SMOKING CESSATION

An Overview of the Surgeon General's Report

BRIAN KING, PHD, MPH
DEPUTY DIRECTOR FOR RESEARCH TRANSLATION
OFFICE ON SMOKING AND HEALTH, CDC

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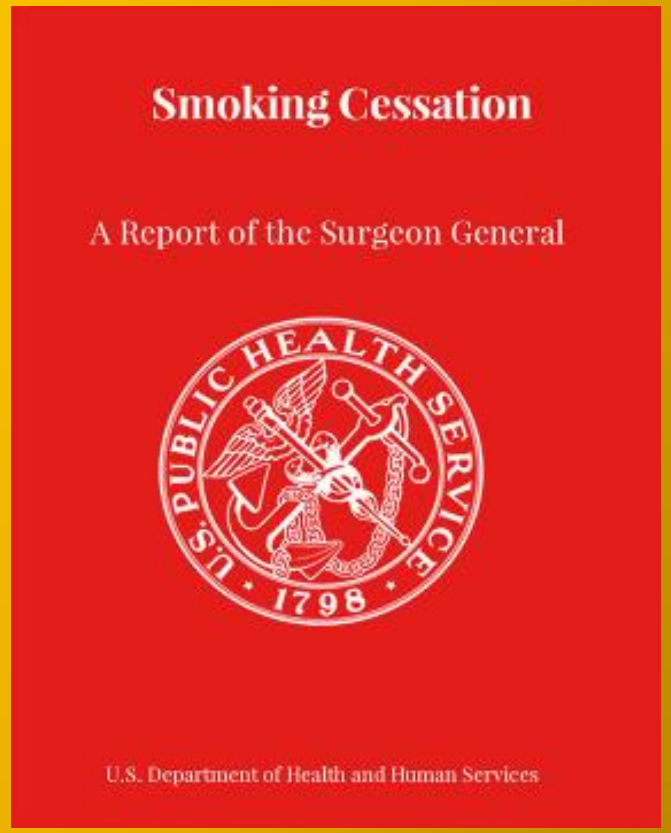


OVER A HALF CENTURY OF DISEASE AND DEATH

34M

An estimated 34.2 million U.S. adults smoked in 2018.

1 vs. 30

For every one smoking-related death, at least 30 people live with a serious smoking-related illness.

480,000

Cigarette smoking and secondhand smoke exposure kill about 480,000 Americans each year.

$300B

Each year, smoking costs more than $300 billion in medical costs and lost productivity.

Source: The health consequences of smoking – 50 years of progress: a report of the Surgeon General. – Atlanta, GA. : U.S. Department of Health and Human Services, CDC, Office on Smoking and Health, 2014.

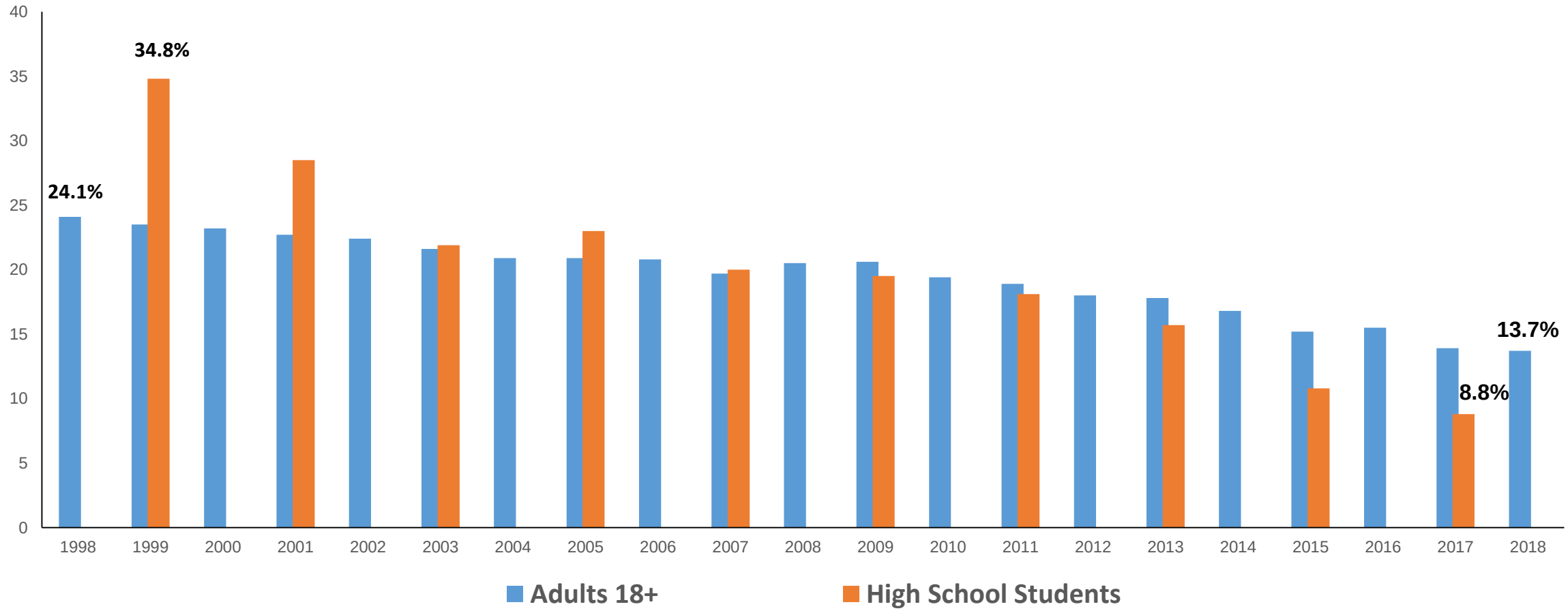
COVID19 AND SMOKING

- Available scientific evidence largely indicates that cigarette smoking increases disease severity among patients with COVID-19.

- Available scientific evidence is inadequate to infer whether cigarette smoking is associated with risk of SARS-CoV-2 infection.

- Further research is warranted to assess the relationship between smoking and COVID-19 outcomes, as well as the potential role that nicotine could play in this relationship, including nicotine exposure through combustible tobacco smoking (cigars, hookah, other pipes), e-cigarette use, and secondhand smoke or secondhand aerosol exposure.

GOOD NEWS: CIGARETTE SMOKING IS DOWN IN THE U.S.



Source: National Health Interview Survey; National Youth Risk Behavior Survey

BAD NEWS: DISPARITIES PERSIST

Current Cigarette Smoking Among U.S. Adults, 2018

Race/Ethnicity

22.6% American Indians
15% White

Education Level

36% GED
3.7% Graduate degree

Annual Household Income

21.3% <$35,000
7.3% ≥$100,000

Health Insurance Coverage

23.9% Uninsured
23.9% Medicaid
10.5% Private
9.4% Medicare

Disability/Limitation

19.2% Yes
13.1% No

Sexual Orientation

20.6% Lesbian/Gay/Bisexual
13.5% Heterosexual

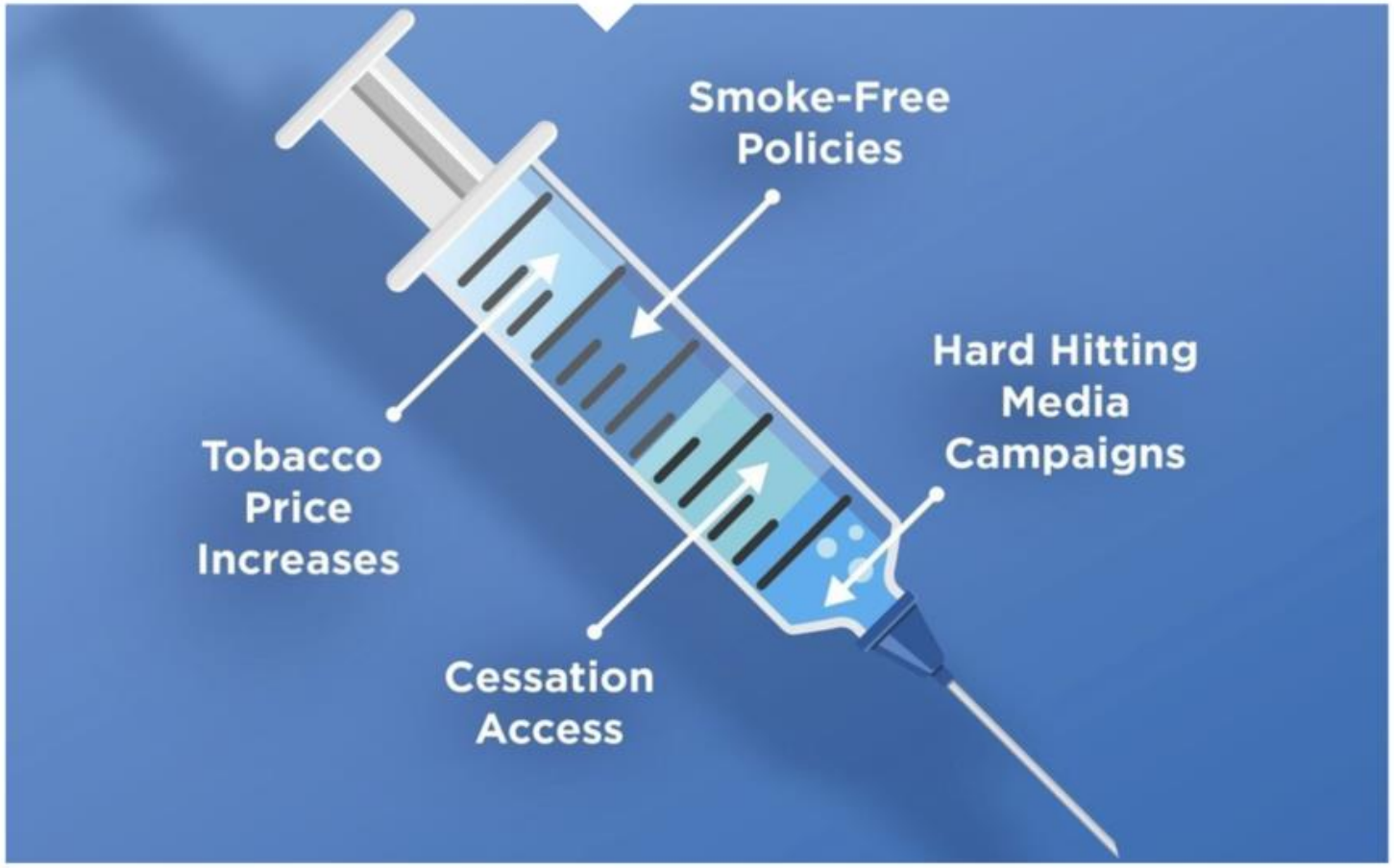
Serious Psychological Distress

31.6% Yes
13.0% No

Source: Creamer MC et al. Tobacco Product Use and Cessation Indicators Among Adults – United States, 2018. MMWR 2019;68:1013-1019.

WE KNOW WHAT WORKS

THE TOBACCO CONTROL VACCINE



Source: King BA, Graffunder C. The Tobacco Control Vaccine: a population-based framework for preventing tobacco-related disease and death. Tobacco Control 2018;27:123-124.

SURGEON GENERAL'S REPORTS ON TOBACCO RELEASED TO DATE

1964 — Smoking and Health

1979 — 15th Anniversary

1986 — Involuntary Smoking

1988 — Nicotine Addiction

1990 — Benefits of Cessation

1992 — Smoking in the Americas

1994 — Youth Prevention

1998 — Racial and Ethnic Minorities

2000 — Reducing Tobacco Use

2001 — Women and Smoking

2004 — Health Effects

2006 — Secondhand Smoke

2010 — Mechanisms of Disease

2012 — Youth Prevention (update)

2014 — 50th Anniversary

2016 — E-cigarette Use (Youth/Young Adults)

2020 — Smoking Cessation

2020 SURGEON GENERAL'S REPORT

More than 150 individuals involved, including 32 chapter authors, 46 peer reviewers, 20 senior scientists contributed to the compilation and review of the report

8 Comprehensive chapters consisting of more than 700 pages of the latest scientific evidence on smoking cessation

10 Major Conclusions

101 Chapter Conclusions

OVERVIEW OF SURGEON GENERAL'S REPORT CONTENT

Chapter 1
1 Introduction, Conclusions, and the Evolving Landscape of Smoking Cessation

Chapter 2
2 Patterns of Smoking Cessation Among U.S. Adults, Young Adults, and Youth

Chapter 3
3 New Biological Insights into Smoking Cessation

Chapter 4
4 The Health Benefits of Smoking Cessation

Chapter 5
5 The Benefits of Smoking Cessation on Overall Morbidity, Mortality, and Economic Costs

Chapter 6
6 Interventions for Smoking Cessation and Treatments for Nicotine Dependence

Chapter 7
7 Clinical-, System-, and Population-Level Strategies that Promote Smoking Cessation

Chapter 8
8 Vision for the Future

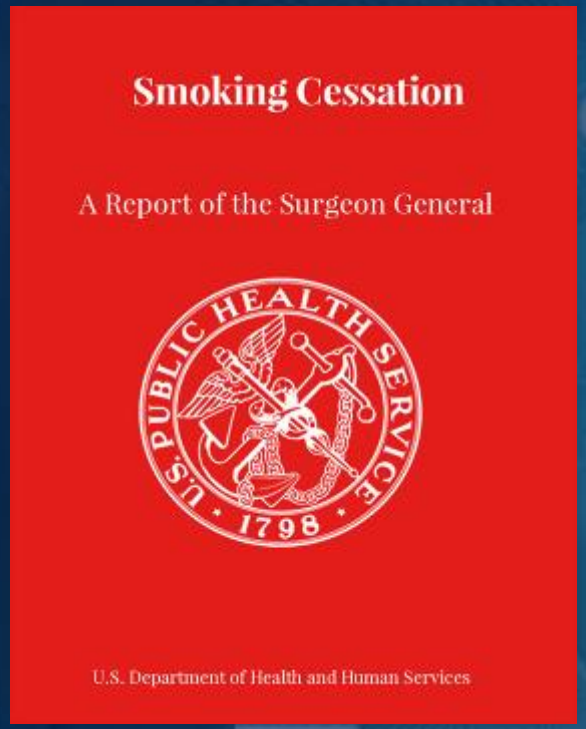
CHAPTER

1

INTRODUCTION, CONCLUSIONS, AND THE EVOLVING LANDSCAPE OF SMOKING CESSATION

Chapter 1 provides a summary of the Surgeon General's report and its major conclusions, followed by the conclusions from each chapter. It also offers an overview of the evolving landscape of smoking cessation and key developments since the 1990 Surgeon General's report.

10 Major Conclusions



1. Smoking cessation is beneficial at any age. Smoking cessation improves health status and enhances quality of life.
2. Smoking cessation reduces the risk of premature death and can add as much as a decade to life expectancy.
3. Smoking places a substantial financial burden on smokers, healthcare systems, and society. Smoking cessation reduces this burden, including smoking-attributable healthcare expenditures.
4. Smoking cessation reduces risk for many adverse health effects, including reproductive health outcomes, cardiovascular diseases, chronic obstructive pulmonary disease, and cancer. Quitting smoking is also beneficial to those who have been diagnosed with heart disease and chronic obstructive pulmonary disease.
5. More than three out of five U.S. adults who have ever smoked cigarettes have quit. Although a majority of cigarette smokers make a quit attempt each year, less than one-third use cessation medications approved by the U.S. Food and Drug Administration (FDA) or behavioral counseling to support quit attempts.
6. Considerable disparities exist in the prevalence of smoking across the U.S. population, with higher prevalence in some subgroups. Similarly, the prevalence of key indicators of smoking cessation — quit attempts, receiving advice to quit from a health professional, and using cessation therapies — also varies across the population, with lower prevalence in some subgroups.
7. Smoking cessation medications approved by the U.S. Food and Drug Administration (FDA) and behavioral counseling are cost-effective cessation strategies. Cessation medications approved by the FDA and behavioral counseling increase the likelihood of successfully quitting smoking, particularly when used in combination. Using combinations of nicotine replacement therapies can further increase the likelihood of quitting.
8. Insurance coverage for smoking cessation treatment that is comprehensive, barrier-free, and widely promoted increases the use of these treatment services, leads to higher rates of successful quitting, and is cost-effective.
9. E-cigarettes, a continually changing and heterogeneous group of products, are used in a variety of ways. Consequently, it is difficult to make generalizations about efficacy for cessation based on clinical trials involving a particular e-cigarette, and there is presently inadequate evidence to conclude that e-cigarettes, in general, increase smoking cessation.
10. Smoking cessation can be increased by raising the price of cigarettes, adopting comprehensive smokefree policies, implementing mass media campaigns, requiring pictorial health warnings, and maintaining comprehensive statewide tobacco control programs.

CHAPTER

2

PATTERNS OF SMOKING CESSATION AMONG U.S. ADULTS, YOUNG ADULTS, AND YOUTH

Chapter 2 documents key patterns and trends in cigarette smoking cessation in the United States. It also reviews the changing demographic and smoking-related characteristics of cigarette smokers, with a focus on how these changes may influence future trends in cessation.

- **18 YEARS OF AGE AND OLDER**
  Adults Overall
- **18–24 YEARS OF AGE**
  Young Adults
- **12–17 YEARS OF AGE**
  Youth

KEY CONCLUSIONS

- In the U.S., more than three out of every five adults who were ever cigarette smokers have quit smoking.
- Past-year attempts and recent and longer-term cessation have increased over the past 2 decades among adult cigarette smokers.
- Use of evidence-based cessation counseling and/or medications has increased among adult cigarette smokers since 2000; however, more than two-thirds of adult cigarette smokers who tried to quit during the past year did not use evidence-based treatment.
- Advice from health professionals to quit smoking has increased since 2000; however, four out of every nine adult cigarette smokers who saw a health professional during the past year did not receive advice to quit.
- A large proportion of adult smokers report using non-evidence-based approaches when trying to quit smoking, such as switching to other tobacco products.
- Marked disparities in cessation behaviors, such as making a past-year quit attempt and achieving recent successful cessation, persist across certain population subgroups defined by educational attainment, poverty status, age, health insurance status, race/ethnicity, and geography.

KEY DISPARITIES IN CESSATION

QUIT ATTEMPT	
69.4%	Asian
63.4%	Black
56.2%	Hispanic
53.3%	White
52.1%	American Indian/Alaska Native

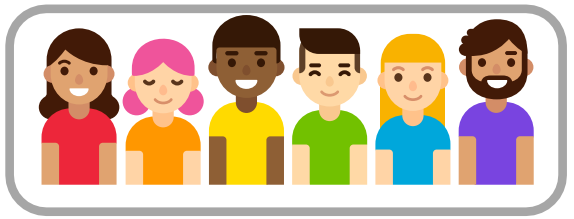
QUIT SUCCESS	
9.4%	Private insurance
5.9%	Medicaid
5.2%	Uninsured

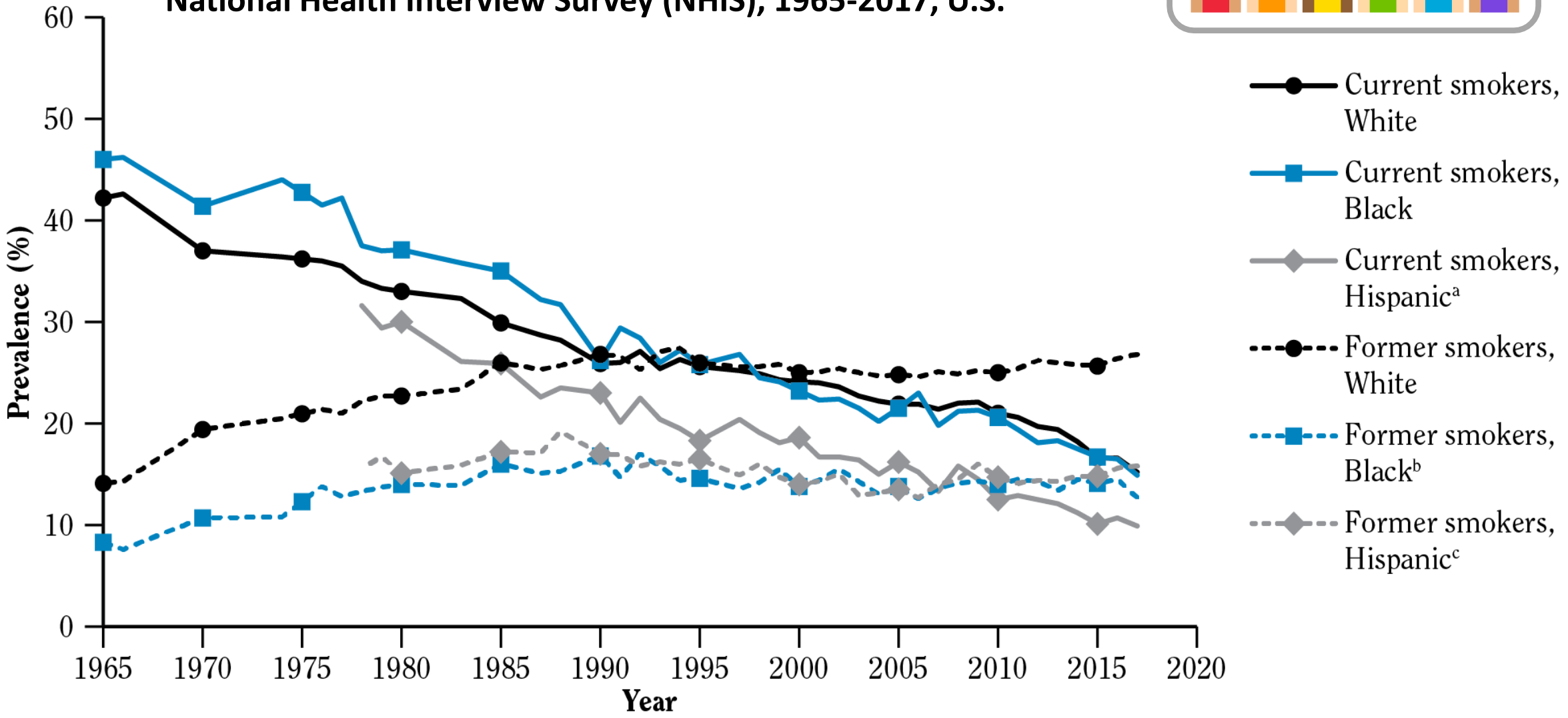
USE OF EVIDENCE-BASED TREATMENT	
34.3%	White
28.9%	Black
20.5%	Asian
19.2%	Hispanic
31.7%	Straight
14.5%	LGB
32.1%	Private insurance
21.4%	Uninsured

CLINICAL ADVICE	
60.2%	White
55.7%	Black
42.2%	Hispanic
34.2%	Asian
38.1%	Am. Indian/Alaska Native
32.1%	Private insurance
21.4%	Uninsured

Source: NHIS, 2015.

Trends in prevalence (%) of current and former cigarette smoking among adults 18 years of age and older, by race/ethnicity; National Health Interview Survey (NHIS), 1965-2017; U.S.





Source: NHIS, National Center for Health Statistics, public use data, 1965–2017.

CHAPTER

3

NEW BIOLOGICAL INSIGHTS INTO SMOKING CESSATION

Chapter 3 focuses on how biology can influence smoking cessation and reviews four areas of intensive research: cell and molecular biology of nicotine addiction; vaccines and other immunotherapies as treatments for tobacco addiction; neurobiological insights into smoking cessation; and the role genes play in smoking, nicotine addition, and cessation.

BIOLOGICAL INSIGHTS

1

Cell and Molecular Biology of Nicotine Addiction

2

Vaccines and Other Immunotherapies as Treatments for Tobacco Addiction

3

Insights into Smoking Cessation from the Field of Neurobiology

4

Genetic Studies of Smoking Phenotypes

The evidence is suggestive but not sufficient to infer that :

- Increasing glutamate transport can alleviate nicotine withdrawal symptoms and prevent relapse.
- Modulating the function of certain neuropeptides can reduce smoking behavior in humans, as neuropeptide systems play a role in multiple stages of the nicotine addiction process adult cigarette smokers.
- Targeting the habenulo-interpeduncular pathway with agents that increase the aversive properties of nicotine are a useful therapeutic target for smoking cessation.
- Vaccines generating adequate levels of nicotine-specific antibodies can block the addictive effects of nicotine and aid smoking cessation.
- Dysregulated brain circuits, including prefrontal and cingulate cortical regions and their connections with various striatal and insula loci, can serve as novel therapeutic targets for smoking cessation.
- The effectiveness of nicotine replacement therapy may vary across specific genotype groups.

CHAPTER

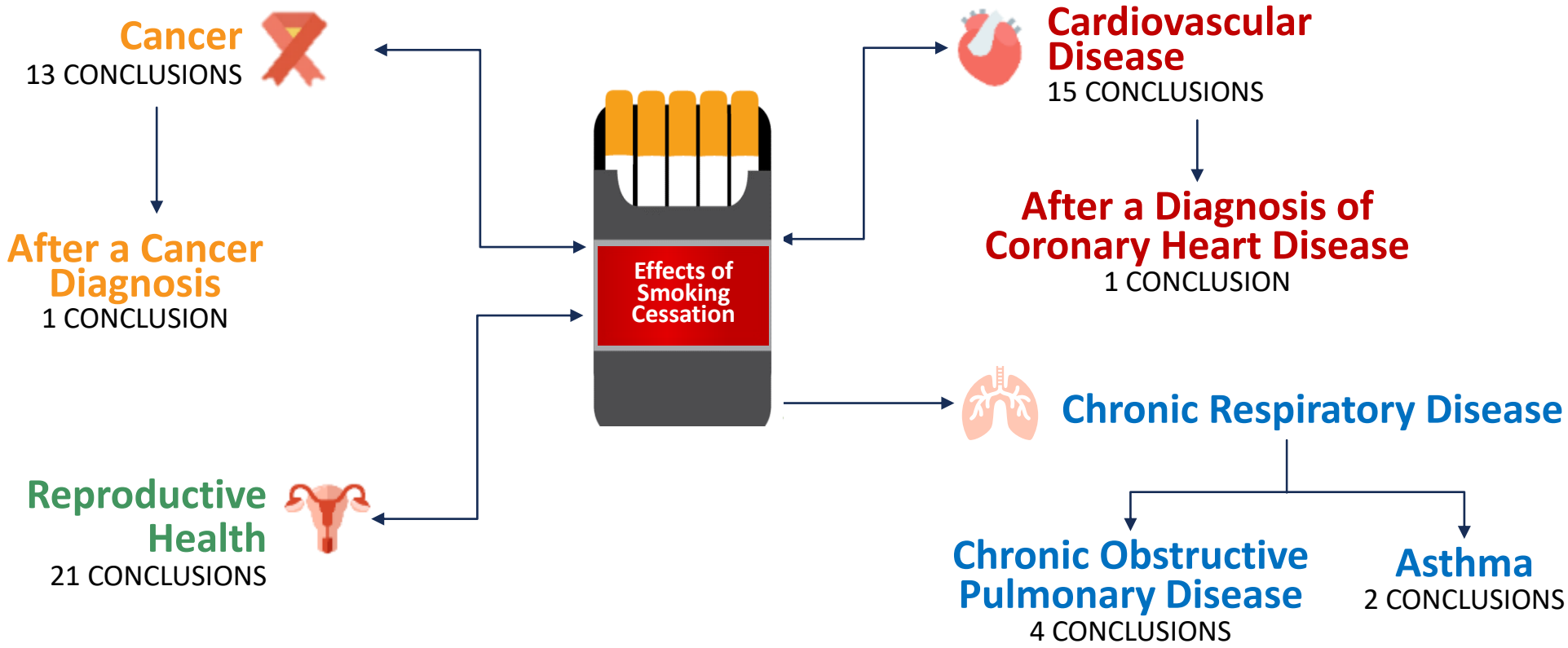
4

THE HEALTH BENEFITS OF SMOKING CESSATION

Chapter 4 reviews findings on disease risks from smoking and how these risks change after smoking cessation for major types of chronic diseases, including cancer, cardiovascular and respiratory systems, and a wide range of adverse reproductive outcomes.

SMOKING CESSATION REDUCES RISKS FROM SMOKING

The evidence is sufficient to infer that smoking cessation reduces the following:



CANCER
CONCLUSIONS 1-13

The evidence is **sufficient** to infer that smoking cessation reduces the risk of the following:

1	Lung cancer
2	Laryngeal cancer
3	Oral Cavity/Pharynx cancer
4	Esophageal cancer
5	Pancreatic cancer
6	Bladder cancer
7	Stomach cancer
8	Colorectal cancer
9	Liver cancer
10	Cervical cancer
11	Kidney cancer
12	Acute Myeloid Leukemia

13	Additionally, the evidence is **sufficient** to infer that the relative risk of lung cancer decreases steadily after smoking cessation compared with the risk for persons continuing to smoke, with risk decreasing to half that of continuing smokers approximately **10–15 years** after smoking cessation and decreasing further with continued cessation.

CHAPTER

5

THE BENEFITS OF SMOKING CESSATION ON OVERALL MORBIDITY, MORTALITY, AND ECONOMIC COSTS

Chapter 5 highlights how quitting smoking can lead to changes in quality of life, health status, overall mortality, and lifespan. It also documents the cost-effectiveness of smoking cessation interventions.

HEALTH AND COST BENEFITS OF SMOKING CESSATION INTERVENTIONS

Smoking cessation improves well-being, including higher quality of life and improved health status.

Smoking cessation reduces mortality and increases the lifespan.

Smoking exacts a high cost for smokers, healthcare systems, and society.

Smoking cessation interventions are cost effective.

CHAPTER

6

INTERVENTIONS FOR SMOKING CESSATION AND TREATMENTS FOR NICOTINE DEPENDENCE

Chapter 6 reviews the evidence on current and emerging treatments for smoking cessation, including research that has been conducted since the 2008 U.S. Public Health Service's Clinical Practice Guideline, *Treating Tobacco Use and Dependence: 2008 Update.*

PROVEN TREATMENTS FOR SMOKING CESSATION

- Behavioral counseling and cessation medication interventions increase smoking cessation compared with self-help materials or no treatment.
- Behavioral counseling and cessation medications are independently effective in increasing smoking cessation, and even more effective when used in combination.
- Proactive quitline counseling, when provided alone or in combination with cessation medications, increases smoking cessation.

E-CIGARETTES

Figure 6.1 The Evolution of E-cigarettes, by Product Generation and Characteristics

- The evidence is inadequate to infer that e-cigarettes, in general, increase smoking cessation.
- The evidence is suggestive but not sufficient to infer that the use of e-cigarettes containing nicotine is associated with increased smoking cessation compared with the use of e-cigarettes not containing nicotine.
- The evidence is suggestive but not sufficient to infer that more frequent use of e-cigarettes is associated with increased smoking cessation compared with less frequent use of e-cigarettes.

CHAPTER

7

CLINICAL-, SYSTEM-, AND POPULATION-LEVEL STRATEGIES THAT PROMOTE SMOKING CESSATION

Chapter 7 focuses on strategies that encourage smoking cessation through actions taken within clinical settings, within health systems, and at the population level.

CLINICAL- AND HEALTH SYSTEM-BASED STRATEGIES

- The development and dissemination of evidence-based clinical practice guidelines increases the delivery of clinical interventions for smoking cessation.
- The adequate promotion of comprehensive, barrier-free, evidence-based cessation insurance coverage increases the availability and utilization of treatment services for smoking cessation.
- Strategies that link smoking cessation-related quality measures with payments to clinicians, clinics, or health systems increase the rate of delivery of clinical treatments for smoking cessation.
- Tobacco quitlines are an effective population-based approach to motivate quit attempts and increase smoking cessation.

POPULATION-BASED STRATEGIES

The evidence is sufficient to infer that:

Increasing the price of cigarettes reduces smoking prevalence, reduces cigarette consumption, and increases smoking cessation.

Smokefree policies reduce smoking prevalence, reduce cigarette consumption, and increase smoking cessation.

Mass media campaigns increase the number of calls to quitlines and increase smoking cessation.

Comprehensive state tobacco control programs reduce smoking prevalence, increase quit attempts, and increase smoking cessation.

Large, pictorial health warnings increase smokers' knowledge about the health harms of smoking, interest in quitting, and quit attempts and decrease smoking prevalence.

EMERGING POPULATION-BASED STRATEGIES

The evidence is suggestive but not sufficient to infer that:

Plain packaging increases smoking cessation.

Decreasing the retail availability of tobacco products and exposure to point-of-sale tobacco marketing and advertising increases smoking cessation.

Restricting the sale of certain types of tobacco products, such as menthol and other flavored products, increases smoking cessation, especially among certain populations.

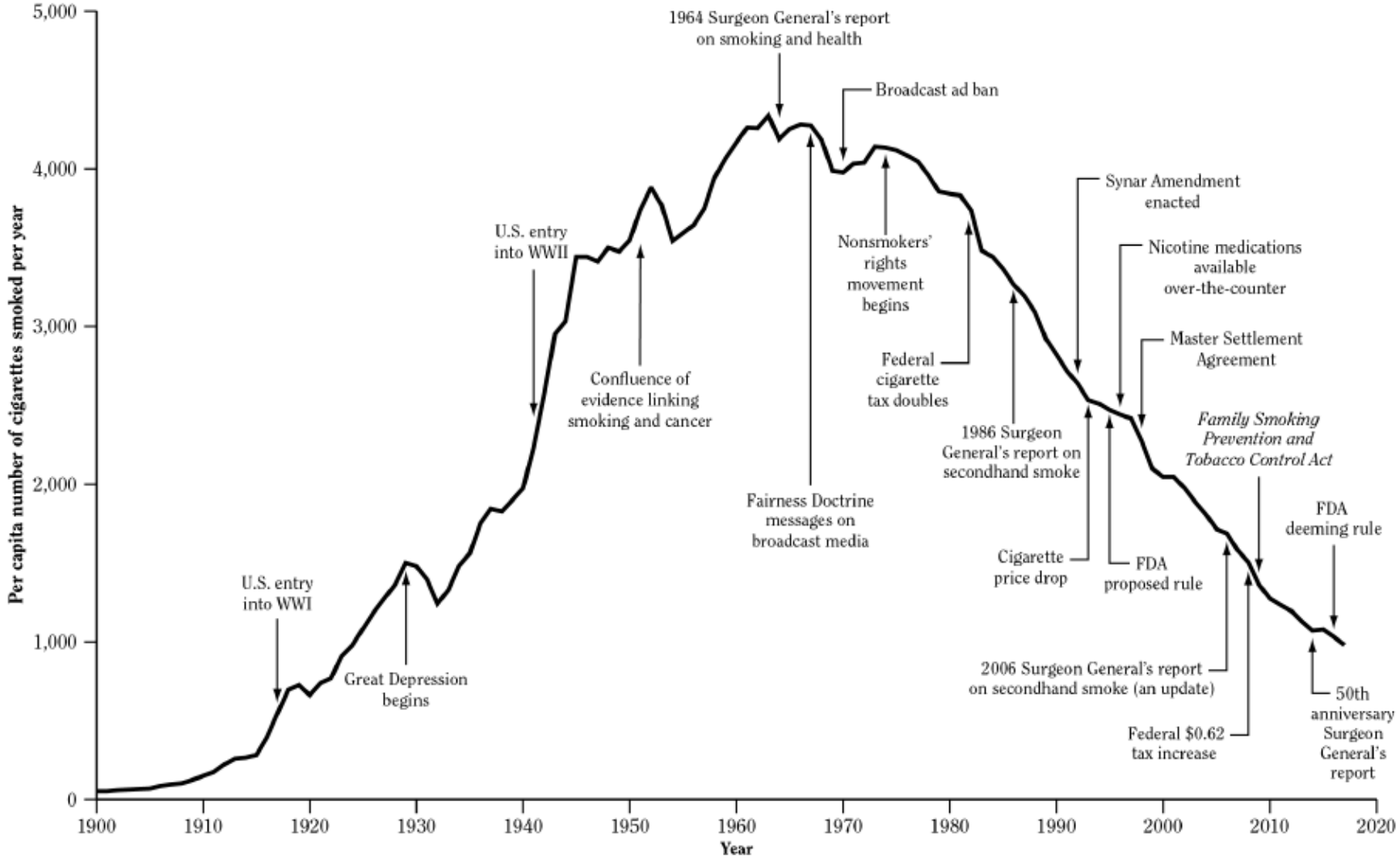
CHAPTER

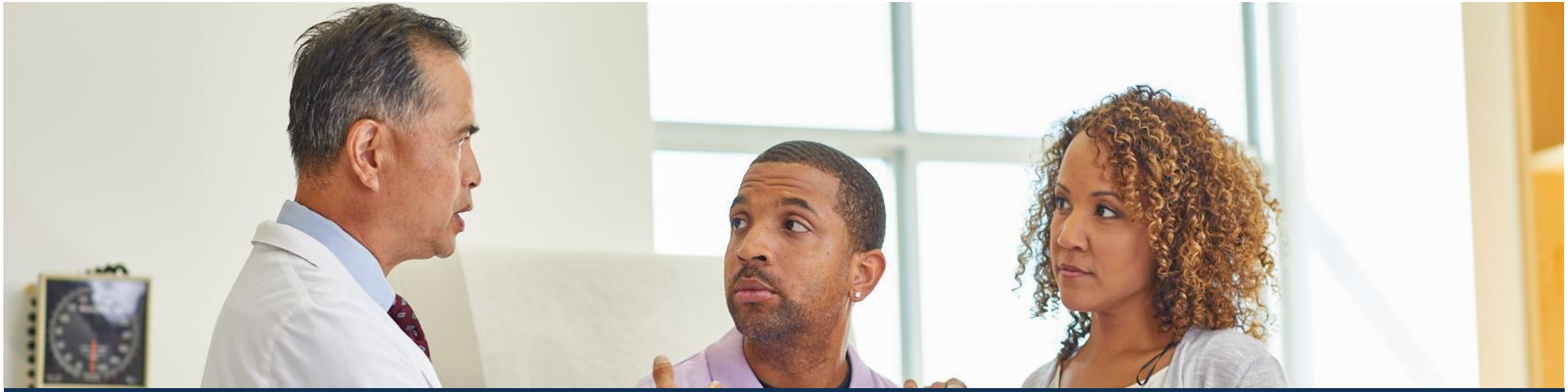
8

VISION FOR THE FUTURE

Chapter 8 discusses the past, present, and future of tobacco cessation in the United States. It provides a historical perspective, discusses the current tobacco control landscape, and provides a vision for enhancing tobacco cessation in the Unites States.

Figure 8.1.Per capita annual cigarette consumption among adults, 18 years of age and older, and major smoking and health events in the United States, 1900–2017





KEY TAKEAWAYS FROM THIS REPORT

- 34 million adults in the United States still smoke and therefore continue to be at risk of developing smoking-related diseases.
- One of the most important actions people can take to improve their health is to quit smoking—this is true regardless of their age or how long they've been smoking.
- There are proven treatments and strategies to help people quit smoking successfully.
- In addition to ensuring people have access to the interventions we know work, it's also important that we continue to explore novel strategies to help people quit.
- As a nation we can and must do more to ensure that proven cessation treatments are reaching the people that need them.

RESOURCES

To read the full report and access related materials, visit:

www.SurgeonGeneral.gov

www.CDC.gov/CessationSGR