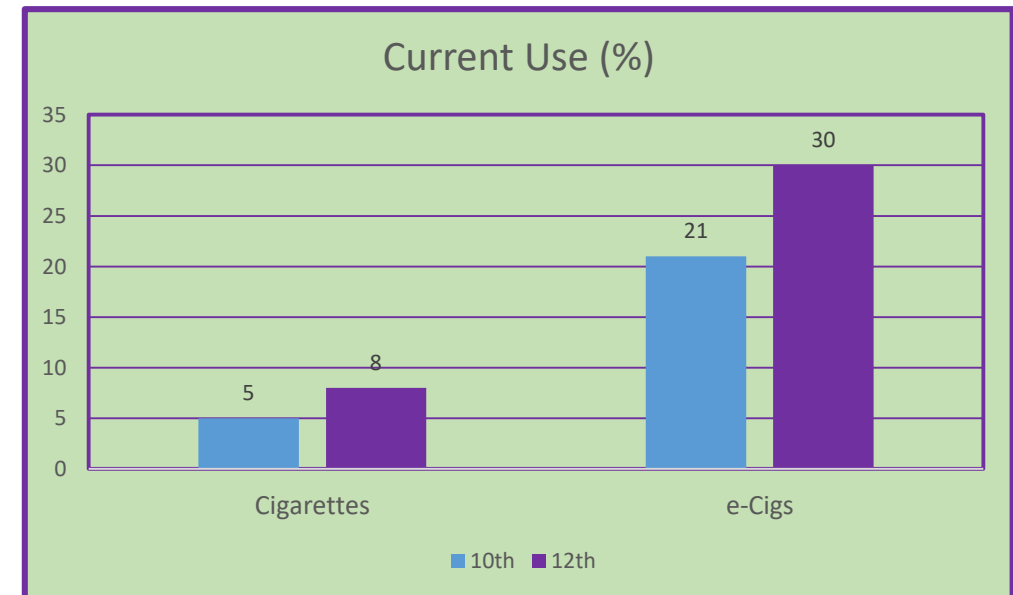
Wang TW, Asman K, Gentzke AS, et al. Tobacco Product Use Among Adults — United States, 2017. MMWR Morb Mortal Wkly Rep 2018;67:1225–1232. DOI: <http://dx.doi.org/10.15585/mmwr.mm6744a2>



[https://www.cdc.gov/tobacco/basic\\_information/e-cigarettes/about-e-cigarettes.html#seven](https://www.cdc.gov/tobacco/basic_information/e-cigarettes/about-e-cigarettes.html#seven)

40% of youth who reported current e-cig use in WA had never used cigarettes

### WA State Health Youth Survey, 2018 \*



(\* <https://www.askhys.net>)

# COVID-19, smoking and vaping

Disparities in smoking may exacerbate  
disparities in viral diseases



RESEARCH ARTICLE

# The impact of COPD and smoking history on the severity of COVID-19: A systemic review and meta-analysis

Qianwen Zhao<sup>1</sup> | Meng Meng<sup>2</sup> | Rahul Kumar<sup>3</sup> | Yinlian Wu<sup>4</sup> |  
Jiaofeng Huang<sup>4</sup> | Ningfang Lian<sup>5</sup> | Yunlei Deng<sup>6</sup> | Su Lin<sup>4</sup>

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## Funding information

Scientific research "Pei Yu" project of Beijing Municipal Hospital Administration, Grant/Award Number: PZ2018011; Chinese

## Abstract

Comorbidities are associated with the severity of coronavirus disease 2019 (COVID-19). This meta-analysis aimed to explore the risk of severe COVID-19 in patients with pre-existing chronic obstructive pulmonary disease (COPD) and ongoing smoking history. A comprehensive systematic literature search was carried out to find studies published from December 2019 to 22 March 2020 from five databases. The languages of literature included English and Chinese. The point prevalence of severe COVID-19 in patients with pre-existing COPD and those with ongoing smoking was evaluated with this meta-analysis. Overall 11 case series, published either in Chinese or English language with a total of 2002 cases, were included in this study. The pooled OR of COPD and the development of severe COVID-19 was 4.38 (fixed-effects model; 95% CI: 2.34-8.20), while the OR of ongoing smoking was 1.98 (fixed-effects model; 95% CI: 1.29-3.05). There was no publication bias as examined by the funnel plot and Egger's test ( $P =$  not significant). The heterogeneity of included studies was moderate for both COPD and ongoing smoking history on the severity of COVID-19. COPD and ongoing smoking history attribute to the worse progression and outcome of COVID-19.

## KEYWORDS

Severe COVID  
COPD

OR= 4.38 (2.34-8.20 CI)

Current smoking

OR= 1.98 (1.29-3.05 CI)



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# Thank you!

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