PRINCIPLES OF

TOBACCO

CONTROL

EXTINGUISHING THE HABIT

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EXTINGUISHING THE HABIT

Principles of Tobacco Control

Extinguishing the Habit

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2016

Acknowledgments

Support for this book has been provided in part by Truth Initiative®, formerly the American Legacy Foundation. The information, views, and opinions contained herein do not necessarily reflect the views and opinions of Truth Initiative or of Georgia State University.

Special thanks to the School of Public Health at Georgia State University for dedicating additional resources and staffing to complete *Extinguishing the Habit: Principles of Global Tobacco Control*.

Georgia State personnel participating in this project include: Missale Ayele, Elizabeth Majestic, Amanda Gailey, Lauren Clark, and Samantha Wotiz.

Designed by Georgia State University's Center for Instructional Innovation. Assistant Director of Course and Program Design: Justin Lonsbury; Design Lead & Manager: Will Kerr; Layout, Charts, Infographics: Jon Ciliberto; Charts, Graphics, Cover Design: Ryan Cagle; Charts, Layout: Valerie Robin; Edits: Yu-Ju (Sharon) Lin.

This project would not have been possible without the exceptional design team at Georgia State University's Center for Instructional Innovation, especially Will Kerr, who dedicated much time, resources and effort to the creation and success of this e-book.

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Chapter 1

Harm From Tobacco Use and Secondhand Smoke

Chapter Objectives

1. Distinguish between harm caused by primary smoke and secondhand smoke.
2. Estimate stages of the epidemic curve of tobacco-related mortality.
3. Recognize the Surgeon General's Report as the authority in establishing causality between diseases and smoking.
4. Describe the relationship between lung cancer and active smoking or exposure to secondhand smoke.
5. Recognize the dose-response relationship between smoking and morbidity/mortality.
6. Explain how combustion is the primary mechanism of action causing harm.

Section 1 - Cigarettes are Instruments of Death

It is difficult to exaggerate the harm that cigarettes have caused to the human race. Robert Proctor, a historian at Stanford University, recently published a book titled The Golden Holocaust: Origins of the Cigarette Catastrophe and the Case for Abolition, in which he refers to cigarettes as "the deadliest artifact in the history of human civilization." The cigarette, remarks Proctor, is "the only consumer product that kills when used as directed." In 2016, even tobacco giant Philip Morris USA is compelled to agree "with the overwhelming medical and scientific consensus that cigarette smoking causes lung cancer, heart disease, emphysema and other serious diseases in smokers." And it is just as widely known that half of lifetime smokers will die of a tobacco-related disease.

The 20th century has been called the "cigarette century" due to the pervasive impact that smoking has had on public health, as well as on the culture and politics of this period (Movie 1.1). The tobacco epidemic has left an indelible mark on every country in the world, and in this chapter, we will examine global trends in tobacco use and its impact, as well as country-specific studies.

Movie 1.1 Why You Should Quit Commercial

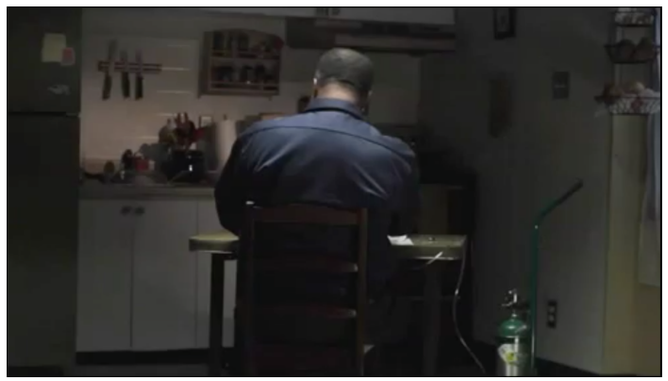
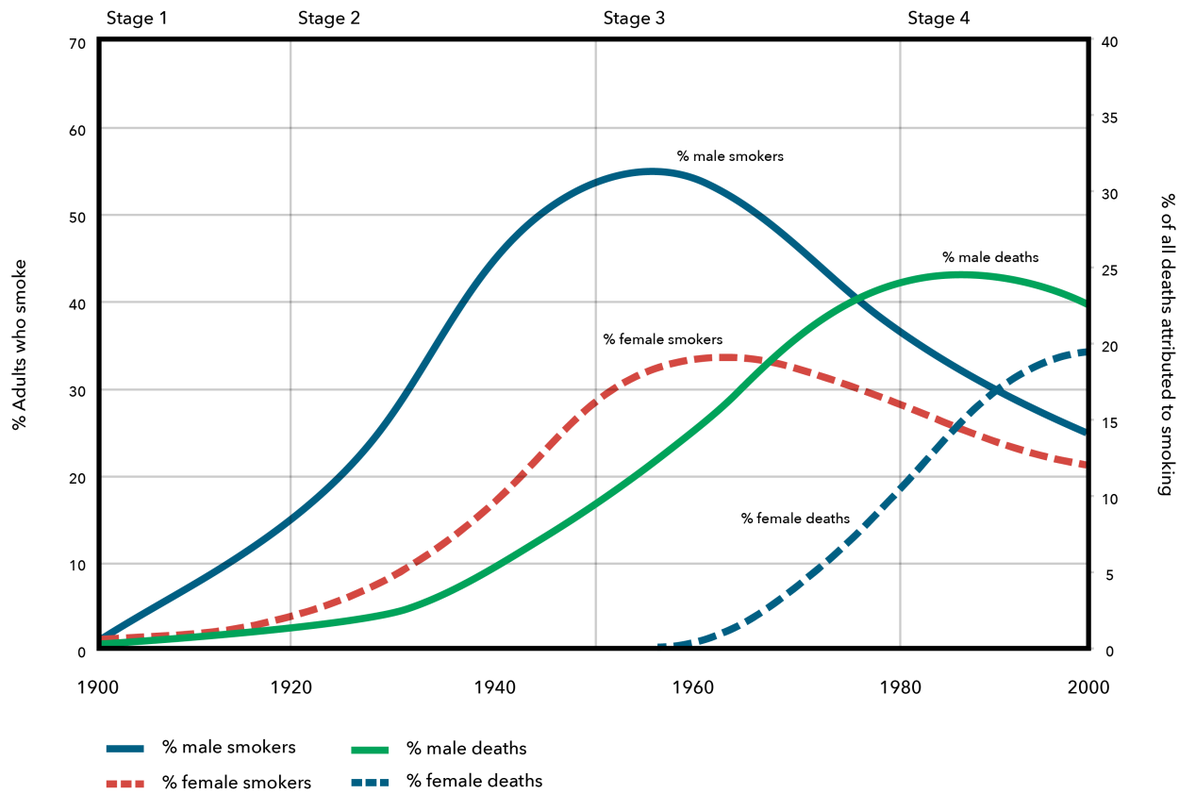


Figure 1.1 models how the tobacco epidemic spread over the course of the century. Alan Lopez and colleagues defined four stages based on the comparative levels of smoking prevalence and smoking-related deaths in men and women in economically developed countries such as the United States, the United Kingdom and Australia from 1900 to 2000. From Figure 1.1 we can see that male smoking prevalence peaks around the mid-1950s; then, about 30-40 years later, there is a corresponding peak in the proportion of male deaths attributed to smoking. It may seem strange that smoking-attributable deaths are rising even as smoking prevalence is on the decline, this is explained by the fact that current mortality is most closely related to previous, not current, levels of cigarette consumption.

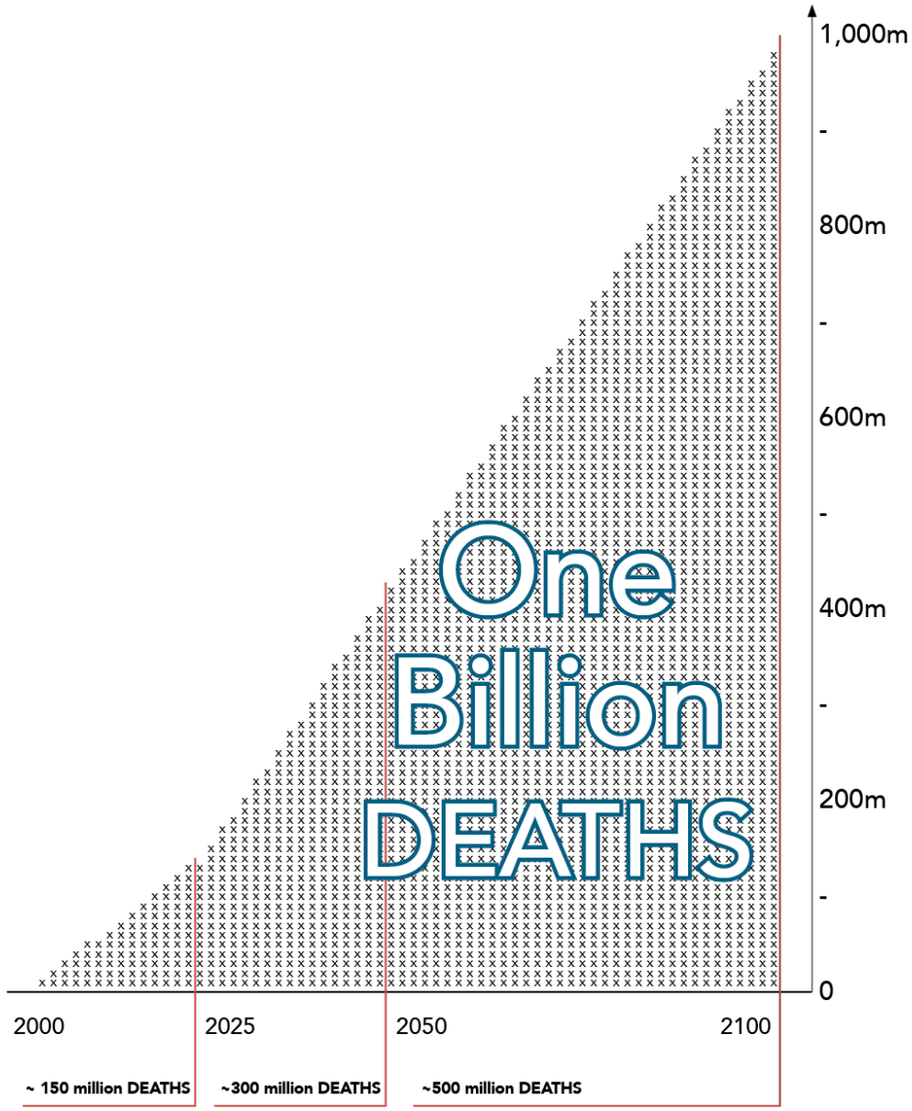
Figure 1.1 The Tobacco Epidemic Today: Stages of the Cigarette Epidemic on Entering its Second Century



Key Takeaway

The epidemic curve of tobacco-related mortality traces a similar pattern for men and women. A peak in smoking prevalence is followed 30-40 years later by a peak in the proportion of deaths attributed to smoking.

Figure 1.2 Projected Deaths Caused by Tobacco During 21st Century



The dashed red line shows that female smoking prevalence follows the pattern for men, just a few years behind. And, as is the case with men, the peak in female smoking prevalence is then followed 30-40 years later by a corresponding peak in the proportion of female deaths attributed to smoking. While the proportion of smokers and of smoking-related deaths has always remained lower for women than for men, Figure 1.1 illustrates the concerning fact that women are beginning to approximate male patterns in both these regards.

We have witnessed the morbidity and mortality caused by smoking in the 20th century. If smoking prevalence rates remain unchanged, we can expect one billion deaths from tobacco in the 21st century (Figure 1.2).

Prabhat Jha is the Founding Director of the Center for Global Health and Research at St. Michael's Hospital in Toronto, Canada. As a physician and economist, he offers his expert opinion on the burden of tobacco use in the global context, as well as in the more specific context of India. In Movie 1.2, he comments on a study published in the *New England Journal of Medicine* in January 2013 that looks at the hazards of smoking in the United States.

Movie 1.2 Hear from the Experts: Prabhat Jha



Table 1.1 Deadly Chemicals in Tobacco Smoke

Tobacco Smoke Includes:	As Found In:
Acetone	Paint Stripper
Acetylene	Welding Torches
Arsenic	Ant Poison
Benzene	Napalm
Butane	Lighter Fuel
Cadmium	Car Batteries
Carbon Monoxide	Car Exhaust Fumes
DDT	Insecticide
Formaldehyde	Embalming Fluid
Hydrogen Cyanide	Capital Punishment by Gas
Lead	Old Paint, Leaded Gasoline
Methanol	Rocket Fuel
Nicotine	Cockroach Poison
Phenol	Toilet Bowl Disinfectant
Polonium 210	Nuclear Weapons
Toluene	Industrial Solvent
Vinyl Chloride	Plastics

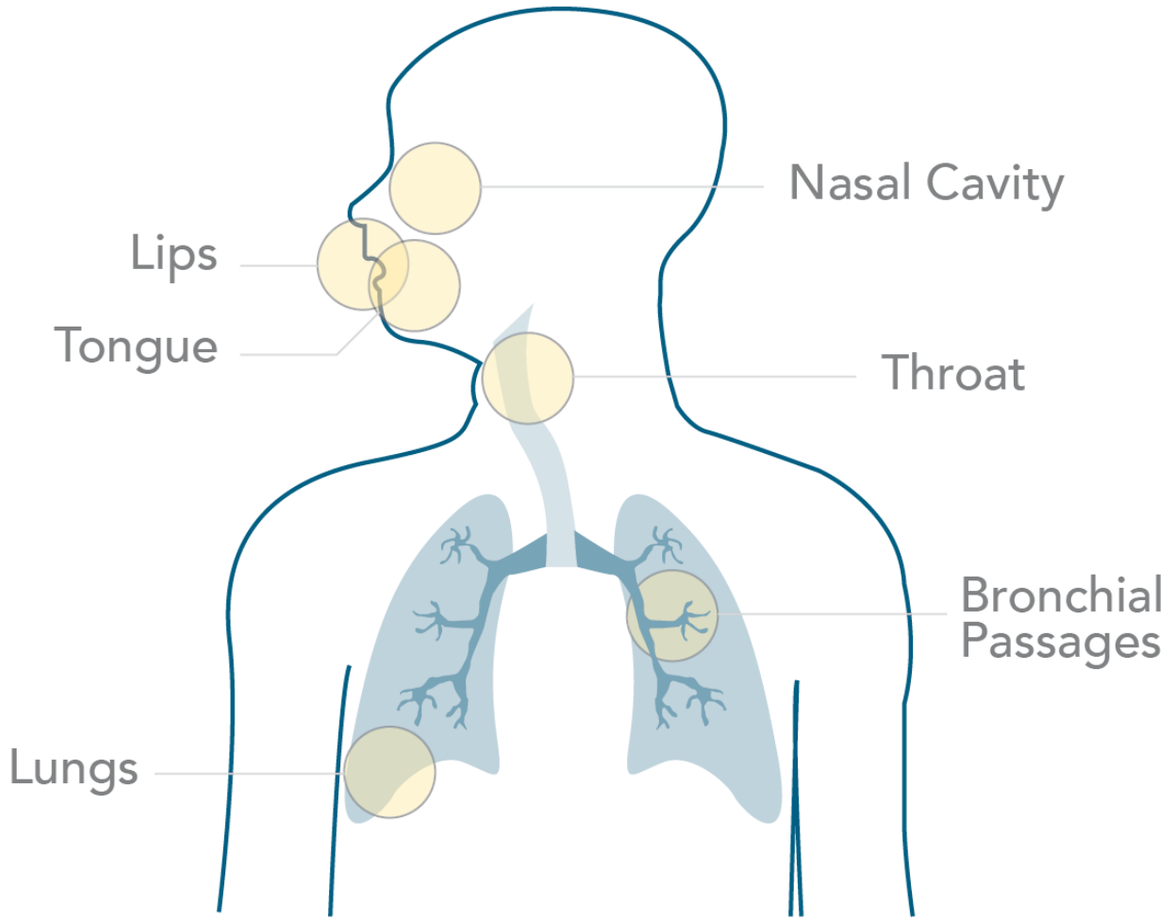
Why is smoking so deadly? The harm of smoking is caused, to a large extent, by combustion. Burning a cigarette creates 7,000 chemicals and compounds, hundreds of which are toxic, and at least 69 are cancer-causing. More specifically, the carcinogens found in cigarette smoke are known as tobacco-specific nitrosamines (TSNAs). These substances are inhaled into the body repeatedly, and perpetual exposure over time leads to deadly disease (Table 1.1).

A further cause for concern are ingredients, such as ammonia and benzene, which are added during the manufacturing process, the full impact of which is still unknown. In 1994, five major cigarette companies released a list of ingredients added to cigarettes. There are 599 ingredients included

on this list.

Most of the harm caused by smoking occurs in the tissue that is directly exposed to smoke. In the early 1930s, the term "smoking highway" was coined by Angel Roffo, an Argentine doctor who studied the relationship between tobacco and cancer. The **smoking highway** refers to the tissue in the body that becomes exposed to tars during the act of smoking (i.e., lips, cheeks, tongue, throat, bronchial passages, etc.) (Figure 1.3).

Figure 1.3 Smoking Highway



Key Takeaway

Much of the harm from smoking is caused by combustion. The burning of tobacco leaves creates 7,000 chemicals and compounds, many of which are toxic.

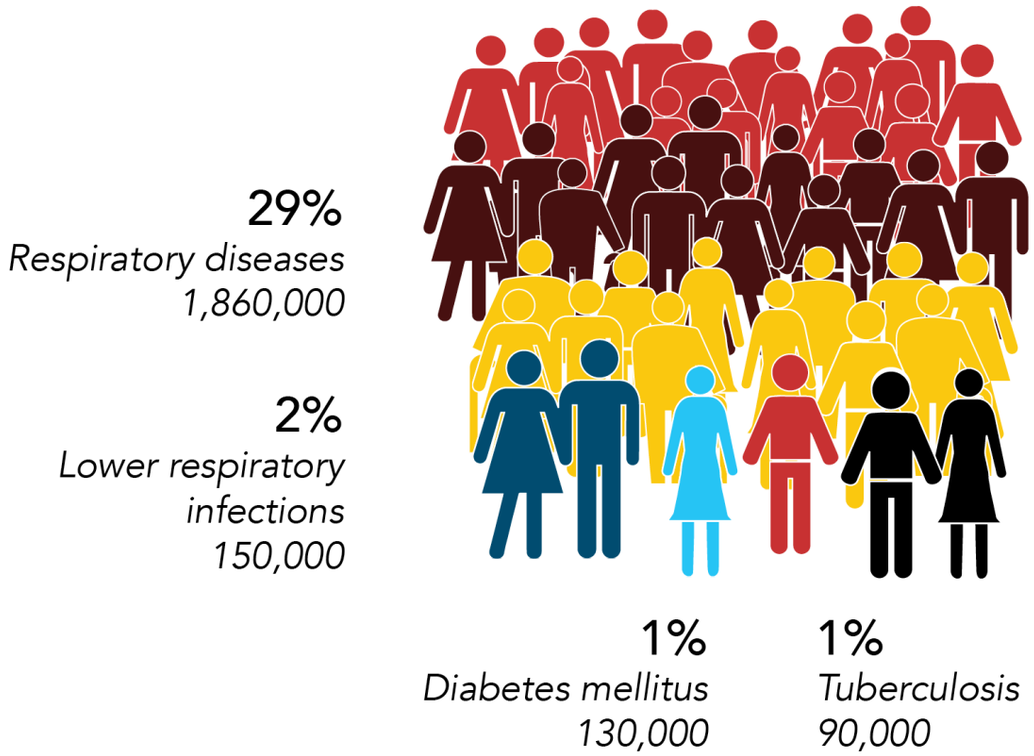
Tobacco is a priority issue for health practitioners and public health advocates who worry about non-communicable diseases (NCDs). Tobacco somewhat uniquely affects the four leading NCDs that are major threats to global public health: cardiovascular disease, diabetes, cancer, and chronic respiratory disease. Table 1.2 shows that while other risk factors, such as unhealthy diets, lack of physical activity, and harmful use of alcohol affect many of these leading NCDs, tobacco use is the only risk factor that affects them all and exacerbates these conditions.

Table 1.2 Risk Factors for Non-Communicable Diseases

	Tobacco Use	Unhealthy Diets	Lack of Physical Activity	Harmful Use of Alcohol
Cardiovascular	☑	☑	☑	☑
Diabetes	☑	☑	☑	☑
Cancer	☑	☑	☑	☑
Chronic Respiration	☑			

The largest cause of death resulting from tobacco use is cancer. In the United States, smoking accounts for 33% of all cancer deaths and 87% of lung cancer deaths. As demonstrated in Figure 1.4, tobacco-related deaths will total more than six million in 2015.

Figure 1.4 Projected Tobacco-Caused Deaths, 2015



All causes 6.42 million deaths (totals may not sum due to rounding)

Table 1.3 Top Cancer Killers

Type of Cancer	Number of Deaths
Lung	**159,480**
Colon	50,830
Breast	40,030
Pancreas	38,460
Prostate	29,720
TOTAL (Colon, Breast, Pancreas and Prostate)	**159,040**

The American Cancer Society reported in 2013 that lung cancer accounts for 159,480 deaths among men and women in the U.S. As shown in Table 1.3, lung cancer causes more deaths than the next four cancers combined.

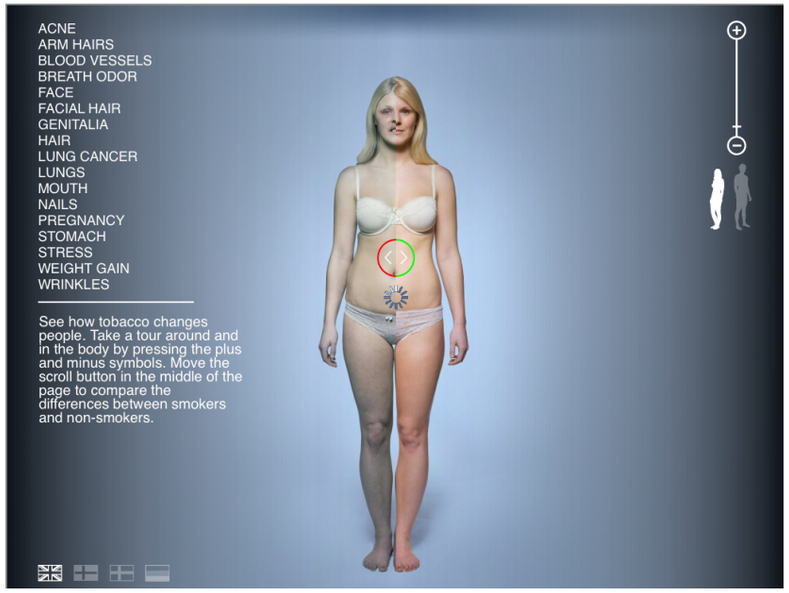
The American Cancer Society reported in 2013 that lung cancer accounts for nearly 175,000 deaths a year in the United States (Table 1.3). The latest data show that lung cancer kills more people than the next four top cancers combined.

An overwhelming amount of scientific evidence links smoking to deaths from lung cancer. But smoking harms not only the lungs and the tissue along the smoking highway discussed above, but also parts of the body that are not directly exposed to smoke. Smokers have an increased risk of developing pancreatic or bladder cancer, to name just two examples. Table 1.4, excerpted from the 2004 U.S. Surgeon General's Report, details the vast number of diseases and other adverse health effects of smoking.

In addition to lung cancer and respiratory diseases, tobacco use contributes to cardiovascular disease, as well as tuberculosis, diabetes, and digestive diseases. The U.S. Surgeon General emphasizes that tobacco affects nearly every organ system in the body.

Movie 1.3 includes an interactive tour of the harms of tobacco on the body.

Movie 1.3 Interactive Tour of the Tobacco Body



Key Takeaway

In 2013, an estimated 580,350 people will die from cancer. Three out of ten will be from lung, bronchus, and esophageal cancer – more than the next 4 cancers combined.

Table 1.4 2004 U.S. Surgeon General Report Finds a Causal Relationship Between Smoking and Many Types of Cancer

Disease	Highest level conclusion from previous Surgeon General reports (year)	Conclusion from the 2004 Surgeon General report
Bladder cancer	"Smoking is a cause of bladder cancer; cessation reduces risk by about 50% after only a few years, in comparison with continued smoking." (1990, p. 10)	"The evidence is sufficient to infer a causal relationship between smoking and...bladder cancer."
Cervical cancer	"Smoking has been consistently associated with an increased risk for cervical cancer." (2001, p 224)	"The evidence is sufficient to infer a causal relationship between smoking and cervical cancer."
Esophageal cancer	"Cigarette smoking is a major cause of esophageal cancer in the United States." (1982, p. 7)	"The evidence is sufficient to infer a causal relationship between smoking and cancers of the esophagus."
Kidney cancer	"Cigarette smoking is a contributory factor in the development of kidney cancer in the United States. The term 'contributory factor' by no means excludes the possibility of a causal role for smoking of cancers of this site." (1982 p. 7)	"The evidence is sufficient to infer a causal relationship between smoking and renal cell, [and] renal pelvis...cancers."
Laryngeal cancer	"Cigarette smoking is causally associated with the lung larynx, oral cavity, and esophagus in women as well as in men." (1980, p. 128)	"The evidence is sufficient to infer a causal relationship between smoking and the cancer of the larynx."
Leukemia	"Leukemia has recently been implicated as a smoking-related disease...but this observation has not been consistent." (1990, p. 176)	"The evidence is sufficient to infer a causal relationship between smoking and acute myeloid leukemia."
Lung cancer	"Additional epidemiological, pathological, and experimental data not only confirm the conclusion of the Surgeon General's 1964 Report regarding lung cancer in men but strengthen the causal relationship of smoking to lung cancer in women." (1967, p. 36)	"The evidence is sufficient to infer a causal relationship between smoking and lung cancer."
Oral cancer	"Cigarette smoking is a major cause of cancers of the oral cavity in the United States." (1982, p.6)	"The evidence is sufficient to infer a causal relationship between smoking and cancers of the oral cavity and pharynx."

Section 2 - Causality is Established and Essential

It is important to be clear about the soundness and the scientific rigor with which the relationship between smoking and disease has been established. Scientific studies on tobacco have made the case for tobacco being deadly, and more broadly, they have served as a basis for modern epidemiology.

In the 1950s, when the medical and scientific communities were attempting to establish the relationship between smoking and lung cancer, tobacco companies were quick to respond, and their response was one of denial. On January 4, 1954, the major American tobacco companies published a

Figure 1.5 A Frank Statement to Cigarette Smokers



A Frank Statement To Cigarette Smokers

Recent reports on experiments with mice have given wide publicity to a theory that cigarette smoking is in some way linked with lung cancer in human beings.

Although conducted by doctors of professional standing, these experiments are not regarded as conclusive in the field of cancer research. However, we do not believe that any serious medical research, even though its results are inconclusive should be disregarded or lightly dismissed.

At the same time, we feel it is in the public interest to call attention to the fact that eminent doctors and research scientists have publicly questioned the claimed significance of these experiments.

Distinguished authorities point out:

1. That medical research of recent years indicated many possible causes of lung cancer.
2. That there is no agreement among the authorities regarding what the cause is.
3. That there is no proof that cigarette smoking is one of the causes,

4. That statistics purporting to link cigarette smoking with the disease could apply with equal force to any one of many other aspects of modern life. Indeed the validity of the statistics themselves is questioned by numerous scientists.

We accept an interest in people's health as a basic responsibility, paramount to every other consideration in our business.

We believe the products we make are not injurious to health. We always have and always will cooperate closely with those whose task it is to safeguard the public health.

For more than 300 years tobacco has given solace, relaxation and enjoyment to mankind. At one time or another during those years critics have held it responsible for practically every disease of the human body. One by one these charges have been abandoned for lack of evidence.

Regardless of the record of the past, the fact that cigarette smoking today should even be suspected as a cause of serious disease is a matter of deep concern to us.

Many people have asked us what we are doing to meet the public's concern aroused by the recent reports. Here is the answer:

1. We are pledging aid and assistance to the research effort into all phases of tobacco use and health. This joint financial aid will of course be in addition to what is already being contributed by individual companies.
2. For this purpose we are establishing a joint industry group consisting initially of the undersigned. This groups will be known as TOBACCO INDUSTRY RESEARCH COMMITTEE.

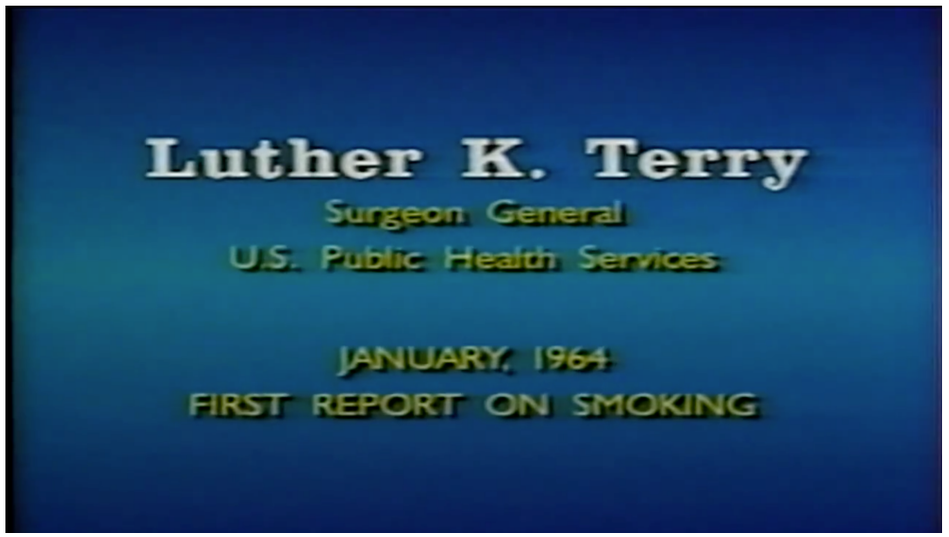
3. In charge of the research activities of the Committee will be a scientist of unimpeachable integrity and national repute. In addition there will be an Advisory Board of scientists disinterested in the cigarette industry. A group of distinguished men from medicine, science, and education will be invited to serve on this Board. These scientists will advise the Committee on its research activities.

This statement is being issued because we believe the people are entitled to know where we stand on this matter and what we intend to do about it.

TOBACCO INDUSTRY RESEARCH COMMITTEE

historic advertisement in more than 400 newspapers in the United States, titled "A Frank Statement to Cigarette Smokers," in which they dismissed the scientific evidence and attributed the link between smoking and disease to faulty statistics (Figure 1.5). They contended: "The statistics purporting to link cigarette smoking with the disease [lung cancer] could apply with equal force to any one of many other aspects of modern life. Indeed the validity of the statistics themselves is questioned by numerous scientists." They went on to say in the ad: "We accept an interest in people's health as a basic responsibility, paramount to every other consideration in our business." The history of the tobacco industry's tactics over the 60 years following this statement speaks for itself about whether or not the industry has upheld this responsibility.

Movie 1.4 First Report of the Surgeon General's Advisory Committee on Smoking and Health



In 1964, Luther L. Terry, Surgeon General of the U.S. Public Health Service, released the first report of the Surgeon General's Advisory Committee on Smoking and Health (Movie 1.4).

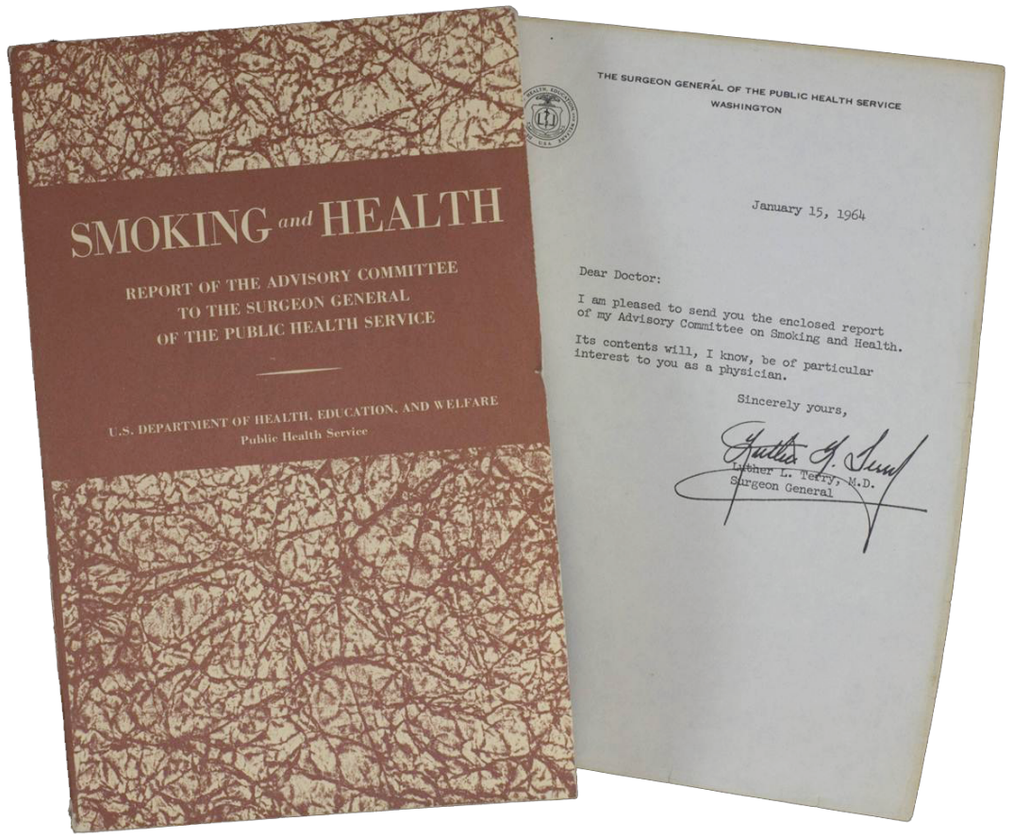
As part of the preparation for this landmark report, a group of scientists examining more than 7,000 articles on smoking and disease realized that there needed to be formal criteria to establish causal relationships in the area of health. As they investigated the scientific evidence, they identified a set of characteristics and criteria that would determine whether an observed relationship between a specific factor (e.g., smoking) and a disease was causal or simply associative. These criteria, which include

strength of association, consistency, specificity, and so on, became known as **Hill's Postulates** (Table 1.5) after Austin Bradford Hill, the medical statistician who first presented them, and are now considered a basic tenet of modern epidemiological research. Hill's Postulates were applied for the first time in developing the 1964 Surgeon General's Report (**Figure 1.6**). This report is now considered historic, as it represents the beginning of the decline of smoking in the United States. The concluding remarks from the report are very clear about the relationship of smoking and disease: "Cigarette

Table 1.5 Hills Postulates (1965)

Postulate	Description
Strength	A strong association is more likely to be causal.
Consistency	An association is more likely to be causal when it is observed in different population groups.
Specificity	When an exposure is associated with a specific outcome only, then it is more likely to be causal.
Temporality	The cause should precede the outcome.
Biological Gradient	If the frequency or intensity of the outcome increases when an exposure is more intense or lasts longer, then it is more likely that the association is causal.
Plausibility	An association is more likely to be causal when it is biologically plausible.
Coherence	A cause and effect interpretation of an association should not conflict with what is known about the natural history and biology of the disease.
Experiment	If experimental evidence exists, then the association is more likely to be causal.
Analogy	The existence of an analogy could strengthen the belief that an association is causal.

Figure 1.6 The First U.S. Surgeon General's Report on Smoking was Release in 1964



and substantial. In 1999, the U.S. Department of Justice sued several major tobacco companies (Philip Morris USA, R.J. Reynolds Tobacco, Lorillard, and Altria) for fraudulent and unlawful conduct and reimbursement of tobacco-related medical expenses. U.S. District Judge Gladys Kessler found the tobacco companies liable

smoking is causally related to lung cancer in men; the magnitude of the effect of cigarette smoking far outweighs all other factors. The data for women, though less extensive, point in the same direction."

It is not only the medical and epidemiologic research communities that have accepted the causal relationship between smoking and disease; courts of law have also found this relationship to be established

Key Takeaway

Hill's Postulates were developed as a set of criteria to determine whether the observed relationship between smoking and disease was causal or simply associative. They are now considered a basic tenet of modern epidemiology.

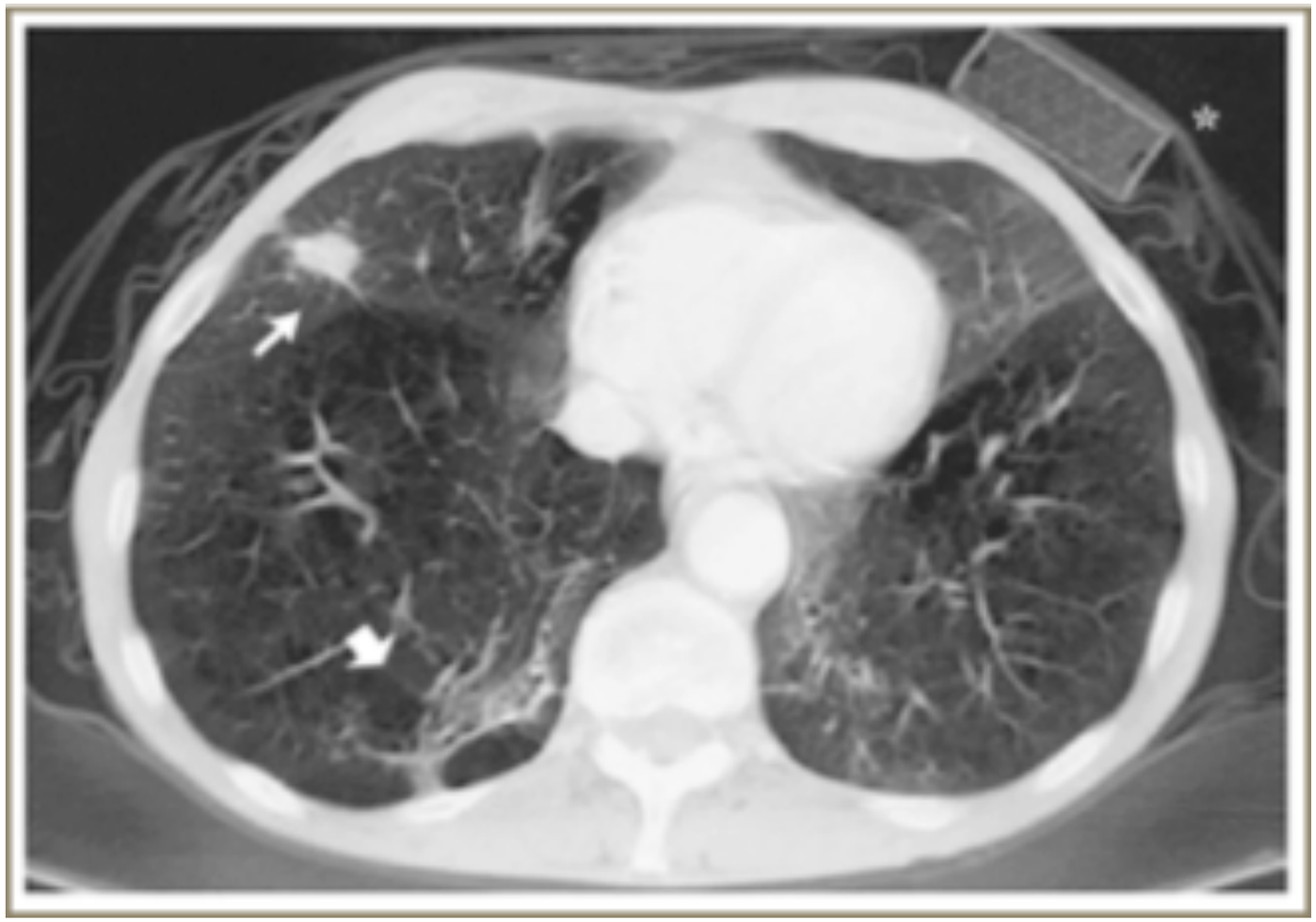
for fraudulently covering up the health risks associated with smoking and for marketing their products to children. She ordered the tobacco companies to issue corrective statements that clearly state the harm caused by smoking. Some of these statements are listed in Table 1.6.

Table 1.6 Corrective Statements for Adverse Health Effects of Smoking

A Federal Court has ruled that Philip Morris USA, R.J. Reynolds Tobacco, Lorillard, and Altria deliberately deceived the American public about the health effects of smoking, and has ordered those companies to make this statement.
Smoking kills, on average, 1200 Americans. Every day.
More people die every year from smoking than from murder, AIDS, suicide, drugs, car crashes, and alcohol, combined.
Smoking causes heart disease, emphysema, acute myeloid leukemia, and cancer of the mouth, esophagus, larynx, lung, stomach, kidney, bladder, and pancreas.
Smoking also causes reduced fertility, low birth weight in newborns, and cancer of the cervix.

Perhaps nothing can summarize the harms of smoking better than Figure 1.7, which shows a CAT scan of a 72-year old patient who has emphysema (shown by the thick arrow) and a lung cancer tumor (thin arrow). Simultaneously, the asterisk at the upper right-hand corner of the radiograph shows a pack of cigarettes that represents the direct cause of both his lung cancer and emphysema. So rarely in one picture do we see the cause and effect telling of the tragic story of tobacco and the strength of addiction.

Figure 1.7 CAT Scan of a 72 Year Old Patient



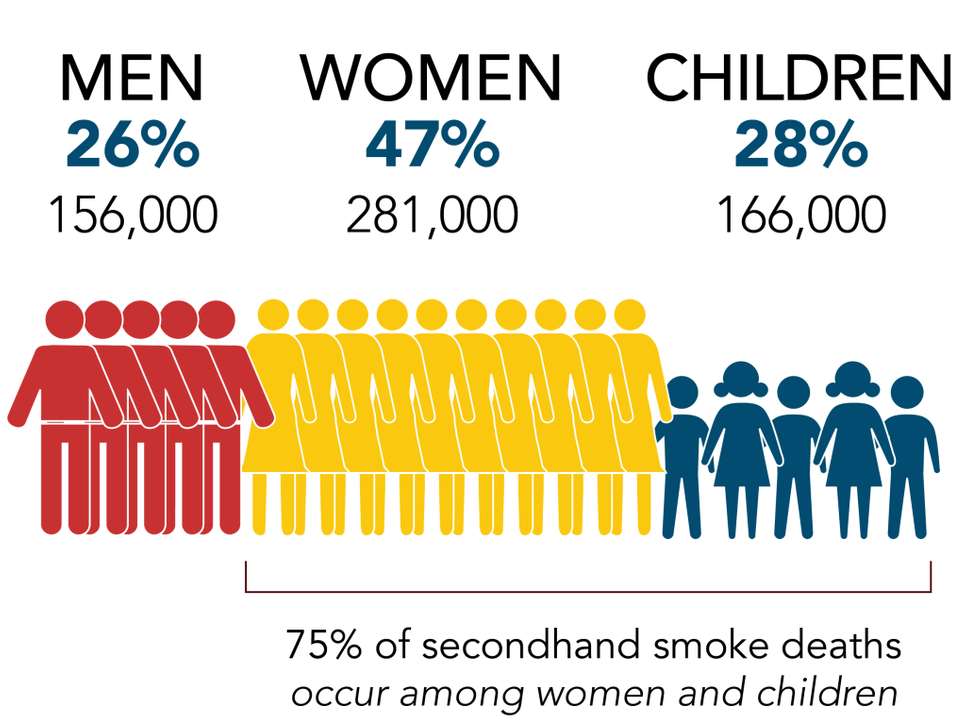
Section 3 - Forced Smoking Harms and Kills

Now that we have discussed the harm caused by tobacco use, particularly cigarette smoking, let's turn to the harm caused by exposure to secondhand smoke.

Often referred to as forced smoking, secondhand smoke exposure occurs among people who are involuntarily exposed to smoke from others' cigarettes. These may be children or infants, or they may be adolescents or adults who have made the conscious decision not to smoke themselves. We use the term forced smoking or involuntary smoking interchangeably to convey the reality that secondhand smoke exposure is a matter of being forced to inhale smoke. Forced or involuntary smoking has been shown to kill adults and harm children.

Globally, 600,000 deaths occur annually as a result of secondhand smoke exposure. Though adult men

Figure 1.8 Global Deaths Resulting from Secondhand Smoke in Nonsmokers



Totals may not sum due to rounding.

smoke more than women, 75% of secondhand smoke deaths are among women and children (Figure 1.8).

Secondhand smoke consists of two components: mainstream smoke, which is smoke exhaled by a smoker, and sidestream smoke, which is the smoke that comes from the lit end of a tobacco product. Sidestream smoke contains higher concentrations of carcinogens than mainstream or exhaled smoke, and there are smaller particles in sidestream smoke that are more likely to be inhaled into the lungs and make their way to the body's cells.

Key Takeaway

US and international studies show that forced or involuntary smoking kills adults and harms children.

The harms of secondhand smoke exposure have been clear to tobacco companies for a long time. In 1978, the tobacco industry commissioned a report by the Roper Organization that identified the protection of non-smokers' rights as a major threat to the future existence of tobacco companies—or, in their words, "the most dangerous development to the viability of the tobacco industry that has yet occurred." For this reason, tobacco companies have fought the evidence linking secondhand smoke with disease and death, and they did so quite successfully until the mid-1980s when a series of international reports was released documenting the causal relationship between secondhand smoke exposure and cancer. This was followed by the 1986 U.S. Surgeon General's Report, which concluded that involuntary smoking is a cause of disease, including lung cancer, in otherwise healthy non-smokers. It also concluded that the mere separation of smokers and non-smokers while they continue to share the same airspace may reduce, but not eliminate, the exposure of non-smokers to tobacco smoke in the environment. In 1992, the U.S. Environmental Protection Agency concluded that secondhand smoke was a "Class A" (or known) human lung carcinogen.

Table 1.7 Harm Caused by Secondhand Smoke

	Sufficient Evidence	Suggestive Evidence
Adults	Stroke, Coronary Artery Disease, Lung Cancer, Nasal Irritation, Reproductive Effects in Women	Breast Cancer, Pre-term Delivery, Chronic Obstructive Pulmonary Disease, Chronic Respiratory Symptoms, Asthma, Impaired Lung Function, Atherosclerosis, Cancer of the Nasal Sinus, Pharynx and Larynx
Children	Middle-Ear Disease, Respiratory Symptoms (cough, wheeze, phlegm, breathlessness, impaired lung function), Sudden Infant Death Syndrome (SIDS), Lower Respiratory Illness (including infections), Low Birth Weight	Learning Disability, ADD/ADHD, Asthma, Tuberculosis, Lymphoma, Leukemia, Allergic Diseases (rhinitis, dermatitis, food allergy)

Table 1.7 specifies the harms caused by secondhand smoke among adults and children. Since the first Surgeon General's Report in 1964, smoking cigarettes has been causally linked to disease and illness in nearly all of the body's organs. The 50th Anniversary Surgeon General's Report continued to report diseases caused by smoking, such as diabetes mellitus, rheumatoid arthritis, and colorectal cancer. We expect this list will continue to grow and that more diseases will move from the "suggestive evidence" column to the "sufficient evidence" column.

Certainly, exposure to secondhand smoke is less deadly than active smoking. For every ten people killed by active smoking, approximately one person dies from exposure to secondhand smoke. However, while it is true that fewer people die from forced smoking than active smoking, it is important to remember that those exposed to secondhand smoke had no choice in their exposure (Figure 1.9). They have an increased risk of developing a deadly disease as a result of someone else's decision to smoke.

Figure 1.9 A Tip about Secondhand Smoke



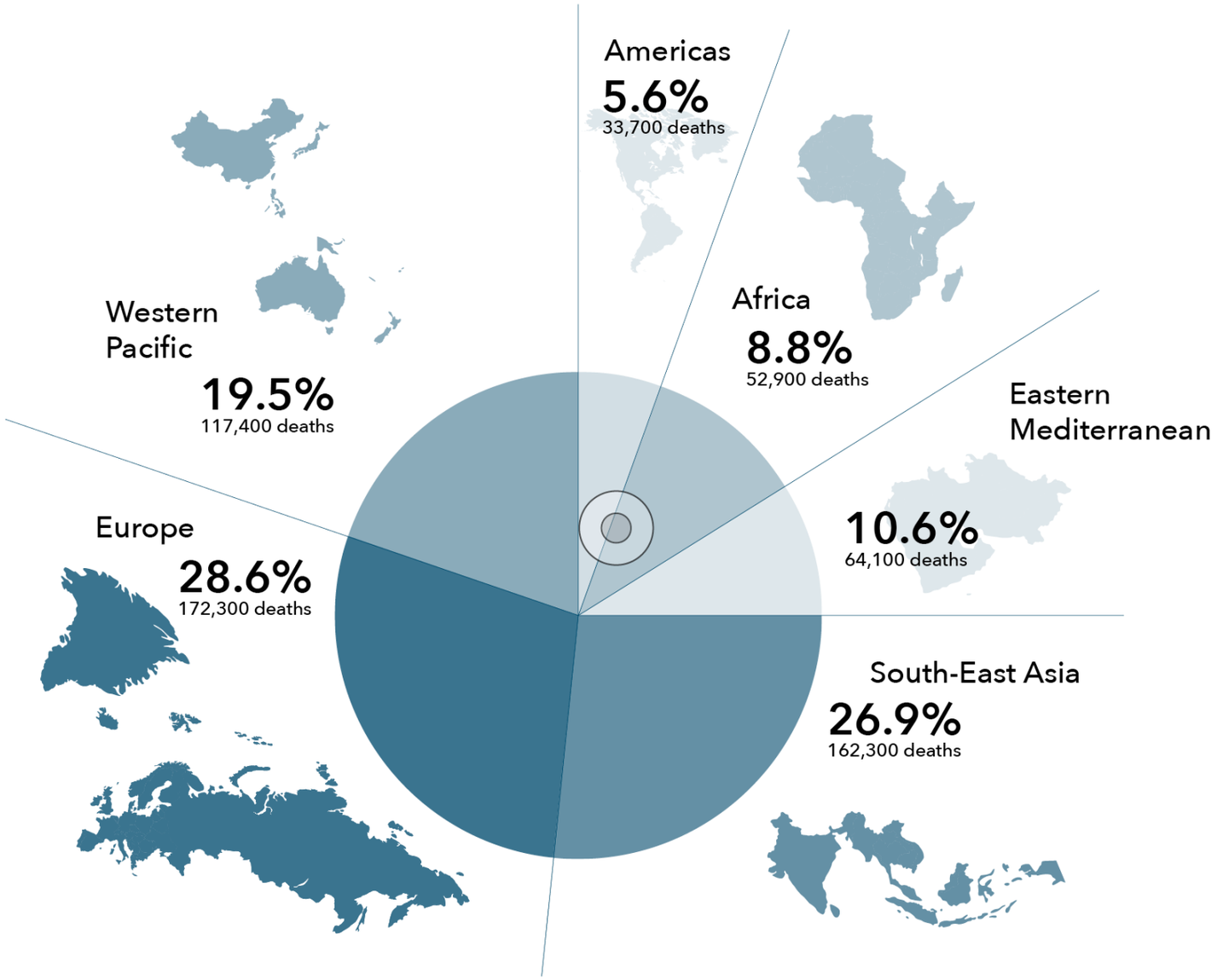
Around the world, it is estimated that 40% of children and 33% of non-smoking adults are exposed to secondhand smoke. The region with the greatest level of exposure is the Western Pacific region, which includes China. Over 50% of the people living in this region are exposed to secondhand smoke. The largest number of deaths caused by secondhand smoke exposure can be found in Europe, followed closely by the Southeast Asian region.

Table 1.8 provides a closer look at secondhand smoke exposure among children throughout the world. This table uses data collected by the Global Youth Tobacco Survey (for more information on GYTS, see Chapter 3) and shows the countries in which more than 75% of adolescents 13-15 years old are exposed to secondhand smoke at home. As you can see, the majority of these countries are found in Eastern Europe, perhaps accounting for the high level of secondhand smoke deaths we saw above. In Cyprus and Romania, for example, over 90% of children are exposed to secondhand smoke at home.

Table 1.8 Secondhand Smoke Exposure Among Youth

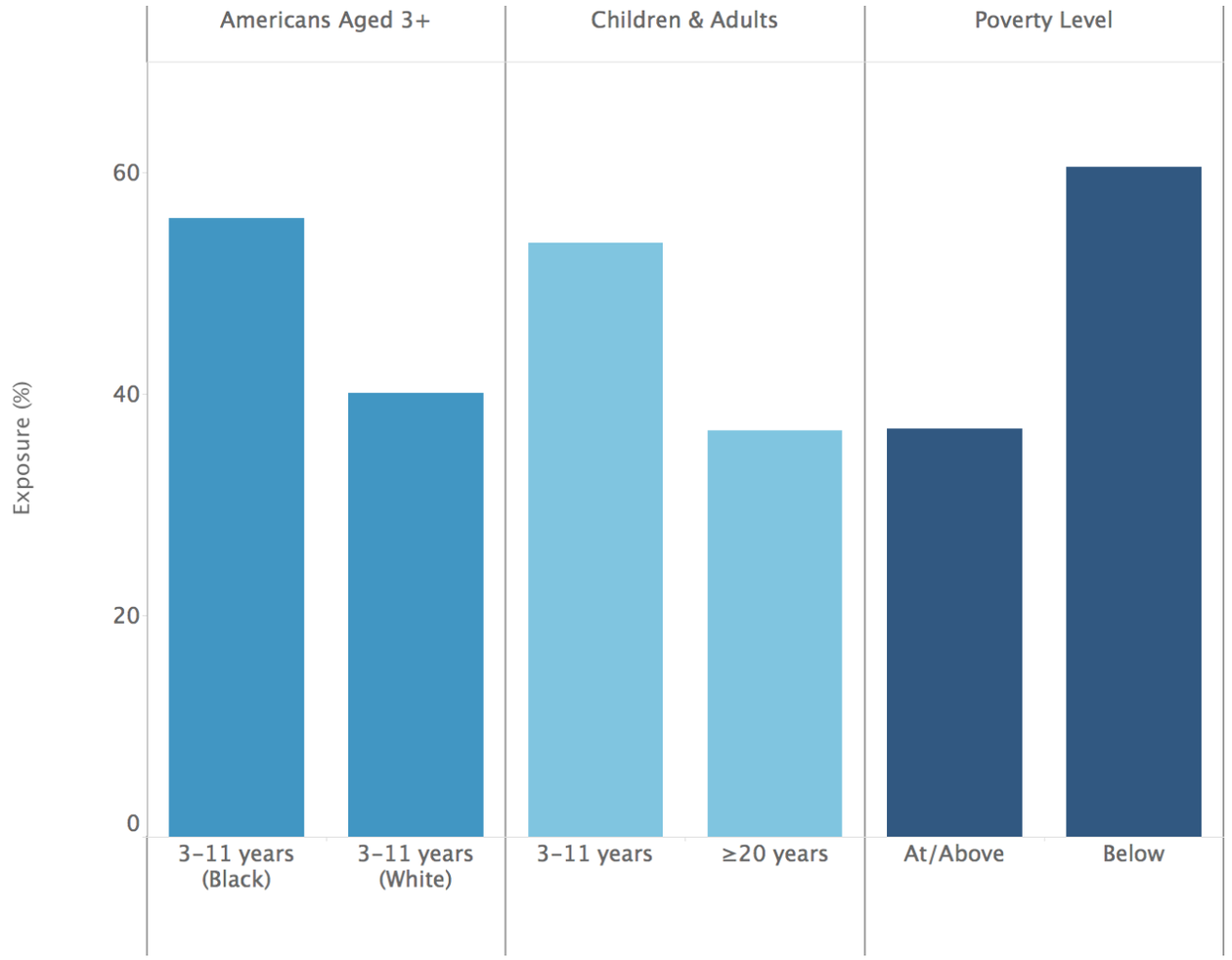
Country Name	Region	Total (%)
Cyprus	EURO	96.1
Romania	EURO	90.4
Armenia	EURO	89.8
Greece	EURO	89.8
Turkey	EURO	89.3
Poland	EURO	86.7
Albania	EURO	84.8
Bosnia and Herzegovina	EURO	77.3
Serbia	EURO	76.9
Montenegro	EURO	76.8
Tuvalu	WPRO	76.6
Russian Federation	EURO	76.4
Belarus	EURO	75.3

Figure 1.10 Regional Deaths from Exposure to Secondhand Smoke, 2004



Looking at Figure 1.10, deaths from secondhand smoke in the Americas is less common than in other regions of the world. However, any exposure is too much, and the amount of exposure varies greatly depending on one's demographics.

Figure 1.11 Exposure to Secondhand Smoke by Age, Ethnicity and Poverty Level



As Figure 1.11 shows, more than 50% of children ages 3-11 are exposed to secondhand smoke in the U.S., with most exposure occurring in the home. The chart shows that black Americans are much more likely to be exposed to secondhand smoke than whites, children are more likely to be exposed than adults, and those who live below the poverty level are more likely to be exposed than those who live at or above the poverty level.

Moreover, there is a threefold variation in adult exposure to secondhand smoke in the home among different states based on a CDC survey of 11 states in 2008 (Table 1.9).

The formal criteria used to establish a causal relationship between smoking and disease in the 1964 U.S. Surgeon General's Report has since been applied towards establishing causality with regard to

Table 1.9 Secondhand Smoke Exposure by State

State	U.S. Nonsmoking Adults Exposed to Secondhand Smoke in the Home (%)
West Virginia	10.6
Mississippi	10.1
Tennessee	9.7
Louisiana	9
Indiana	8.9
North Carolina	7.8
New Jersey	5.8
Virginia	5.7
Connecticut	5
Kansas	4.5
Arizona	3.2

exposure to secondhand smoke. Building on the 1986 U.S. Surgeon General's Report, the report issued in 2006 established that there was a 20-30% increased risk of lung cancer for a nonsmoker who lives with a smoker. The 2010 Report went further by looking at both the biologic and behavioral mechanisms of how disease is caused by smoking.

As we have seen in the case of active smoking, the data linking secondhand smoke with disease have been reviewed not only by medical practitioners and epidemiological researchers, but also by courts of law. In her 2006 ruling, Judge Kessler concluded that tobacco companies had made false and misleading public statements, denying the grave threat posed by secondhand smoke, even while their own internal documents showed that the tobacco companies were aware of the hazards of secondhand smoke exposure (Table 1.10).

Judge Kessler required the tobacco companies to issue corrective statements to provide the truth about the negative health effects of secondhand smoke. As with the required corrected statements

for active smoking, these statements have not yet taken effect as of early 2016 even though the terms of these statements were agreed upon in January 2014.

Table 1.10 Corrective Statements for Adverse Health Effects of Exposure to Secondhand Smoke

A Federal Court has ruled that Philip Morris USA, R.J. Reynolds Tobacco, Lorillard, and Altria deliberately deceived the American public about the health effects of secondhand smoke, and has ordered those companies to make this statement. Here is the truth:
Secondhand smoke kills over 38,000 Americans each year.
Secondhand smoke causes lung cancer and coronary heart disease in adults who do not smoke.
Children exposed to secondhand smoke are at an increased risk for sudden infant death syndrome (SIDS), acute respiratory infections, ear problems, severe asthma, and reduced lung function.
There is no safe level of exposure to secondhand smoke.

Section 4 - Other Tobacco Products Also Kill

So far, we have discussed combustion, the predominant way that tobacco is consumed around the world. Combustion is the most efficient way to deliver nicotine to the brain, a major reason why manufactured cigarettes are the most commonly consumed tobacco product globally. Over 90% of tobacco is consumed through cigarettes, but as we will see in this section, there are other ways that tobacco is used.

Key Takeaway

There is no safe form of tobacco.

As we begin this discussion, it is important to note that there exists no safe form of tobacco. Whether it is smoked, or rubbed on the cheeks, or chewed, or sucked, or inhaled through the nose, tobacco is harmful to health.

Figure 1.12 shows images of the variety of tobacco products that are available for smoking. Besides traditional

Figure 1.12 Smoking Tobacco Products Available for Sale



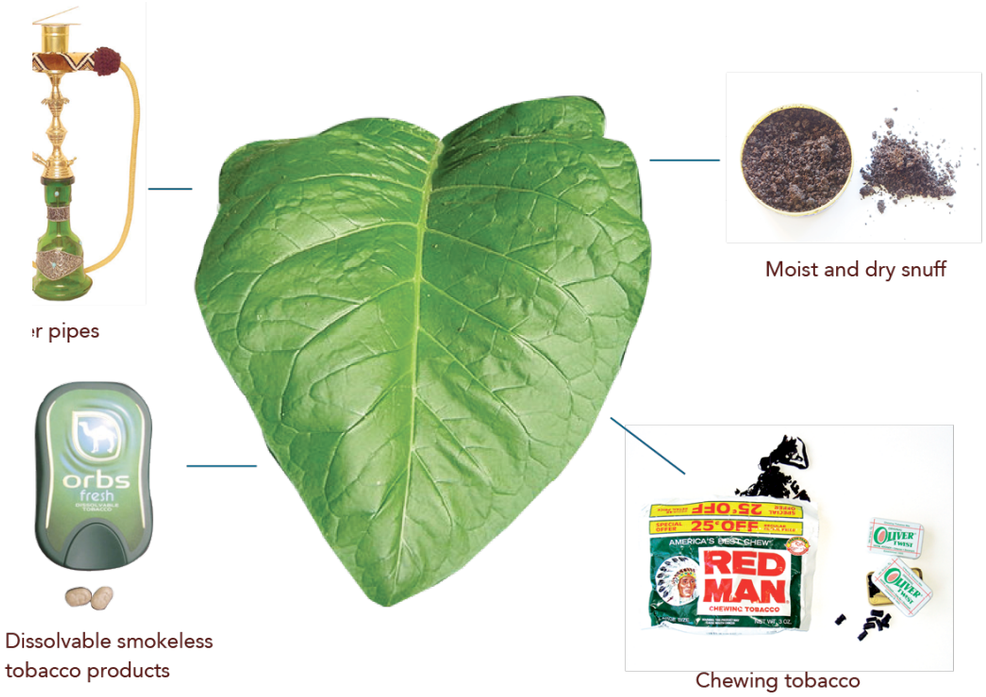
manufactured cigarettes, there are other tobacco products available which are similarly combusted and smoke-inhaled (Table 1.11). For instance, there are roll-your-own cigarettes, which are hand-rolled by a smoker rather than by a machine. These are particularly common in Europe and New Zealand. Bidis, popular in Southeast Asia, are made of tobacco wrapped in leaves with no filter. Kreteks, which contain tobacco flavored by cloves, are common in Indonesia. The cloves tend to have an anesthetic effect, allowing for smoke to be inhaled more deeply. Water pipes, which are traditionally found in the Mediterranean region and are now becoming more common in Europe and

Table 1.11 Combusted Tobacco Products and their Global Use

Product	Region of Primary Use	Description	Dangers of Consumption Compared to Cigarettes
Roll your own cigarette	Europe/New Zealand	Hand rolled by smoker	Increased risk of oral and upper respiratory cancers
Bidis	South Asia	Tobacco wrapped in dry leaves	Increased exposure to tar and carbon monoxide
Kreteks	Indonesia	Clove-flavored cigarettes	Users inhale smoke more deeply
Water Pipes	North Africa, Mediterranean, Asia	Flavored tobacco is burned in a smoking bowl and the smoke is inhaled through a pipe	Increased exposure to toxins may result depending on how smoke is inhaled

the U.S., provide a way to burn tobacco in a bowl and cool the smoke with water before it is inhaled through a pipe. Though the smoke is cooled with water and thus easier to inhale, it is no less harmful than the smoke from any other type of combusted tobacco product.

Figure 1.13 Smokeless Tobacco Products Available for Sale



Presented in Figure 1.13 are tobacco products that are not combusted but rather are placed in the mouth or nose to provide access to nicotine. Chewing tobacco is placed in the mouth and either chewed or sucked. In India, where chewing tobacco is very popular, we see a dramatic increase in oral cancer compared to the rest of the world. In addition to chewing tobacco, there are two different kinds of snuff: moist snuff, the most common, is ground tobacco that is put in the mouth between the cheeks and gums, and dry snuff is powdered tobacco that is inhaled through the nose (Table 1.12).

Most recently, tobacco companies have introduced "dissolvables," which may take the form of strips that dissolve in the mouth or a pellet that is sucked on. There are other varieties of dissolvables, but

Table 1.12 Non-combusted Tobacco Products and their Global Use

Product	Region of Primary Use	Description	Dangers of Consumption Compared to Cigarettes
Chewing Tobacco	Worldwide, India	Oral, smokeless tobacco used in the mouth, cheek or lip and sucked or chewed	Increased risk of oral cancer
Moist Snuff	Scandinavia, U.S.	Ground tobacco held between cheeks or gums	Increased risk of oral cancer
Dry Snuff	Europe	Powdered tobacco inhaled nasally	Increased risk of oral and nasal cancer
Dissolvables	High-income countries	Dissolve in the mouth without expectoration	Novel products with unknown risks of use

they all share in common the quality of not having to be spit out. The risks of these new products are at this point unknown.

India provides an interesting case study for smokeless tobacco use. It is estimated that 35-40% of all tobacco consumed in India is in smokeless form. Table 1.13 shows the variety of smokeless tobacco products that are consumed in India; it includes products that are chewed, sucked, or applied to the

Table 1.13 Use of Tobacco in Seven Areas of India

Area	Sex	Chew or apply (%)	Smoke (%)	Mixed (%)	Total Users (%)
Mainpuri, Uttar Pradesh	Male	21	41	20	82
	Female	9	11	1	21
Bhavnagar, Gujarat	Male	9	56	6	71
	Female	15	*	*	15
Ernakulam, Kerala	Male	14	45	22	81
	Female	38	1	1	39
Srikakulam, Andhra Pradesh	Male	4	70	7	81
	Female	3	64	*	67
Singbhum, Bihar	Male	17	50	14	81
	Female	26	5	2	33
Darbhanga, Bihar	Male	28	24	26	78
	Female	7	41	4	51
Pune, Maharashtra	Male	53	6	2	62
	Female	49	*	*	49
Goa	Male	3	61	5	69
	Female	23	24	2	49
Mumbai (urban), Maharashtra	Male	46	14	10	69
	Female	57	*	*	57.5
Trivandrum (urban), Kerala	Male	27	56	nr	83
	Female	26	2	nr	28

* Prevalence <0.5%; nr=not reported

teeth and gums. As you can see, the majority of men either smoke or use smokeless tobacco or do a combination of both. Looking at the data for women, you can see that though there are relatively few smokers in many areas, smokeless tobacco use ranges up to 57%, making for a very high rate of combined tobacco use among women in India—perhaps unparalleled anywhere else in the world.

To summarize, there is still no safe way of using tobacco. According to the American Cancer Society, "Use of any smokeless tobacco product is not considered a safe substitute for quitting." Smokeless tobacco products cause oral, esophageal, and pancreatic cancers; precancerous lesions of the mouth; gum recession; and bone loss around the teeth. They also lead to nicotine addiction.

Chapter 1 Discussion Questions

1. If the cigarette is "the only consumer product that kills when used as directed," as stated by Robert Proctor, why does it continue to be legal in the United States?
2. Should there be more aggressive laws protecting minors from exposure to secondhand smoke?
3. What do you predict will happen to the curves in Figure 1.1 given the increased use of smokeless tobacco products?

Figures and Tables

Movie 1.1: Why You Should Quit Commercial

Figure 1.1: The Tobacco Epidemic Today: Stages of the Cigarette Epidemic on Entering its Second Century

Source: Thun, M., Peto, R., Boreham, J. and Lopez, A. (2012). The tobacco epidemic today: Stages of the cigarette epidemic on entering its second century. *Tobacco Control* 21:96-101 doi:10.1136/tobaccocontrol-2011-050294. Original study: Lopez, A., Collishaw, N., Piha, T. (1994). A descriptive model of the cigarette epidemic in developed countries. *Tobacco Control* 3: 242-247.

Figure 1.2: Projected Deaths Caused by Tobacco During 21st Century

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Movie 1.2: Hear from the Experts: Prabhat Jha

Table 1.1: Deadly Chemicals in Tobacco Smoke

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 1.3: Smoking Highway

Source: Created by GSU Center for Instructional Innovation, 2015

Table 1.2: Risk Factors for Non-Communicable Diseases

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 1.4: Projected Tobacco-Caused Deaths, 2015

Source: American Cancer Society. (2013). Cancer Facts & Figures 2013. Atlanta: American Cancer Society; 2013.

Table 1.3: Top Cancer Killers

Source: American Cancer Society. (2013). Cancer Facts & Figures 2013. Atlanta: American Cancer Society; 2013.

Movie 1.3: Interactive Tour of the Tobacco Body

Table 1.4: 2004 U.S. Surgeon General Report Finds a Causal Relationship Between Smoking and Many Types of Cancer

Figure 1.5: A Frank Statement to Cigarette Smokers

Source: Tobacco Industry Research Committee (TIRC). (1965). A Frank Statement to Cigarette Smokers.

Movie 1.4: First Report of the Surgeon General's Advisory Committee on Smoking and Health

Table 1.5: Hills Postulates (1965)

Source: Adami, H.-O., Hunter, D. J., & Trichopoulos, D. (2008). Textbook of Cancer Epidemiology. Oxford University Press.

Figure 1.6: The First U.S. Surgeon General's Report on Smoking was Release in 1964

Source: U.S. Department of Health and Human Services. (1964). Smoking and Health: Report of the Advisory Committee to the Surgeon General of the Public Health Service. United States. Public Health Service. Office of the Surgeon General.

Table 1.6: Corrective Statements for Adverse Health Effects of Smoking

Source: Campaign for Tobacco-Free Kids

Figure 1.7: CAT Scan of a 72 Year Old Patient

Source: New England Journal of Medicine

Figure 1.8: Global Deaths Resulting from Secondhand Smoke in Nonsmokers

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Table 1.7: Harm Caused by Secondhand Smoke

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 1.9: A Tip about Secondhand Smoke

Source: Centers for Disease Control and Promotion. 2014. Tips From Former Smokers Campaign Results.

Figure 1.10: Regional Deaths from Exposure to Secondhand Smoke, 2004

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Table 1.8: Secondhand Smoke Exposure Among Children

Source: Centers for Disease Control and Prevention. (2014). Global Tobacco Surveillance System Data.

Figure 1.11: Exposure to Secondhand Smoke by Age, Ethnicity and Poverty Level. MMWR, Vital Signs: Nonsmokers' Exposure to Secondhand Smoke --- United States, 1999--2008.

Table 1.9: Secondhand Smoke Exposure Among Youth

Source: World Health Organization. (2014). Global Youth Tobacco Survey.

Figure 1.9: Secondhand Smoke Exposure by State

Source: Centers for Disease Control and Prevention. (2010). Vital Signs: Tobacco Use, Secondhand Smoke.

Table 1.10: Corrective Statements for Adverse Health Effects of Exposure to Secondhand Smoke

Source: Campaign for Tobacco-Free Kids

Figure 1.12: Smoking Tobacco Products Available for Sale

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 1.13: Smokeless Tobacco Products Available for Sale

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Table 1.11: Combusted tobacco Products and their Global Use

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Table 1.12: Non-combusted Tobacco Products and their Global Use

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Table 1.13: Use of Tobacco in Seven Areas of India

Source: Gupta, P. C., & Ray, C. S. (2003). Smokeless tobacco and health in India and South Asia. *Respirology* (Carlton, Vic.), 8(4), 419–431.

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Chapter 2

Adult Tobacco Use Behaviors

Chapter Objectives

1. Explain gender differences in tobacco use.
2. Interpret the importance of smoking prevalence differences in low- and middle-income countries.
3. Hypothesize the shift over time in U.S. tobacco smoking rates among adults.
4. Recognize smoking behavior variations by population characteristics (gender, race, SES, special populations).
5. Demonstrate an understanding of various tobacco surveillance systems.

Chapter 2 - Adult Tobacco Use Behaviors

Section 1 - U.S. Adult Tobacco Use

In this chapter, we will examine adult tobacco use behaviors, first by looking at trends in the United States and then by examining global trends.

The United States has numerous surveillance systems that monitor tobacco use. Some of these systems, such as the Monitoring the Future Surveillance System and the Youth Risk Behavior Surveillance System, examine tobacco use by young people and will be discussed in the next chapter. The focus for this chapter will be on surveillance systems that monitor adult tobacco use (Table 2.1). These include the Behavioral Risk Factor Surveillance System, which provides state-specific estimates on smoking and other types of tobacco use, as well as the National Health Interview Survey, which presents trend data for adult smoking rates in the U.S. going back to the 1960s. The most recently developed system is the National Survey on Drug Use and Health, which is sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA) and provides data on both youth and adults and has the unique benefit of estimating smoking initiation rates.

We can examine tobacco use within a given population in two ways. One way is to look at tobacco use in terms of consumption, which means investigating the number of cigarettes smoked per capita. Another way is to measure tobacco use in terms of the rate or proportion of the population characterized as current smokers, former smokers, or never-smokers. As Table 2.1 demonstrates, there is some variation in the way that the different monitoring systems define a current smoker.

Table 2.1 Comparison of Tobacco Surveillance Systems in the U.S.

Survey Name	Sponsor	Sample Size	Population Surveyed	Survey Method	Definition of "Current Smoker"
Monitoring the Future	NIH	50,000	8th, 10th, & 12th Grade Students	Written Questionnaire	None. (Respondents are asked if they have ever smoked cigarettes, and how frequently they have smoked during the past 30 days).
Youth Risk Behavior Surveillance Survey	CDC	15,000	High School Students	Written Questionnaire	Smoked cigarettes on at least 1 day during the 30 days before the survey (20 of 30 days for "current frequent" smoker).
Behavioral Risk Factor Surveillance System	CDC	500,000	Adults	Phone	Smoked at least 100 cigarettes in their lifetime and now smoke every day or most days.
National Health Interview Survey	CDC	87,500	Adults	Computer Assisted Personal Interview	Smoked at least 100 cigarettes in their lifetime and now smoke daily or some days.
National Survey on Drug Use and Health	SAMHSA	70,000	Ages 12+	Computer Assisted Personal Interview	Smoked cigarettes on at least 1 day during the 30 days before the survey.

Key Takeaway

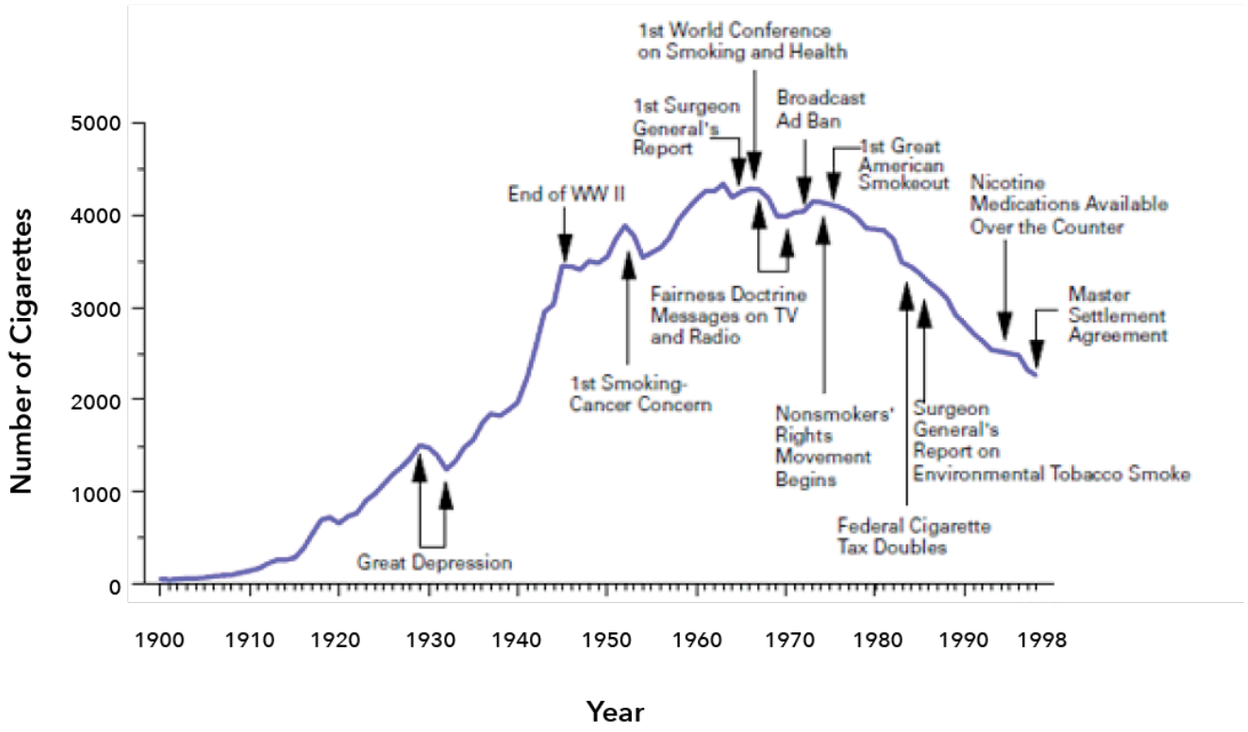
Tobacco surveillance systems may measure tobacco use in terms of consumption (the number of cigarettes smoked per capita) or in terms of prevalence (the proportion of the population characterized as smokers).

For example, the CDC defines current smokers as those who have smoked at least 100 cigarettes in their lifetime and currently smoke daily or some days. In this chapter, we will discuss both consumption patterns and rates (also known as prevalence rates or simply prevalence) of tobacco use.

Figure 2.1 represents one of the most important overviews of tobacco consumption in the U.S. and the developments that have resulted from tobacco control efforts in the 20th century. It shows the number of cigarettes smoked per capita across the span of the last century.

Figure 2.1 shows a rapid increase in cigarette consumption during the period between the First and Second World Wars, which may be associated with the inclusion of cigarettes in rations provided to soldiers fighting the war overseas. Cigarette use reached its peak during the 1960s, and

Figure 2.1 Adult (18 and over) per capita Cigarette Consumption and Major Smoking and Health Events, U.S. 1900-2012



then declined quite rapidly from then until the present. This decline in per capita consumption of cigarettes has been attributed to the release of various Surgeon General's Reports, the advent of nonsmokers' rights beginning in the 1980s, and increases in the price of cigarettes. Since the first Surgeon General's Report in 1964, when over 50% of men and nearly 40% of women smoked, prevalence rates have decreased by more than half. However, because of the population increases during this period, the total number of smokers in the U.S. is the same today as it was fifty years ago, even though smoking has become less common.

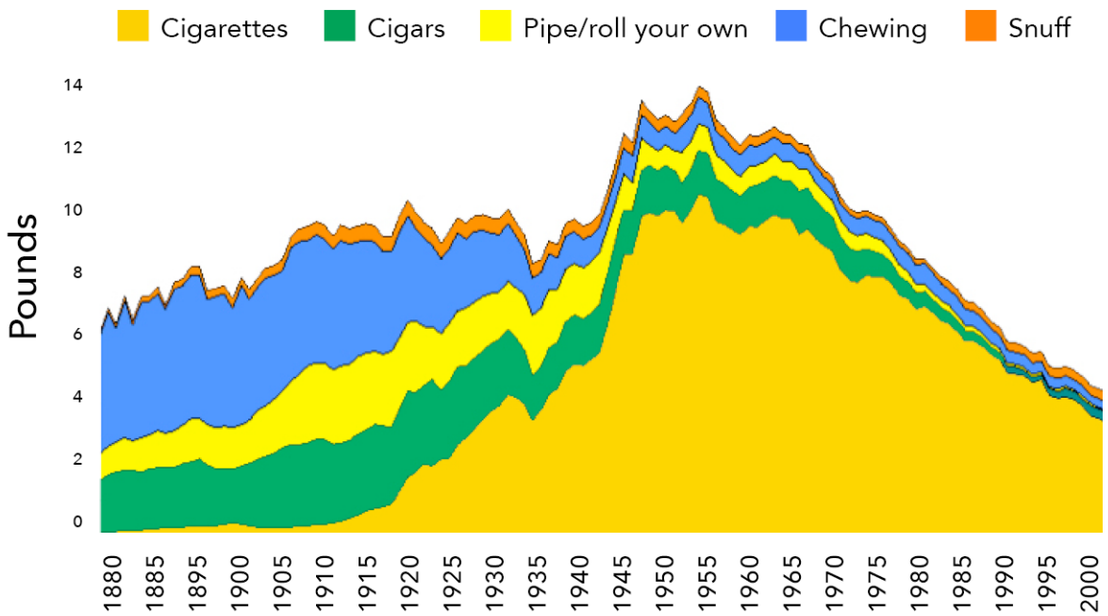
Key Takeaway

While cigarette consumption has declined since 2000, there has been a gradual increase in the use of alternative tobacco products. especially oral tobacco.

As we mentioned in the previous chapter, over 90% of all tobacco consumed in the U.S. is smoked in the form of cigarettes. The most recent data, from 2013, indicate that about 18% of U.S. adults smoke cigarettes. There has been a rapid decline in the total number of cigarettes smoked each year in the U.S.—from 435.6 billion in 2000 to 292.8 billion in 2011 (representing a 32.8 % decrease). For this period, annual per capita cigarette consumption also declined from 2,076 to 1,232 cigarettes, a 40.7% decrease.

Looking now at tobacco use patterns spanning from 1880 to 2000 (Figure 2.2), we can see that towards the end of the 19th century, the most commonly used tobacco products were chewing tobacco, pipe tobacco and cigars. A rapid increase in cigarette consumption occurred between 1900 and 1960, a phenomenon partly caused by the introduction of mass manufacturing capabilities for cigarettes, as well as increasingly sophisticated marketing and distribution systems. Today, most tobacco is consumed in the form of cigarettes with fairly minor use of cigars and pipe tobacco.

Figure 2.2 Trends in per capita Consumption of Various Tobacco Products, U.S., 1880-2001



However, starting in 2000, while there has been an impressive decline in cigarette consumption, there has simultaneously been a gradual increase in the use of alternative tobacco products, especially the various forms of oral tobacco. We will be exploring this pattern in more detail later in this chapter, as well as in Chapter 4.

In addition to monitoring and understanding smoking rates, it is also important to use it to set goals for reducing prevalence. Healthy People 2020 provides a framework for achieving specific science-based national objectives to improve the health of Americans. Launched in December 2010, the framework establishes a 10-year agenda and provides benchmarks with the aim of achieving national health goals by the year 2020. Under the "Framework for Ending the Tobacco Use Epidemic," Healthy People 2020 has set the ambitious goal of reducing cigarette smoking by adults to 12% by 2020 (Table 2.2)

Table 2.2 Healthy People 2020: Tobacco Use Objectives

Tobacco Use (TU) -1: Reduce tobacco use by adults		Prevalence as of 2008	2020 Prevalence Goal
TU-1.1	Reduce cigarette smoking by adults	20.6%	12.0%
TU-1.2	Reduce use of smokeless tobacco products by adults	2.3%	0.3%
TU-1.3	Reduce use of cigars by adults	2.2%	0.2%

Healthy People 2020 includes the following objectives with regard to tobacco:

- Tobacco Use Prevalence – Implementing policies to reduce tobacco use and initiation among youth and adults.

- Health System Changes – Adopting policies and strategies to increase access, affordability, and use of smoking cessation services and treatments.

- Social and Environmental Changes – Establishing policies to reduce exposure to secondhand smoke, increase the cost of tobacco, restrict tobacco advertising, and reduce illegal sales to minors.

While the U.S. has experienced a decline in smoking over the last 15 years, the change has been gradual, and the country is still far from its objective of a 12% smoking rate (Figure 2.3).

Figure 2.3 Prevalence of Current Smoking Among Adults (18 and over), U.S., 1997-2012

Smoking prevalence rates in the United States vary in ways that are not necessarily typical for other major public health risk factors. These variations are explored in the following pages.

Gender	Men are more likely than women to smoke.
Race/Ethnicity	Some groups smoke more or less than others.
Age	Most U.S. smokers are between the ages of 25 and 44.
Socioeconomic status	Lower-educated individuals and those living below the poverty level tend to smoke more.

In 1965, male smoking rates were at a higher level than female smoking rates, and the rate of male smoking has declined more in the latter part of the century. Today, men continue to smoke at a slightly higher rate than women, but in the U.S., the difference in smoking rates by gender is not very dramatic (Figure 2.4). Global smoking trends, discussed later in this chapter, will offer a marked contrast, demonstrating large variations in smoking prevalence for men versus women.

Key Takeaway

In the U.S., the difference between male and female smoking rates is relatively small.

Figure 2.4 Trends in Cigarette Smoking, Adults 18 and Older, U.S., 1965-2011

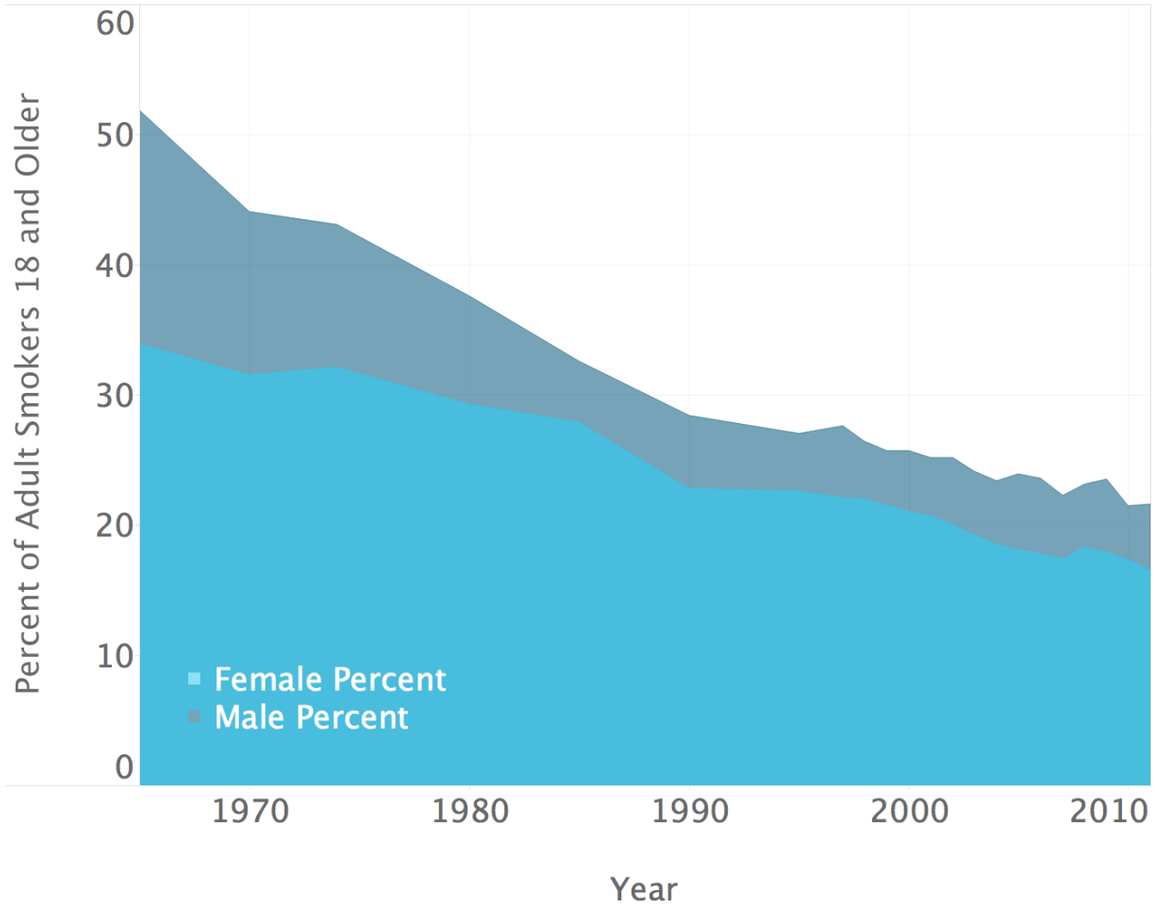
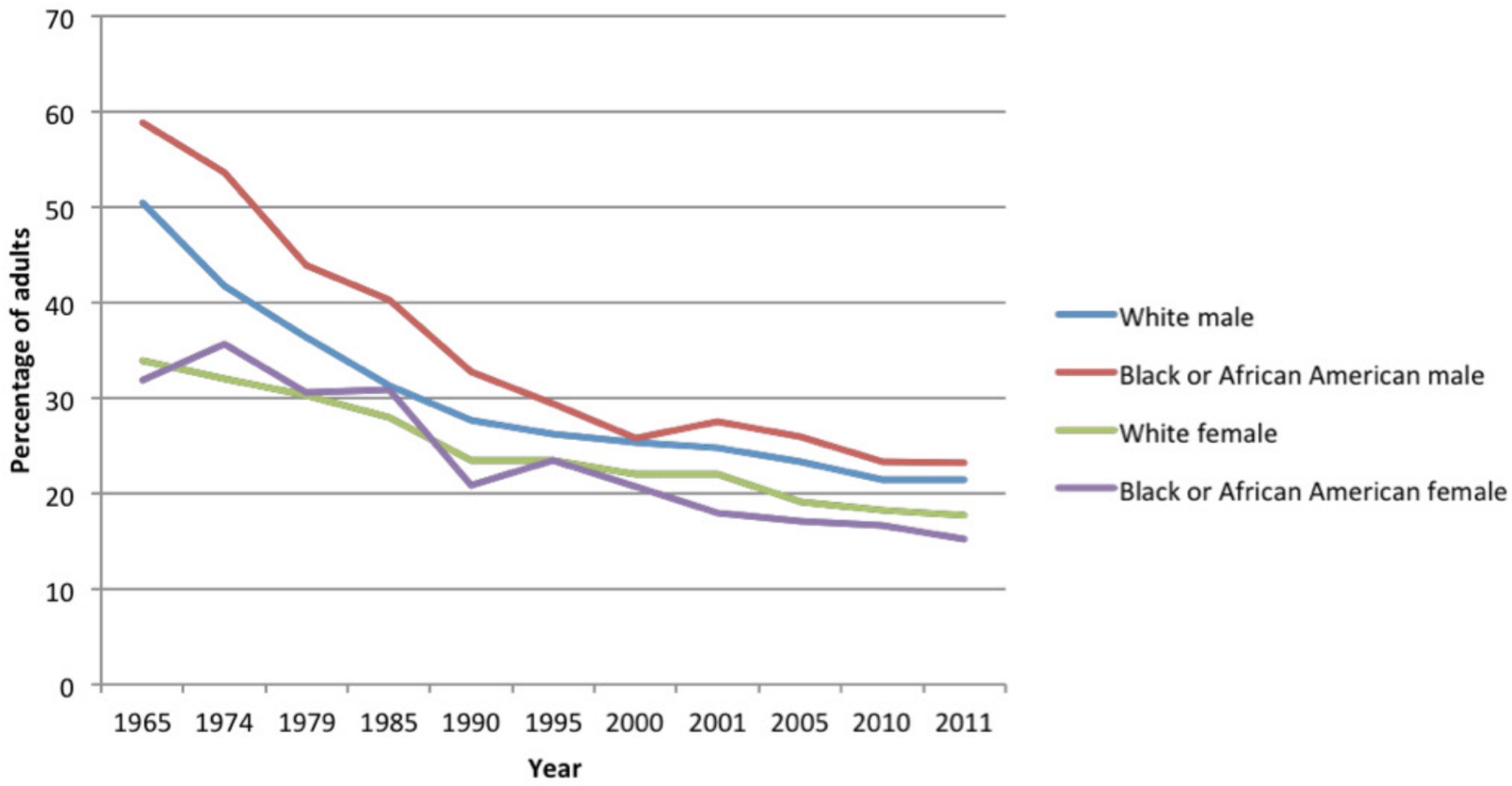


Figure 2.5 examines the differences in smoking rates by race and ethnicity. There is a rather large difference in smoking rates in 1965 based on gender and ethnicity, with the highest rates being found among African-American men, followed by white men—both with rates above 50%. For both white women and African-American women, smoking rates were between 30% and 35% in 1965. We see a dramatically different pattern in 2011. Here, there is very little difference between white and African-American men, and likewise a small difference between white and African-American women.

Figure 2.5 Current Cigarette Smoking Among Adults Age 18 and Over



Looking now at smoking with regard to different age categories (Figure 2.6) we can see that people between the ages of 25 and 44 experience the highest prevalence rate of any age group in the U.S. While smoking rates for most age groups hover somewhere between 18 and 25% during the time period shown here (2005-2011), Americans who are 65 years of age or older are much less likely to smoke, with smoking rates falling below 10%. This remarkable difference may be attributed to some extent to the fact that many smokers die before they reach the age of 65.

So far, we have seen gender differences in smoking rates as well as differences in race, ethnicity, and age. In Figure 2.7, we can see the most dramatic discrepancies in smoking rates as we look at some of the indicators of having a lower socioeconomic status—in this graph focusing on the varying education levels of smokers. The group of individuals who

Figure 2.6 Percentage of Adults (18 and over) who were Current Smokers, by Age Group, U.S., 2005-2011

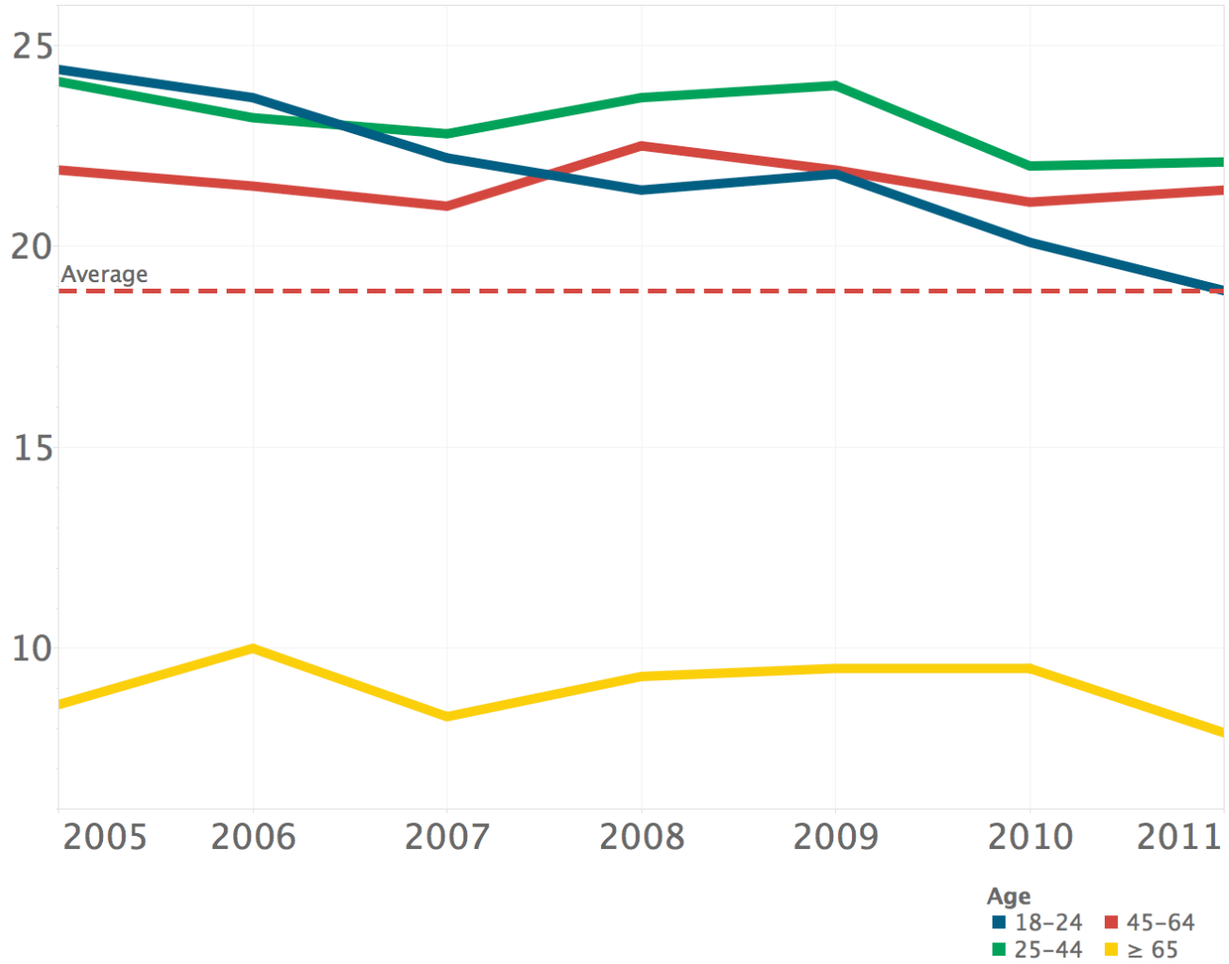
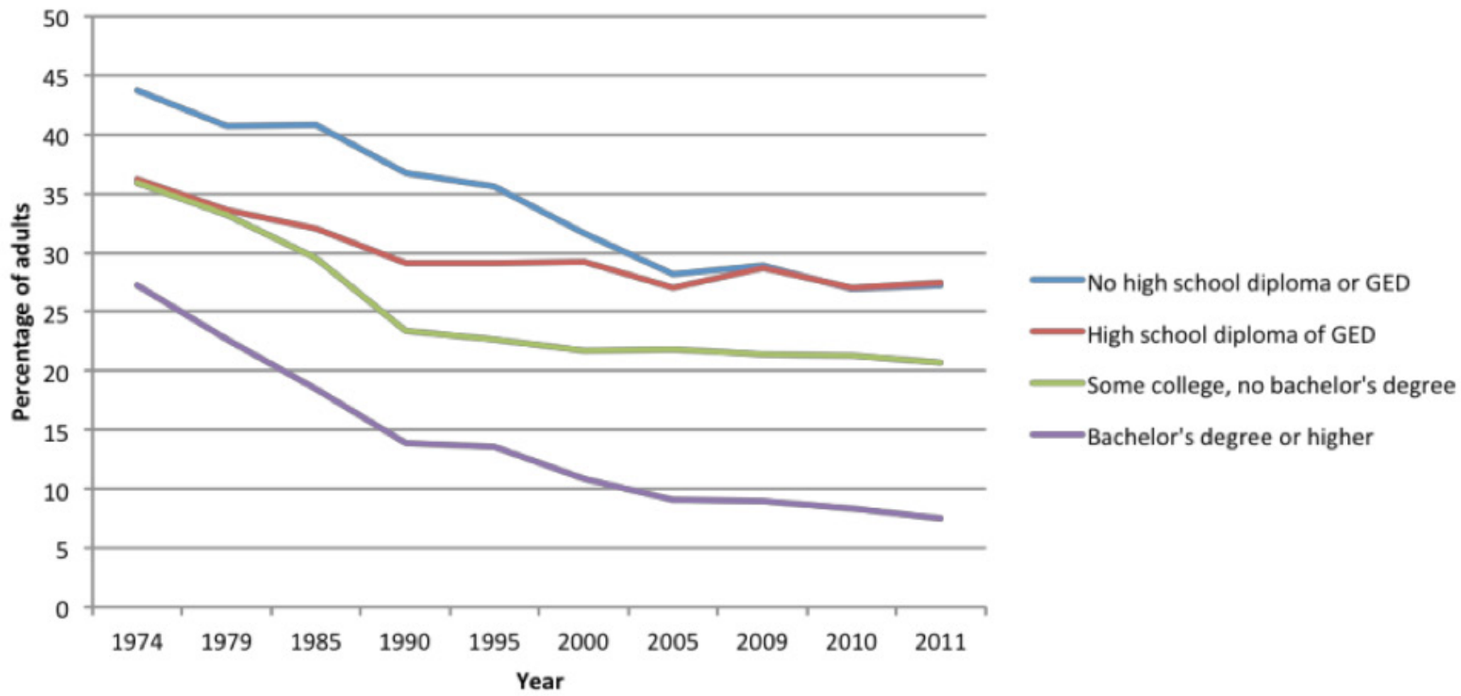


Figure 2.7 Age-adjusted Prevalence of Current Cigarette Smoking Among Adults (25 and over), by Education Level, U.S.



have completed a Bachelor's degree or higher had a smoking rate of less than 10% in 2011, whereas those with only a high school diploma or GED or who have dropped out of high school had smoking rates of nearly 35%. This threefold difference in smoking rates between the most educated and the least educated tells an important story about smoking in America today: individuals who have lower socioeconomic status and less education suffer the most from the burden of tobacco use.

To further illustrate smoking rates as a function of poverty, Figure 2.8 compares adult male smoking rates by levels of income. The yellow line represents individuals who are living below the poverty line in the U.S. and

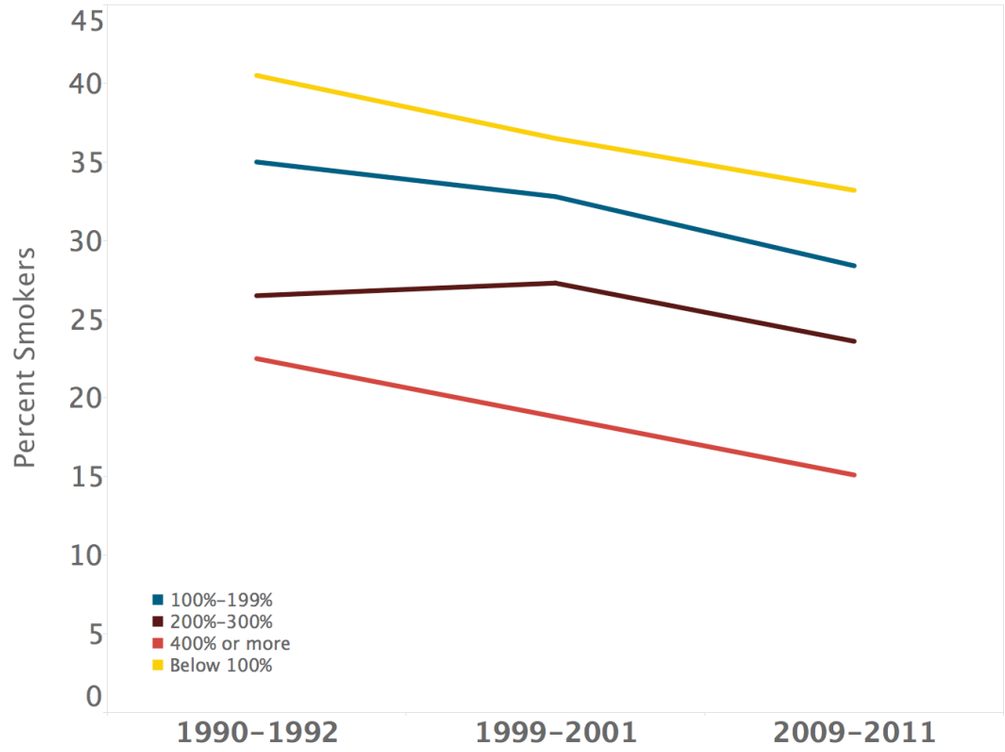
Key Takeaway

Individuals who have lower socioeconomic status and less education suffer the most from the burden of tobacco used.

clearly, this group consistently has the highest smoking rates. The wealthiest Americans, represented by the red line, are those who have an income at least four times as much as the poverty line, and also have the lowest smoking rates.

To summarize briefly, there is a persistent connection between lower socioeconomic status and smoking. In 2011, 29% of American adults who were current smokers lived below the poverty level. In the same year, among those living at or above the poverty level, only 17.9% were current smokers.

Figure 2.8 Male Adult (18 and over) Current Cigarette Smoking, by Percent of Poverty Level, U.S.



As mentioned above, the overall smoking prevalence for adults in the U.S. is approximately 18%. But the situation is much more complex than that simple percentage might suggest. To further deepen our understanding of some of the nuances of smoking prevalence in the U.S., Table 2.3 provides prevalence data on various populations.

Certain populations are at an increased risk of using tobacco. As Table 2.3 shows, many of these populations experience smoking rates that are much higher than the national average. Between 74% and 88% of drug users are current smokers, as are more than two-thirds of those who suffer from mental illnesses such as schizophrenia and bipolar disorder.

Homelessness, educational attainment, disability and sexual orientation are important factors associated with higher smoking rates.

Public health advocates seeking to design intervention programs for tobacco users need to understand how these specific factors are related to smoking. Communications and intervention

Table 2.3 Smoking Prevalence Among Special Populations, U.S.

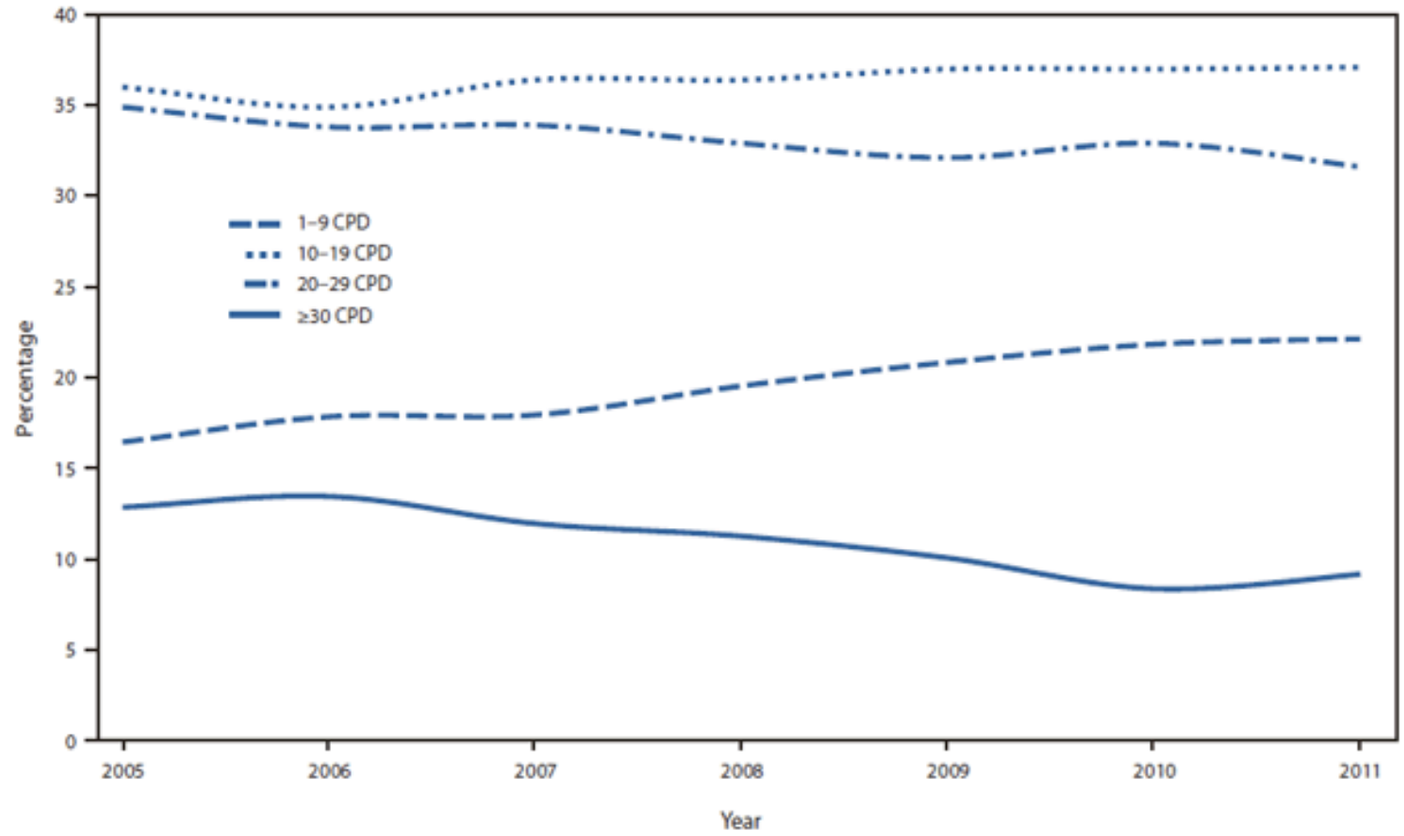
Population	Smoking Prevalence
Drug use	74%-88%
Bipolar disorder	69%
Alcohol abuse/dependence	68%
Schizophrenia	64%-74%
Generalized anxiety disorder	55%
Depression	34%-60%
Homeless	70%-78%
HIV/AIDS	47%-65%
General Education Development (GED)	46%
Young adults with cancer	43%
Military	34%
Men who have sex with men	33%
Mobility impaired	33%
Native Americans	32%
Below poverty level	31%

programs should be directed at populations that have a higher risk of smoking and thus tobacco-related illnesses.

In addition to higher smoking prevalence rates, many special populations suffer a disproportionate burden of disease for a variety of reasons. For example, many of them do not have access to effective cessation treatments. They may be less likely to see a physician or to be advised to quit by their doctors. For some, tobacco use may interact with other risks that cause them to be vulnerable, which means that the effects of smoking are often compounded by other factors associated with having lower socioeconomic status such as poverty, education level, and occupation type.

Besides prevalence rates, another important aspect to consider when looking at tobacco use is the number of cigarettes smoked per day. Figure 2.9 shows changes in the proportion of smokers in the U.S. from 2005 to 2011 in terms of the number of cigarettes smoked per day. The most notable change is a decrease in persons we would consider to be heavy smokers—those who smoke 30 or more cigarettes per day, represented by the solid blue line. This is accompanied by an increase in light smokers—those who smoked 1-9 cigarettes per day as represented by the dashed line. The decrease in heavy smokers and increase in light or occasional smokers is an optimistic trend because there is a clear relationship between the number of cigarettes smoked per day and the risk of disease.

Figure 2.9 Percentage of Daily Smokers (18 and over), by Number of Cigarettes Smoked Daily, U.S., 2005-2011



The number of cigarettes smoked by an individual is a good predictor of the risk of disease that individual will experience. Christopher Haiman et al. studied the relationship between a person's level of smoking and likelihood of disease. Table 2.4 shows the risk of smoking-related lung cancer among current and former smokers, and differentiates among the groups by race and ethnicity, as well as by their levels of smoking. The first row shows the relative risk of getting lung cancer for those who smoke 10 or fewer cigarettes per day. With African Americans serving as the reference group (1.00 relative risk), the relative risk of getting lung cancer is .88 for Native Hawaiians – a difference from African Americans not considered statistically significant. But for Latinos who smoke 10 or fewer

Table 2.4 Relative Risks of Smoking-Related Lung Cancer Among Current and Former Students, by Level of Smoking

Smoking Level	African-American	Native Hawaiian	Latino	Japanese American	White
≤10 Cigarettes/day Relative Risk (95% CI)	1.00	0.88 (0.60-1.29)	0.21 (0.14-0.31)	0.25 (0.18-0.36)	0.45 (0.34-0.60)
11-20 Cigarettes/Day Relative Risk (95% CI)	1.00	0.90 (0.74-1.12)	0.36 (0.29-0.44)	0.39 (0.32-0.47)	0.57 (0.49-0.68)
21-30 Cigarettes/Day Relative Risk (95% CI)	1.00	0.93 (0.72-1.21)	0.61 (0.46-0.79)	0.61 (0.46-0.74)	0.73 (0.61-0.88)
≥31 Cigarettes/Day Relative Risk (95% CI)	1.00	0.95 (0.66-1.35)	0.79 (0.55-1.13)	0.75 (0.57-1.00)	0.82 (0.64-1.05)

Relative risks were adjusted for the duration of smoking, sex, and the time since quitting. African Americans served as the reference group. CI denotes confidence interval.

cigarettes per day, the relative risk of getting lung cancer is 0.21; for Japanese Americans it is 0.25; and for white Americans it is 0.45. Thus, we see that race and ethnicity play a role in determining the relative risk of getting lung cancer for light smokers: African Americans and Native Hawaiians who smoke 10 cigarettes or fewer every day are at much greater risk of developing lung cancer than Latinos, Japanese Americans and whites who smoke the same amount.

The next row, showing data for people who smoke 11-20 cigarettes per day, follows a very similar pattern, with African Americans and Native Hawaiians experiencing the highest risk.

However, the relationship changes as we look at heavy smokers—those who smoke 31 or more cigarettes per day. Again, African Americans are the reference group (1.00 relative risk), and Native Hawaiians are still at high risk (0.95). But in this row, we can see that Latinos, Japanese Americans and whites have relative risks with confidence intervals that surround 1.00, meaning that in the case of heavy smokers, these groups are no longer protected by their race or ethnicity as they were in the other smoking levels. In other words, whatever protective effect race and ethnicity may have had for light or moderate smokers is clearly negated by those who smoke at least a pack and a half per day.

In the U.S., the decline in consumption of combustible tobacco products in the last decade or so has been accompanied by a rise in alternative tobacco products, including combustible non-cigarette products, such as cigars, cigarillos, and roll-your-own tobacco. Smokeless tobacco products, such as Skoal, Copenhagen, and Snus, which are put in the mouth and either chewed or sucked on, are increasing in popularity. Although cigarette use is declining, the use of smokeless tobacco products is increasing in the U.S., and alarmingly, they are most prevalent among young adults. Individuals aged 18-25 use these products at higher rates (5.4%) than their younger (2.1%) or older (3.0%) counterparts. In 2011, approximately 3.2% of U.S. citizens aged 12 and over were current smokeless tobacco users. Males use smokeless tobacco at higher rates than females (6.2% vs. 0.4%).

Likewise, novel nicotine products such as e-cigarettes continue to grow in popularity. In 2009, 16% of the U.S. population were aware of e-cigarettes and less than 1% had tried them. Just a few years later in 2015, just over 87% of the U.S. population were aware of e-cigarettes and 17% had tried them.

Section 2 - Global Adult Tobacco Use

In the first part of this chapter, we examined the surveillance systems that provide useful information on tobacco use in the United States. Now, we will discuss similar systems that exist on a more global level.

There are a number of very exciting developments with respect to global tobacco surveillance systems. The Global Adult Tobacco Survey (GATS), primarily funded by Bloomberg Philanthropies, provides standardized and comparable data on adult smoking. GATS was originally implemented in 15 countries that were considered priority countries by Bloomberg, and has since continued to expand and include more countries.

The World Health Organization (WHO) assembles data using different country-specific survey methods in order to construct their country profiles, which contain prevalence data. In addition, there are global as well as continent-specific surveillance systems that are focused on tobacco use among youth.

In this section, we will examine some of the important data on global adult tobacco use gathered through these surveys (Table 2.5).

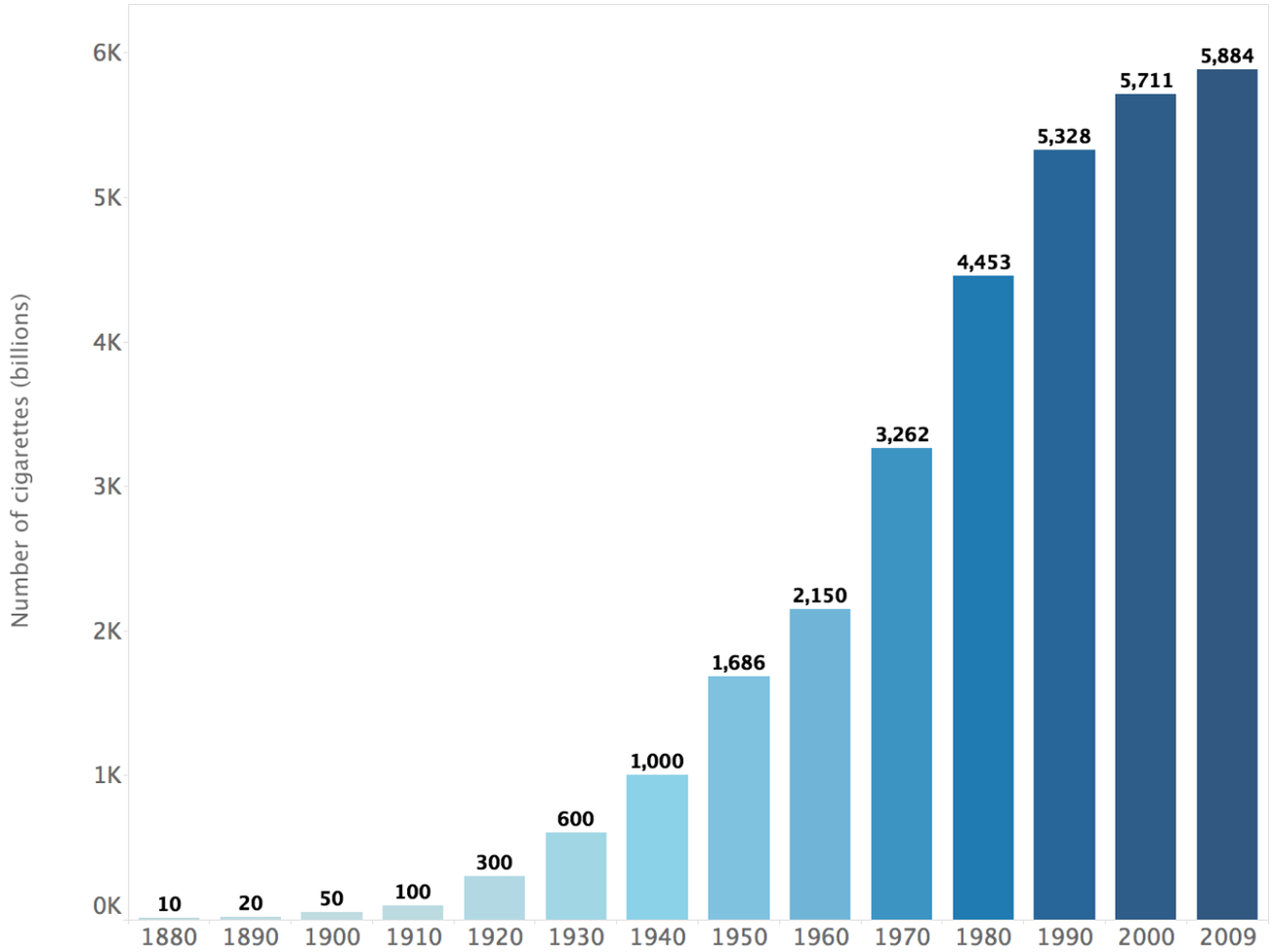
Table 2.5 Comparison of Global Tobacco Surveillance Systems

Survey	Sponsor	Sample Size	Population	Method	Definition of a current smoker
Global Adult Tobacco Survey (GATS)	WHO, CDC, Bloomberg School of Public Heatlh	2,000 - 40,000 per site	Adults 15+	Computer Assisted Personal Interview	Daily or occasional smoking during the 30 days before the survey
Global Youth Tobacco Survey (GYTS)	Canadian Public Health Association, NCI, UN Children Emergency Fund, and WHO	1,875 - 24,375 per site	Students 13-15	Written Questionnaire	Smoked cigarettes on at least 1 day during the 30 days before the survey
WHO TFI Country Profiles	WHO	Prevalence data for these reports is provided from country specific surveys that vary in methodology, therefore sample sizes, population, method, and definition of current smoker vary considerably by country.			
Global School Based Health Survey	WHO, UNICEF, UNESCO, UNAIDS	Varies by site	Student 13-17	Written Questionnaire	Smoked cigarettes on at least 1 day during the 30 days before the survey
Health Behavior in School Aged Children Survey (HBSC)	WHO Europe	~1,500 per site	Students 11, 13, and 15	Written Questionnaire	Students that report smoking once per week

Figure 2.10 shows a pattern for global cigarette consumption in the 20th century that is not too different from the pattern we observed for U.S. consumption. At the start of the century, we see very low rates of smoking, followed by a very rapid increase beginning around the 1920s. In 2009, nearly six trillion cigarettes were consumed around the world. It is still unknown whether these numbers will begin to fall, continue to increase, or plateau.

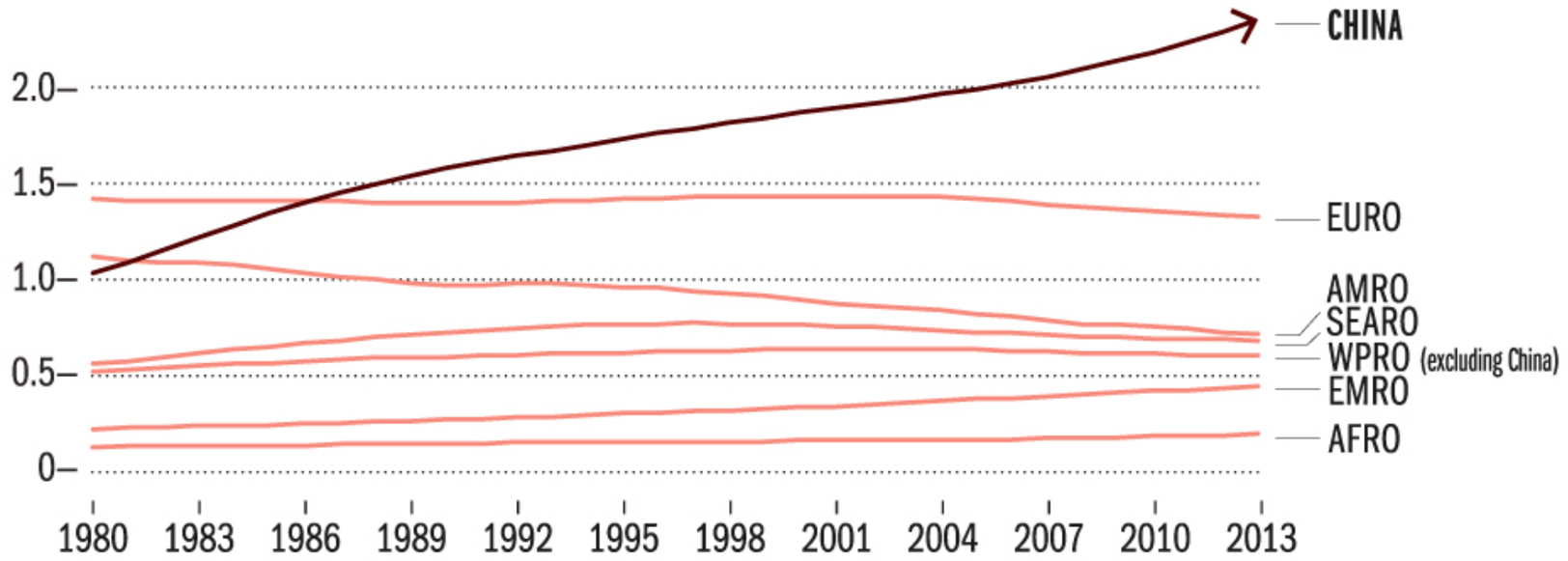
While it is helpful to look at this graph and see how many cigarettes are smoked globally, it is important to keep in mind that it measures overall total consumption and is not adjusted for population size. As the global population grows, it is likely that cigarette consumption will increase simply because the number of smokers in the world has increased.

Figure 2.10 Global Cigarette Consumption Increased More Than 100 Times in a Century



Cigarette consumption varies greatly in the different regions of the world (Figure 2.11). In recent years, reductions in smoking rates have occurred in the United Kingdom, Australia, Brazil and other countries. These reductions have been offset by the growing cigarette consumption in China. China now consumes more cigarettes than all other low- and middle-income countries combined. The African region is most at risk for increased tobacco use due to recent population and economic growth.

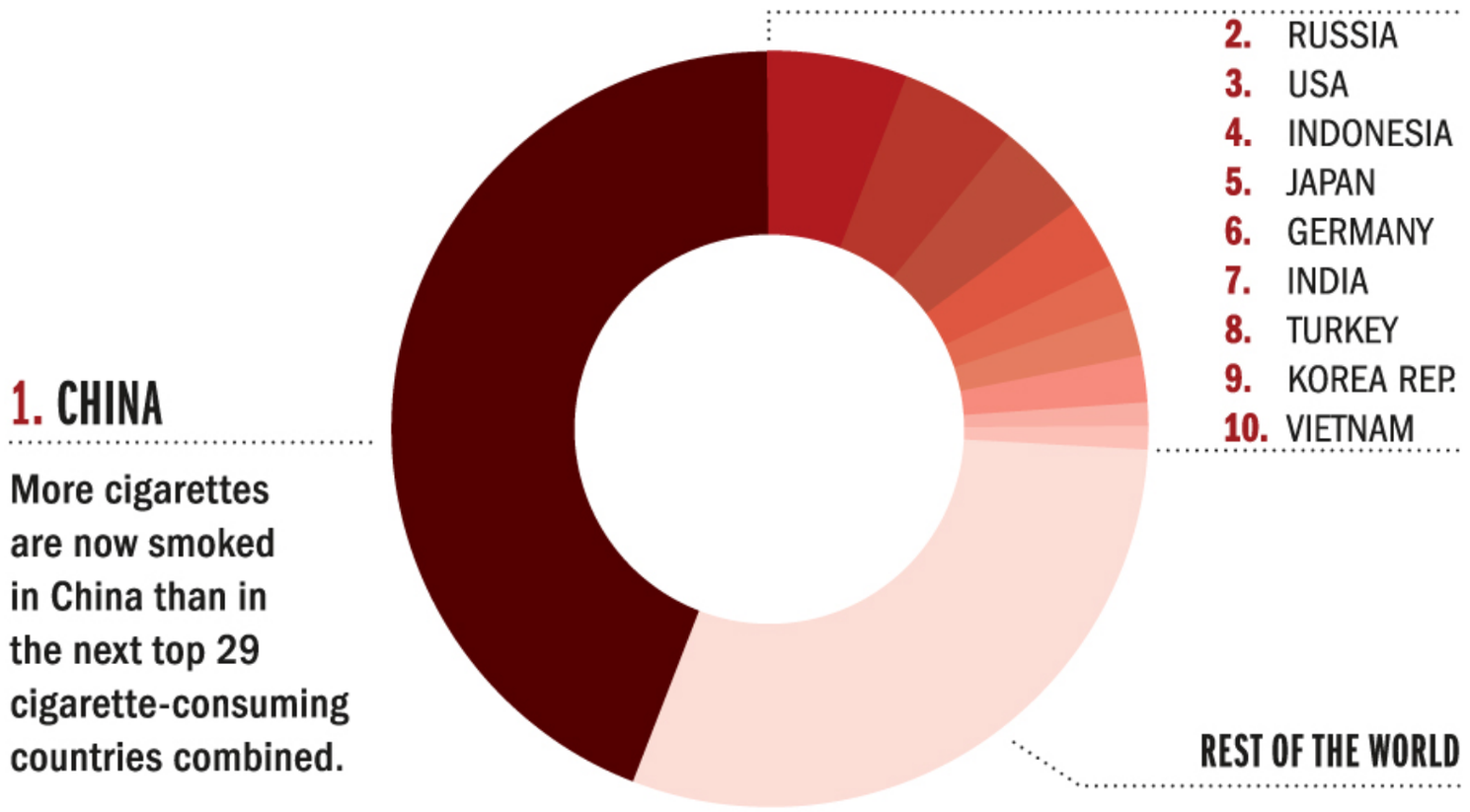
Figure 2.11 Regional Cigarette Consumption in Trillions, 1980-2013



As shown in Figure 2.12, China alone consumes nearly half of the cigarettes smoked globally. Russia, the U.S., Indonesia and Japan round out the top five cigarette consuming countries. There are an estimated 1 billion adult smokers worldwide. Eighty percent of male and 50% of female smokers live in low- and middle-income countries.

A report published in the *The Lancet*, a leading medical journal, highlighted data collected using the Global Adult Tobacco Survey (GATS) from 14 developing nations. **Take a look at the findings**, which

Figure 2.12 Top 10 Global Cigarette Consuming Countries, 2014



show disproportionate smoking rates in men vs. women (41% men vs. 5% women) and a large variation in smoking prevalence rates among the 14 countries included in the survey.

As we mentioned in our discussion of U.S. tobacco use in the previous section, smoking rates vary by gender, region, and socioeconomic status. This is also true when we look at global smoking rates.

First, let's examine male smoking around the world. Figure 2.13 shows global male smoking rates, with the darker colors showing the highest rates of smoking. As you can see, male smoking rates vary considerably around the world. There are nearly 820 million adult male smokers worldwide.

Figure 2.13 Percent of Adult Males Who Smoke Cigarettes, 2013

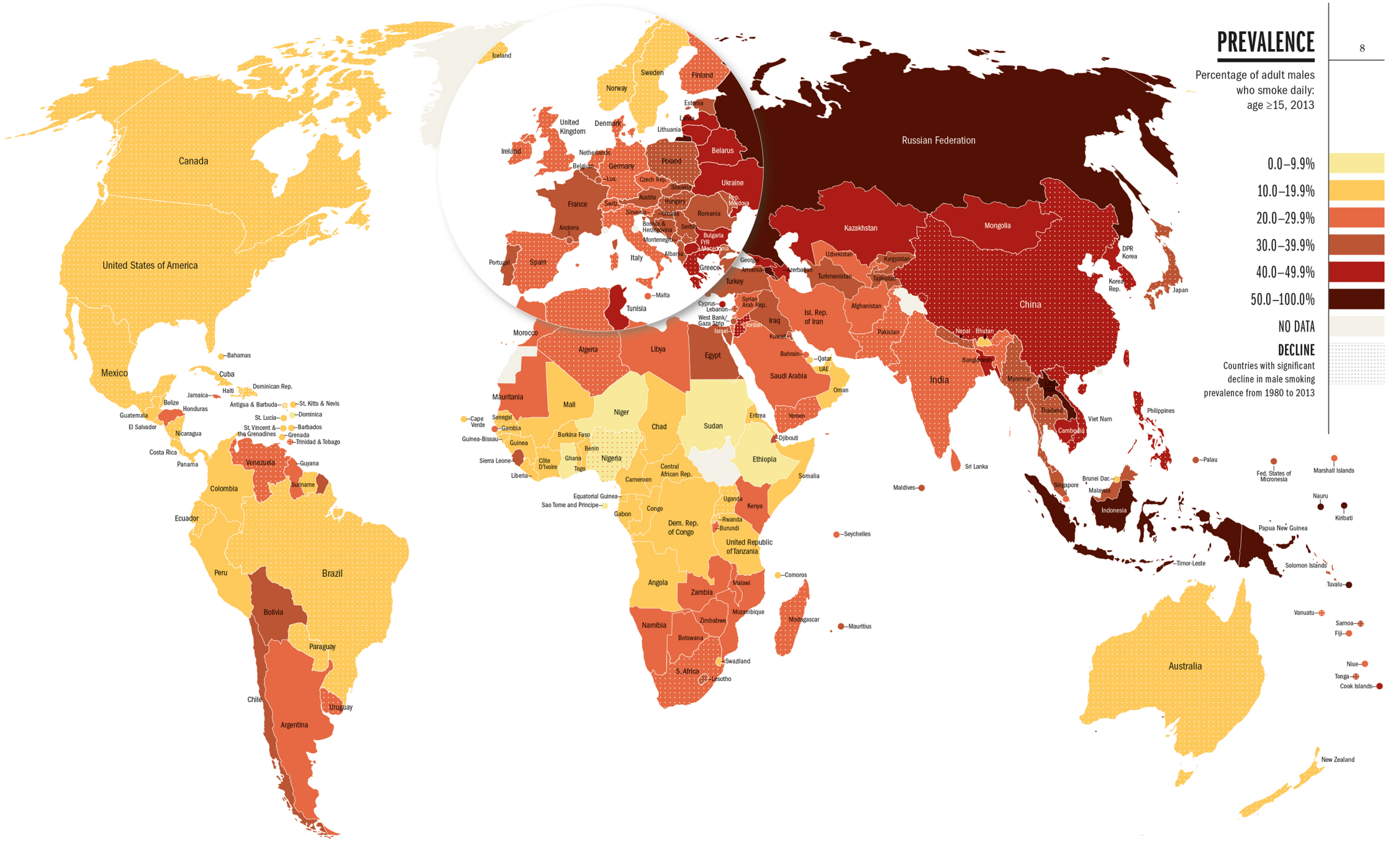


Table 2.6 Average Adult Male Smoking Prevalence by Region, 2010

WHO Region	Average
AFRO	16.8%
EMRO	29.2%
EURO	39.1%
PAHO	24.9%
SEARO	32.2%
WPRO	40.8%
Global Average	**30.6%**

In Table 2.6, we examine male smoking rates in each of the WHO regions, and see that adult male smoking prevalence varies by region and country income category.

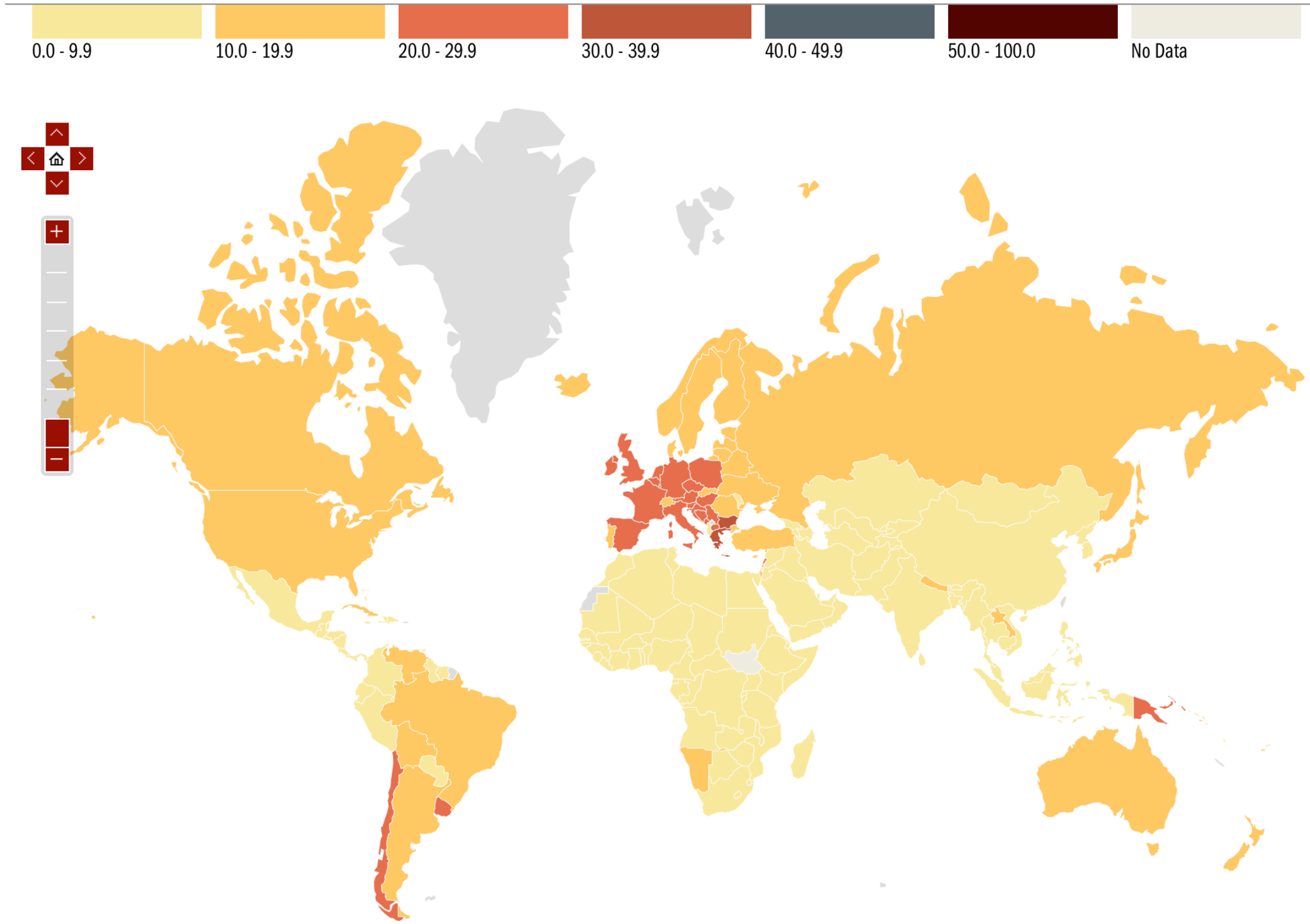
- The average male smoking prevalence rate is 30% in high-income countries, 33.5% in middle-income countries and 21% in low-income countries.
- The African region (AFRO) has the lowest average male smoking prevalence in both low- and middle-income countries.
- The South-East Asian region (SEARO) is the only region in which high-income countries have a higher smoking prevalence than middle- or low-income countries.

Table 2.7 shows 13 countries that each have more than 10 million daily male smokers who are over the age of 15.

Table 2.7 Countries With More Than 10 Million Adult Male Daily Smokers, 2013

Country Name	Number of Smokers (millions)
China	264.0
India	106.0
Indonesia	50.6
Russian Federation	27.7
Bangladesh	24.5
USA	21.6
Japan	18.9
Pakistan	17.2
Viet Nam	14.2
Philippines	12.9
Brazil	12.2
Turkey	10.6
Egypt	10.1

Figure 2.14 Percent of Adult Females Who Smoke Cigarettes, 2013



Now turning our attention to smoking rates among women, we see a different picture than the one we saw with men. Of the 1 billion adult smokers in the world, 176 million are women. The lower prevalence rates for women show that we have the chance to prevent smoking initiation among women in many areas of the world, and thus avoid unnecessary addiction, illness and death.

On the map in Figure 2.14, the darkest colors show the highest smoking rates—this time for women. Immediately, you can see that the highest female smoking rates in the world are found mostly in Eastern Europe, including Russia, with some high rates scattered around South America. There are many countries with female smoking prevalence rates below 10%. Most of those countries are found in the African and Eastern Mediterranean regions and are classified as low- or middle-income. It is also interesting to note that some of the lowest female smoking rates are found in Southeast Asia, most notably China.

As we previously observed in prevalence rates among men, female smoking rates vary greatly by region and country income category (Table 2.8).

Table 2.8 Average Adult Female Smoking Prevalence by Region, 2010

WHO Region	Average
AFRO	1.6%
EMRO	4.3%
EURO	20.6%
PAHO	11.1%
SEARO	6.1%
WPRO	14%
Global Average	11.2%

- The average female smoking prevalence rate is 18% in high-income countries, 10.1% in middle-income countries and 2.6% in low-income countries.
- The European region (EURO) has the highest average female smoking prevalence with the highest smoking countries falling into the high- and middle-income categories.
- The South-East Asian region (SEARO) is the only region in which low-income countries have a higher smoking prevalence than high- or middle-income countries.
- The African region (AFRO) has the lowest average smoking prevalence for females in both low- and middle-income categories.

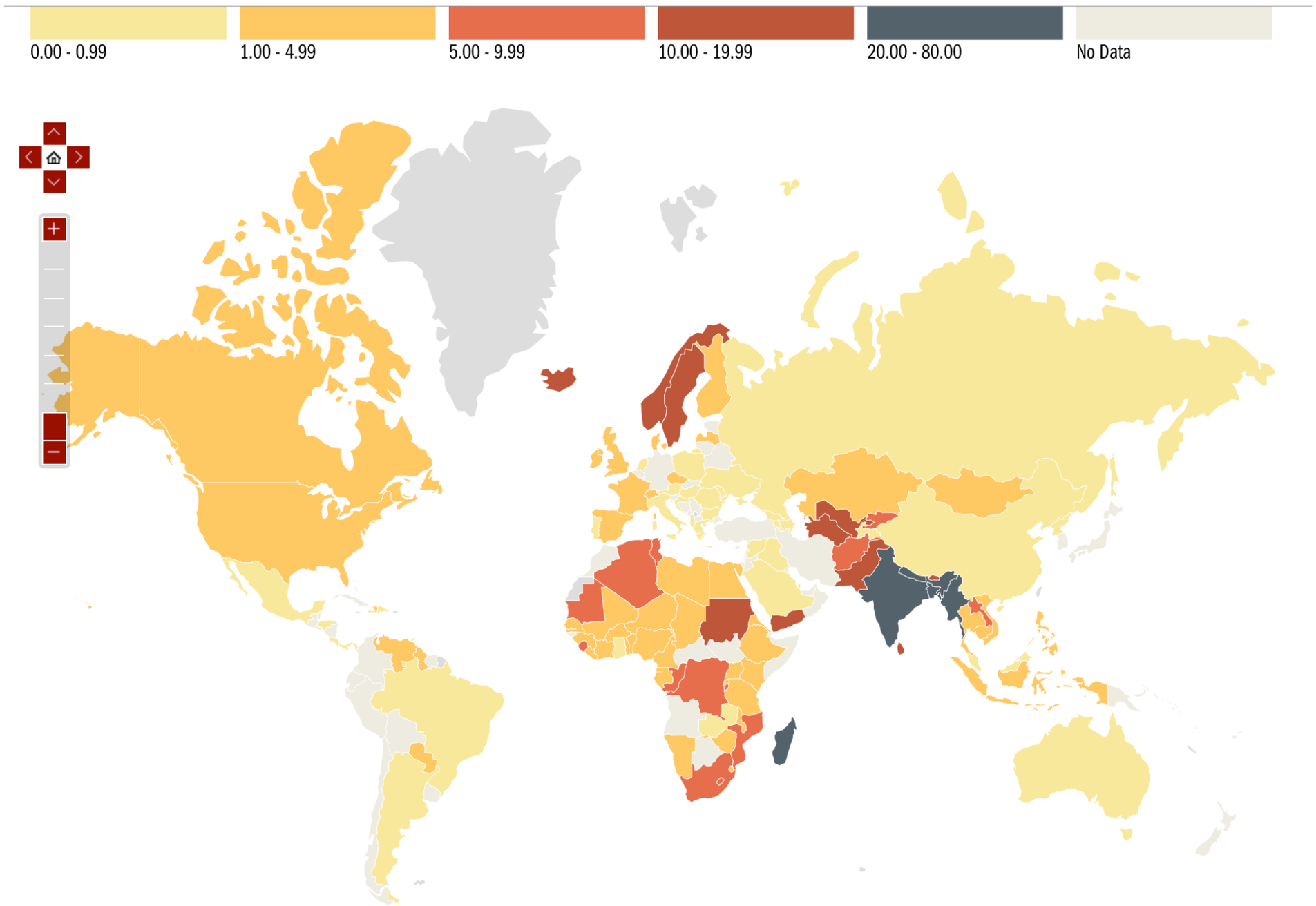
In general, adult males smoke more than adult females and gender disparities are common in many countries (Table 2.9). The greatest differences are seen in these 15 countries, in which male prevalence is dramatically different from female prevalence. Interestingly, there are two countries (Sweden and Nauru) where more women smoke than men. The smoking differences between males and females often portrays an opportunity for public health best practices that have the potential to keep female smoking rates low in many countries. Unfortunately, even if smoking rates remain low among women, women are still victims of secondhand smoke from male smokers.

Table 2.9 Countries with Substantial Differences in Male and Female Smoking Prevalence, 2010

Country	Male Current Prevalence	Female Current Prevalence	Difference
Indonesia	57.2%	3.7%	53.5%
Georgia	56.6%	5.7%	50.9%
Tunisia	52.7%	3.6%	49.1%
Armenia	50.9%	2.1%	48.8%
China	50.4%	2.1%	48.3%
LAO PDR	46.8%	2.9%	44%
Malaysia	45.6%	1.9%	43.8%
Kyrgyzstan	44.8%	1.9%	42.9%
Rep. Korea	49.3%	6.6%	42.7%
Mongolia	48.2%	5.9%	42.3%
Thailand	45%	2.7%	42.3%
Albania	60.1%	19.4%	40.7%
Libyan Arab Jamahiriya	41.6%	1%	40.6%
Azerbaijan	41.2%	0.6%	40.6%
Belarus	48.9%	8.8%	40.1%

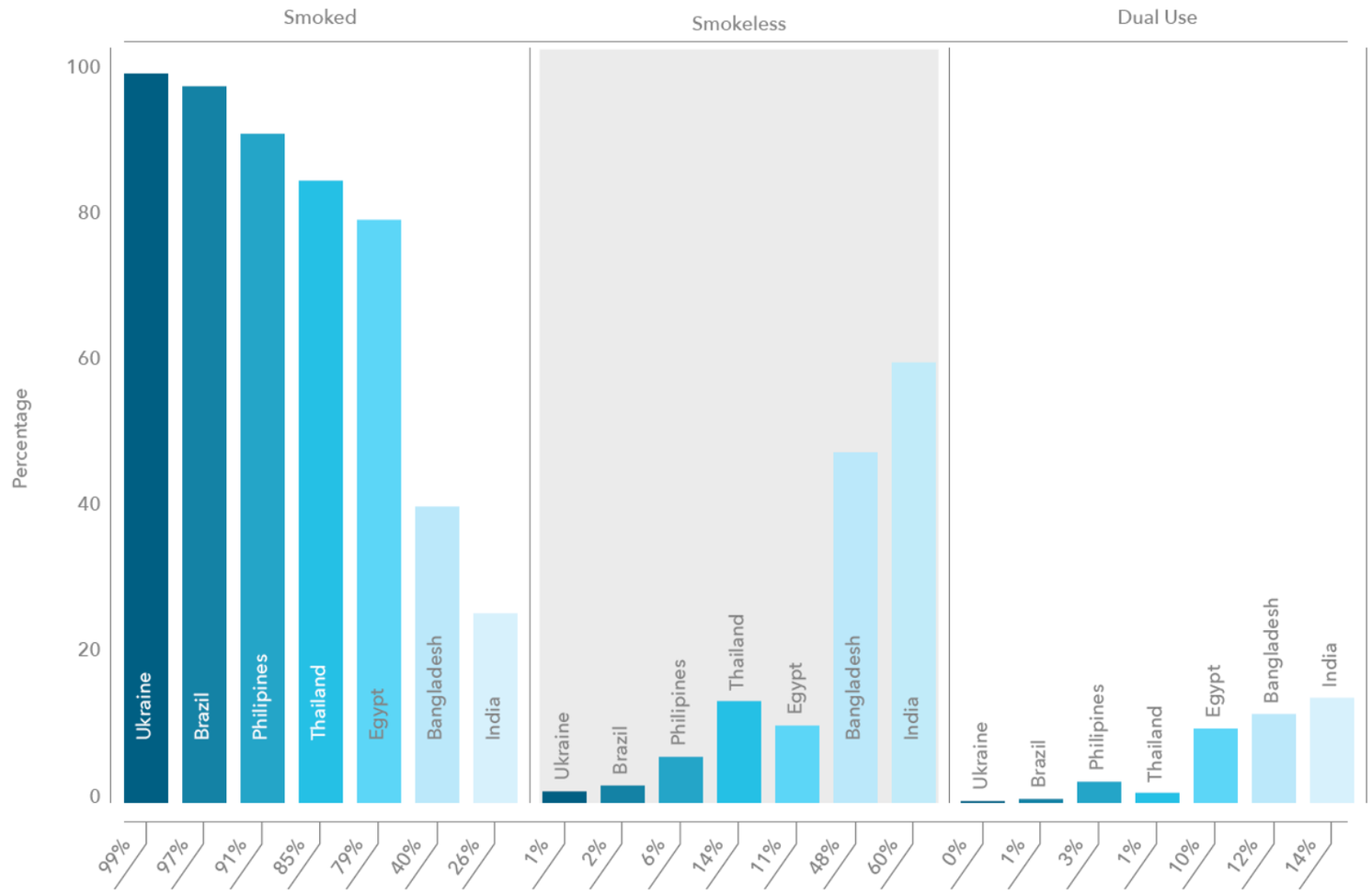
Smokeless tobacco use, which is found throughout the world, is particularly common in a few specific countries. In **Figure 2.15**, the darkest colors represent the countries with the highest prevalence of adult smokeless tobacco use. The map shows that these products are very heavily used in South Asia, particularly in India and Bangladesh, as well as in some Scandinavian countries where oral tobacco is quite common.

Figure 2.15 Patterns of Adult Smokeless Tobacco Use, 2013



Besides the intrinsic harmfulness of smokeless tobacco products, an additional concern is the fact that they are often used in conjunction with cigarette smoking. We use the term "dual use" to refer to use of both cigarettes and another form of tobacco, such as smokeless tobacco. Figure 2.16 shows the variations in the prevalence of dual use in select countries. In India, for example, we can see that about 60% of current tobacco users consume only smokeless tobacco, approximately 25% use only

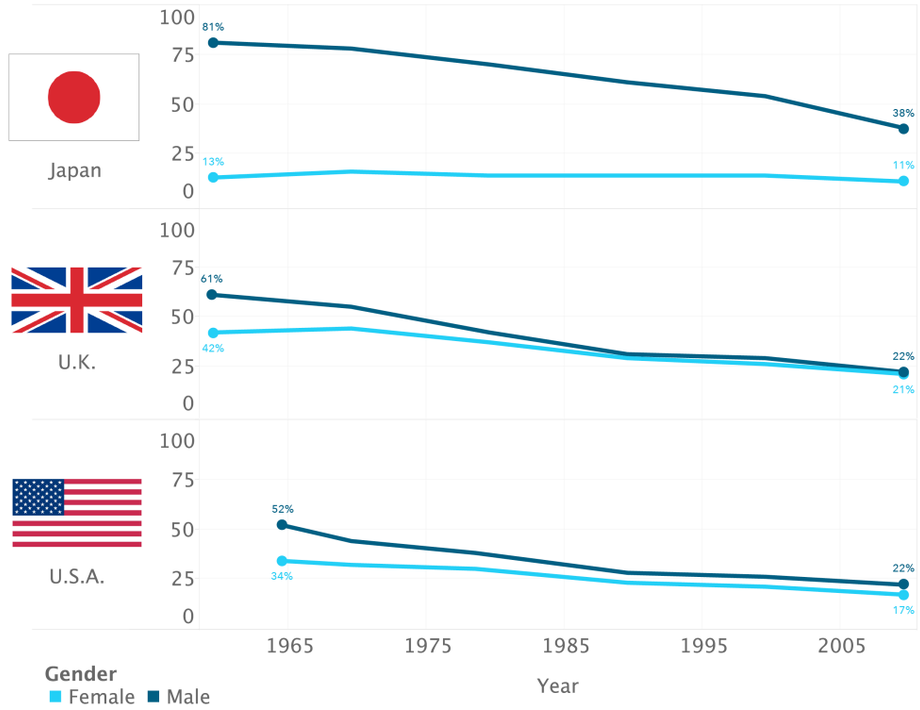
Figure 2.16 Patterns of Smokeless and Smoking Dual Tobacco Use



cigarettes, and 15% use a combination of both. Dual users are at a higher risk for tobacco-related diseases.

There is much work still to be done to minimize or eliminate the harms of tobacco globally. The good news is that smoking prevalence has been decreasing in many countries, such as Japan, the United Kingdom, and the U.S., thanks to tobacco control efforts, evidence-based practices and general education and awareness about the impacts and harms caused from smoking (Figure 2.17).

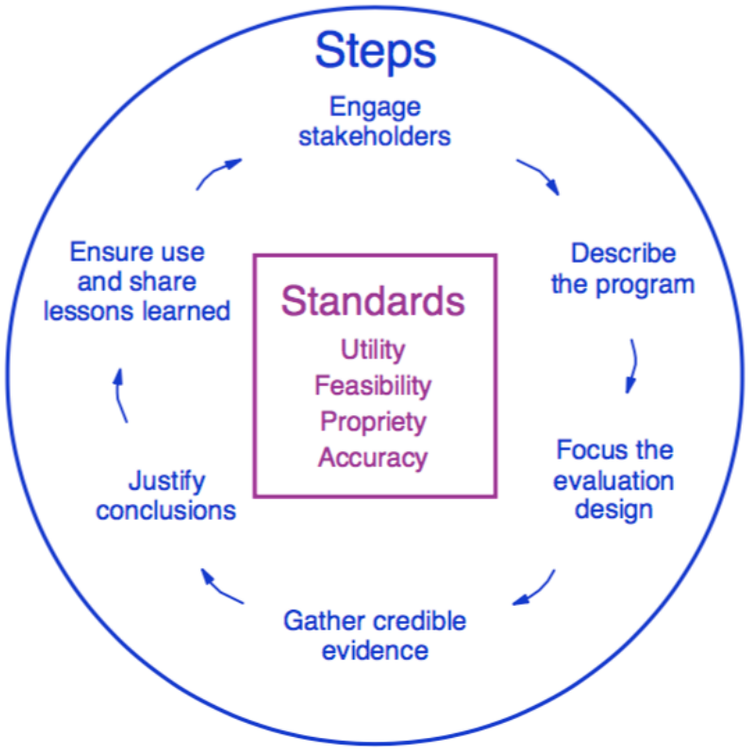
Figure 2.17 Male and Female Smoking Trends



The strengths of the U.S. and global surveillance systems mentioned in this chapter have been tested and proven over time. It is critically important that surveillance systems and programs be evaluated to ensure their effectiveness and accuracy. Evaluation must be a part of program conceptualization from the beginning and remain a focus throughout all aspects of the program planning, implementation and results tracking.

Figure 2.18 shows the CDC's recommended framework for program evaluation. As noted by CDC, "effective program evaluation is a systematic way to improve and account for public health actions by involving procedures that are useful, feasible, ethical, and accurate."

Figure 2.18 CDC's Recommended Framework for Program Evaluation



Chapter 2 Discussion Questions:

1. What steps should the U.S. take to meet the Healthy People 2020 Prevalence Goals? How likely are we to meet these goals?
2. What do you think accounts for the disparities in race and gender for the United States outlined in this chapter?
3. What public health interventions should be taken to address the smoking disparities observed in special populations, such as those with minority sexual orientations or mental illness?
4. Why do you think higher smoking prevalence rates are found in low- and middle-income countries? What interventions can the public health field take to address this growing trend?

Figures and Tables

Table 2.1: Comparison of Tobacco Surveillance Systems in the U.S.

Source: NIH, CDC, SAMHSA

Figure 2.1: Adult (18 and over) per capita Cigarette Consumption and Major Smoking and Health Events, U.S. 1900-2012

Source: Centers for Disease Control and Prevention. (1999). Achievements in Public Health, 1900-1999: Tobacco Use -- United States, 1900-1999. *MMWR*, November 05, 1999 / 48(43);986-993.

Figure 2.2: Trends in Per Capita Consumption of Various Tobacco Products, U.S., 1880-2001

Source: Tobacco Situation and Outlook Report, U.S. Department of Agriculture, U.S. Census

Table 2.2: Healthy People 2020: Tobacco Use Objectives.

Source: U.S. Department of Health and Human Services. (2014). Healthy People 2020: Tobacco Use Objectives.

Figure 2.3: Prevalence of Current Smoking Among Adults (18 and over), U.S., 1997-2012

Source: CDC/NCHS, National Health Interview Survey, 1997–2012, Sample Adult Core component.

Figure 2.4: Trends in Cigarette Smoking, Adults 18 and Older, U.S., 1965-2011

Source: American Cancer Society. (2013). Cancer Statistics 2013 - A presentation from the American Cancer Society.

Figure 2.5: Current Cigarette Smoking Among Adults Age 18 and Over

Source: U.S. Department of Health and Human Services, Centers for Disease Control, & National Center for Health Statistics. (2012). Health, United States, 2012: With Special Feature on Emergency Care. Washington, DC: U.S. Government Printing Office

Figure 2.6: Percentage of Adults (18 and over) who were Current Smokers, by Age Group, U.S., 2005-2011

Source: Centers for Disease Control and Prevention. (2012). Current cigarette smoking among adults: United States, 2011. *MMWR*, November 9, 2012 / 61(44);889-894.

Figure 2.7: Age-adjusted Prevalence of Current Cigarette Smoking Among Adults (25 and over), by Education Level, U.S.

Source: U.S. Department of Health and Human Services, Centers for Disease Control, & National Center for Health Statistics. (2012). Health, United States, 2012: With Special Feature on Emergency Care. Washington, DC: U.S. Government Printing Office.

Figure 2.8: Male Adult (18 and over) Current Cigarette Smoking, by Percent of Poverty Level, U.S.

Source: U.S. Department of Health and Human Services, Centers for Disease Control, & National Center for Health Statistics. (2012). Health, United States, 2012: With Special Feature on Emergency Care. Washington, DC: U.S. Government Printing Office.

Table 2.3: Smoking Prevalence Among Special Populations, U.S.

Source: Borrelli, B. (2010). Smoking cessation: Next steps for special populations research and innovative treatments. *Journal of Consulting and Clinical Psychology,* 78(1), 1–12. doi:10.1037/a0018327.

Figure 2.9: Percentage of Daily Smokers (18 and over), by Number of Cigarettes Smoked Daily, U.S., 2005-2011

Source: Centers for Disease Control and Prevention. (2012). Current cigarette smoking among adults: United States, 2011. *MMWR*, November 9, 2012 / 61(44);889-894.

Table 2.4: Relative Risks of Smoking-Related Lung Cancer Among Current and Former Students, by Level of Smoking

Source: Haiman, C. A., Stram, D. O., Wilkens, L. R., Pike, M. C., Kolonel, L. N., Henderson, B. E., & Le Marchand, L. (2006). Ethnic and racial differences in the smoking-related risk of lung cancer. *The New England Journal of Medicine,* 354(4), 333–342. doi: 10.1056/NEJMoa033250.

Table 2.5: Comparison of Global Tobacco Surveillance Systems

Source: CDC and WHO

Figure 2.10: Global Cigarette Consumption Increased More Than 100 Times in a Century

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 2.11: Regional Cigarette Consumption in Trillions, 1980-2013

Source: Eriksen M., Mackay J., Schluger, N., Islami, F., Drope, J. (2015). *The Tobacco Atlas*. Fifth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 2.12: Top 10 Global Cigarette Consuming Countries, 2014

Source: Eriksen M., Mackay J., Schluger, N., Islami, F., Drope, J. (2015). *The Tobacco Atlas*. Fifth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 2.13: Percent of Adult Males Who Smoke Cigarettes, 2013

Source: Eriksen M., Mackay J., Schluger, N., Islami, F., Drope, J. (2015). *The Tobacco Atlas*. Fifth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Table 2.6: Average Adult Male Smoking Prevalence by Region, 2010

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Table 2.7: Countries With More Than 10 Million Adult Male Daily Smokers, 2013

Source: Eriksen M., Mackay J., Schluger, N., Islami, F., Drope, J. (2015). *The Tobacco Atlas*. Fifth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 2.14: Percent of Females Who Smoke Cigarettes

Source: Eriksen M., Mackay J., Schluger, N., Islami, F., Drope, J. (2015). *The Tobacco Atlas*. Fifth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Table 2.8: Average Adult Female Smoking Prevalence by Region, 2010

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Table 2.9: Countries With Substantial Differences in Male and Female Smoking Prevalence, 2010

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 2.15: Patterns of Adult Smokeless Tobacco Use, 2013

Source: Eriksen M., Mackay J., Schluger, N., Islami, F., Drope, J. (2015). *The Tobacco Atlas*. Fifth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 2.16: Patterns of Smokeless and Smoking Dual Tobacco Use

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 2.17: Male and Female Smoking Trends

Source: Eriksen M., Mackay J., Ross H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 2.18: CDC's Recommended Framework for Program Evaluation

Source: Centers for Disease Control and Prevention. Framework for program evaluation in public health, 1999.

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Chapter 3

Youth Tobacco Use Behaviors

Chapter Objectives

1. Infer the implications of adolescents making life-long decisions related to smoking during youth.
2. Understand the importance of curbing youth smoking globally.
3. Analyze the Global Youth Tobacco Survey as a model for global risk-factor surveillance.
4. Hypothesize the impact on global smoking rates if youth smoking rates increase globally.

Section 1 - U.S. Youth Tobacco Use

> It is important to know as much as possible about teenage smoking patterns and attributes. Today's teenager is tomorrow's potential regular customer, and the overwhelming majority of smokers first begin to smoke while still in their teens . . . *The smoking patterns of teenagers are particularly important to Philip Morris.*
> - Philip Morris USA, 1981

In the United States, 88% of adults who smoke every day started smoking before the age of 18. Youth cigarette initiation is a major concern—indeed, it is the root of the problem of smoking-related mortality in the U.S. and globally. Starting smoking at an early age is associated with longer duration of smoking and a higher risk of tobacco-related disease (Figure

Figure 3.1 FDA Infographics Show Youth Smoking Is A Major Concern



3.1). In the U.S., we estimate that 3,600 young people smoke their first cigarette every day.

> "Kids who see others smoking are more likely to take up the habit because they don't perceive cigarettes as unhealthy."
> - Simon Racicot, Concordia University, U.S., 2011

In this 2011 ABC segment, several teens are interviewed about why they smoke and what it would take to get them to quit (**Movie 3.1**).

The U.S. has a number of surveillance systems that monitor tobacco use among youth. These include the Monitoring the Future study sponsored by the National Institutes of Health (NIH), the Youth Risk Behavior Surveillance Survey by the Centers for Disease Control and Prevention (CDC), and the National Survey on Drug Use and Health sponsored by the Substance Abuse and Mental Health Services Administration (SAMHSA). These surveillance systems provide useful data that help to direct national tobacco control efforts.

Movie 3.1 ABC News: "Quit to Live: Why Teens Smoke?"



Table 3.1 Youth Smoking

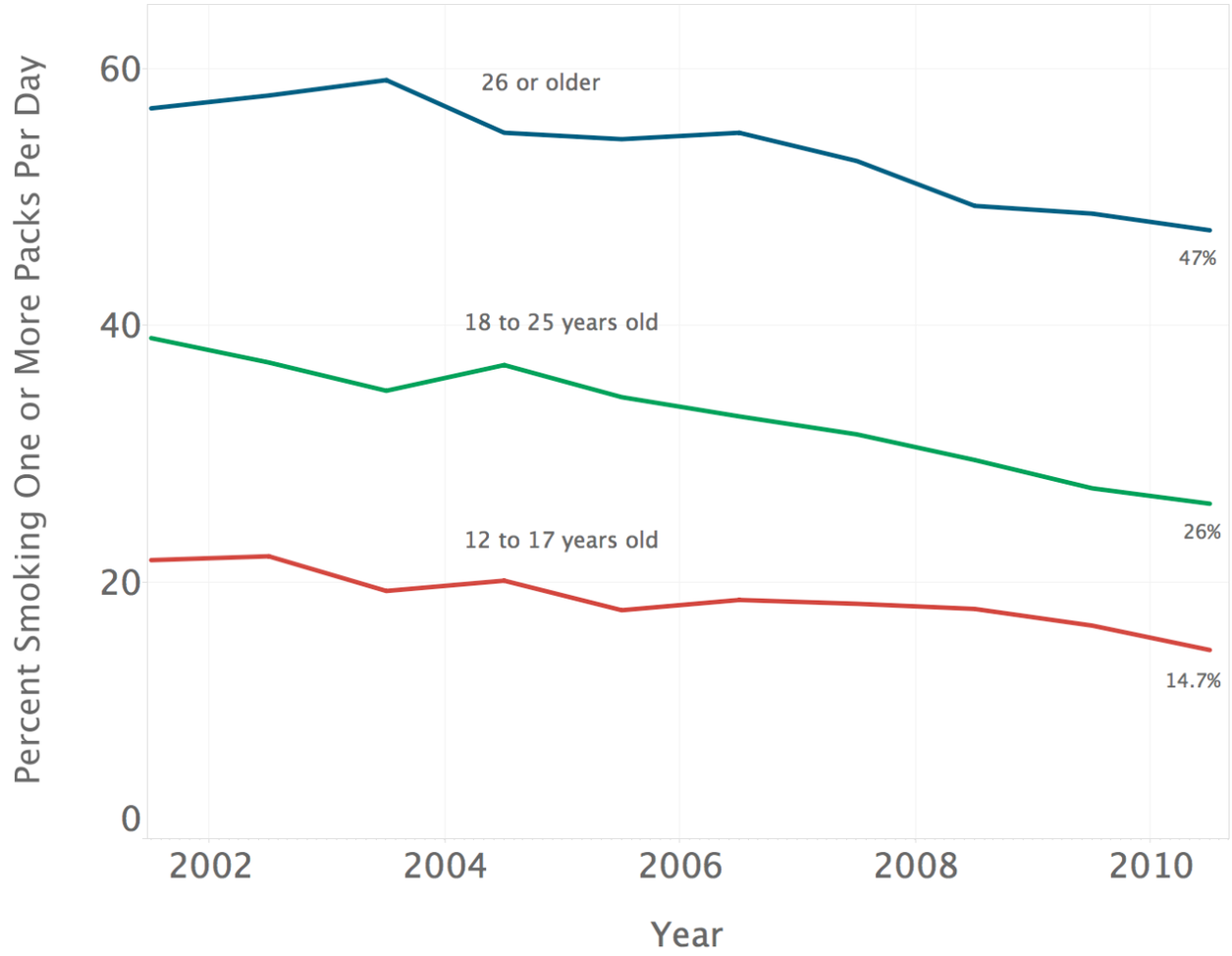
Youth smoking is associated with:
Low socioeconomic status
Use and approval of tobacco use by peers or siblings
Exposure to smoking in movies
Lack of skills to resist influences to tobacco use
Smoking by parents or guardians and/or lack of parental support or involvement
Accessibility, availability and price of tobacco products
A perception that tobacco use is the norm
Low levels of academic achievement
Low self-image or self-esteem
Exposure to tobacco advertising
Aggressive behavior (e.g., fighting, carrying weapons)

Based on data collected through these surveillance systems, we know that certain factors put some youth at an increased risk of smoking (Table 3.1). Various Surgeon General's reports have documented that youth smoking is associated with having a lower socioeconomic status. Moreover, young people are more likely to smoke if others around them smoke, especially their peers and siblings. Exposure to tobacco marketing and smoking in movies also contribute to youth smoking, as well as the ready availability of tobacco products and the cultural perception that tobacco use is the norm. Youth who have low self-esteem or low levels of academic achievement are also more likely to smoke (Figure 3.2).

Figure 3.2 Peer Pressure as One Reason for Youth Smoking Initiation



Figure 3.3 Past Month Smokers of One or More Packs of Cigarettes per Day among Daily Smokers, by Age Group: U.S., 2002-2011



SAMHSA's National Survey on Drug Use and Health provides the data for Figure 3.3, which shows the increase in the number of people who smoke one or more packs of cigarettes per day as people get older. Cigarette initiation occurs in youth and the amount smoked increases throughout adulthood. Looking at the data from 2011 as an example, we see that nearly 15% of young people (12-17 years old) smoke at least a pack a day, and that this is true for 26% of 18- to 25-year olds and 47% of people aged 26 or older. This offers a strong indication of the addictiveness of smoking and the difficulty of quitting once a person starts smoking at a young age.

Fact:

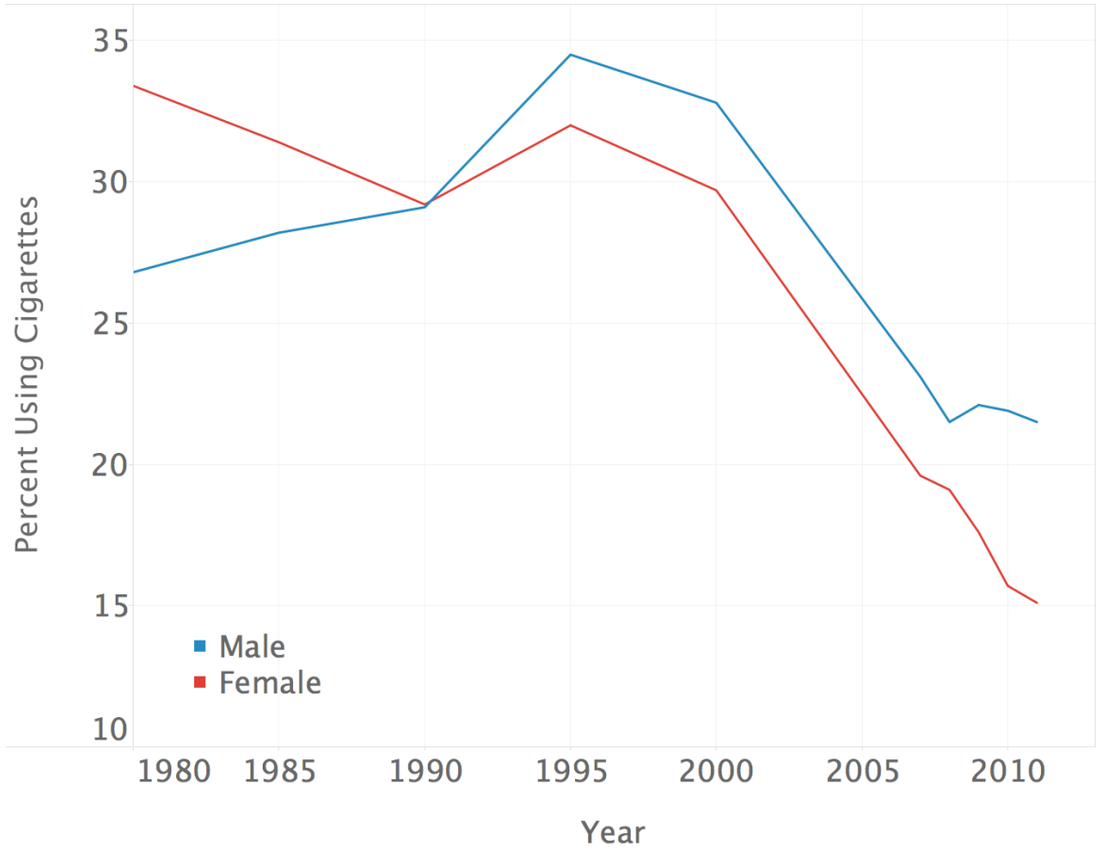
Although youth smoking rates in the United States halved during 1997-2011, one out of every 13 American children under age 18 alive today (around 5.6 million children) will die prematurely from smoking-related diseases unless current smoking rates further drop.

Key Takeaway

Youth cigarette initiation is at the root of the problem of smoking-related mortality.

Dating back to 1976, the Monitoring the Future (MTF) study tracks the use of cigarettes, smokeless tobacco, and other substances among high school seniors. Using data from MTF, Figure 3.4 demonstrates clearly that smoking rates among high school seniors has decreased substantially since 1976. Smoking prevalence among male high school seniors decreased from around 27% in 1976 to just over 20% in 2011, and among females from 33% to 15% in the same period. Note that in the 1970s, females were more likely to smoke than males, and today the opposite is the case.

Figure 3.4 Cigarette Use Among High School Seniors, by Gender



In addition to the change between 1976 and 2011, it is particularly interesting to note the rapid increase in smoking that occurs just after 1990. You can see that smoking prevalence increased from under 30% to nearly 35% between 1990 and 1995. CDC's Office on Smoking and Health attributes a large part of this steep increase to the Joe Camel advertising campaign, which used a cool, stylish cartoon figure that young people found particularly attractive. Tobacco marketing, with specific reference to the Joe Camel campaign, is discussed in greater detail in Chapter 7.

Figure 3.5 Cigarette Use Among High School Seniors, by Race

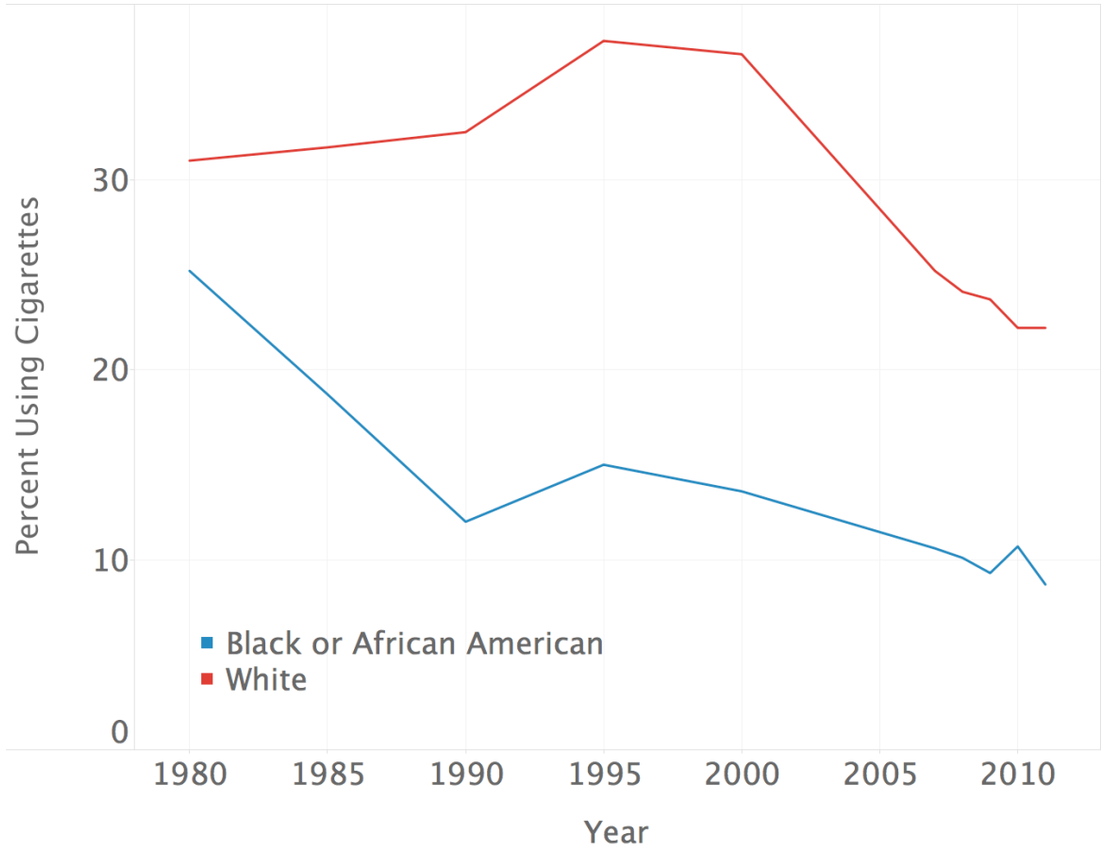
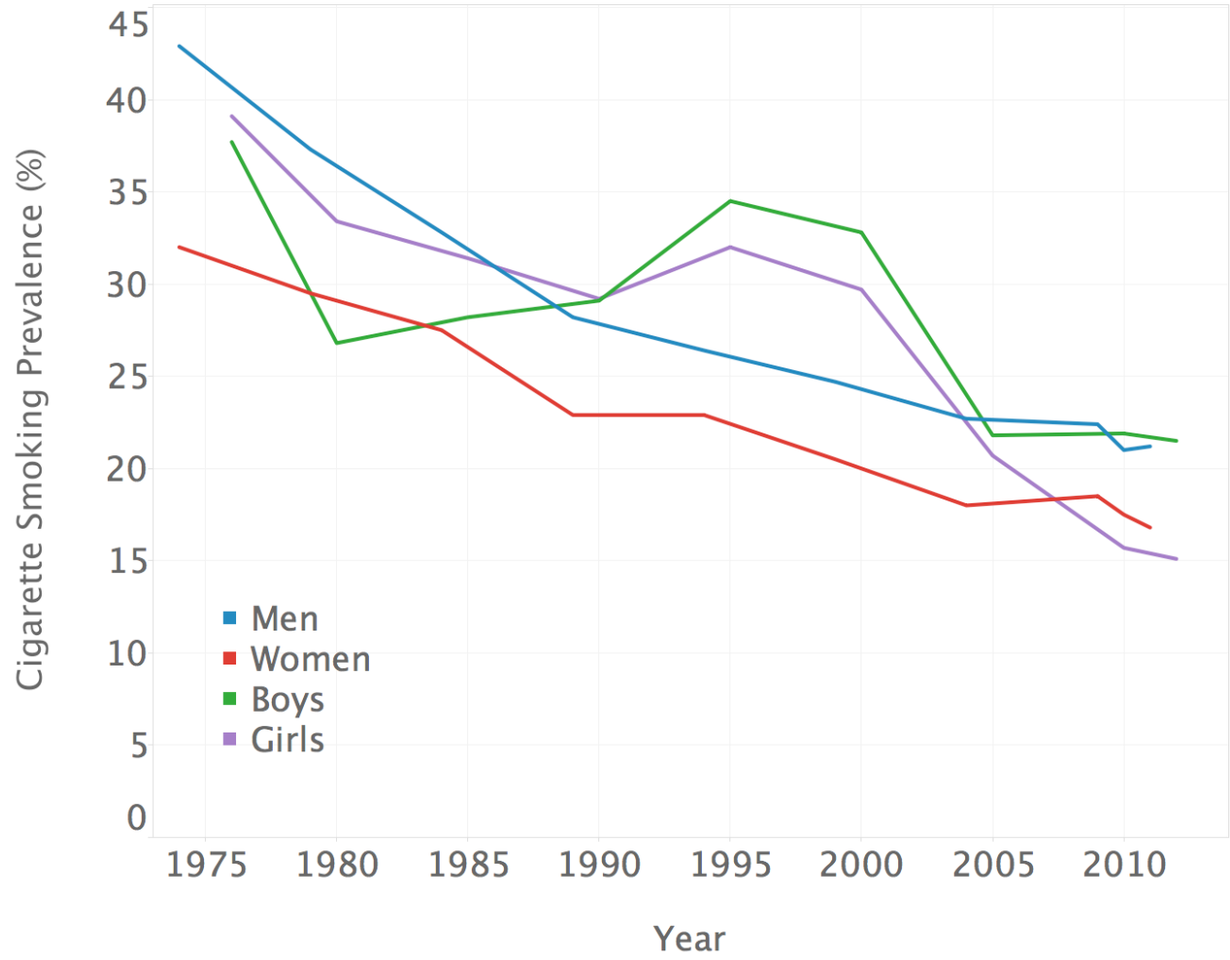


Figure 3.5 shows how smoking rates vary by race. Comparing cigarette use among white and African-American high school seniors, we see that for the entire period between 1976 and 2011, whites smoked more than African Americans. This difference becomes particularly pronounced when considering the intersection of race and gender differences, and female African-American high school seniors have the lowest smoking rates of these demographic groups.

Figure 3.6 Prevalence of Cigarette Smoking Among Men, Women, Boys, and Girls, 1975-2012



Now, let's compare youth smoking rates, which we've just been examining, with smoking rates among adults. Figure 3.6 overlays adult and teen smoking rates by gender. This allows us to see that in 1974 men had the highest smoking rates and teenage girls the second highest. Over the course of the last few decades, adult smoking rates have gradually but steadily declined.

Figure 3.7 Cigarettes and Cigarillos are Attractive to Youth



In contrast, youth smoking rates appear to be much more volatile. In the same period, they have experienced increases and decreases, and these fluctuations are often a function of marketing and promotional efforts by the tobacco industry and the introduction of new products. Even though youth smoking rates are much lower today than they were a few decades ago, experience shows that they can increase again very rapidly. Public health advocates need to be constantly vigilant about teen smoking rates because of this demonstrated volatility.

Another source of concern are studies which show that the use of nontraditional tobacco products is increasing among youth, even though cigarette use is in decline. These nontraditional products include small cigars and cigarillos, pictured in Figure 3.7, which are experiencing an increase in sales in the U.S. These products are most commonly used by young adults, a phenomenon at least partly explained by the fact that although the U.S. Food and Drug Administration has banned flavors in cigarettes, flavoring is not at all regulated in small cigars and cigarillos. Additionally, these products can be sold in smaller packages or individually and are taxed at rates lower than cigarettes. Thus, these products can have chocolate and other candylike flavors, making them more attractive to young people. As you can see, their packaging also often makes them look more like candy than the deadly products that they are.

Another type of tobacco which is growing in popularity among youth is hookah, also known as waterpipes or "hubbly bubbly," pictured in Figure 3.8. A study of 951 adolescents conducted by researchers at Georgia State University found that 58.5% of adolescents had used hookah, and that 30.2% had used it within 30 days prior to the study. Most hookah users were male, and the most concerning aspect of the study is the evidence that many of the youth who participated reported dual use– a term which means that they use cigarettes and another form of tobacco, such as small cigars, cigarillos or hookah, on the same day. In Chapter 2, we discussed the Healthy People 2020 goals for tobacco use among adults. This framework also sets tobacco prevalence goals for youth. The overall goal is to bring tobacco use of all types down from 26% of youth (the rate in 2008) to 21% by 2020.

Figure 3.8 Hookah Smoking Is Popular Among Youth



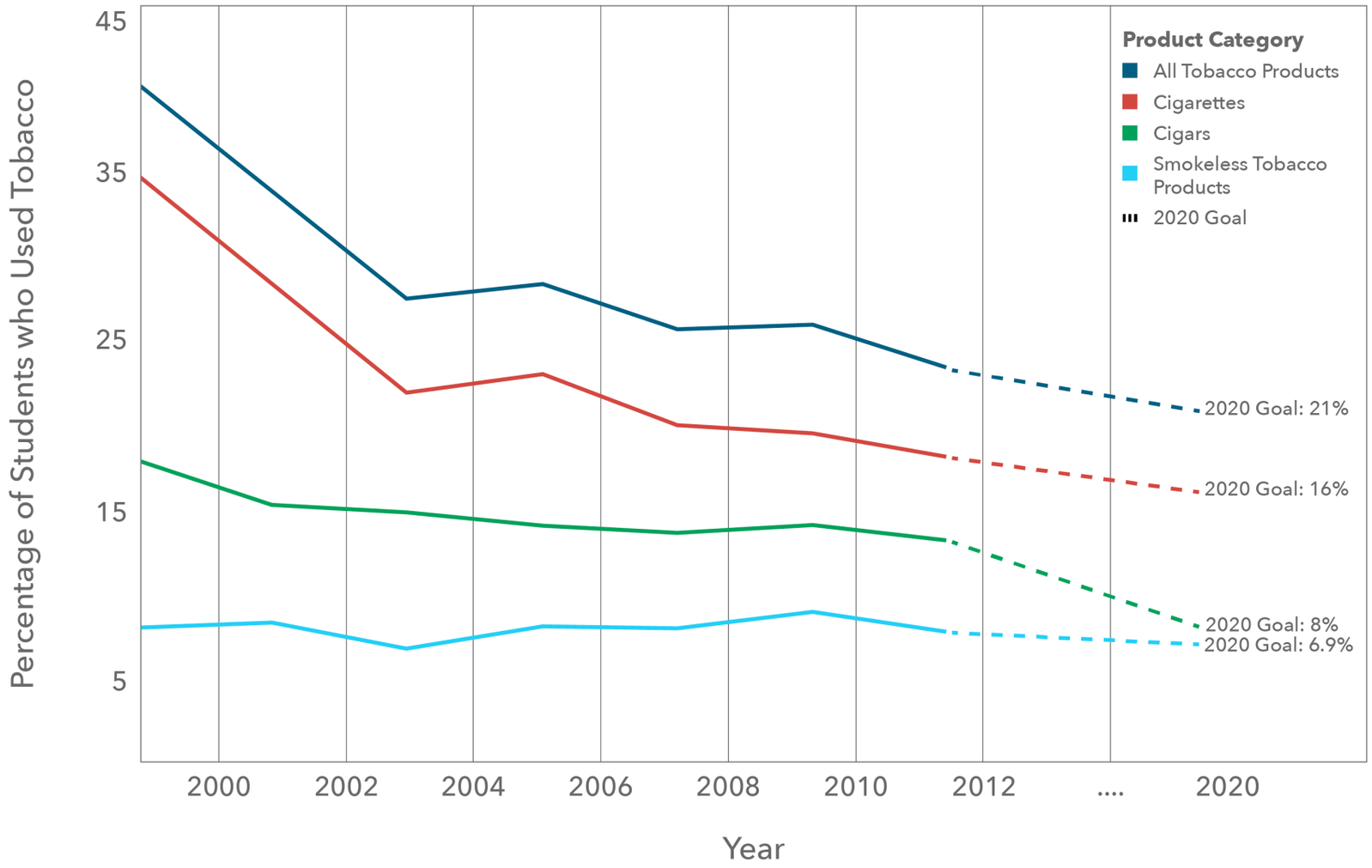
Based on the trends shown in Table 3.2, we can hypothesize whether or not the U.S. will meet the Healthy People 2020 objectives for youth tobacco use. There has been a significant decline in the use of all tobacco products in the last two decades, and we are not too far from the 2020 goal of 21% prevalence. For users of cigarettes, the pattern is similar—a steep decline, indicating that the 2020 target is within reach. However, we see a slightly different pattern for cigars. There is a marked difference between the trends in cigar use among adolescents and the 2020 target. Moreover, it must be noted that although Figure 3.9 makes it appear that the 2020 goal for smokeless tobacco product use has already been met, we must remain

Table 3.2 Healthy People 2020 - 2008 Values and 2020 Goals for Tobacco Use Among Adolescents

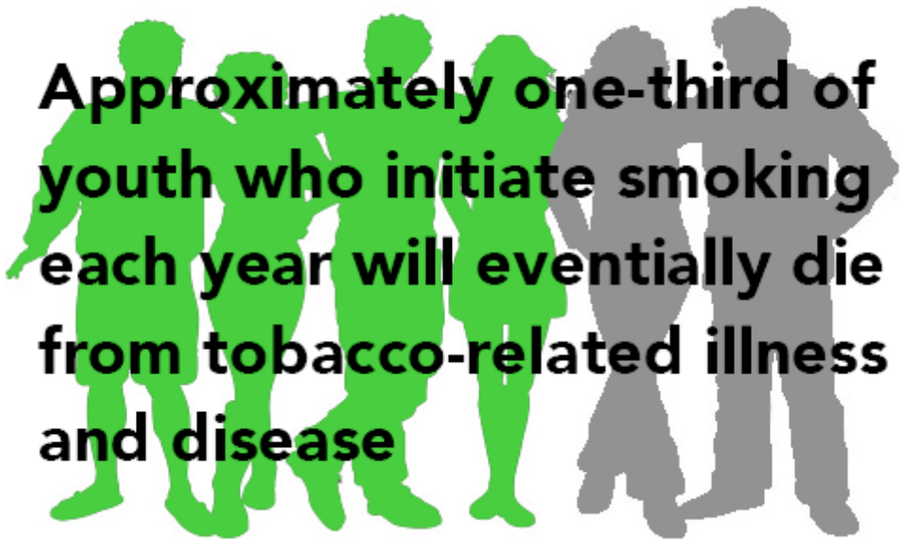
TU-2 Reduce tobacco use by adolescents		As of 2008	2020 Goal
TU-2.1	Reduce use of tobacco products by adolescents (past month)	26%	21%
TU-2.2	Reduce use of cigarettes by adolescents (past month)	19.5%	16%
TU-2.3	Reduce use of smokeless tobacco products by adolescents (past month)	8.9%	6.9%
TU-2.4	Reduce use of cigars by adolescents (past month)	14%	8%

vigilant as there is increasing emphasis on the marketing of smokeless tobacco products, as well as other nicotine products that are newly introduced to the market.

Figure 3.9 The Proportion of Students in Grades 9–12 Who Used Tobacco Products in the Past 30 Days Decreased by 46% Between 1997 and 2011



Section 2 - Global Youth Tobacco Use



Preventing youth tobacco use needs to be a high priority for all nations. Most adult smokers started smoking before the age of 18, and we estimate that about a third of youth who start smoking will eventually die from the addictive habit of smoking that they began while young.

So far in this chapter, we've discussed some of the different youth surveillance systems in the United States. To give us important insights into global youth smoking patterns, we will now look at data from the Global Youth Tobacco Survey (GYTS) –the world's leading tobacco surveillance system. GYTS has been conducted since 1998, and is part of the Global Tobacco Surveillance System (GTSS) operated jointly by WHO, CDC, and a number of important global partners.

GYTS is one of the largest public health surveillance systems in existence. It has been conducted in 168 WHO member states and 15 WHO non-member states, collecting data on millions of children between the ages of 13 and 15 years and providing

Key Takeaway

Most smokers begin smoking before the age of 18 and one-third of smokers who start in their youth will die because of the habit.

invaluable information on youth tobacco use around the world.

Dr. Samira Asma is the Chief of Global Tobacco Control at the CDC and has played a lead role in conceptualizing and implementing the GTSS to monitor and track tobacco use and key tobacco control measures among youth and adults. She provides her expert view on GYTS in Movie 3.2.

As Dr. Asma mentioned, GYTS is conducted among 13- to 15-year olds in school settings. Based on data from GYTS, we are able to assess which countries have the highest smoking rates for boys and for girls.

Movie 3.2 Hear from the Experts: Samira Asma



Key Takeaway

The Global Youth Tobacco Survey (GYTS) provides invaluable information on youth tobacco use around the worldwide.

There are 12 countries in which the current smoking prevalence rate for boys is above 30%. Most of these are middle-income countries, many of them in Eastern Europe or in the Western Pacific region (Table 3.3).

There are 12 countries in which the current smoking prevalence for girls is above 25%. All of these are middle- and high-income countries (Table 3.4).

In the previous chapter, we learned that gender is an important factor in global smoking rates among adults. Gender differences between adult males and adult females are fairly significant with males smoking more. In fact, there are nearly 50 countries in which men smoke ten times as much as women do.

For teens, gender differences do not appear to be as important. In other words, we see similar rates among boys and girls in different regions of the world.

Table 3.3 Countries in Which the Current Smoking Prevalence for Boys is Above 30%

Country	WHO Region	World Bank Income Group	Boys' Current Cigarette Use
Papua New Guinea	WPRO	Middle	52.1%
Timor–Leste	SEARO	Middle	50.6%
Tonga	WPRO	Middle	37.5%
Micronesia	WPRO	Middle	36.9%
Latvia	EURO	Middle	36.3%
Malaysia	WPRO	Middle	36.3%
Switzerland	EURO	High	35.7%
Lithuania	EURO	Middle	33.8%
Tuvalu	WPRO	Middle	33.2%
Belarus	EURO	Middle	31.2%
Palau	WPRO	Middle	31%
Madagascar	AFRO	Low	30.7%

Table 3.4 Countries in Which the Current Smoking Prevalence for Girls is Above 25%

Country	WHO Region	World Bank Income Group	Girls' Current Cigarette Use
Chile	AMRO	Middle	39.9%
Papua New Guinea	WPRO	Middle	35.8%
Czech Republic	EURO	High	32.7%
Bulgaria	EURO	Middle	31.6%
Colombia	AMRO	Middle	30.7%
Latvia	EURO	Middle	30.2%
Switzerland	EURO	High	29.6%
Argentina	AMRO	Middle	27.3%
Mexico	AMRO	Middle	27.1%
Estonia	EURO	High	26.2%
Lithuania	EURO	Middle	25.9%
Croatia	EURO	High	25.6%

Table 3.5 shows the similarity in boys' and girls' smoking rates in a number of countries. Of particular interest in this table are places in which substantially more girls smoke than boys, indicating a likely increase in adult female smokers globally in the coming years.

Besides being implemented in 168 countries, the GYTS has the important feature of being used repeatedly in 124 of those countries. This allows us to track changes in youth tobacco use over time, looking at both cigarette use as well as the use of other tobacco products.

Table 3.5 Countries Where More Girls Than Boys Smoke

Country	Region	Girls (%)	Boys (%)	Difference
Chile (Santiago)	PAHO	39.9	28	11.9
Sweden	EURO	13	5	8
Slovenia	EURO	23	15.2	7.8
Bulgaria	EURO	31.6	24.4	7.2
Uruguay	PAHO	22.9	16.4	6.5
Argentina	PAHO	27.3	21.1	6.2
New Zealand	WPRO	20.6	14.5	6.1
Cuba	PAHO	13.1	8.7	4.4
Brazil (Sao Paulo)	PAHO	13.2	9.2	4

Let's take a look at some case studies to see how GYTS can provide a picture of what's happening over time in countries around the world. Table 3.6 shows data from South Africa, where GYTS has been administered four different times between 1999 and 2011. There has been a regular and sustained reduction in teen smoking rates, from 17.6% overall in 1999 to 12.7% in 2011. Looking at these rates by gender, it is evident that there have been substantial drops for both boys and girls; however, it is concerning to see that the drop in girls' cigarette smoking rates has appeared to subside since 2002, with rates remaining just above 10% for the last ten years.

Table 3.6 Percentage of Students Who Smoked Cigarettes on At Least 1 Day During the Month Preceding the Survey: South Africa - National (GYTS)

Year	Total	Boy	Girl
1999	17.6%	20%	15.3%
2002	14.8%	21%	10.6%
2008	13.6%	17.9%	10.6%
2011	12.7%	15%	10.8%

Table 3.7 gives us a peek into Lebanon, in the Eastern Mediterranean region of WHO. Lebanon administered the GYTS three times between 2001 and 2011, and we can see an increase in cigarette smoking during that period—up from 7.5% at the time of the first survey to 11.3% after ten years. This increase is primarily seen among boys, while the

Table 3.7 Percentage of Students Who Smoked Cigarettes on At Least 1 Day During the Month Preceding the Survey: Lebanon - National (GYTS)

Year	Total	Boy	Girl
2001	7.5%	10.4%	5.3%
2005	8.6%	11.8%	5.6%
2011	11.3%	17.7%	6%

prevalence for girls has remained quite steady between 5% and 6%.

This data from GYTS points out the inadequacy of tobacco control efforts, particularly the partial tobacco legislation put into effect in Lebanon in 1996. To address the evident need for further action, Lebanon passed a comprehensive tobacco law in 2011, making it a completely smoke-free country. The new law includes a comprehensive advertising ban and mandates that health warnings cover 40% of both the front and the back of cigarette packs. Continued surveillance will allow us to see the impact of this law on reducing tobacco use, particularly among boys.

In the Czech Republic, part of the European region of WHO, the GYTS results shown in Figure 3.10 are somewhat mixed and not very encouraging. Between 2002 and 2011, there is a very modest reduction in overall smoking among 13- to 15-year olds, and the Czech Republic still has the

Figure 3.10 Currently Smoked Cigarettes: Czech Republic - National (GYTS)

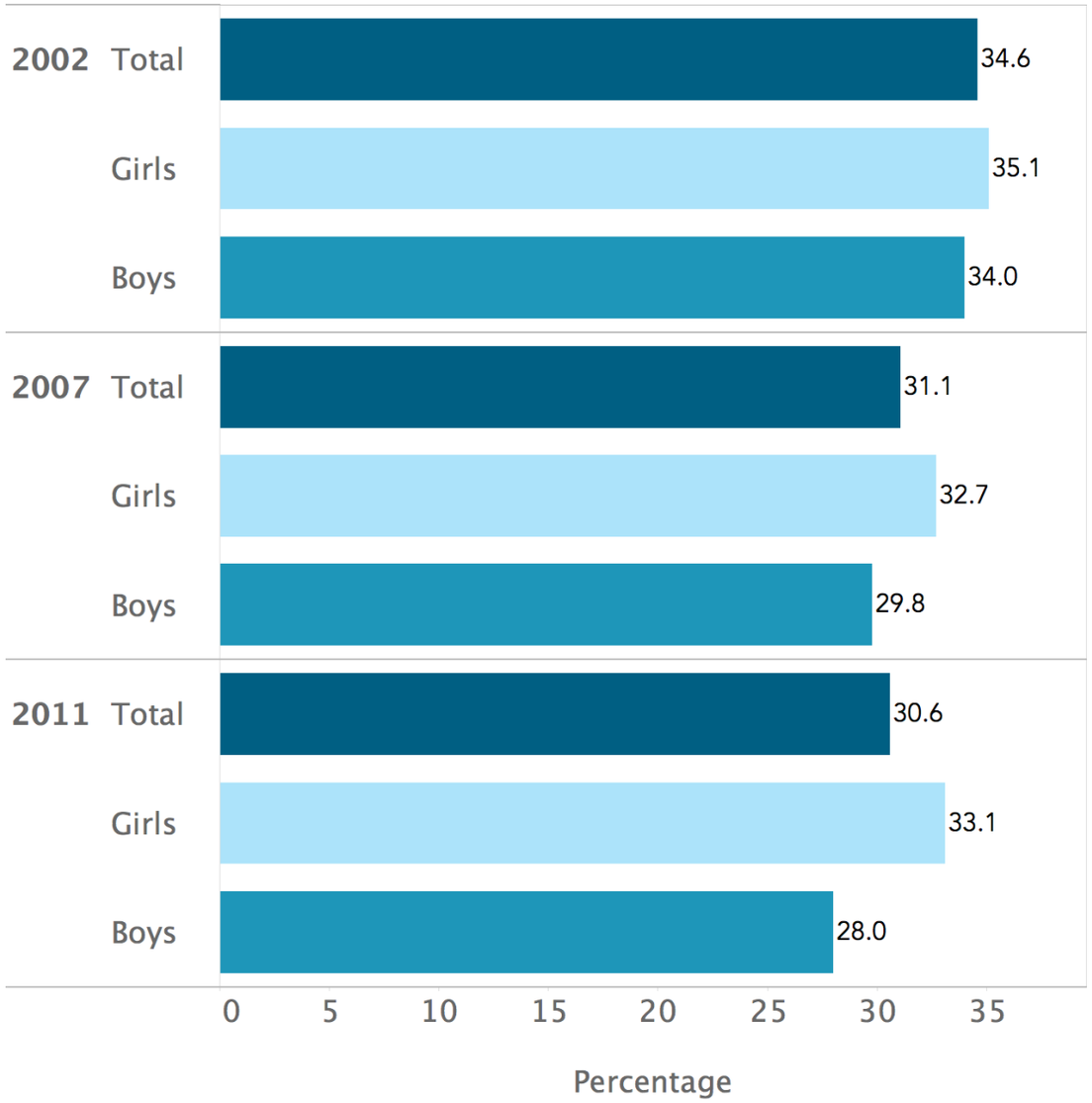


Table 3.8 GYTS: Case Study: Argentina (AMRO)

Country Name	Year	Indicator
Argentina	2007	24.5
Uruguay	2007	20.2
Jamaica	2010	17.8
Peru	2007	15.7
Mexico	2011	14.6
Saint Vincent and the Grenadines	2011	12.8
Suriname	2009	12.1
Dominican Republic	2009	11.6
Barbados	2007	11.6
Guatemala	2008	11.4
Saint Lucia	2011	10.7
Cuba	2010	10.6

third highest smoking prevalence among the European countries that administered the survey. Of great concern is the fact that boys and girls smoke at very similar rates; approximately one third of both boys and girls are current smokers. Not presented here, but also of great concern, is a dramatic increase in the use of other forms of tobacco among youth, rising from 8.5% in 2002 to 17.3% in 2011. Effective tobacco control interventions are clearly needed to counter the tobacco use occurring in the Czech Republic.

From the WHO region of the Americas, let's take Argentina as **a sample case study**, illustrated in Table 3.8. Argentina has the highest teen smoking rate of any of the countries in this region at 24.5%. GYTS has been administered only once in this country, in 2007, and since then Argentina has passed comprehensive tobacco control legislation. Ongoing GYTS administration will allow us to measure the effect of this legislation on youth tobacco use.

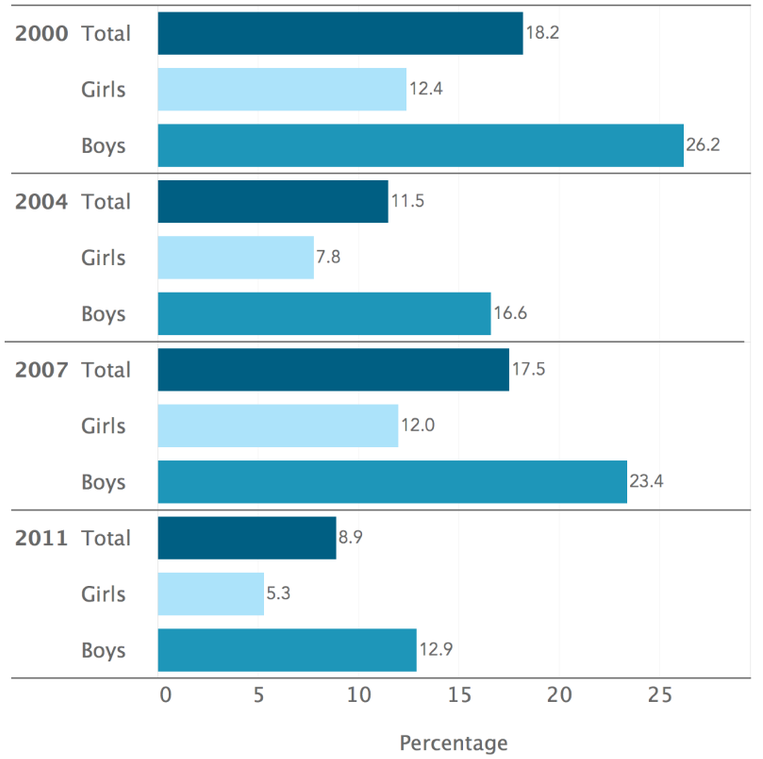
In the Southeast Asian region of WHO, Sri Lanka provides an interesting case study, shown in Table 3.9. Sri Lanka's cigarette smoking prevalence is the lowest in Southeast Asia at 1.5%. However, we see high rates of use of other tobacco products; GYTS data from 1999 to 2011 shows an increase in the use of tobacco products other than cigarettes from 7.2% to 10%. This rise occurs mostly among boys, for whom rates went up from 9.2% to 14.6%. The changes among girls were minimal in this period.

For our final case study, Figure 3.11 represents the Philippines in the Western Pacific region of WHO. Once again, we have a country in which the GYTS has been administered four times, between 2000 and 2011. Here, we see dramatic reductions in cigarette smoking, going from 18.2% in 2000 to 8.9% in 2011. In other words, cigarette smoking prevalence among youth halved in a period of 11 years. This decrease can be seen among both boys and girls.

Table 3.9 GYTS Case Study: Sri Lanka (SEARO) - Percentage of Students Who Used Tobacco Products Other than Cigarettes on At Least 1 Day During the Month Preceding the Survey

Year	Total	Boy	Girl
1999	7.2%	9.2%	5%
2003	7%	5.8%	7.9%
2007	8.6%	11.6%	5.6%
2011	10%	14.6%	5.4%

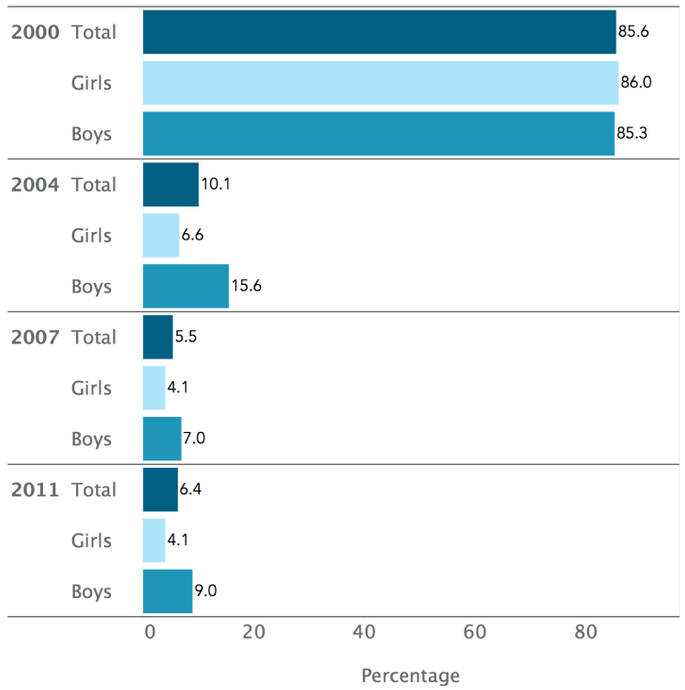
Figure 3.11 GYTS Case Study: Philippines (WPRO)



Following the 2000 GYTS, the Philippines identified the need for stricter tobacco regulations and passed the Tobacco Regulation Act of 2003. Figure 3.12 shows the impressive results of strict tobacco control and demonstrates the dramatic decline in individuals being offered free cigarettes following tobacco regulations in the Philippines.

This is one example of how GYTS provides invaluable data to help us further understand why people begin to use tobacco products and why they quit. These data provide information needed to evaluate and justify the continuation of tobacco control efforts in countries like the Philippines.

Figure 3.12 Ever Offered a Free Cigarette by a Tobacco Company Representative: Philippines - National (GYTS)



To conclude our discussion of global youth tobacco use, let's see how youth smoking prevalence rates compare with adult rates. Table 3.10 shows smoking prevalence for youth and adults by WHO region. The first row displays prevalence rates for the WHO regional office in Africa: 13% for boys, 5.8% for girls. The ratio between boys and girls is 2.2:1, which means that boys smoke more than twice as much as girls smoke in this region. Looking at adult rates, we see that 20.8% of males smoke, versus only 3.6% of females. The ratio between males and females is 5.8:1—that is to say, men smoke almost six times as much as women.

Table 3.10 Cigarette Smoking Prevalence in WHO Regions

	Current Cigarette Smoking					
	Youth Cigarette Smoking			*Adult Cigarette Smoking*		
WHO Region	**Boy**	**Girl**	**Boy/Girl**	**Male**	**Female**	**Male/Female**
AFRO	13.0	5.8	2.2 : 1	20.8	3.6	5.8 : 1
EMRO	6.7	3.2	2.1 : 1	36.0	6.6	5.4 : 1
EURO	19.9	15.7	1.3 : 1	40.8	18.4	2.2 : 1
PAHO	17.4	17.5	1.0 : 1	27.0	16.9	1.6 : 1
SEARO	5.8	1.9	3.1 : 1	42.7	7.2	5.9 : 1
WPRO	9.9	3.3	3.0 : 1	55.2	4.9	11.3 : 1
TOTAL	10.5	6.7	1.6 : 1	41.6	9.5	4.4 : 1

This pattern, showing similar rates for boys and girls and quite different rates between men and women, is common to all of the WHO regions. Looking at the totals on the bottom row of this table, you can see that the overall smoking ratio between boys and girls is 1.6:1, indicating that boys are only somewhat more likely to smoke than girls. In contrast, the ratio between adult male and female smokers is 4.4:1, suggesting that men are four times more likely to smoke than women.

It is concerning to see the parity between boy and girl smoking rates, as it could be a sign of what will occur in the future. If girls continue to smoke at rates similar to boys, we may be looking at increasing prevalence rates among adult women in the coming years, which could result in an even greater

burden of tobacco-related disease in the future. While it is impossible to make a prediction based on current data, it is important to continue to monitor global smoking rates and use the data we have to put appropriate interventions into place.

Key Takeaway

If girls continue to smoke at rates similar to boys, we may be looking at increasing prevalence rates among adult women in the coming years, which could result in an even greater burden of tobacco-related disease in the future.

Chapter 3 Discussion Questions:

1. Are U.S. governments and civil society doing enough to regulate cigarettes and new innovative tobacco products targeted to youth? What steps should they take to aggressively protect the young in the future?
2. Global Youth Tobacco Surveys are conducted in school settings. Would the survey results be different if taken at home or other settings? Why or why not?

Figures and Tables

Figure 3.1: FDA Infographics Show Youth Smoking Is A Major Concern

Source: U.S. Food and Drug Administration. (2014). Teens and Tobacco: Facts about Teens and Tobacco Every Parent Needs to Know.

Movie 3.1: ABC News: "Quit to Live: Why Teens Smoke?"

Table 3.1: Youth Smoking

Source: U.S. Surgeon General's Report, 1994

Figure 3.2: Peer Pressure as One Reason for Youth Smoking Initiation

Source: WhyQuit.com. (2006). Nicotine addiction warning signs.

Figure 3.3: Past Month Smokers of One or More Packs of Cigarettes per Day among Daily Smokers, by Age Group: U.S., 2002-2011

Source: Substance Abuse and Mental Health Services Administration. (2012). Results from the 2011 National Survey on Drug Use and Health: Summary of National Findings.

Source: U.S. Surgeon General's Report, 2014

Figure 3.4: Cigarette Use Among High School Seniors, by Gender

Source: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics.

(2012). Health, United States, 2012: With Special Feature on Emergency Care. Washington, DC: U.S. Government Printing Office.

Figure 3.5: Cigarette Use Among High School Seniors, by Race

Source: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics. (2012). Health, United States, 2012: With Special Feature on Emergency Care. Washington, DC: U.S. Government Printing Office.

Figure 3.6: Prevalence of Cigarette Smoking Among Men, Women, Boys and Girls, 1975 - 2012

Source: Johnston, L., O'Malley, P., Bachman, J., & Schulenberg, J. (2013). Monitoring the Future national results on drug use: 2012 overview key findings on adolescent drug use. Ann Arbor: Institute for Social Research, The University of Michigan.

Source: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics. (2012). Health, United States, 2012: With Special Feature on Emergency Care. Washington, DC: U.S. Government Printing Office.

Figure 3.7: Cigarettes and Cigarillos are Attractive to Youth

Source: Carrie Whitney, 2016

Figure 3.8: Hookah Smoking Is Popular Among Youth

Source: Solix, 2007

Table 3.2: Healthy People 2020 - 2008 Values and 2020 Goals for Tobacco Use Among Adolescents

Source: U.S. Department of Health and Human Services. (2014). Healthy People 2020: Tobacco Use Objectives.

Figure 3.9: The Proportion of Students in Grades 9–12 Who Used Tobacco Products in the Past 30 Days Decreased by 46% Between 1997 and 2011

Source: U.S. Department of Health and Human Services. (2013). Tobacco Use - Healthy People 2020.

Figure 3.10: Currently Smoked Cigarettes: Czech Republic - National (GYTS)

Source: Guilfoyle J. (2010). Toll of Tobacco in the United States of America. Campaign for Tobacco Free Kids.

Figure 3.11: GYTS Case Study: Philippines (WPRO)

Source: Centers for Disease Control and Prevention. (2014). Global Tobacco Surveillance System Data.

Movie 3.2: Hear from the Experts: Samira Asma

Table 3.3: Countries in Which the Current Smoking Prevalence for Boys is Above 30%

Source: Eriksen M., Mackay J., Ross H. (2012). The Tobacco Atlas. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Table 3.4: Countries in Which the Current Smoking Prevalence for Girls is Above 25%

Source: Eriksen M., Mackay J., Ross H. (2012). The Tobacco Atlas. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Table 3.5: Countries Where More Girls Than Boys Smoke

Eriksen M., Mackay J., Ross H. (2012). The Tobacco Atlas. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Table 3.6: Percentage of Students Who Smoked Cigarettes on At Least 1 Day During the Month Preceding the Survey: South Africa - National (GYTS)

Source: Centers for Disease Control and Prevention. (2014). Global Tobacco Surveillance System Data.

Table 3.7: Percentage of Students Who Smoked Cigarettes on At Least 1 Day During the Month Preceding the Survey: Lebanon - National (GYTS)

Source: Centers for Disease Control and Prevention. (2014). Global Tobacco Surveillance System Data.

Table 3.8: GYTS: Case Study: Argentina (AMRO)

Source: Centers for Disease Control and Prevention. (2014). Global Tobacco Surveillance System Data.

Figure 3.12: Ever Offered a Free Cigarette by a Tobacco Company Representative: Philippines - National (GYTS)

Source: Centers for Disease Control and Prevention. (2014). Global Tobacco Surveillance System Data.

Table 3.9: GYTS Case Study: Sri Lanka (SEARO) - Percentage of Students Who Used Tobacco Products Other than Cigarettes on At Least 1 Day During the Month Preceding the Survey

Source: Centers for Disease Control and Prevention. (2014). Global Tobacco Surveillance System Data.

Table 3.10: Cigarette Smoking Prevalence in WHO Regions

Source: WHO. (2003). Young girls using tobacco almost as much as boys in many regions of the world.

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Chapter 4

Novel Nicotine Products and Harm Reduction

Chapter Objectives

1. Recognize the importance of nicotine in tobacco.
2. Discuss historical attempts by cigarette companies to produce a "safer cigarette."
3. Examine the marketing of "light" cigarettes by tobacco companies and how it deceived users.
4. Contrast the first novel nicotine products and today's products.
5. Analyze the concept of harm reduction from a public health perspective.

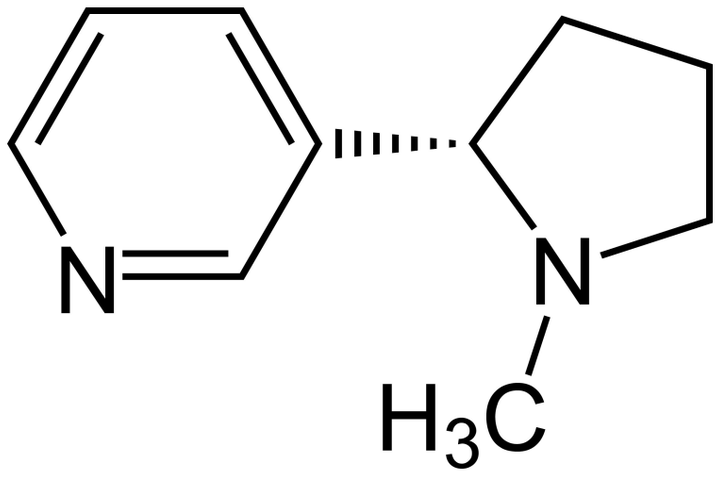
Section 1 - It's All About Nicotine

> *"[N]icotine is addictive. We are, then, in the business of selling nicotine, an addictive drug effective in the release of stress mechanisms."*
>
> - Addison Yeaman, General Counsel/Vice President, Brown & Williamson (a subsidiary of British American Tobacco), 1963

In order to fully understand the global problem of tobacco use, we must recognize the importance of nicotine and its impact on public health.

Nicotine is an extremely addictive nitrogen-containing alkaloid that occurs naturally in plants, but can also be produced synthetically (Figure 4.1). Nicotine is considered a stimulant. Consuming this chemical can help people feel more relaxed; it brings feelings of pleasure and reduces feelings of stress, anger and depression.

Figure 4.1 Nicotine Chemical Compound



The most efficient way of delivering nicotine to the brain is through inhalation into the lungs– the chemical reaches the brain within seven seconds of inhalation. So far, this has typically meant burning tobacco and

inhaling the nicotine that is contained in tobacco smoke. This process, called combustion, is also the most harmful way of consuming nicotine because of the tars and toxins in smoke. As Professor Michael Russell wrote in the *British Medical Journal,* "People smoke for the nicotine but they die from the tar."

Nicotine is key to the very existence and viability of the tobacco industry (Figure 4.2). Tobacco companies have been aware of the importance of nicotine for a long time, and as much as possible they emphasize the pleasurable effects of the chemical. Sir Charles Ellis, a tobacco industry scientist, asserts in a 1962 statement, "It is my conviction that nicotine is a very remarkable beneficent drug that both helps the body to resist external stress and also can as a result show a pronounced tranquilizing effect."

As you can see from the statement in Figure 4.3, the tobacco industry has promoted the psychological benefits of nicotine for decades, while obfuscating its highly addictive properties. They also understate the problems inherent in the act of smoking, which is still considered the optimal way of delivering this so-called "beneficent" drug to the body.

Figure 4.2 Nicotine Occurs Naturally in Tobacco Plants



Key Takeaway

Nicotine is highly addictive. The most efficient way of delivering nicotine to the brain is through inhalation.

Figure 4.3 1962 Statement on Nicotine by Sir Charles Ellis, a tobacco industry scientist

1962 Statement on Nicotine

"One result of the recent public discussion on smoking and health must have been to make each of us examine whether smoking is just a habit or addiction or has any positive benefits**. It is my conviction that nicotine is a very remarkable beneficent drug that both helps the body to resist external stress and also can as a result show a pronounced tranquilizing effect**. You are all aware of the very great increase in the use of artificial controls, stimulants, tranquilizers, sleeping pills and it is a fact that under modern conditions of life people find that they cannot depend just on their subconscious reactions to meet the various environmental strains with which they are confronted they must have drugs available which they can take when they feel the need. **Nicotine is not only a very fine drug, but the techniques of administration by smoking has considerable psychological advantages** and a built-in control against excessive absorption. It is almost impossible to take an overdose of nicotine in the way it is only too easy to do with sleeping pills.

Sir Charles Ellis, Scientific Advisor to the Board of British-American Tobacco Paper Entitled "The Smoking and Health Problem," presented at Research Conference, Southampton, pp. 15-16 (1962) [BW-W2-01526]

Today, tobacco companies still focus on the pleasurable and tranquilizing effects of nicotine while downplaying the harmful effects of smoke. In 2013, David O'Reilly, the Scientific Director for British American Tobacco, claimed:

> *The world would be a poorer place without nicotine. It has helped people through world wars, the stress of everyday life, and it is helpful for people suffering from Parkinson's and dementia. It's a wonderful drug but it's only in the last few years that it has been used in a dangerous way.*

Certainly, the tobacco industry's attitude toward nicotine has changed very little in the last fifty years. Nicotine is still the drug of choice for tobacco companies. In fact, the tobacco industry has made alterations to cigarettes in order to facilitate the absorption of nicotine into the body. As we just learned, smoking is the optimal way of delivering nicotine to the bloodstream and then to the brain; however, as you might imagine, inhaling smoke is not a natural act and it can feel irritating to the bronchial passages when a person tries smoking for the first time. Tobacco companies realized that they could manipulate the smoke from cigarettes to make it easier to inhale, for example by adding ammonia to cigarettes during the manufacturing process. Ammonia, the same chemical found in many commercial cleaning products like bleach, alters the pH levels of smoke, making it "smoother" and easier to inhale, thus helping the absorption of nicotine into the bloodstream to occur more rapidly. The more nicotine a smoker inhales, the more quickly he or she can become addicted to cigarettes.

By now, we know about the harms of smoke—but is nicotine by itself harmful or benign? Besides its addictive properties, nicotine has been shown to have adverse effects on the nervous system and the heart. It can cause decreased appetite, mood elevation, increased heart rate, increased blood pressure, nausea and diarrhea.

Nicotine is often compared with caffeine, and both are widely considered to be benign drugs. However, studies show that nicotine is much more likely to cause dependence (i.e., is more addictive), has been shown in animal models to help cancer tumors to grow, and is considered lethal at a much smaller dose than caffeine (Table 4.1).

Table 4.1 Comparing the Effects of Nicotine and Caffeine

Topic	Nicotine	Caffeine
Withdrawal Symptoms	Nicotine withdrawal caused a more intensive degree of irritability, restlessness and difficulty concentrating compared with caffeine.	In groups that had used caffeine, alcohol, and nicotine in the past year, 28% showed dependence to caffeine, compared to 50% to alcohol, and 80% to nicotine.
Psychological Effect	Nicotine produces a psychoactive, stimulant effect. Nicotine increases the speed of sensory information processing, and induces a feeling of relaxation and reduced stress.	Caffeine is a stimulant. It induces alertness, elevates mood, facilitates thinking, and increases feelings of motivation.
Possible Effects on Cancer	In cell and animal studies, nicotine helps cancer grow and spread and may inhibit chemotherapy.	In cell and animal studies, caffeine prevents some events that may help cancer grow.
Lethal Dose	50-60 mg	10 grams

In so far as nicotine addiction is commonly associated with smoking, it has deadly consequences. Thanks in large part to tobacco control measures that have been put in place since the first U.S. Surgeon General's Report was released in 1964, the dangers of having a nicotine addiction are much more widely known. Unfortunately, the knowledge that cigarette use results in death for one half of its lifetime users has prompted tobacco companies to direct their efforts not to stopping the manufacture and sale of these deadly products, but rather to developing new products that are either

potentially less harmful (but harmful still), or that appear to be less harmful. In the following sections, we examine the wide variety of these alternative products in greater depth. These products are often referred to as novel nicotine products or electronic nicotine delivery systems (ENDS), alternative nicotine delivery systems (ANDS) or potentially reduced exposure products (PREPs), and we will use these terms interchangeably.

Section 2 - Tobacco Companies Respond to Smoking's Harm

Cigarettes are on the decline in the United States. The dangers of cigarette smoking have been apparent since the 1950s, and tobacco companies have recognized for a long time that they need to develop new ways of providing nicotine to their customers.

When articles began to be published in the 1950s linking smoking with lung cancer, the major tobacco companies in the U.S. banded together and made a concerted effort to devise a strategy to continue to sell their product. In December 1953, a number of tobacco executives met at the Plaza Hotel in New York City to find a way to deal with emerging scientific data confirming the hazards of smoking. They needed a strategy that would allow them to preserve their customer base as well as their public image.

They considered two different approaches. One approach was to be candid about what they knew about the harms of smoking and to make the commitment to reduce these harms by whatever means necessary. The second approach was to deny the scientific evidence showing that smoking was harmful and to pursue a concentrated public relations campaign through which they would reassure the American public that smoking was not a problem.

They chose the second approach and in 1954, the "Frank Statement to Cigarette Smokers" was published in over 400 newspapers in the U.S. (also Chapter 1: Harm from Tobacco Use and

Secondhand Smoke). In their statement, the tobacco companies assured Americans, "We believe the products we make are not injurious to health." They dismissed the science that had been conducted on cigarette smoking so far, and they also promised to "cooperate closely with those whose task it is to safeguard the public health."

Key Takeaway

Starting in the 1950's, tobacco companies responded to the mounting evidence about the harms of smoking by developing novel nicotine products that were less harmful (but harmful still) or that appeared to be less harmful.



Figure 4.4 The Kent Micronite Filter, made with asbestos, was advertised as "the greatest health protection in cigarette history"

However, evidence continued to mount on the causal relationship of smoking and lung cancer, and the tobacco industry knew it had to respond with products that were safer or at least appeared to be safer. Their first effort in this regard was the addition of filters to cigarettes in the 1950s (Figure 4.4). The industry claimed that filters removed the tar resulting from combustion, and thus made cigarettes safer to smoke. One kind that became widely used was the Kent Micronite filter, advertised as "the greatest health protection in cigarette history." As it turns out, the primary ingredient in these filters was asbestos, so now smokers were inhaling deadly asbestos in addition to the thousands of chemicals in smoke (Figure 4.5).

Among the worst examples of the tobacco industry's response to the known harms of smoking were so-called light cigarettes, introduced in the 1970s and still marketed to

Figure 4.5 Example of Cigarette Advertisements Promoting Health Protection



this day. Smokers, particularly women, had become increasingly concerned about the risks associated with smoking. Tobacco companies sought to develop a product that would be seen as less harmful. They figured out that they could modify the tar and nicotine levels that the Federal Trade Commission (FTC) required to be reported for each brand of cigarettes. The level of tar and nicotine that is displayed on all cigarette packs is measured by cigarette-smoking machines that have standardized protocols around frequency of breathing and depth of inhalation. Tobacco companies realized that by putting ventilation holes in the filter of the cigarettes, they could make it look like the tar and nicotine levels were lower than what they were in reality.

Theoretically, the small holes in the filter would dilute the smoke with clean air, thus resulting in a lower concentration of smoke being inhaled by the smoker. The holes in light cigarettes are located on the filter in front of where the cigarette would be attached to the

Key Takeaway

Most smokers believe that so-called light cigarettes are safer, but lights contain just as much tar and nicotine as regular full-flavored cigarettes.

smoking machine, so they register as having lower tar and nicotine yields than regular cigarettes. However, when a person smokes a so-called light cigarette, without being conscious of it, he or she actually compensates for these ventilation holes by holding the fingers or lips over the holes while inhaling. Often, smokers also subconsciously inhale more frequently or more deeply in order to receive more nicotine. Thus, while the smoke from a light cigarette is diluted when measured by a smoking machine, when people smoke it they get just as much tar and nicotine as they would out of a full-flavored cigarette. Unfortunately, however, because of the way light cigarettes are advertised by the tobacco companies, most smokers believe that they are safer than regular cigarettes.

Figure 4.6 Advertisements For So-Called Light Cigarettes Were Geared Towards Assuaging Smokers' Guilt for Continuing to Smoke



Products such as light cigarettes (and others we discuss subsequently) are sometimes referred to as **potential reduced exposure products, or PREPs** (Figure 4.6). In the 1970s, as the dangers of smoking became more widely known, many smokers switched to lights rather than quit smoking altogether. Light cigarettes were a way for tobacco companies to provide health reassurance to concerned smokers so that they would not lose their market share. Their intent was to assuage the guilt of smokers for continuing to smoke, even though the tobacco companies knew that the products were

Figure 4.7 Proposed Corrective Statements for Addictiveness of Smoking and Nicotine

A Federal Court has ruled that Philip Morris USA, R.J. Reynolds Tobacco, Lorillard, and Altria deliberately deceived the American public about the addictiveness of smoking and nicotine, and has ordered those companies to make this statement. Here is the truth:

- Smoking is highly addictive. Nicotine is the addictive drug in tobacco.
- Cigarette companies intentionally designed cigarettes with enough nicotine to create and sustain addiction.
- It's not easy to quit.
- When you smoke, the nicotine actually changes the brain - that's why quitting is so hard.

harmful. Lights were targeted especially to women, the market segment that was most concerned about the negative health consequences of smoking.

Fast forward to 2006 and, based on the judicial findings of Judge Gladys Kessler, tobacco companies are now required to make a series of corrective statements to compensate for deceiving the American public. These statements are based on a review of scientific evidence and internal documents from the tobacco industry (Figure 4.7). As we mentioned in Chapter 1, these corrective statements are still pending based on the outcome of litigation by tobacco companies. Among these, there are corrective statements that specifically address the false marketing of low-tar and light cigarettes (Figure 4.8).

Figure 4.8 Proposed Corrective Statements About Lack of Significant Health Benefit from Smoking "Low Tar," "Light," "Ultra Light," "Mild," and "Natural" Cigarettes

A Federal Court has ruled that Philip Morris USA, R.J. Reynolds Tobacco, Lorillard, and Altria deliberately deceived the American public by falsely selling and advertising low tar and light cigarettes as less harmful than regular cigarettes, and has ordered those companies to make this statement. Here is the truth:

- Many smokers switch to low tar and light cigarettes rather than quitting because they think low tar and light cigarettes are less harmful. They are not.
- "Low tar" and filtered cigarette smokers inhale essentially the same amount of tar and nicotine as they would from regular cigarettes.
- All cigarettes cause cancer, lung disease, heart attacks, and premature death - lights, low tar, ultra lights, and naturals. There is no safe cigarette.

Judge Kessler also weighed in on cigarette design and how these products were made to optimize nicotine delivery with the intention of making them more addictive (Figure 4.9). She is requiring tobacco companies to state at point of purchase, on television and the Internet, and in newspapers and magazines that cigarettes are designed to addict people and keep them addicted. It is hoped that these legal judicial statements based on scientific evidence will become public.

Figure 4.9 Proposed Corrective Statements for Manipulation of Cigarette Design and Composition to Ensure Optimum Nicotine Delivery

A Federal Court has ruled that Philip Morris USA, R.J. Reynolds Tobacco, Lorillard, and Altria deliberately deceived the American public about designing cigarettes to enhance the delivery of nicotine, and has ordered those companies to make this statement. Here is the truth:

- Philip Morris USA, R.J. Reynolds Tobacco, Lorillard, and Altria intentionally designed cigarettes to make them more addictive.
- Cigarette companies control the impact and delivery of nicotine in many ways, including designing filters and selecting cigarette paper to maximize the ingestion of nicotine, adding ammonia to make the cigarette taste less harsh, and controlling the physical and chemical make-up of the tobacco blend.
- When you smoke, the nicotine actually changes the brain - that's why quitting is so hard.

Section 3 - Novel Nicotine Products and Harm Reduction: A Cloud of Controversy

As we have seen, tobacco companies have sought different strategies to continue selling their products even as more and more evidence about the harms of smoking was brought to light. As the public became increasingly aware that cigarettes were deadly and addictive, tobacco companies began to develop alternatives that would at least appear to be safer or less harmful, so as to assuage smokers' guilt and make them less likely to quit.

The tobacco industry also developed innovative products, some of which did not involve combustion. Over the last twenty years, there has been substantial effort to introduce electronic cigarettes and other devices that heat either tobacco or liquid nicotine, but do not burn tobacco in the traditional sense. Early versions of these products—Accord, Premier, and Eclipse—were marketed as alternatives to cigarettes providing decreased toxin exposure. Hundreds of millions of dollars were invested in these products over the years, but they were unable to capture a significant market share until quite recently. For the remainder of this chapter, we will examine these alternative products in greater depth.

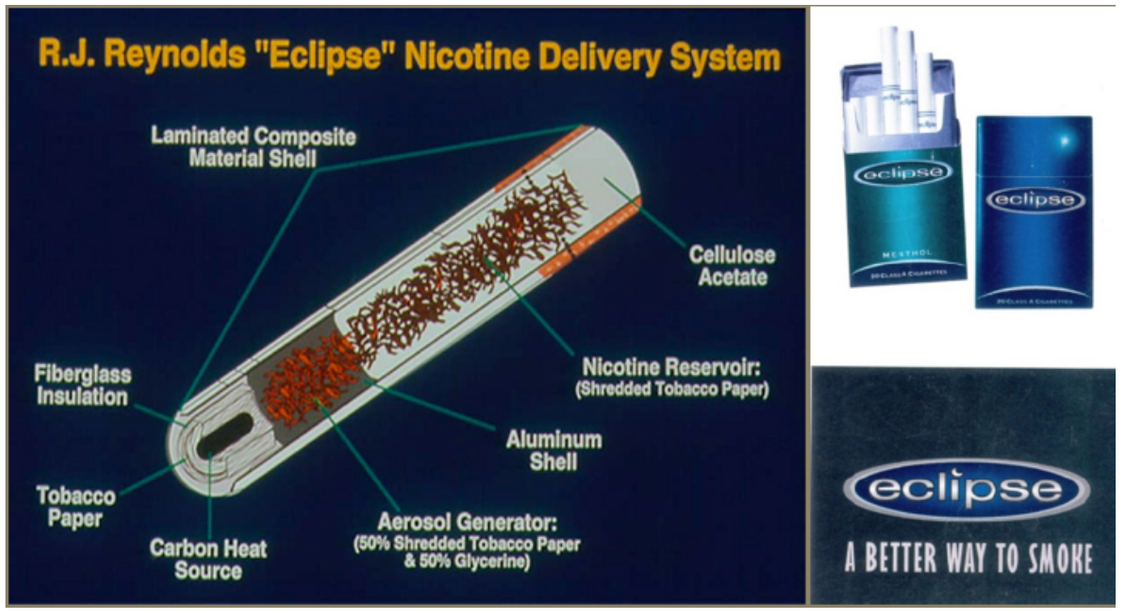
As you learn about the evolution of electronic cigarettes and their explosion into the market in the last few years, it is helpful to keep in mind the words of Claude Teague, Jr., a scientist for Philip Morris (1972):

> *The tobacco industry may be thought of as being a specialized, highly ritualized and stylized segment of the pharmaceutical industry. Tobacco products uniquely contain and deliver nicotine, a potent drug with a variety of physiological effects.*

All of the efforts invested by the tobacco companies toward developing cigarette alternatives reflect their desire to continue to provide nicotine efficiently and, often, in a manner that maintains addiction.

An important precursor to today's electronic cigarette was Eclipse, developed by R.J. Reynolds Tobacco Company and first tested with consumers in 1994. Dubbed a "nicotine delivery system," Eclipse had a reservoir in which shredded tobacco paper was heated to emit nicotine vapor (Figure 4.10). The product was advertised in such a way as to suggest a lower risk of cancer

Figure 4.10 Eclipse - One of the First Electronic Cigarettes



compared to traditional cigarettes, as well as producing less inflammation in the respiratory system, which implies a lower risk of chronic bronchitis as well as emphysema. It also purported to reduce secondhand smoke by 80%.

Eclipse, a cigarette-like design that uses a small charcoal tip to heat rather than burn tobacco, ultimately failed to gain much market share. Today, the picture looks very different for the PREPs market. Tobacco companies now admit that smoking is risky (Figure 4.11 and Figure 4.12). Alongside these disclosures, the tobacco companies have embraced PREPs into their product lines and invested hundreds of millions of dollars in creating new products.

Figure 4.11 Health Warnings From R.J. Reynolds Tobacco Company

As stated on the R.J.R. website, "Cigarette smoking significantly increases the risk of developing lung cancer, heart disease, chronic bronchitis, emphysema and other serious diseases and adverse health conditions."

Figure 4.12 JTI Statement on Cigarettes

As stated on the JTI website, "JTI recognizes that cigarettes are a legal but controversial product. People smoke for pleasure but there are real risks that come with that pleasure. Accordingly JTI believes that tobacco products should be appropriately regulated."

Following, we will review some of the novel products that have been developed over the last few years. One of the early offerings was Ariva (Figure 4.13), a small dissolvable tablet containing 1.5 mg of nicotine that came out in 2001. It was marketed as a product that could be used when a person couldn't smoke. That is, rather than being a quit aid, these tablets were presented as an alternative for

Figure 4.13 Ariva (Dissolvable Nicotine Tablet) Advertised for Use When Unable to Smoke



help people quit.

A wide variety of products have entered the market to provide nicotine in non-combustible forms. Snus is a product originating from Sweden that provides tobacco in a small sachet placed in the mouth so that nicotine can be absorbed (Figure 4.14). There are sticks that resemble toothpicks, strips that dissolve when placed on the tongue, and "orbs" which look like small candies; all of these products deliver nicotine without burning tobacco and purport to have fewer toxins.

Corresponding to increasing regulations prohibiting smoking in public places, the marketing for these products has also increased and is completely unregulated. They are situations in which smoking was not allowed. When Ariva was released, people responded to the novelty of the product and were curious about it, but there was strong concern about using these products since they were unregulated by the FDA. Alternately, there are pharmaceuticals, such as nicotine replacement therapy patches and gums, that have met FDA standards and are proven to

Figure 4.14 Camel Snus Originates from Sweden



marketed as alternatives that can be used in places such as offices and restaurants where smoking is not allowed. As such, they lead to many public health concerns, including dual use (using them in addition to cigarette-smoking, resulting in addiction to higher levels of nicotine) as well as possibly delaying cessation. Moreover, because these products are often offered in a variety of candy-like flavors and packaged in ways that attract young people, there are concerns around youth initiation to nicotine products that could subsequently lead to cigarette smoking.

While the products we've looked at so far—Snus, orbs, strips, and sticks—do provide nicotine without the harmful smoke, it is important to note that there are ways of obtaining nicotine that have secured approval from the Food and Drug Administration (FDA) while these products have not. **Nicotine replacement therapy (NRT)**, in the form of gum and patches, has been provided by pharmaceutical companies since the 1970s in the U.S. Originally sold by prescription only, they are now generally available over the counter. NRT undergoes rigorous pre-market approval to ensure the safety and efficacy of the product, and they are proven to be effective in helping people to quit smoking. NRT use has been shown to increase the chances of smoking cessation. In this way, they are different from PREPs; the manufacturers of PREPs are not permitted to make claims about aiding in smoking cessation because they have not been scientifically proven to do so.

Table 4.2 outlines the different methods available for obtaining nicotine. We can compare these examples of the major sources of nicotine and determine the level of nicotine in each source. Most of the products listed here are currently unregulated by the FDA. As you can see, nicotine levels vary by product type and exposure to nicotine is based on how each product is used as well as the frequency of use. As consumers of nicotine make decisions about which products to use, they should consider the risks associated with each kind and whether they are regulated or unregulated.

In the past, we at R&D [research and development] have said that we're not in the cigarette business, we're in the smoke business. It might be more pointed to observe that the cigarette is the vehicle of smoke,

Table 4.2 Comparing Nicotine Exposure By Product Type

Product	Amount of Nicotine per Unit	Daily Usage (Example)	Daily Nicotine Exposure (Example)
Cigarettes Ex. Marlboro Red	1.2 mg per cigarette	1 pack (20 cigarettes)	24 mg
E-Cigarettes Ex. blu disposables	24 mg per disposable e-cigarette	1 disposable e-cigarette	24 mg
Smokeless Tobacco Ex. Copenhagen Original Long Cut	13.9 mg per gram	Half can (17 g)	236.3 mg
Snus Ex. General Classic (0.9 g pouches)	7.2 mg per pouch	12 pouches	86.4 mg
Dissolvables Ex. Camel Orbs	1.0 mg per orb	1 package (12 orbs)	12 mg
Nicotine Replacement Therapy - Patch Ex. Nicoderm CQ	7, 14, 21 mg doses	1 patch per day	7-21 mg
Nicotine Replacement Therapy – Gum Ex. Nicorette Gum	2, 4 mg doses	9 pieces per day	18-36 mg

Key Takeaway

Nicotine replacement therapy (NRT) products undergo a rigorous pre-market approval process with the FDA before they can be sold. In contrast, potential reduced exposure products (PREPs) are sold without FDA approval and have not been proven to aid in smoking cessation.

smoke is the vehicle of nicotine and nicotine is the agent of a pleasurable body response.

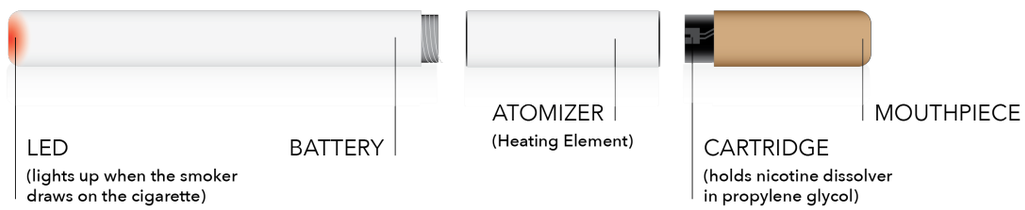
-- William Dunn, VP of Research and Development, Philip Morris, 1969

By now, you've heard about electronic cigarettes, or e-cigarettes, and have likely even seen advertisements for them on television or on the Internet. E-cigarettes and vaping products are currently the most popular novel nicotine product on the market.

Typically, a traditional e-cigarette has a cartridge containing liquid nicotine and flavorings, illustrated in Figure 4.15. The cartridge is heated by a battery to create vapor that is then inhaled. It is important to fully understand why the introduction of e-cigarettes has been so significant—and a lot of it has to do with smoke. Even in 1969, Philip Morris was aware of the importance of nicotine and understood that smoke was the most efficient way to deliver nicotine to the body. But, as we have seen, smoke is the agent that results in the enormous burden of disease suffered by smokers. If there is a way to get rid of the smoke, nicotine can be received by the body in a less harmful way.

The question that we need to ask as we go forward in this

Figure 4.15 How an E-Cigarette Works



discussion is the following: Are e-cigarettes an effective and safe way of delivering nicotine? In the U.S., current estimates value the e-cigarette and vaping industry at a few billion dollars. In comparison, the cigarette market is estimated at around $75 billion in the U.S. and $500 billion globally. Thus, the market for e-cigarettes, while significant, is still small compared to traditional cigarettes. It is, however, growing very rapidly at a time when traditional cigarette sales are declining in many countries. Responding to this trend, all major tobacco companies have now invested in the e-cigarette business.

Projections of how the e-cigarette market will look in the future are widely varied. Some suggest that e-cigarettes will overtake the sale of traditional combusted cigarettes within a decade. Others estimate that by 2050, e-cigarettes will be worth approximately 4% of the total value of all tobacco products (including cigarettes and other tobacco products).

While these predictions paint very different possible scenarios, it is certainly the case that e-cigarettes have penetrated contemporary culture very rapidly. As you can see in Table 4.3, awareness of e-cigarettes among adults in the U.S. has increased from 16.4% in 2009 to 87.7% in 2015. At the same time, awareness of other products, such as Snus and dissolvables, grew at a considerably smaller rate. It appears that e-cigarettes have changed the market dynamics in tobacco alternatives in terms of popularity and awareness.

Similarly, looking at the percentage of adults in the U.S. who have ever tried e-cigarettes, you can see in Table 4.4 that less than 1% had tried them in 2009 and by 2015 over 17% had tried them, a substantial increase for a consumer product over a relatively short period. Simultaneously, there is a slight decline in the proportion of the population that have tried Snus and a very small percent of the

Table 4.3 Awareness of Novel Nicotine Products Among U.S. Adults, 2009-2015

Awareness of Product	2009	2010	2011	2012	2014	2015
Electronic Cigarette	16.4%	39.7%	57.9%	67.2%	91.9%	87.7%
Snus	44.2%			33.3%	59.7%	
Dissolvables	10.4%			7.0%	40.6%	

population have tired dissolvables.

A survey conducted on a nationally representative sample of adults in the U.S. has shown that 38% of smokers have tried an alternative nicotine product, the most common of these being e-cigarettes. Individuals thinking about quitting were significantly more likely to have tried one of these alternatives. As of today, however, there is only limited evidence that the use of these products increases success in quitting, and there are several population-level concerns

Table 4.4 Proportion of U.S. Adults Who Have Ever Tried Novel Products, 2009-2015

Ever Use of Product	2009	2010	2011	2012	2014	2015
Electronic Cigarette	0.6%	2.7%	6.2%	8.1%	14.9%	17.1%
Snus	5.4%			4.6%	4.0%	
Dissolvables	0.5%			0.5%	1.1%	

around their use and policy (Table 4.5). Specifically, we must have more scientific research to determine if e-cigarettes are effective in helping smokers quit smoking, being used by youth, create situations of dual use, promote the return to smoking among former smokers, contribute to the renormalization of smoking, and results in increased nicotine poisoning or other drug use.

Recent surveys have also examined novel nicotine product use globally. In 2010 and 2011, the International Tobacco Control Four-Country Survey collected data on users of Electronic Nicotine Delivery Systems (ENDS) in the U.S., U.K., Canada and Australia and found data that were similar to those reported above for the U.S. According to the survey, 46% of respondents were aware of ENDS and 7.6% had tried them. Of those who used ENDS, 79.8% perceived them as less harmful than regular cigarettes, 75.4% used them to reduce cigarette smoking, and 85.1% used them as a means to try to quit.

While there is much enthusiasm about the potential of e-cigarettes to possibly reduce the burden of disease caused by smoking, there is also great uncertainty as to whether and how people's smoking behaviors will really change as a result of these relatively new devices.

Table 4.5 Even the Limited E-Cigarette Research that is Available has Policy Implications

Issues/Concerns	Evidence to Date	Policy Implications
Youth - Initiation	Doubled in one year.	Implement minimum age of purchase laws.
Current Smokers - Dual Use	Most users continue to smoke, although some may quit completely.	Discourage long-term dual use.
Ex-Smokers - Relapse	Returning to "safe" nicotine may be attractive to former smokers.	Restrict marketing targeted at ex-smokers (e.g. Welcome Back campaign).
Non-Smokers - Clean Indoor Air	Companies are advocating e-cigs be used anywhere to increase their acceptance and use.	Regulate vaping in indoor areas so that it does not undermine existing clean indoor air laws.
Nicotine Poisoning	Upsurge in calls to poison control centers for children under 6 years from liquid nicotine poisoning.	Require child-proof packaging and appropriate labelling of liquid nicotine.
Drug Delivery Devices	E-cigs are being used for other drugs, particularly hash oil.	Consider regulating e-cigs as drug delivery devices, or even as drugs (like nicotine replacement therapy), to allow for possible future health claims.

Governments should consider regulating e-cigs as drug delivery devices, or even as drugs (like nicotine replacement therapy), to allow for possible future health claims. There should be appropriate

regulation to have the optimal public health benefits, if any for these products. Regulation should allow for them to be used if they are shown to be beneficial to public health.

In May 2016, the FDA deemed their existing authority over a variety of novel tobacco products, including e-cigarettes, hookah, little cigars, cigarillos, and premium cigars. The significance of the 2016 regulation is that it gives FDA the authority to regulate these products, which only previously existed for traditional cigarettes and smokeless tobacco. FDA now has the authority to regulate these products in the future, which could include advertising and marketing (including use of ads on TV), and limiting flavors. While these types of regulations may be established in the future, they were not part of the May 2016 deeming ruling. Instead, the 2016 deeming ruling set the minimum age of purchase at 18, required health warnings on packaging, and established a number of reporting and registration requirements.

While bans on advertising for traditional cigarettes have existed for decades (since 1971), advertising for e-cigarettes has been unregulated so they can be marketed on television and radio, in newspapers and magazines, and on the Internet. Take a look at **Movie 4.1**, a commercial for blu e-cigarettes featuring Jenny McCarthy, a popular and controversial celebrity. From a public health perspective, it is concerning that cigarette-like behavior is once again being advertised on television.

Movie 4.1 E-Cigarette Advertisements Commonly Use Celebrity Spokespeople



Figure 4.16 NutriCigs Promise Better Sleep, Increased Energy and Weight Loss



Figure 4.17 Snus Ad



This advertisement for Camel Snus states, "If you've decided to quit tobacco use, we support you. But if you're looking for smoke-free, spit-free, drama-free tobacco pleasure, Camel Snus is your answer."

Some varieties, such as NutriCigs (Figure 4.16), are advertised as providing supplements that will help consumers to sleep better, or have more energy, or eat less. At the very least, marketing nicotine-containing products that deliver supplements with unproven benefits is a matter of questionable ethics. In fact, the European Union has recently banned the marketing of e-cigarettes containing supplements.

Perhaps the most controversial aspect of e-cigarettes is their potential as a harm reduction method. The ultimate goal of harm reduction is to provide nicotine to consumers without the smoke and its deadly effects and tobacco companies use this in their marketing (Figure 4.17). It may seem obvious, then, that harm reduction is a goal that everyone can agree upon, yet many tobacco control advocates remain skeptical. While eliminating or at least minimizing smoke is certainly a good thing, public health advocates must consider the following:

1. Do they help people quit? Figure 4.18 shows the position of several medical and health-related organizations in the U.S. regarding e-cigarettes as cessation tools.

Figure 4.18 Position Statements About E-Cigarettes as Cessation Tools

American Medical Association, 2015

Supports regulations that …"prohibit claims that electronic cigarettes are effective tobacco cessation tools."

Journal of the American Medical Association, 2015

"Despite the increased interest in these products as part of strategies to reduce or eliminate smoking, counseling patients to use e-cigarettes is a practice that is currently not supported by evidence. Thus, it should be considered off-label advice. Although the priority is to get tobacco users to completely stop using combusted tobacco, clinicians should also consider treating people who use e-cigarettes with nicotine replacement therapies that have been approved by the FDA."

American Lung Association, 2015

"Until and unless the FDA approves a specific electronic nicotine delivery system or e-cigarette as safe and effective for use as a tobacco cessation aid, the Lung Association does not support using them for cessation, nor does it support any direct or implied claims that e-cigarettes help smokers quit."

2. Are there unintended consequences, such as unknown harms, youth initiation, dual use of multiple tobacco products or delayed cessation?

3. What is the net benefit of e-cigarette use? FDA must balance the individual benefit, if any, with the population benefit, if any, in establishing rules regulating the use of e-cigarettes and other novel tobacco products.

In 2001, the Institute of Medicine published a report titled "Clearing the Smoke: The Science Base for Tobacco Harm Reduction." The study drew some major conclusions with important implications for harm reduction products. First, according to the report, it is impossible to assess the harm reduction potential of any product, though it is conceivable that exposure reduction could be assessed. In other words, the report concluded that it is impossible to know if these products will actually reduce harm; thus, rather than calling them "harm reduction products," it introduced the term "potential reduced-exposure product." The report advocated for the need to understand how individuals will use these products and what the long-term health effects will be. It also called for a rigorous scientific study of biomarkers that can help provide more proximal data regarding the long-term impact of PREPs; the surveillance and evaluation of product use; and regulation of claims that can be made by manufacturers of PREPs.

We conclude this chapter with a video from Dr. Michael Siegel (Movie 4.2). A physician and epidemiologist by training, Dr. Siegel works in the area of tobacco control, focusing on the health effects of smoking and exposure to secondhand smoke, the marketing practices of the tobacco industry and their effects on youth, and tobacco control policies and their impact on youth and adult smoking behavior.

Movie 4.2 Hear from the Experts: Michael Siegel, MD, MPH



Chapter 4 Discussion Questions:

1. Is there a regulatory system in place requiring tobacco companies to present rigorous evidence of harm reduction before placing a product on the market? Should there be one?
2. Do you think e-cigarettes are safer for your health? Are there circumstances under which they should be promoted?
3. Given the continued development and marketing of innovative tobacco products by manufacturers, should the U.S. pass regulations intended to inform and protect consumers that would be applicable to all current and future tobacco-related products?

Figures and Tables

Figure 4.1: Nicotine Chemical Compound

Figure 4.2: Nicotine Occurs Naturally in Tobacco Plants

Source: Ellie Van Houtte, 2008

Figure 4.3: 1962 Statement on Nicotine by Sir Charles Ellis, a tobacco industry scientist

Table 4.1: Comparing the Effects of Nicotine and Caffeine

Source: Russell MJ. Low-tar medium nicotine cigarettes: a new approach to safer smoking. *BMJ* 1976;1: 1430–3.

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Figure 4.4: The Kent Micronite Filter, made with asbestos, was advertised as "the greatest health protection in cigarette history."

Figure 4.5: Example of Cigarette Advertisements Promoting Health Protection

Source: Stanford Research Into the Impact of Tobacco Advertising

Figure 4.6: Advertisements For So-Called Light Cigarettes Were Geared Towards Assuaging Smokers' Guilt for Continuing to Smoke

Figure 4.7: Proposed Corrective Statements for Addictiveness of Smoking and Nicotine

Source: Campaign for Tobacco-Free Kids

Figure 4.8: Proposed Corrective Statements About Lack of Significant Health Benefit from Smoking "Low Tar," "Light," "Ultra Light," "Mild," and "Natural" Cigarettes

Source: Campaign for Tobacco-Free Kids

Figure 4.9: Proposed Corrective Statements for Manipulation of Cigarette Design and Composition to Ensure Optimum Nicotine Delivery

Source: Campaign for Tobacco-Free Kids

Figure 4.10: Eclipse - One of the First Electronic Cigarettes

Figure 4.11: Health Warnings From R.J. Reynolds Tobacco Company

Figure 4.12: JTI Statement on Cigarettes

Figure 4.13: Ariva (Dissolvable Nicotine Tablet) Advertised for Use When Unable to Smoke

Figure 4.14: Camel Snus Originates from Sweden

Table 4.2: Comparing Nicotine Exposure By Product Type

Figure 4.15: How an E-Cigarette Works

Source: Created by GSU Center for Instructional Innovation, 2015

Table 4.3: Awareness of Novel Nicotine Products Among U.S. Adults, 2009-2015

Source: CDC and GSU SPH Data

Table 4.4: Proportion of U.S. Adults Who Have Ever Tried Novel Products, 2009-2015

Source: CDC and GSU SPH Data

Table 4.5: Even the Limited E-Cigarette Research that is Available has Policy Implications

Source: Popova, L., & Ling, P. 2013. Alternative tobacco product use and smoking cessation: A national study. American Journal of Public Health, e1-e8.

Movie 4.1: E-Cigarette Advertisements Commonly Use Celebrity Spokespeople

Figure 4.16: NutriCigs Promise Better Sleep, Increased Energy and Weight Loss

Figure 4.17: Snus Ad

Figure 4.18: Position Statements About E-Cigarettes as Cessation Tools

Source: AMA, JAMA, ALA, AHA

Movie 4.2: Hear from the Experts: Michael Siegel, MD, MPH

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Chapter 5

Tobacco Enterprise: Costs and Implications

Chapter Objectives

1. Analyze the pros and cons of the global tobacco industry with regard to farming of tobacco and manufacturing of cigarettes.
2. Examine China's unique role as a major tobacco-growing country, manufacturer, and corporation.
3. Explain the consolidation of tobacco farming and companies over time in the U.S.
4. Contrast the human and monetary costs of smoking to the profits received by tobacco companies.

Section 1 - The Tobacco Business: Big, Legal, and Deadly

In this chapter, we will examine the devastating global tobacco epidemic and how the tobacco industry works to get new users addicted, especially youth.

Tobacco is a highly profitable business concentrated in a few global companies. The global tobacco enterprise is estimated at nearly half a trillion dollars a year with over $30 billion in annual profits (Movie 5.1). The enormous magnitude of the industry has much to do with why tobacco control is such a challenge. Tobacco companies strive to maintain the status quo—a culture in which smoking is an acceptable activity (even, in some cases, an activity that suggests an elevated social status), and they want to continue to sell their products and be as profitable as possible. They protect their existing franchise while also preparing for future challenges in the market by developing new nicotine products such as e-cigarettes.

Global tobacco revenues for 2015 totaled more than $481 billion, including $222 billion from China National Tobacco Company alone. If we look at the private

Movie 5.1 "The Truth About Tobacco: How Much Is a Life Worth?"



tobacco companies (including Altria, BAT, Imperial, JTI and Philip Morris International), their combined 2015 revenue equaled $259.1 billion. This is roughly equivalent to the 2015 revenues of Home Depot ($88.5 billion), Johnson & Johnson ($70 billion), Disney ($52.4 billion), and Coca-Cola ($44.2 billion) combined (Table 5.1).

Table 5.1 2015 Revenues for Top Tobacco Companies

Tobacco Company	2015 Measurement	2015 Revenue (Billions USD)
Altria Group	Gross Revenue, (including excise tax)	$25.4
BAT	Gross Revenue, (including excise tax)	$60.6
Imperial	Gross Revenue, (including excise tax)	$37.4
JTI	Gross Revenue, (including excise tax)	$61.8
Philip Morris International	Gross Revenue, (including excise tax)	$73.9
China National Tobacco Corporation	2015 Revenue	$222.2
Total		**$481.3**

Recall Figure 2.10 from Chapter 2, which showed global cigarette consumption going up to nearly six trillion cigarettes in 2009. The dramatic increase of cigarette consumption in the last century provides a clear sign of the scope and influence of the tobacco industry and its successful penetration into U.S. and global culture.

While cigarettes dominated the tobacco industry, there are other tobacco products that play an important role in maintaining and increasing the industry's market share.

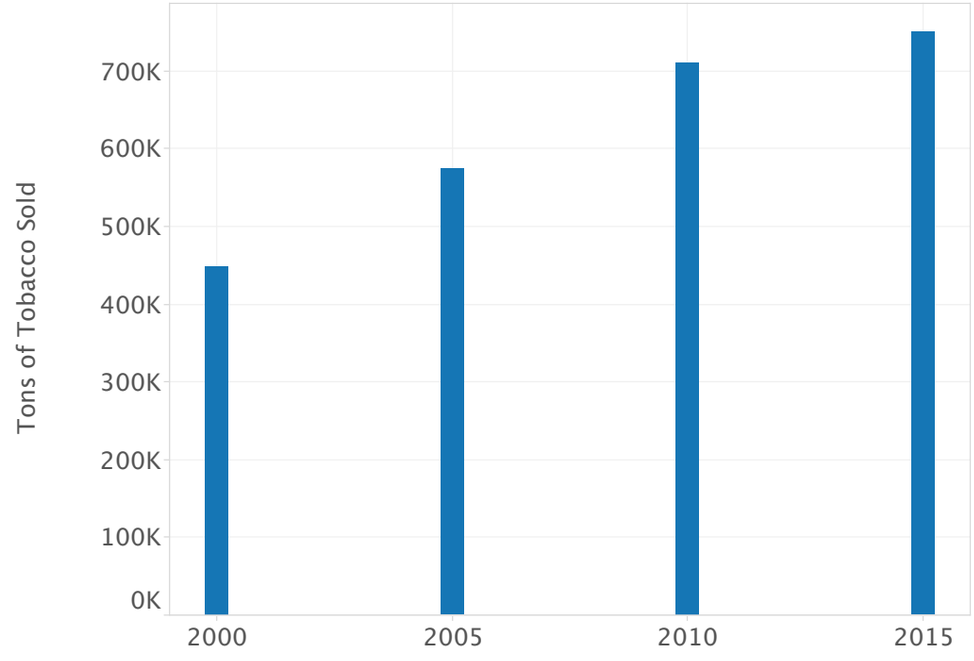
The proportions shown in Figure 5.1 are likely to change given the relatively recent success of e-cigarettes and novel nicotine products. As we discussed in the previous chapter, it is highly likely that these proportions will look very different in just ten years.

Figure 5.1 Value of Global Tobacco Industry Production (measured at retail sales prices), 2010



Figure 5.2 shows a 60% increase in smokeless tobacco sales over the last decade, giving a sense of just how rapidly the market can change. As cigarette consumption declines, public health advocates must remain vigilant to ensure that smokers do not simply transition to other nicotine products that are still harmful to health.

Figure 5.2 Global Smokeless Tobacco Sales Volume Increases 60% in a Decade



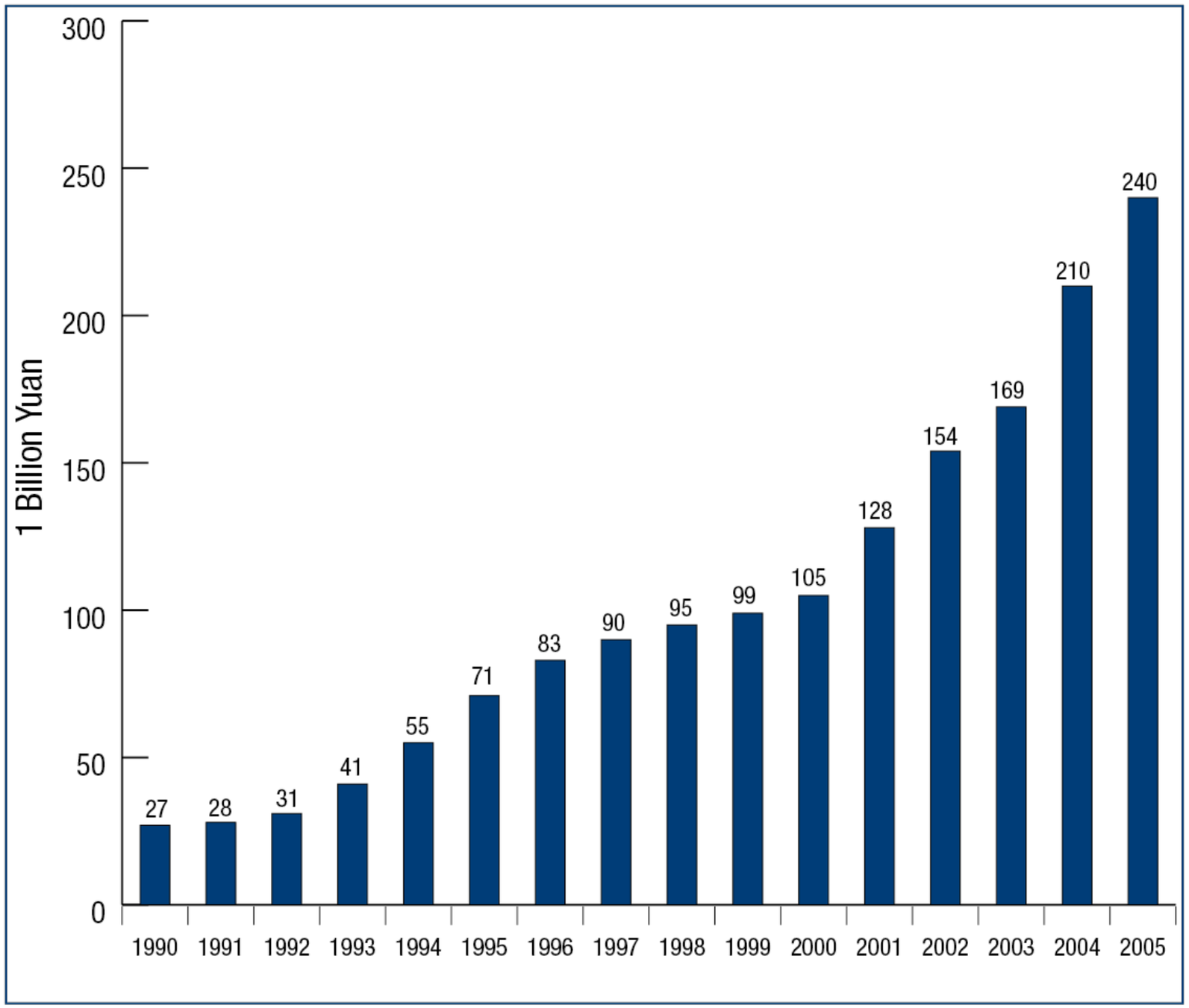
China presents an important case study for our discussion of the magnitude and influence of the tobacco business. The China National Tobacco Corporation (CNTC) is a government monopoly that is also the world's largest producer of cigarettes (Figure 5.3). CNTC is the fourth largest company in China, manufacturing 2.3 trillion cigarettes in 2009—a number that accounts for 40% of all cigarettes manufactured in the world. Cheng Li, the director of the John L. Thornton China Center at the Brookings Institute, noted in 2012, "China's production is roughly equivalent to the combined production of the next seven largest tobacco-producing countries." CNTC contributes somewhere between 7 and 10% of the entire governmental revenue of China.

Key Takeaway

The China National Tobacco Corporation is a government monopoly and the world's largest producer of cigarettes.

The tobacco business is likewise thriving in the United States, in spite of having more restrictions on tobacco than China. More than 303 billion cigarettes were purchased in the U.S. in 2010. In 2014,

Figure 5.3 CNTC Annual Cigarette Revenues, 1990-2005



three tobacco companies sold over 70% of the cigarettes in the U.S. (Table 5.2). By far, Philip Morris USA, the manufacturer of Marlboro, Basic, and Virginia Slims, is the largest company selling cigarettes in the U.S. with over 40% of the market share.

Table 5.2 U.S. Cigarette Market Share for Leading Brands, 2014

Brand	2014 US Market Share	Company Name
Marlboro	41%	Philip Morris USA
Newport	12%	R.J. Reynolds Tobacco Company
Camel	8%	R.J. Reynolds Tobacco Company
Pall Mall	8%	R.J. Reynolds Tobacco Company
Pyramid	2%	Liggett Group LLC

Table 5.3 shows a similar pattern for smokeless tobacco, with specific brands holding the majority of the market share in each category of smokeless tobacco. United States Tobacco, the manufacturer of Copenhagen and Skoal, was purchased in 2008 by Altria, and American Snuff was purchased by Reynolds American in 2006. In recent years, the trend has been for the large cigarette companies to acquire smokeless tobacco manufacturers, no doubt because of the continued growth of smokeless tobacco sales.

Table 5.3 U.S. Smokeless Tobacco Market Share for Leading Brands, 2011

Brand	2011 US Market Share	Category
Levi Garrett Plug	52%	Plug Tobacco
Day's Work	45%	Plug Tobacco
Red Man Plug	36%	Moist Plug Tobacco
Grizzly	26%	Moist Snuff and Fine Cut Tobacco
Garrett	24%	Dry Snuff
Skoal	24%	Moist Snuff and Fine Cut Tobacco
Red Man	18%	Loose Leaf Tobacco

The market for cigars presents quite a different picture (Table 5.4). While a large majority of the market share was dominated by three companies in the case of cigarettes and smokeless tobacco, for cigars most of the market is dominated by a variety of companies and the three largest companies hold less than half of the market. The cigar market is fundamentally different from the cigarette and smokeless tobacco markets, and perhaps not surprisingly, cigarette manufacturers have not been as eager to buy into the cigar market as they have been for smokeless products.

Table 5.4 U.S. Cigar Market Share for Leading Brands, 2013

Brand	2013 US Market Share	Category
Swisher Little	64%	Little Cigars
Swisher Sweets	12%	Large Cigars and Cigarillos
Black & Mild	10%	Large Cigars and Cigarillos
White Owl	5%	Large Cigars and Cigarillos
Dutch Masters	5%	Large Cigars and Cigarillos
Winchester	2%	Little Cigars

Section 2 -Growing and Manufacturing Tobacco

While tobacco is considered a major cash crop, it is grown with little benefit to farmers. In 2011, tobacco was grown in more than 124 countries—i.e., over 63% of the world's countries—covering 4.3 million hectares (1 hectare equals 2.47 acres). To put this in perspective, the amount of tobacco grown in the world exceeds the number of tonnes of artichokes, blueberries, cinnamon, cranberries, figs, hops, pistachios, raspberries, string beans, and vanilla combined. And in contrast to these crops, tobacco provides no nutritional value and does nothing to help with issues of food scarcity or eliminating hunger in any of the countries in which it is grown. In 2011, six of the top ten tobacco-growing countries had undernourishment rates between 11% and 39%. In place of tobacco, other crops could be grown that not only provide nutrition to a country's population but also yield more profit to the farmers who grow them.

The top five tobacco-growing countries are China, Brazil, India, the U.S., and Argentina (Figure 5.4). In the early 1960s, there was very little difference in terms of tobacco production among these five countries. It is striking to note the incredible growth that has occurred in China over the last forty years. China now leads the world in tobacco farming, surpassing the amount of tobacco leaf production in the other four top countries combined. In 2012, China produced more than 3.2 million tonnes of tobacco - more than 42% of all tobacco grown in the world.

Figure 5.4 Trends in Global Tobacco Production (metric tonnes) by Leading Tobacco Producing Countries,1961-2011

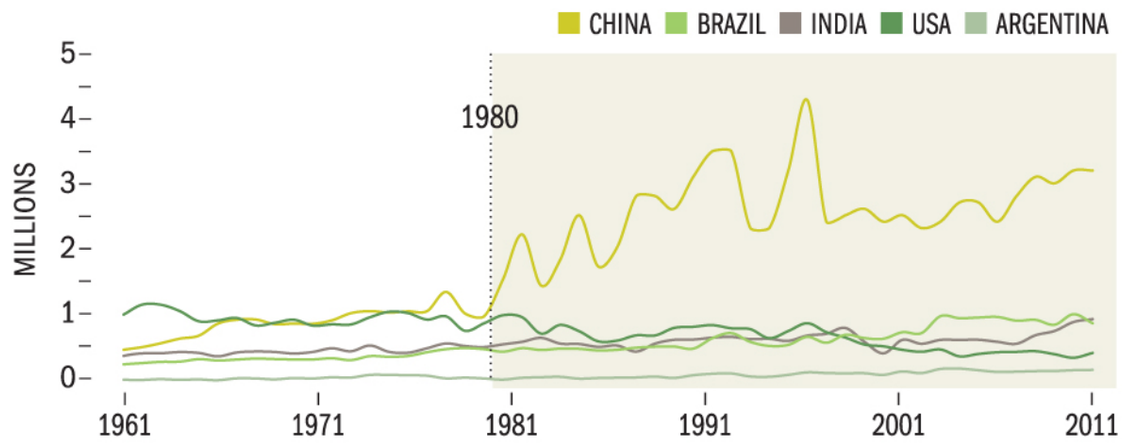


Figure 5.5 Tobacco is Grown in More Than 124 Countries



Growing tobacco benefits farmers in only minor ways (Figure 5.5). It requires an enormous input of labor and is not as profitable to farmers as many other crops. Often, tobacco companies supply the needed equipment to help farmers get started, but they do so at above-market prices and on credit terms that are not favorable to the farmers.

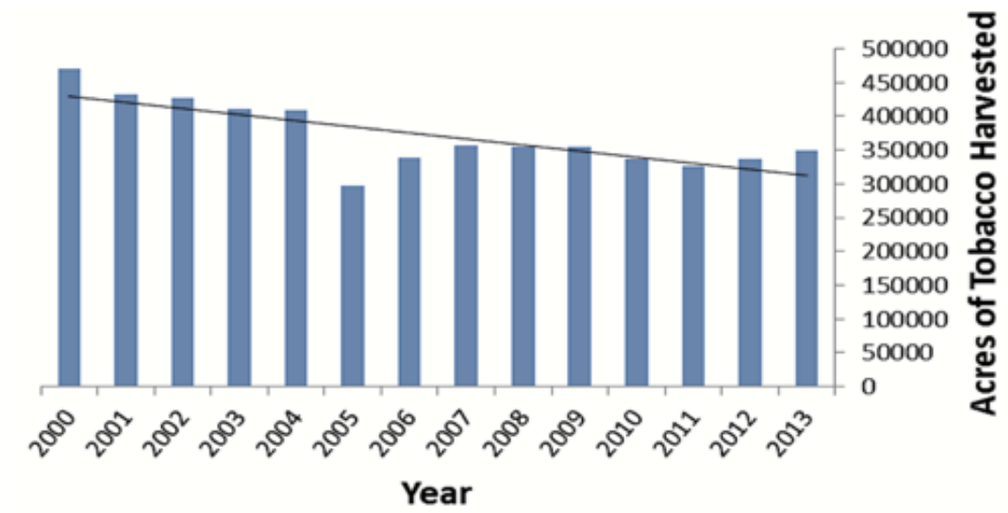
In the U.S., there has been a sharp reduction in the number of acres devoted to growing tobacco since 1994. According to Table 5.5, the acres of tobacco harvested was reduced by more than 50% between 1994 and 2011. In this period, tobacco production was reduced by almost two-thirds, yet the price of a pound of tobacco remained about the same. Thus, the economic value of tobacco to U.S. farmers has decreased substantially, now totaling only a little over $1 billion per year.

Table 5.5 U.S. Tobacco Farming Over Time

	1994	2000	2006	2011
Acres harvested	671,065	485,730	339,000	325,040
Tobacco production (thousands of pounds)	1,582,896	1,099,884	727,897	598,320
Price per pound	$1.76	$1.87	$1.67	$1.82
Economic value to farmers (in 1,000)	$2,779,056	$2,056,316	$1,211,885	$1,084,039

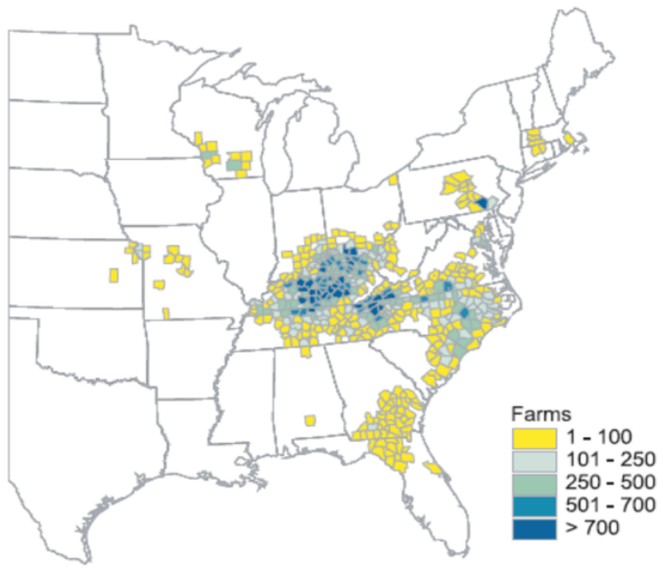
One of the major reasons for the dramatic change in tobacco farming in the U.S. is the Tobacco Transition Payment Program (TTPP). Part of the Fair and Equitable Tobacco Reform Act of 2004, the TTPP is a tobacco buy-out program that ended the federal quota program for tobacco established during the Depression Era. Before TTPP, the federal government in the U.S. guaranteed a minimum price for tobacco products and issued quotas both to tobacco farmers and to individual quota holders (who may not be growing tobacco themselves). In 2004, this quota system was seen as interfering with free market principles. TTPP was thus established, providing annual transitional payments for ten years to eligible tobacco quota holders and producers. Payments are funded through assessments of approximately $10 billion on tobacco product manufacturers and importers. As a result of this buy-out of the quota system, many farmers gave up growing tobacco, illustrated in Figure 5.6. The tobacco farms that had previously existed became corporatized and increased in size, and the price of tobacco has declined.

Figure 5.6 Acres of Tobacco Harvested by Year, U.S.



Currently, tobacco growing in the U.S. is concentrated in the Southeast (Figure 5.7). Kentucky has the highest concentration of tobacco farming and has found it the most difficult of all the states to transition to alternative crops. Historically, North Carolina and Virginia had been the largest producers of tobacco, but their economies have diversified and become less reliant on tobacco. Of note, the states in the Southeast not only have the highest concentrations of tobacco growing but also tend to have weaker tobacco control measures in place and higher rates of tobacco-related disease.

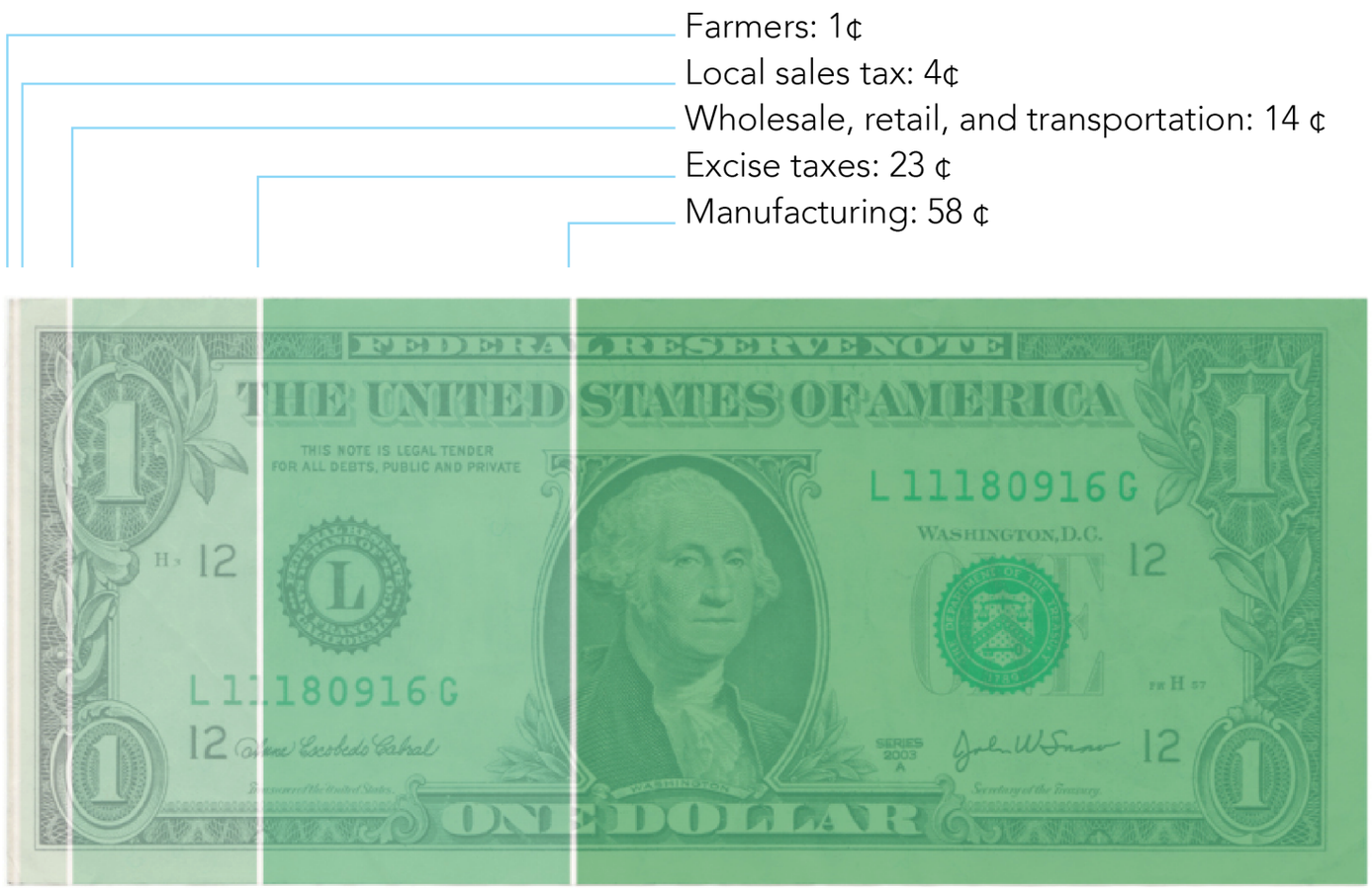
Figure 5.7 Number of Tobacco Farms by County



In the U.S., tobacco farmers earn a penny from every dollar spent on tobacco (Figure 5.8). The lion's share of the tobacco dollar goes to tobacco manufacturers, who receive 58%. The rest go towards excise taxes, local sales taxes, and wholesale, retail, and transportation costs. In other words, farmers who provide the raw material—the tobacco itself—receive the smallest portion, only 1%, of the entire amount spent on tobacco.

More problematic still, farmers often become indebted to tobacco companies from having to buy special equipment from them to grow tobacco. For example, whereas farmers of other crops need refrigeration to keep their products from spoiling, tobacco farmers need curing barns to heat tobacco

Figure 5.8 Tobacco Farmers Earn a Penny From Each Dollar Spent on Tobacco



after harvest. Once they have invested in these expensive pieces of specialized equipment, it is much more difficult for farmers to stop growing tobacco and transition to alternative crops. The sale of tobacco brings in minimal profits and farmers can make more money from alternative crops; however, the transition from tobacco to other crops involves changing their overall infrastructure and is very difficult to do without support from the government.

Key Takeaway

Tobacco is grown with little benefit to farmers. Tobacco farmers earn only 1% of every dollar spent on tobacco, in contrast to tobacco manufacturers, who earn 58% of the tobacco dollar.

One aspect of tobacco growing that has recently received much attention in the media involves the health hazards of growing and harvesting tobacco leaves (Movie 5.2). Green Tobacco Sickness (GTS) is a common illness that affects tobacco harvesters, resulting when nicotine from the tobacco leaves—particularly when the leaves are wet—is absorbed into the skin. The symptoms of GTS include weakness, headaches, nausea, vomiting, dizziness, abdominal cramps, difficulty breathing, diarrhea, chills, and irregular fluctuations in blood pressure or heart rate. The costs of this illness to tobacco harvesters are great: high hospitalization costs are incurred by nearly ¼ of those who seek medical treatments, in addition to lost wages during the time it takes to recover

Movie 5.2 Human Rights Watch Report Exposes Dangers in Tobacco Cultivation Among Child Workers.



from GTS, which is typically one to three days. While the illness can be prevented by protecting the skin from direct contact with tobacco leaves, protective clothing is often not provided and must be obtained at the expense of farm workers.

Given all the issues associated with growing tobacco—the health burden to consumers caused by the final product, the amount of labor involved in the growing process, the increasing corporatization of tobacco farms, and Green Tobacco Sickness—there has been an increasing emphasis on alternative crop initiatives in tobacco-growing nations (Table 5.6). Much research and education are still needed to help farmers make the transition from tobacco to crops that not only are safer for farmers and consumers but also provide a nutritional benefit to the region or nation in which they are grown.

Table 5.6 Examples of Alternative Crop Production in Five Different Countries

Country	Successful alternative crops
Bangladesh	Potato, maize, lentil, and coriander
Brazil	Organic food crops, bananas
China	Ingredients for traditional Chinese medicine
India	Sugarcane, onion, maize, groundnut, and soybean
Kenya	Sugarcane, bamboo, cotton, oranges, pineapples, bananas, cassava, and maize

Figure 5.9 Bamboo Utilization Workshop in Kenya as Part of Growing Alternative Crops



While there are still relatively few countries currently participating in alternative crop initiatives, successful transitions have occurred in Bangladesh, Brazil, China, India, and Kenya (Figure 5.9). In these countries, crop transitions are encouraged by incentives such as loans and federal assistance.

Just as the majority of countries in the world grow tobacco, most countries manufacture cigarettes. An estimated 111 countries manufacture cigarettes, and there are over 500 cigarette factories worldwide, producing six trillion cigarettes each year (Figure 5.10). As is the case with growing tobacco, China leads the world in cigarette manufacturing: an

Figure 5.10 Image of Cigarette Manufacturing

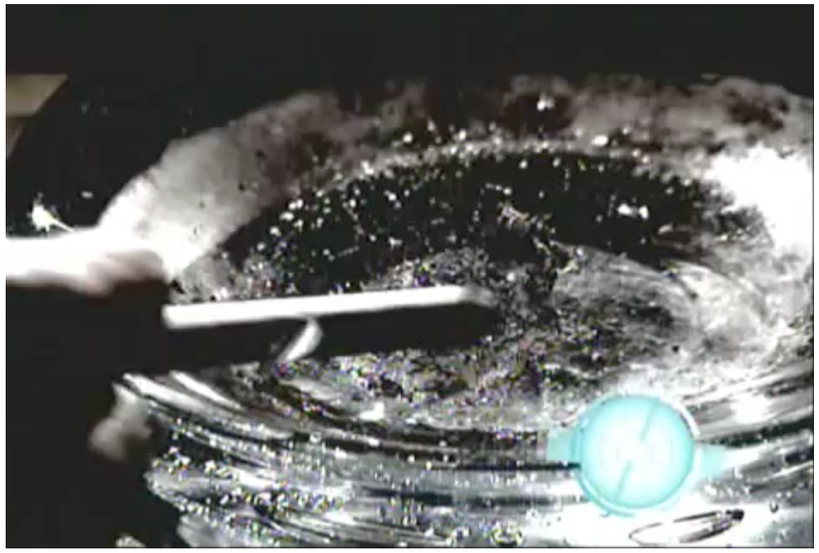


Table 5.7 Top Cigarette Manufacturing Countries, 2010

	Percentage of Cigarettes Manufactured
China	41%
Russia	7%
U.S.	6%
Germany	4%
Indonesia	3%

astounding 41% of cigarettes are made in Chinese factories (Table 5.7). This percentage, it should be noted, is very disproportionate to the size of China's population. Even though China is the largest country in the world, its population only makes up approximately 15% of the world's population, yet it grows and manufactures over 40% of the world's cigarettes. Manufacturing is a highly complicated process that involves far more than just rolling tobacco in paper as you can see in Movie 5.3. Cigarettes are made through a highly engineered process that involves the creation of reconstituted sheets containing tobacco and hundreds of chemical additives, which are meant to alter the effects of the cigarette on the smoker. These additives affect the ease with which the smoke can be inhaled and nicotine can be absorbed into the bloodstream, giving cigarettes an optimal level of addictiveness.

Movie 5.3 "What's In A Cigarette?"

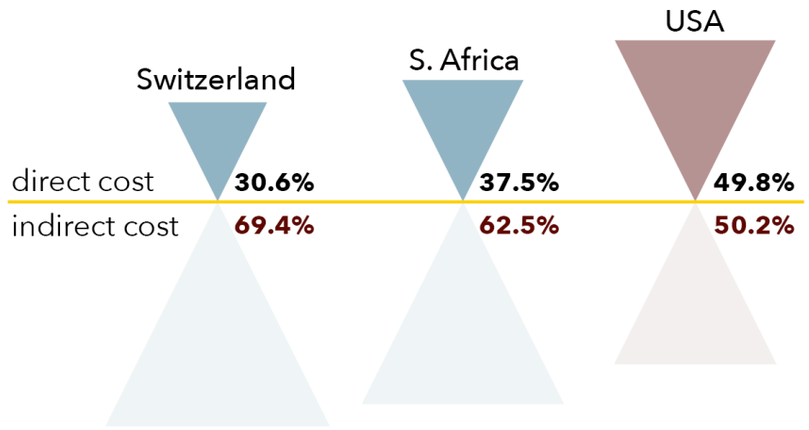


Section 3 - The Costs of Smoking to Society Far Outweigh the Benefits to Tobacco Companies

Measuring the economic impact of smoking is a complicated matter. Certainly, getting people to quit smoking or not to start smoking at all has a direct impact on healthcare costs because such efforts result in fewer people requiring treatment for smoking-caused illnesses such as lung cancer and heart disease. However, direct healthcare costs are only a portion of the total cost of tobacco to society. Often, the dollars that are saved from prevented medical expenses are spent on a longer life expectancy and the use of pensions that accrue to non-smokers and ex-smokers; thus, money is not necessarily saved and it may be pointed out that from a financial standpoint, the net effect of tobacco control is a wash. However, while it may be true that successful efforts in tobacco prevention do not result in saving money in the long run, they do unquestionably result in longer and healthier lives for people, which is the ultimate goal of advocates of public health.

In trying to quantify the economic impact of tobacco, we have to look not only at the direct medical costs incurred as a result of smoking, but also the indirect costs of lost productivity and absenteeism resulting from smoking-related illnesses. Figure 5.11 shows the

Figure 5.11 Comparing Direct and Indirect Tobacco Costs



Key Takeaway

Measuring the economic impact of tobacco requires looking at both direct and indirect costs incurred as a result of tobacco use and exposure to secondhand smoke.

example of three countries—Switzerland, South Africa, and the United States—in which indirect tobacco-related costs actually outweigh the direct costs of treating tobacco-related diseases.

In China, the direct costs of smoking more than quadrupled in less than a decade, from US $7.2 billion in 2000 to US $28.9 billion in 2008 (Figure 5.12). Here, as in many other countries, it is difficult to put cost estimates on treating diseases in general, but especially those specifically caused by smoking.

For the U.S., the Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC) is an online application available from the Centers for Disease Control and Prevention that generates estimates on the health and health-related economic consequences of smoking to adults and infants. The latest figures indicate that cigarette smoking is responsible for $193 billion in annual health-related economic losses in the U.S. Of this amount, almost $96 billion are spent on direct medical costs, while lost productivity accounts for $97 billion. Combined with the over 400,000 deaths each year caused by smoking, these economic costs result in 5.1 million years of potential life lost in the U.S. annually due to cigarette smoking.

Figure 5.12 Direct Costs of Smoking in China



2000
$7.2 billion USD

2008
$28.9 billion USD

Smoking is expensive not just for smokers; secondhand smoke is also costly in terms of dollars and lives. It is estimated that at least $5 billion in direct medical expenses and $5 billion in indirect costs for lost productivity accrue each year in the U.S. from exposure to secondhand smoke. This translates to an economic loss of about $150 per year for every nonsmoker in the U.S. exposed to smoke at home and at work.

Secondhand smoke deaths result in nearly 600,000 years of potential life lost in the U.S., or 14.2 years per death. More recent estimates of the indirect expenses associated with exposure to secondhand smoke indicate $6.6 billion of lost productivity each year, or $158,000 per death (Table 5.8). The value of lost productivity per death was highest among blacks ($238,000) and Hispanics ($193,000), partially due to the fact that they are susceptible to higher levels of exposure to secondhand smoke, especially in the workplace.

Table 5.8 Annual Cost of Lost Wages, Benefits and Medical Services for Certain Conditions Caused by Secondhand Smoke (excludes infants)

Lung cancer	$468 million
Low birth weight babies	$174 million
SIDS	$131 million
Annual Total:	**$773 million**

Employers should worry about smoking not only for the sake of their employees' health, but also for the sake of their bottom line.

Employees that smoke cost their employers money as a result of absenteeism, smoking breaks, and excess healthcare expenditures (Table 5.9).

It is beyond question that smoking has a real and substantial cost to individuals and to society as a whole. From a macroeconomic standpoint, the cost of smoking may be counterbalanced by the fact that non-smokers and ex-smokers live longer and the money saved from reduced medical

Table 5.9 Total Annual Excess Cost of a Smoking Employee to a Private Employer

Category	Best estimate, annual costs	High range	Low range
Excess absenteeism	$517	$576	$179
Presenteeism	$462	$1,848	$462
Smoking breaks	$3,077	$4,103	$1,641
Excess health care costs	$2,056	$3,598	$899
Pension benefit	($296)*	0	-$296
Total costs	$5,816	$10,125	$2,885

* For employees with denied-benefit pension plans.

expenditures is often spent on pensions and social security benefits that accrue during their extended lives. Rather than trying to hide this fact, tobacco control advocates should take it as a sign of success that unnecessary expenses for the treatment of tobacco-related disease can instead be spent for individuals to enjoy a healthier life and a full retirement. While tobacco control may not save money in the long run, it helps to reallocate financial resources in such a way as to optimize the benefits to individuals over their lifetime.

Section D: The Illicit Cigarette Trade May Involve Organized Crime

As part of this chapter on the tobacco enterprise, it is important to discuss the problem of illicit tobacco. An estimated 10% of cigarettes purchased around the world are sold illegally—that is, they are either counterfeit or smuggled. Illicit cigarette trade undermines public health efforts by allowing consumers to avoid age verification and cigarette taxes, resulting in billions of dollars in lost tax revenues.

In the U.S., tax avoidance from illicit tobacco is a problem primarily because there are great differences in excise tax rates from state to state (Chapter 10: Taxes and Funding Tobacco Control). Cigarettes can be purchased in a state that imposes lower taxes on cigarettes and resold in states with higher taxes for a substantial profit. It is estimated that a single truckload of cigarettes smuggled from Virginia, a state with a low tobacco tax, to a high-tax state like New York can net $2 million in profit. Similarly, tobacco products bought on Native American territory, where taxes are not collected, can be resold elsewhere for big profits.

Illicit cigarette trade is not just a problem in the U.S. but worldwide. The greatest numbers of illicit cigarettes come from China, Eastern European countries such as Poland, Belarus, and Ukraine. Figure 5.13 also shows countries in which there have been seizures of over 20 million illicit cigarettes; many of these countries are located in Western Europe and around the Mediterranean Sea.

While it is true that the illicit tobacco trade is a serious problem, there is a tendency for tobacco companies to exaggerate its scope in order to use it as an argument against tobacco control measures.

Their position is that greater restrictions on tobacco—including packaging and labeling requirements as well as tax increases—spur on illicit trade. However, the facts show otherwise.

Figure 5.13 Global Illicit Market Share

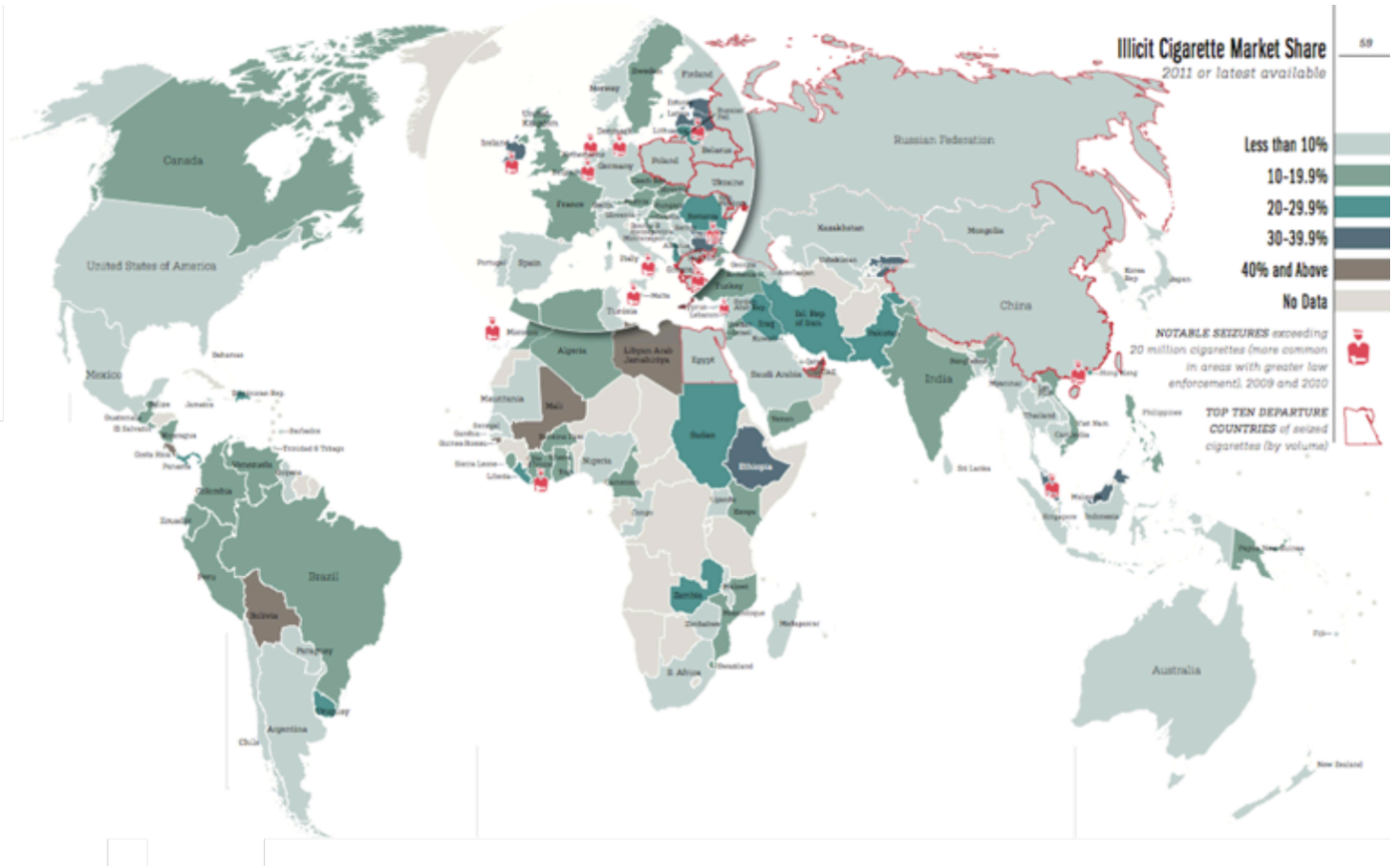


Figure 5.14 compares estimates of illicit trade from the tobacco industry with estimates from two academic studies in Warsaw, Poland. Objective research suggests that the amount of illicit trade that occurs is consistently less than the industry claims it is. In Australia, tobacco companies are now using this strategy of overestimating the amount of illicit trade to try to undercut the plain packaging rules that were recently put in place there. The available data simply does not support their assertions that strict tobacco control measures result in high levels of illicit trade.

Figure 5.14 The Tobacco Industry Exaggerates the Scope of Illicit Cigarette Trade, 2011

Tobacco industry estimates of the illicit cigarette trade in Warsaw, Poland versus two academic studies

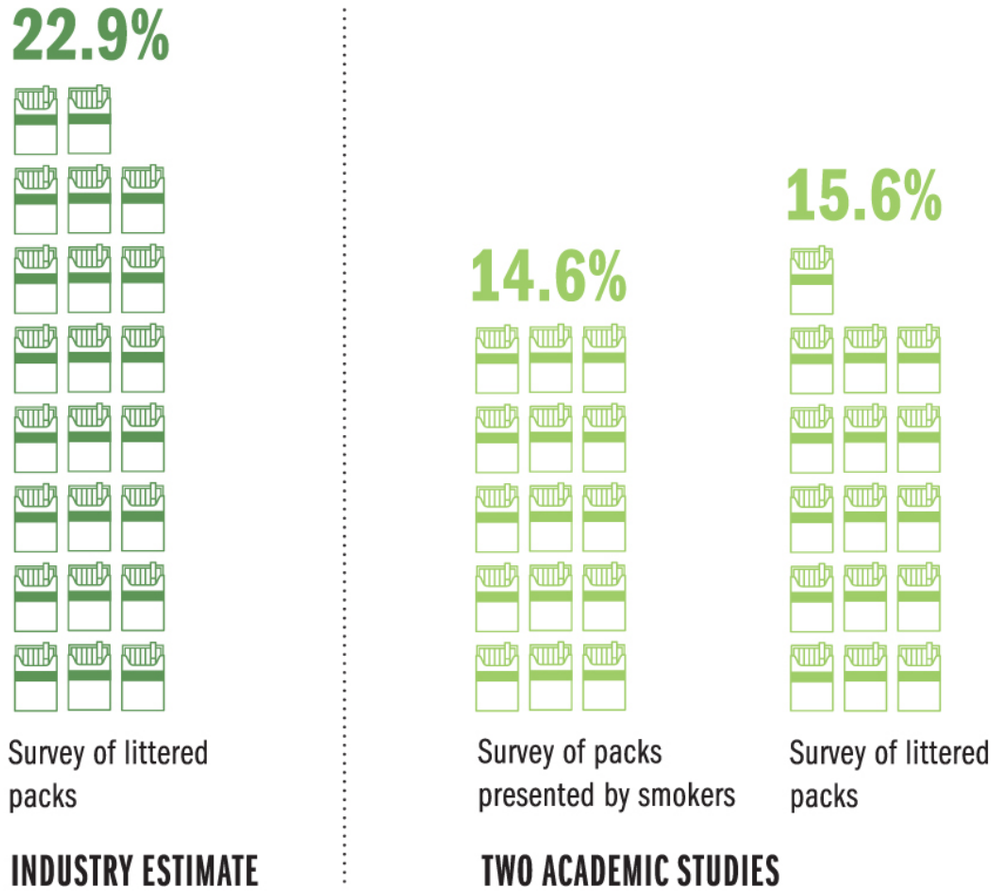
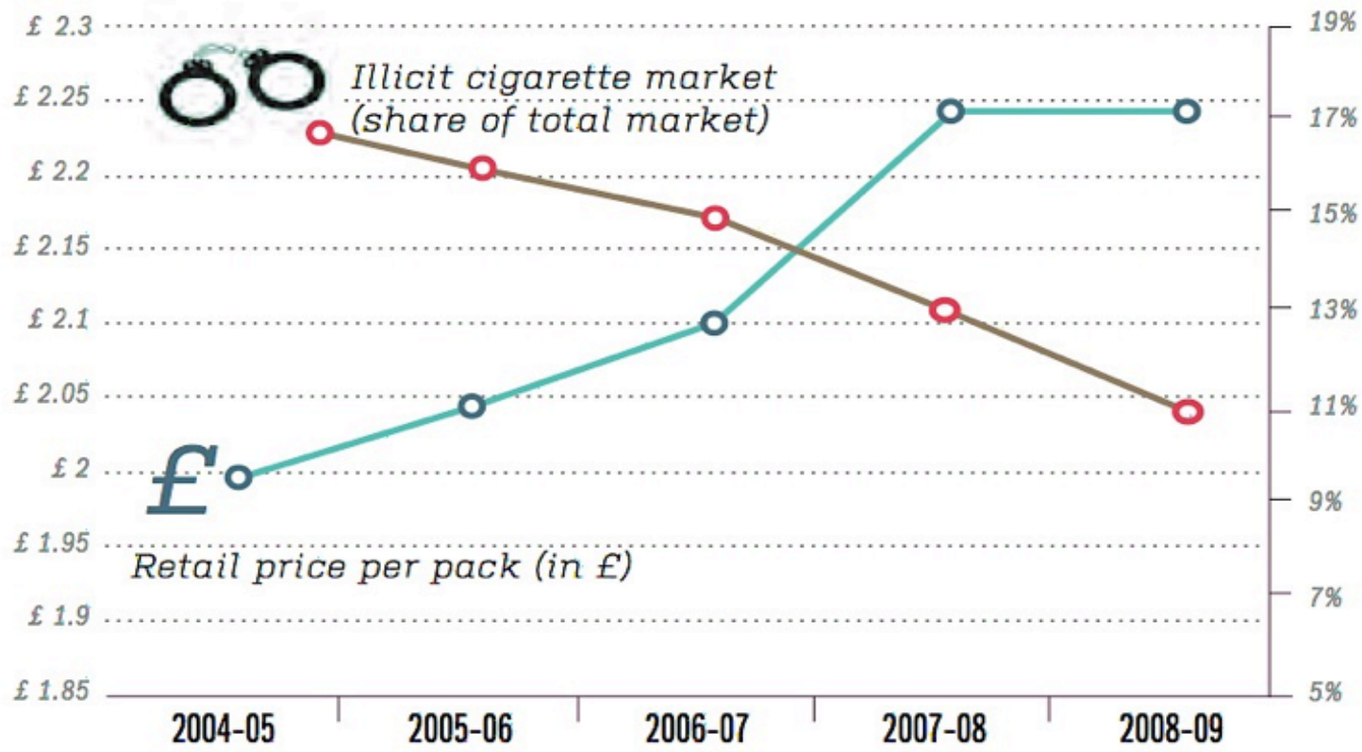


Figure 5.15 Contrary to Tobacco Industry Claims, the Increase in Retail Price has not Led to Any Corresponding Increase in Illicit Trade



To take another example, in the U.K., there has actually been a decline in the illicit cigarette market from 2005 to 2009 (Figure 5.15). This decline occurs at the same time as sharp increases in the average retail price of a pack of cigarettes, suggesting that the price increase has not led to any corresponding increase in illicit trade, contrary to tobacco industry claims.

Key Takeaway

Tobacco companies claim that greater restrictions on tobacco—including packaging and labeling requirements and tax increases—spur on illicit trade, but the facts show otherwise.

Section 5 - Cigarettes are Becoming More Affordable

Hana Ross is formerly the Managing Director of International Tobacco Research at the American Cancer Society. In Movie 5.4, she comments on the increasing affordability of tobacco products, a somewhat surprising phenomenon given the fact that taxes are increasing in many countries around the world.

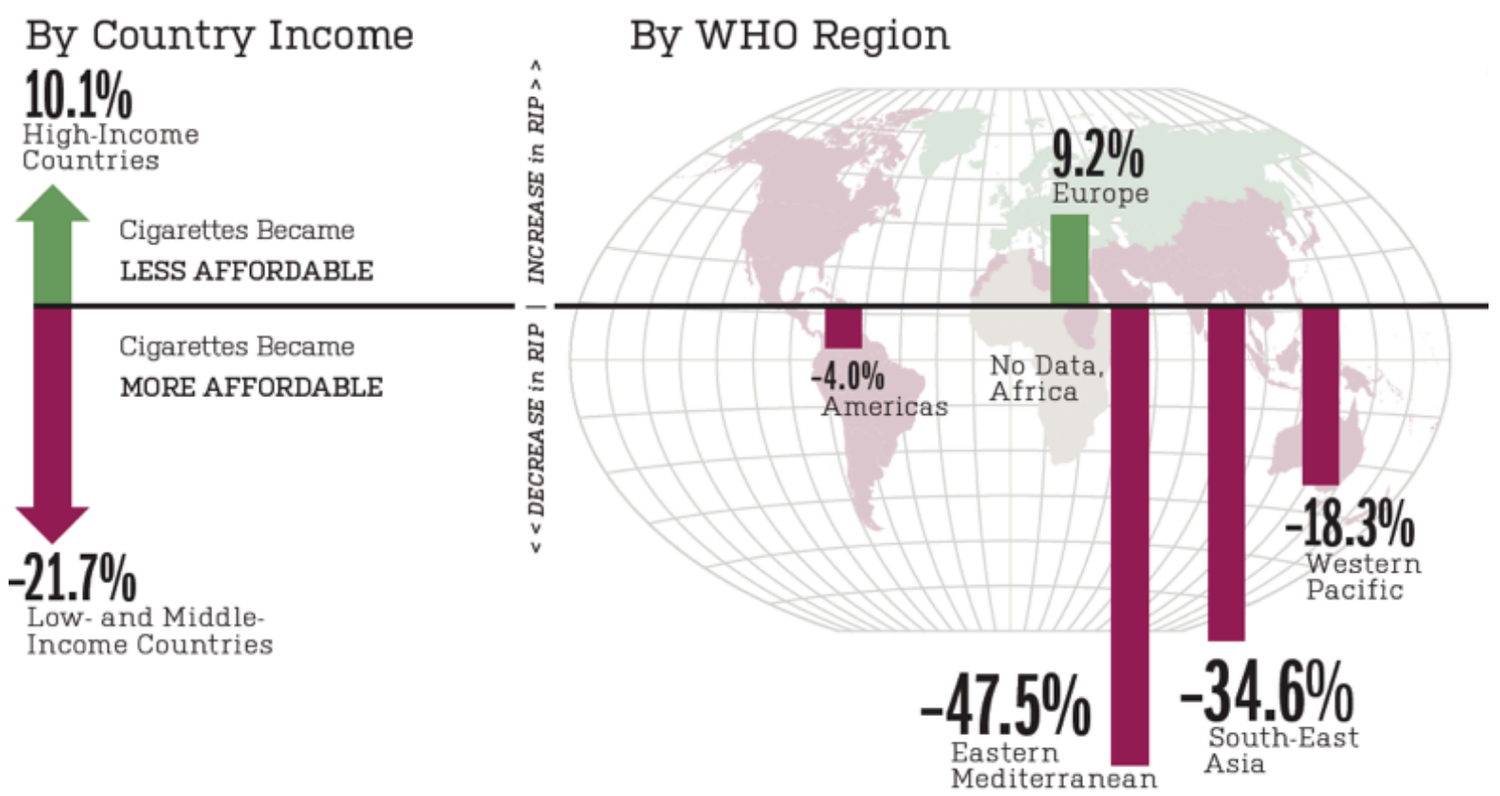
Movie 5.4 Hear from the Experts: Hana Ross



Figure 5.16 shows changes in the affordability of cigarettes from 2000 to 2010. It highlights the trends mentioned by Dr. Ross, with cigarettes becoming less affordable during this period in high-income countries as a result of substantial tax and price measures, while on the other hand, becoming more affordable in low- and middle-income countries which tend to lag behind in tax and price policies.

In this chapter, we discussed the scope and magnitude of the tobacco enterprise. We examined the different aspects of the tobacco business, from growing to manufacturing and sales. In the next chapter, we will take a close look at the tobacco industry behavior, with a focus on business practices used by the industry to undermine tobacco control.

Figure 5.16 Affordability of Cigarettes, 2000-2010



Chapter 5 Discussion Questions:

1. What is the relationship between cigarette affordability and consumption?
2. Should the U.S. offer subsidies or initiatives for tobacco farmers to switch to alternative crops? What challenges or barriers do you perceive?
3. How can the U.S. reduce illicit cigarette trades?
4. Given the expected population growth and food shortage in China, discuss the implications of China's investment in tobacco growing and manufacturing rather than food crops.

Figures and Tables

Movie 5.1: "The Truth About Tobacco: How Much Is a Life Worth?"

Table 5.1: 2015 Revenues for Top Tobacco Companies

Source: Altria, BAT, Imperial, JTI and PMI 2015 Annual Reports; CNTC 2012 Revenue

BAT and Imperial Tobacco Conversion Rate Average for 12/31/15

1GBP=1.4786 USD

JTI Conversion Rate Average for 12/31/15

1 USD=120.31 Japanese Yen

CNTC Conversion Rate Average for 12/31/15

1 USD=6.4 RMB

Figure 5.1: Value of Global Tobacco Industry Production (measured at retail sales prices), 2010

Figure 5.2: Global Smokeless Tobacco Sales Volume Increases 60% in a Decade

Source: Eriksen M., Mackay J., Ross H. (2012). The Tobacco Atlas. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 5.3: CNTC Annual Cigarette Revenues, 1990-2005

Source: Li, Cheng. (2012). The political mapping of China's tobacco industry and anti-smoking campaign. Washington, DC: Brookings Institute.

Table 5.2: U.S. Cigarette Market Share for Leading Brands, 2014

Source: Centers for Disease Control and Prevention. (2015). Tobacco Brand Preferences.

Table 5.3: U.S. Smokeless Tobacco Market Share for Leading Brands, 2011

Source: Centers for Disease Control and Prevention. (2015). Tobacco Brand Preferences.

Table 5.4: U.S. Cigar Market Share for Leading Brands, 2013

Source: Centers for Disease Control and Prevention. (2015). Tobacco Brand Preferences.

Figure 5.4: Trends in Global Tobacco Production (metric tonnes) by Leading Tobacco Producing Countries,1961-2011

Source: Eriksen M., Mackay J., Schluger, N., Islami, F., Drope, J. (2015). *The Tobacco Atlas*. Fifth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 5.5: Tobacco is Grown in More Than 124 Countries

Source: Noman Gulzar, 2014

Table 5.5: U.S. Tobacco Farming Over Time

Source: United States Department of Agriculture National Agriculture Statistics Service. (2013). NASS, USDA.

Figure 5.6: Acres of Tobacco Harvested by Year, U.S.

Source: United States Department of Agriculture National Agriculture Statistics Service. (2013). NASS, USDA.

Figure 5.7: Number of Tobacco Farms by County

Source: United States Department of Agriculture. (2004). Trends in U.S. tobacco farming. (USDA Publication No. TBS-257-02).

Figure 5.8: Tobacco Farmers Earn a Penny From Each Dollar Spent on Tobacco

Movie 5.2: Human Rights Watch Report Exposes Dangers in Tobacco Cultivation Among Child Workers

Table 5.6: Examples of Alternative Crop Production in Five Different Countries

Figure 5.9: Bamboo Utilization Workshop in Kenya as Part of Growing Alternative Crops

Source: Kenya Tobacco Control Research Group. (2015). The Tobacco to Bamboo Project.

Figure 5.10: Image of Cigarette Manufacturing

Table 5.7: Top Cigarette Manufacturing Countries, 2010

Source: Eriksen M., Mackay J., Ross H. (2012). The Tobacco Atlas. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Movie 5.3: "What's In A Cigarette?"

Figure 5.11: Comparing Direct and Indirect Tobacco Costs

Source: Eriksen M., Mackay J., Ross H. (2012). The Tobacco Atlas. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 5.12: Direct Costs of Smoking in China

Source: Eriksen M., Mackay J., Ross H. (2012). The Tobacco Atlas. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Table 5.8: Annual Cost of Lost Wages, Benefits and Medical Services for Certain Conditions Caused by Secondhand Smoke (excludes infants)

Table 5.9: Total Annual Excess Cost of Smoking A Smoking Employee to a Private Employer

Figure 5.13: Global Illicit Market Share

Source: Eriksen M., Mackay J., Ross H. (2012). The Tobacco Atlas. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 5.14: The Tobacco Industry Exaggerates the Scope of Illicit Cigarette Trade, 2011

Source: Eriksen M., Mackay J., Schluger, N., Islami, F., Drope, J. (2015). *The Tobacco Atlas*. Fifth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 5.15: Contrary to Tobacco Industry Claims, the Increase in Retail Price has not Led to Any Corresponding Increase in Illicit Trade

Source: Eriksen M., Mackay J., Ross H. (2012). The Tobacco Atlas. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Movie 5.4: Hear from the Experts: Hana Ross

Figure 5.16: Affordability of Cigarettes, 2000-2010

Source: Eriksen M., Mackay J., Ross H. (2012). The Tobacco Atlas. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

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Chapter 6

Tobacco Industry Behavior

Chapter Objectives

1. Examine the ways in which the tobacco industry historically deceived the U.S. public.
2. Demonstrate ways in which the tobacco industry influences politics in the U.S.
3. Analyze the tobacco industry's use of corporate social responsibility as a means of improving their public image.
4. Contrast the tobacco industry's behavior and means of influence in the U.S. and in foreign countries.

Section 1 - The Tobacco Industry as an Opponent to Public Health

"The cigarette industry is peddling a deadly weapon. It is dealing in people's lives for financial gain… The industry we seek to regulate is powerful and resourceful. Each new effort to regulate will bring new ways to evade… Still, we must be equal to the task. For the stakes involved are nothing less than the lives and health of millions all over the world. But this is a battle which can be won… I know it is a battle which must be won."

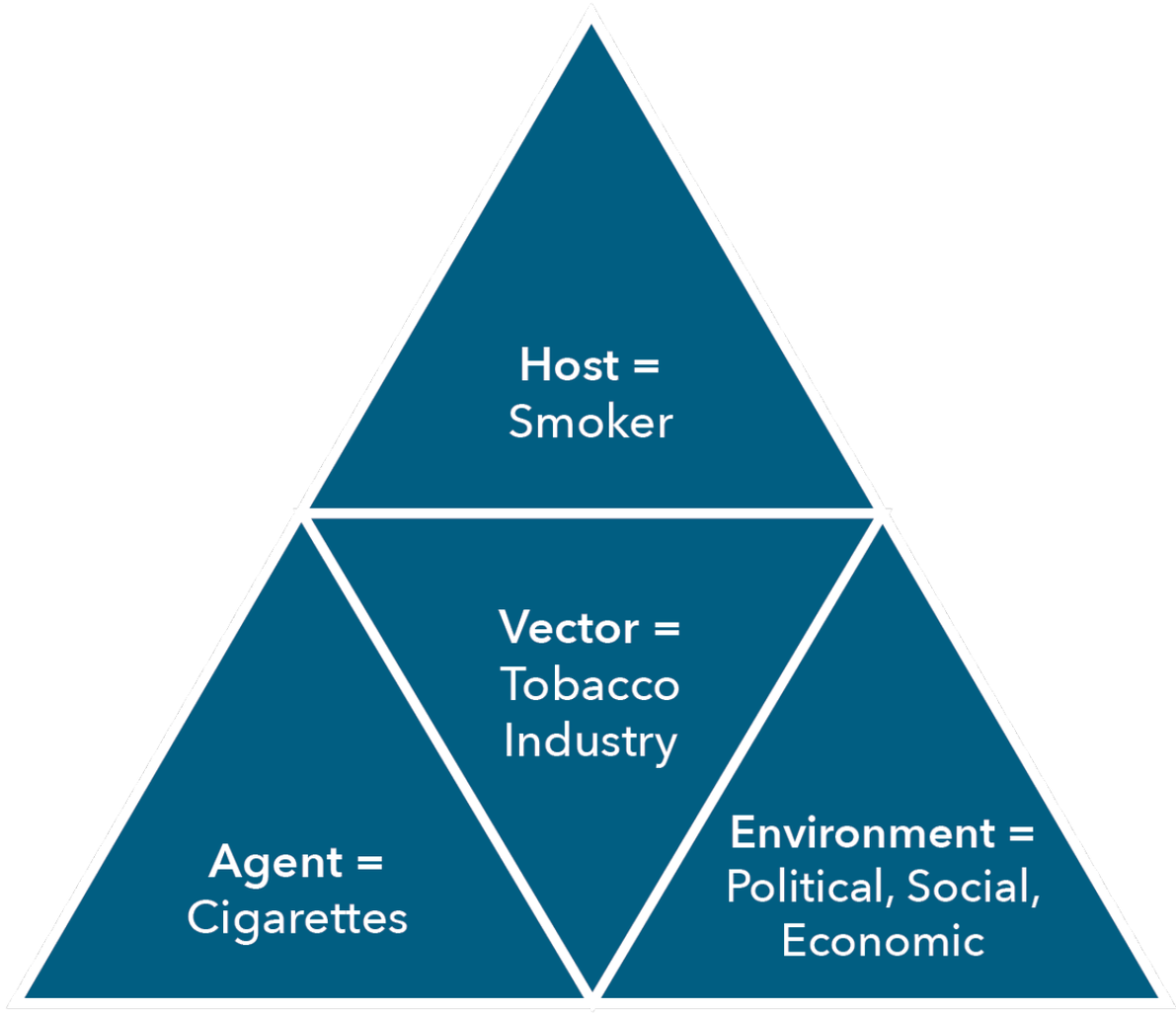
~ U.S. Senator Robert Kennedy, at the First World Conference on Smoking and Health, 12 September 1967, New York, NY

In trying to understand the harm caused by tobacco use, we must look not only at the behavior of individuals who smoke but also at the behavior of the tobacco industry. One way of investigating tobacco companies involves looking at them as a disease vector. In medical terms, a vector is typically an organism that transmits a pathogen; for example, a deer tick may act as a vector for Lyme disease, transmitting the infection to humans. It is common for public health researchers to try to understand the transmission of disease by examining the vector. In terms of smoking-related diseases, we say that the diseases are caused by an agent—the tobacco products themselves. But the spread of tobacco products is facilitated by a vector: this is the tobacco industry, which spreads the disease agent to a

large number of people. Tobacco companies as a disease vector try to get their products in the hands of as many people as possible so that the industry cannot just survive, but thrive.

Figure 6.1 illustrates the epidemiology of tobacco-related harms in terms of a traditional public health model, commonly known as the HAVE model. HAVE is an acronym that stands for host, agent, vector, and environment; the model provides a helpful way of visualizing the context in which tobacco use is spread through the efforts of the tobacco industry, which acts as a vector. This way of conceptualizing the problem of tobacco use shows the interrelated roles of the host (smokers), the disease agents (cigarettes), and environment (the political and socioeconomic forces

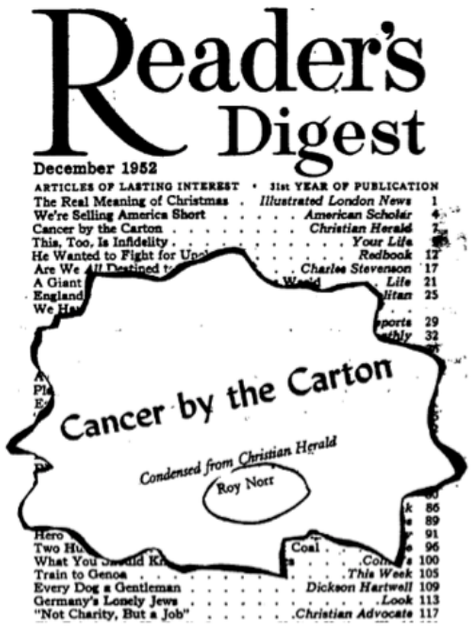
Figure 6.1 The Epidemiologic Triad of Tobacco-Related Disease With Tobacco Companies as Disease Vectors



that allow the vector to purposely spread the agent). The HAVE model makes clear the central position of the tobacco industry in spreading tobacco-related disease in contemporary society.

In previous chapters, we have discussed the ways in which the tobacco companies have responded historically to public concerns about the harm of smoking. When the link between smoking and lung cancer began to emerge through scientific research in the 1950s, tobacco companies responded by denying the causality of harm. In the highly-publicized "Frank Statement to Cigarette Smokers" (Chapter 1: Harm from Tobacco Use and Secondhand Smoke), the major U.S. tobacco companies challenged the medical research showing cigarette smoking to be a direct cause of lung cancer. As demonstrated in Figure 6.2, the harms caused by smoking began to be communicated to the general public in the mid-1950s.

Figure 6.2 In December 1952, Reader's Digest Published "Cancer by the Carton," Alerting Readers to the Link Between Smoking and Lung Cancer



The tobacco companies asserted in the "Frank Statement" that they believed there to be "no proof that cigarette smoking is one of the causes" of lung cancer. However, we now know that the industry knew far more about the harm of smoking in 1954, when the statement was published, than it revealed. In the mid-1950s, the tobacco industry not only knew of the dangers of smoking but also the types of changes they needed to make. A research chemist for R.J. Reynolds stated at the time: "Since it is now well-established that cigarette smoke does contain several polycyclic aromatic hydrocarbons, and considering the potential and actual carcinogenic activity of a number of these

compounds, a method of either complete removal or almost complete removal of these compounds from smoke is required." (cited in Dirty Business, 1988).

The tobacco industry attempted to delay the recognition of the harm caused by smoking. Internal documents give evidence of the industry's intentional strategy to conceal the harm of tobacco from the public. A scientist at British American Tobacco stated in 1980:

> A demand for scientific proof is always a formula for inaction and delay and usually the first reaction of the guilty . . .in fact scientific proof has never been, is not and should not be the basis for political and legal action.

In 1953, an employee of Hill and Knowlton, the public relations company hired by the tobacco industry to counteract scientific findings linking smoking to lung cancer, stated:

> We have one essential job – which can be simply said: Stop public panic. . . There is only one problem – confidence, and how to establish it; public assurance, and how to create it. . . And, most important, how to free millions of Americans from the guilty fear that is going to arise deep in their biological depths – regardless of any pooh-poohing logic – every time they light a cigarette."

But even as tobacco companies chose a deliberate path of denial and obfuscation, their own internal documents reveal concerns among their employees. Alan Rodgman, a research chemist with R.J. Reynolds, wrote in 1962 that the company was publicly denying a link between smoking and cancer, even while the company's own research showed a link. Somewhat prophetically, Rodgman saw the inevitability of litigation in the future as he recognized the problem inherent in smoking:

> What would be the effect on this company of not publishing these data now, but being required at some future date to disclose such data, possibly in the unfavorable atmosphere of a lawsuit? . . . It is recommended that the Company's management recognize that many members of its Research Department are intensely concerned about the cigarette smoke-health problem and eager to participate in its study and solution.

By the 1990s, evidence of the harms of smoking could no longer be disputed. Tobacco companies thus tried a different strategy—this time, challenging the addictiveness of smoking. In 1994, the Chief Executive Officers of the seven largest tobacco companies in the U.S. were called to testify before Congress about the addictiveness of smoking in what are now known as the Waxman Hearings, named after Rep. Henry Waxman, who chaired the hearings. One by one, the CEOs testified under oath that they believed nicotine was not addictive (Movie 6.1).

Movie 6.1 "Nicotine Is Not Addictive"



Key Takeaway

Internal documents from the tobacco industry reveal a deliberate strategy to conceal the harm of tobacco from the public.

As a result of the Waxman Hearings and increased efforts by the FDA to regulate nicotine and tobacco starting the same year, a number of lawsuits were brought against the tobacco companies. Industry documents that had previously been confidential were revealed during the litigation, providing tremendous insight into the behavior of tobacco

companies, their true knowledge of the harms of smoking, and what they did to hide their knowledge from the public (Figure 6.3).

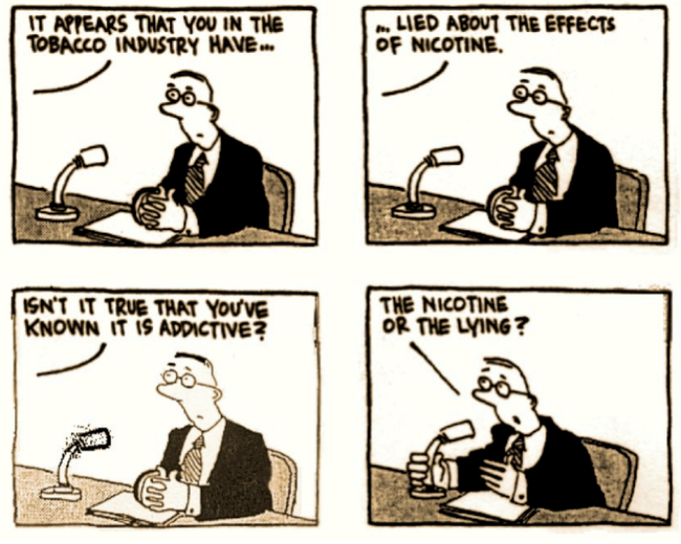


Figure 6.3 Cartoon by Dan Wasserman, Los Angeles Times Syndicate

Exposing the tobacco industry documents has been truly invaluable in advancing tobacco control efforts in the United States and globally. In 1998, the Legacy Tobacco Documents Library (LTDL) was created as a result of the Master Settlement Agreement between 46 State Attorneys General and the major tobacco companies in the U.S. The LTDL houses more than 40 million pages of internal documents from the tobacco industry. Additional documentation has since been released to the public following successful litigation by the U.S. Department of Justice against the tobacco companies in 2006. Under the federal Racketeer Influenced and Corrupt Organizations Act (RICO), the tobacco companies are required to make publicly available any documents produced for litigation on smoking and health until the year 2021. The LTDL acquires all of these documents from the industry websites on which they are posted, as well as other avenues, and makes them available to the public (Figure 6.4).

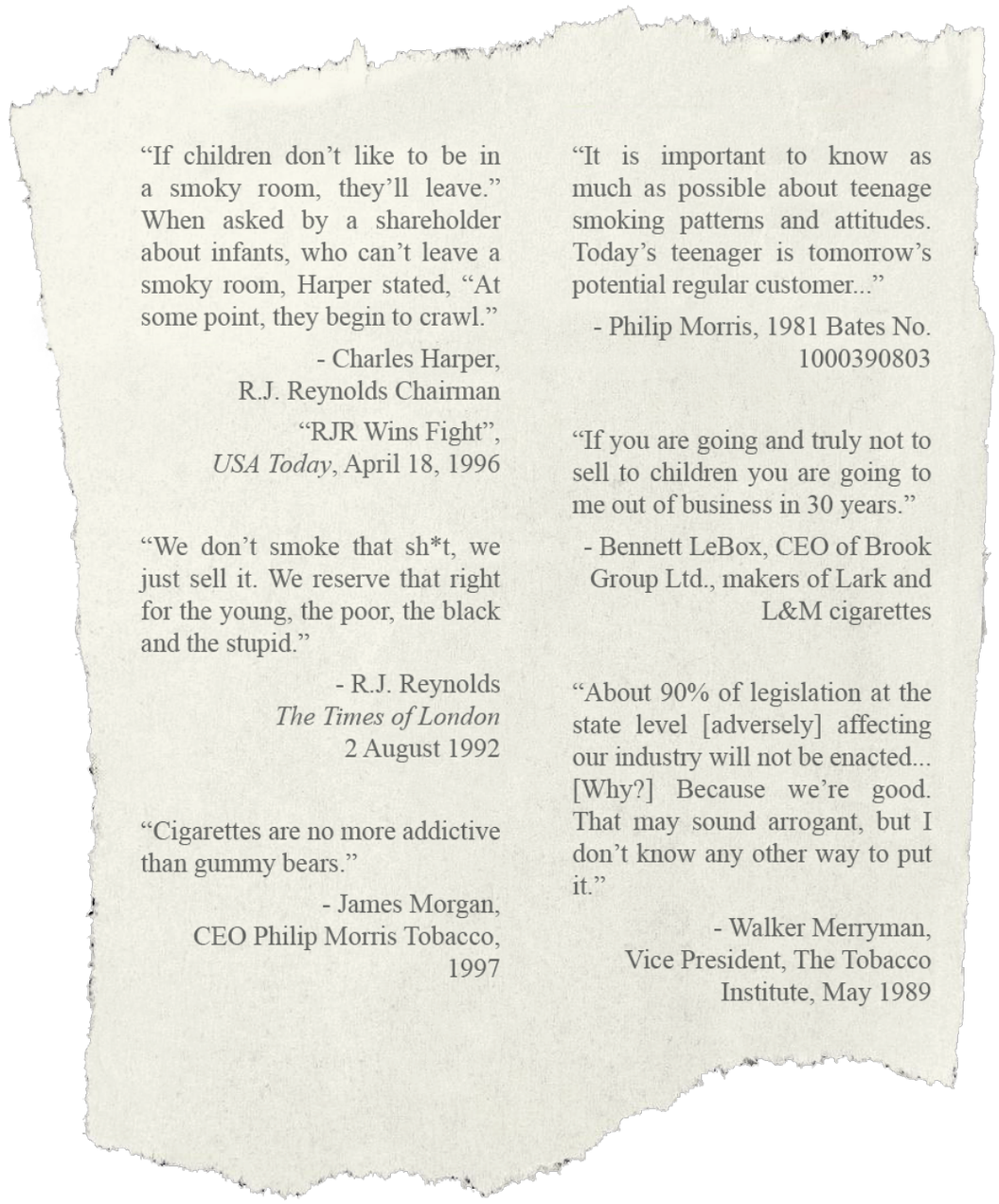
The tobacco industry documents are extremely useful for advancing tobacco control efforts. They are accessible on the Web at the Legacy Tobacco Documents Library, as well as on the websites of the major U.S. tobacco companies.

The types of behavior we have reviewed in the context of the tobacco industry in the United States are certainly not limited to this country. These are, in fact, a global strategy. To take one example, tobacco industry interference is a serious problem in the country of Indonesia. Patricia Waagstein, an advisor for the Campaign for Tobacco-Free Kids describes the situation in 2003:

> In Indonesia, one of the biggest tobacco-producing countries in the world, industry interference is the most important challenge to tobacco control. The tobacco industry attempts to interfere in the legislative process by hindering or diluting any bill on tobacco control and failing this, tries to thwart or slow its implementation. The industry uses different strategies to achieve this, ranging from influencing the legislative process to litigation.

Similarly, the tobacco industry's influence upon policy makers is a concern in Pakistan and Russia. "The biggest challenge to effective tobacco control in Pakistan," states Khurram Hashmi, national coordinator of the Coalition for Tobacco Control in that country, "is the tobacco industry's constant influencing of policy makers and relevant stakeholders in an effort to hamper the government's overall enforcement efforts. Tobacco control advocates have to be alert all the time as the industry finds new ways to violate tobacco control laws in the country, especially through tobacco advertising, promotion and sponsorship or in the name of corporate social

Figure 6.4 Selected Quotations From U.S. Tobacco Industry Internal Documents Which Were Revealed Through Litigation


"If children don't like to be in a smoky room, they'll leave." When asked by a shareholder about infants, who can't leave a smoky room, Harper stated, "At some point, they begin to crawl."

- Charles Harper, R.J. Reynolds Chairman

"RJR Wins Fight", *USA Today*, April 18, 1996

"We don't smoke that sh*t, we just sell it. We reserve that right for the young, the poor, the black and the stupid."

- R.J. Reynolds *The Times of London* 2 August 1992

"Cigarettes are no more addictive than gummy bears."

- James Morgan, CEO Philip Morris Tobacco, 1997

"It is important to know as much as possible about teenage smoking patterns and attitudes. Today's teenager is tomorrow's potential regular customer..."

- Philip Morris, 1981 Bates No. 1000390803

"If you are going and truly not to sell to children you are going to me out of business in 30 years."

- Bennett LeBox, CEO of Brook Group Ltd., makers of Lark and L&M cigarettes

"About 90% of legislation at the state level [adversely] affecting our industry will not be enacted... [Why?] Because we're good. That may sound arrogant, but I don't know any other way to put it."

- Walker Merryman, Vice President, The Tobacco Institute, May 1989

Figure 6.5 Tobacco Billboard in Indonesia Says "Don't Quit"



responsibility" (Figure 6.5). Similarly, Viktor Zykov, a legal expert working with the Russian Anti-Tobacco Coalition, asserts: "The tobacco industry will continue to seek ways around the new tobacco control law passed this year, including using lawsuits. The law will need to be strengthened to close any gaps and loopholes for the tobacco industry, and to include strong penalties and fines for violations."

The collective efforts of the tobacco industry to influence the policies of countries around the world was best captured by the World Health Organization (WHO) in a 2012 video that highlights tobacco industry interference in various countries. WHO encourages all to stand shoulder to shoulder in fighting "Big Tobacco" (Movie 6.2).

Movie 6.2 WHO Countries Stand Shoulder to Shoulder Fighting Big Tobacco



Section 2 - The Tobacco Industry Influences Politics

The tobacco industry has a long history of making political contributions with the purpose of influencing the outcomes of elections. During the 2012 U.S. Presidential election, the tobacco industry donated almost $54 million. The vast majority (87%) of these funds came from four manufacturers: Philip Morris USA, Reynolds American, U.S. Smokeless Tobacco Company, and Altria. A large portion—$51 million (or 95% of the total)—was used to influence the presidential election in five states: California, Florida, Missouri, Virginia, and Illinois.

Why these five states in particular? Table 6.1 reveals that the majority of tobacco industry funds in 2011-2012 were spent on ballot measures, particularly in California, where the contributions amounted to over $46 million to defeat a proposition that would have increased cigarette taxes. An increase in cigarette taxes has historically been shown to be correlated to a decrease in consumption; moreover, a tobacco tax increase in California could become a harbinger of additional increases throughout the rest of the United States and thus pose a serious threat to the tobacco industry.

In Florida, funds were more targeted at political party committees. Missouri received a sizable contribution, likely because legislation was proposed around this time that would have increased tobacco taxes. In Virginia, where legislation was proposed to stop smuggling of tobacco (and eventually passed) and a bill was passed to create a working group to study cigarette tax administration, the tobacco industry gave almost equally to Democrats and Republicans.

Table 6.1 Top Recipient States of Tobacco Industry Contributions, U.S., 2011-2012

State	Ballot Measures	Political Parties	Candidates	Total
California	$46,336,664	$441,354	$462,606	**$47,240,624**
Florida	$250	$1,460,840	$204,718	**$1,665,808**
Missouri	$825,812	$40,750	$231,037	**$1,097,599**
Virginia	$0	$149,671	$378,926	**$528,597**
Illinois	$0	$79,000	$320,950	**$399,950**
TOTAL	**$47,162,726**	**$2,171,615**	**$1,598,237**	**$50,932,578**

Looking at all the states, we see similar patterns: the tobacco industry's largest investments are directed at defeating tobacco control measures. In the same election cycle, out of the industry's total $53.7 million contributions, $47 million went to help defeat ballot measures that would have raised taxes on tobacco products (Figure 6.6). State-level candidates received $3.5 million, and $3 million

was given to party committees, with 76% of this amount going to Republican candidates and committees.

In addition to their contributions to both sides of the party line, the tobacco industry also influences politics through lobbying and Political Action Committee (PAC) contributions to federal candidates (Figure 6.7 and Table 6.2). Figure 6.7 shows the annual number of clients lobbying on behalf of tobacco and how this number has changed over time. The elevated number of lobbyists in 1998 coincides with the discussion and passage of the Master Settlement Agreement in the same year.

Key Takeaway

The tobacco industry has a long history of making political contributions with the purpose of influencing the outcomes of elections.

In

Figure 6.6 Tobacco Industry Contributions by Recipient Type, 2011-2012

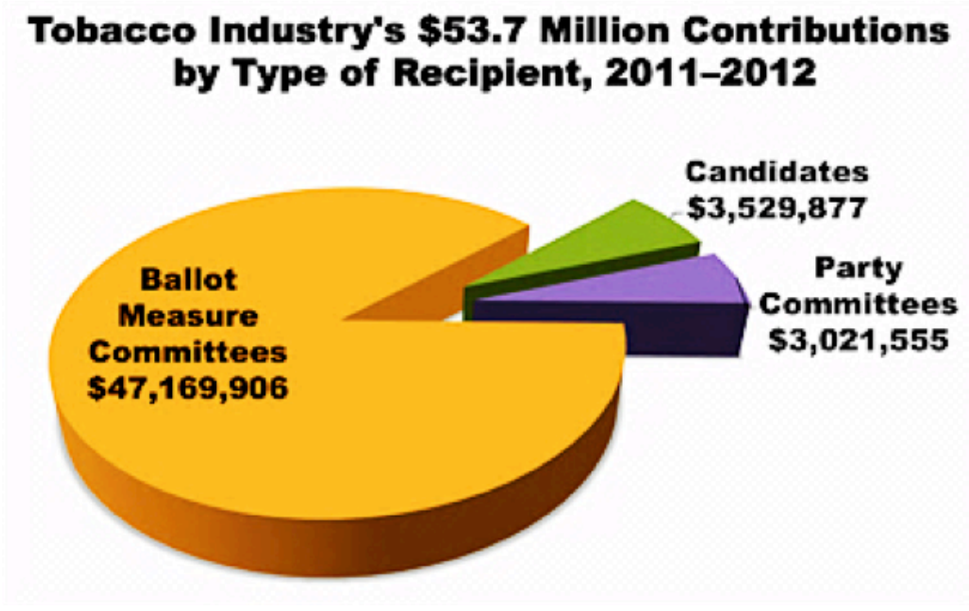
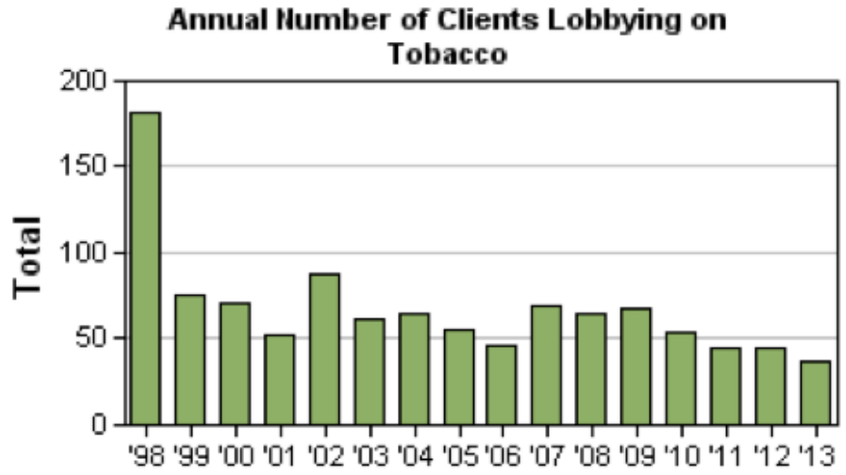


Figure 6.7 Annual Number of Clients Lobbying on Tobacco



2012, Altria contributed over $965,000 to PACs, more than any other tobacco company in the United States. Reynolds American was the second highest contributor to PACs, giving over $373,000. As a point of comparison, while cigarette companies contributed hundreds of thousands of dollars to PACs in 2012, cigar and other tobacco companies gave significantly less: Swisher International gave $57,000; Swedish Match $54,509; and General Cigar Company $5,750. Tobacco lobbying is lucrative in the U.S. While it has decreased over time, millions of political dollars are still spent each year in an effort to defeat political tobacco control measures and to promote candidates that have a pro-tobacco stance (Figure 6.8).

Table 6.2 Political Action Committee (PAC) Contributions to Federal Candidates, 2012

Total Amount:	$1,907,759	
Total to Democrats:	$375,605	(20%)
Total to Republicans:	$1,532,154	(80%)
Number of PACs making contributions:	11	

Figure 6.8 Lobbying is an Major Part of Tobacco Industry Tactics



Section 3 - The Truth About Corporate Social Responsibility

In theory, corporate social responsibility (CSR) is a phrase that denotes a form of self-regulation that businesses may adopt. CSR expresses the belief that a company should be responsible for its actions —socially, ethically, and environmentally. Programs implemented under a CSR-based ethic can benefit constituents, the environment, and organizations.

In 2011, 57% of the Fortune 500 companies reported on the environmental, social, and governance impacts they made through CSR programs and charitable giving. Taking a critical approach to CSR, especially in the context of the tobacco industry, is necessary since history has shown that the real motives behind CSR may not always be openly or sincerely expressed, and CSR is sometimes used as a distraction from other issues.

The World Health Organization takes a critical approach. In a 2009 document, WHO describes the true meaning of CSR for tobacco:

> 'Corporate social responsibility' is crucial to the tobacco industry for restoring its damaged reputation, improving employee morale and maintaining and increasing the value of company stock. In the words of a British American Tobacco executive, it can provide important "air cover" to distract governments and the community from the industry's core business.

It is true that tobacco industry philanthropy does good in many ways. Charitable donations may go to legitimate organizations in support of important causes: they may, for example, fund battered women's shelters, finance efforts to reduce homelessness, or provide resources to arts programs. But we must also be aware of how these donations may be used in self-promoting ways, such as an Indonesian health center being sponsored by a tobacco company (Figure 6.9).

Figure 6.9 Indonesian Health Center Sponsored by a Tobacco Company



Table 6.3 shows Philip Morris International's CSR donations from 2009-2012 in the Association of Southeast Asian Network (ASEAN) region. PMI has funded more than a hundred projects in Indonesia, Malaysia, the Philippines, Thailand and Vietnam, with donations supporting education, community development, disaster relief, and environmental protection.

Table 6.3 Number of CSR Grants Given by PMI in ASEAN Region, 2009-2012

Country	Education, School Bldg., Scholarships	Poor People, Community Development	Disaster Relief	Environmental Protection	Total
Indonesia	12	17	7	10	**46**
Malaysia	8	5	--	5	**18**
Philippines	8	6	6	2	**22**
Thailand	8	8	7	4	**27**
Vietnam	5	3	1	--	**9**
Total	**41**	**39**	**21**	**21**	**122**

Increasingly, tobacco companies are investing in scholarships for students. Pictured in Figure 6.10 are Indonesian students receiving scholarships from Beswan Djarum, as well as Malaysian students funded by British American Tobacco.

Figure 6.10 Examples of Tobacco Companies Funding Student Scholarships



Indonesia: Beswan Djarum - Granting Malaysia: Students receive scholarships from BAT Malaysia Scholarships to students [SEAT CA/SIS Foundation in 2011. (BAT Malaysia annual report 2011) resource center]

Certainly, the tobacco industry's efforts to be seen as socially responsible can and does do some good. But looking at the broader picture, CSR is ultimately a way that tobacco companies attempt to buy good publicity for themselves, and at relatively little cost. Charitable donations amount to a small percentage of the profits made by tobacco companies. For instance, in 2012, PMI donated $38 million to charitable causes, out of their $9.2 billion profit—a donation amounting to less than 0.5% of what they netted that year, but yielding a significant amount of goodwill and good publicity for the company.

"I never use the word corporate philanthropy. That implies that you do something without any regard to yourself...I don't see any corporation giving money without a reason."

- George Knox, Philip Morris Executive, 1993

A discussion on corporate social responsibility must weigh the answers to a serious question: Does CSR negate the global harm caused by tobacco? The matter is a complicated one. Figure 6.11 shows a photograph of a school that was rebuilt by tobacco companies following a severe earthquake in central China. At one point, more than 100 primary schools in China were sponsored by tobacco companies, and many of them include messages like this on the exterior of the school building: roughly translated, it states, "Genius comes from hard work. Tobacco helps you to be successful." This sign was visible on an elementary school in China in 2009, and it has since been removed. Throughout the world, tobacco control advocates must be wary of tobacco companies engaging in corporate social responsibility activities that have a direct link to youth audiences.

Figure 6.11 A Sign Outside a Tobacco-Sponsored School in China Reads, "Genius Comes From Hard Work. Tobacco Helps You to Be Successful."



Key Takeaway

While tobacco industry philanthropy does good in many ways, corporate social responsibility is ultimately a way for the industry to buy good publicity.

Section 4 - Tobacco Front Groups as a Diversionary Tactic

Another tactic used by the tobacco industry involves funding front groups. A front group is defined as

> *"an organization that purports to represent one agenda, while in reality it serves some other party of interest whose sponsorship is hidden or rarely mentioned."* -Tobacco Tactics, 2012

Tobacco companies fund front groups and allies to help keep pro-tobacco issues visible while the tobacco companies themselves remain in the shadows. They commonly partner with the hospitality industry, national and state restaurant associations, licensed beverage associations, farmer associations and gambling associations with the aim of maintaining the status quo which allows the tobacco companies to sell their products to consumers. Recently, tobacco companies have used front groups to undermine excise tax increases, as well as to bolster efforts to defeat tobacco control measures, such as packaging regulations.

In 1994, when the FDA began to consider regulating tobacco products in the United States, R.J. Reynolds secretly backed a campaign to diminish government control. The program, called Get Government Off Our Back (GGOOB), was not only tobacco-related, but the timing of its launch was designed to counteract FDA-proposed tobacco regulations. Campaign materials published in magazines and newspapers around the country included slogans such as the one shown in Figure 6.12, which reads: "I'm one of American's 45 millions smokers. I'm not a moaner or a whiner. But I'm

getting fed up. I'd like to get the government off my back." GGOOB was active for two years and successful in influencing politics, gaining attention for pro-tobacco issues and derailing multiple anti-tobacco proposed laws.

Mike Daube is a professor of health policy at Curtin University in Australia. He also serves as the Director of the Public Health Advocacy Institute, and was Western Australia's first Director General of Health (2001-2005). Professor Daube is internationally known for his efforts to understand industry behavior for both tobacco and alcohol companies. In Movie 6.3, he talks about tobacco interference in Australia with regard to tobacco companies' efforts to defeat plain packaging rules and the concept of the "Nanny State."

Unfortunately, front groups are far from being a thing of the past. Australia provides just one example of how tobacco companies use front groups to undermine tobacco control efforts. Reacting to the Australian government's push to establish plain packaging, Philip Morris, Imperial Tobacco, and British American Tobacco created an entity called the Alliance of Australian Retailers (AAR) (Movie 6.4). While funded almost exclusively by tobacco companies, AAR claims to represent "the owners of your local corner

Key Takeaway

Tobacco companies fund front groups and allies to help keep pro-tobacco issues visible while the tobacco companies themselves remain in the shadows.

Figure 6.12 A Slogan from Get Government Off Our Back, a Tobacco Front Group



Movie 6.3 Mike Daube on tobacco industry interference in Australia



stores, milk bars, newsagents and service stations." AAR, together with its member associations, further claims to "represent around 15,000 individual retailers around the country."

To further undermine efforts to establish plain packaging in Australia, Imperial Tobacco launched the "No Nanny State" campaign in 2011 (Movie 6.5 & Figure 6.13). In their annual report for 2012, the company describes the effect they wished to have on packaging regulations using this campaign: "Last year we worked closely with our trade customers during the plain packaging consultation and our 'No Nanny State' advertising campaign. This helped us to further strengthen these key relationships."

Movie 6.4 AAR Commercial Opposing Australian Plain Packaging



Movie 6.5 No Nanny State Commercial From Imperial Tobacco Front Group



In spite of these advertising campaigns and other efforts by the tobacco industry, via front groups, to oppose plain packaging, Australia was successful in passing and establishing the Tobacco Plain Packaging Act of 2011. An excerpt from the law states, "From 1 December 2012, if you buy, sell, offer for sale or otherwise supply tobacco products in Australia that do not comply with the plain packaging or new health warning requirements, significant criminal or civil penalties may apply." Australia's success in eliminating promotional imagery and branding from tobacco packaging is historic, and other countries, such as the United Kingdom, Ireland and France are in the process of implementing plain packaging. In response, the tobacco industry continues to pour efforts into undermining such regulations elsewhere. While unsuccessful in

Australia, tobacco companies are proceeding with aggressive efforts in other countries that are trying to protect the public through plain packaging laws.

The International Tobacco Growers Association (ITGA) is yet another example of the industry using a front group, in this case to mobilize tobacco farmers in opposing tobacco control. ITGA was formed in 1984, and included farmers from Argentina, Brazil, Canada, Malawi, and the United States. It claims to be a "non-profit organization . . . with the objective of presenting the cause of millions of tobacco farmers around the world." It is hardly surprising that funding for ITGA comes from tobacco companies such as Philip Morris and British American Tobacco (BAT). The organization acts as a front group for lobbying activities against WHO around the world.

Figure 6.13 Example of the No Nanny State Ad Campaign



A BAT memo from 1988 describes how the industry wanted the organization to function:

Manufacturers . . . 'control' the primary funding of the organization, and would thus be able to ensure that it stuck to politics. . . . The ITGA could 'front' for our Third World lobby activities at the World Health Organization, and gain support from nations hostile to multinational corporations. The ITGA (pushed by us) could activate regional agriculture lobbies which are at present very weak and resistant to industry pressure.

It is clear that tobacco companies have established or manipulated groups to advocate for their interests, and they continue to do so to this day. The use of front groups is just one manifestation of tobacco industry behavior that has spanned 50 years, with an emphasis on delay and obfuscation and a net effect of tens of millions of lives lost globally.

Chapter 6 Discussion Questions:

1. How can tobacco companies' influence on politics be reduced? Other industries also influence politics in the U.S. Is there any justification for singling out the tobacco industry for legislation requiring transparency in campaign contribution and use of front groups?
2. Is it possible for tobacco companies to practice true CSR given the nature of the product they market?
3. Tobacco companies use CSR to advertise to vulnerable communities such as students and women in shelters. Should this form of advertisement be regulated?

Figures and Tables

Figure 6.1: The Epidemiologic Triad of Tobacco-Related Disease With Tobacco Companies as Disease Vectors

Source: Lee, S., Ling, P. M., & Glantz, S. A. (2012). The vector of the tobacco epidemic: tobacco industry practices in low and middle-income countries. Cancer causes & control: CCC, 23(0 1), 117–129. doi:10.1007/s10552-012-9914-0.

Figure 6.2: In December 1952, Reader's Digest Published "Cancer by the Carton," Alerting Readers to the Link Between Smoking and Lung Cancer

Source: Readers Digest. (2013). How we started a revolution.

Movie 6.1: "Nicotine Is Not Addictive"

Figure 6.3: Cartoon by Dan Wasserman, Los Angeles Times Syndicate

Source: Action on Smoking and Health (ASH) (1998). Tobacco explained - The truth about the tobacco industry...in its own words. Retrieved from: http://www.ash.org.uk/files/documents/ASH_599.pdf.

Figure 6.4: Selected Quotations From U.S. Tobacco Industry Internal Documents Which Were Revealed Through Litigation

Source: No Smoke, 2005

Figure 6.5: Tobacco Billboard in Indonesia Says "Don't Quit"

Source: Campaign For Tobacco-Free Kids, 2013

Movie 6.2: WHO Countries Stand Shoulder to Shoulder Fighting Big Tobacco

Source: World Health Organization, 2012

Table 6.1: Top Recipient States of Tobacco Industry Contributions, U.S., 2011-2012

Source: Parkinson, R. (2013). *Big Tobacco Wins Tax Battles*. National Institute On Money In State Politics.

Figure 6.6: Tobacco Industry Contributions by Recipient Type, 2011-2012

Source: Parkinson, R. (2013). Big Tobacco Wins Tax Battles. National Institute On Money In State Politics.

Figure 6.7: Annual Number of Clients Lobbying on Tobacco

Source: Center for Responsive Politics, 2015

Figure 6.8: Lobbying is an Major Part of Tobacco Industry Tactics

Source: Kevin McCoy, 2009

Table 6.2: Political Action Committee (PAC) contributions to federal candidates, 2012

Source: Center for Responsive Politics, 2013

Figure 6.9: Indonesian Health Center Sponsored by a Tobacco Company

Source: SEATCA, 2013, CSR Handout

Table 6.3: Number of CSR Grants Given by PMI in ASEAN Region, 2009-2012

Source: SEATCA, 2013, CSR Handout

Figure 6.10: Examples of Tobacco Companies Funding Student Scholarships

Source: SEATCA, 2013, CSR Handout

Figure 6.11: A Sign Outside a Tobacco-Sponsored School in China Reads, "Genius Comes From Hard Work. Tobacco Helps You to Be Successful."

Figure 6.12: A Slogan from Get Government Off Our Back, a Tobacco Front Group

Source: Apollonio, D. E., & Bero, L. A. (2007). The creation of Industry front groups: The tobacco industry and "get government off our back." American Journal of Public Health, 97(3), 419–427. doi:10.2105/AJPH.2005.081117.

Movie 6.3: Hear from the Experts: Mike Daube on Tobacco Industry Interference in Australia

Movie 6.4: AAR Commercial Opposing Australian Plain Packaging

Source: The Alliance of Australian Retailers, 2010

Movie 6.5: No Nanny State Commercial From Imperial Tobacco Front Group

Source: ABC News Australia, 2011

Figure 6.13: Example of the No Nanny State Ad Campaign

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Chapter 7

Tobacco Marketing

Chapter Objectives

1. Examine the reasons why tobacco companies advertise their products.
2. Compare and contrast the historical and modern advertising methods.
3. Analyze marketing strategies for specific populations, such as women and youth.
4. Examine marketing tactics in foreign countries.
5. Classify the types of U.S. marketing expenditures.

Section 1 - Marketing a Deadly Product—Why Advertise?

Smoking is not a natural activity. Often, when people try their first cigarette, they feel dizzy and nauseated and find the taste of burned tobacco leaves unpleasant. Demand for smoking has to be created, and in this chapter, we will examine how this occurs. Understanding the marketing tactics used by tobacco companies is essential, since these tactics have enabled the tobacco industry to create a demand that resonates with their customers' deepest psychological needs and desires.

Philip Morris explains their reasons for advertising their products in the following way:

> *We design our marketing programs to enhance brand awareness, recognition and loyalty among adult smokers. We want adult smokers of our brands to purchase our brands consistently; and we compete to grow our market share by attracting adult smokers of competitor brands to switch to our brands. - Philip Morris USA, 2013*

That is to say, according to the industry, tobacco products are only advertised to adults who already smoke—to keep them smoking their brand of cigarettes or to get them to switch from competing brands. However, we shall see clear evidence that in fact, tobacco companies target children and young adults. They seek to influence young people to start smoking, creating new generations of smokers with a lifelong addiction to nicotine. In the U.S. Department of Justice litigation against the

tobacco companies, Judge Gladys Kessler made a clear pronouncement of the industry's intent after examining the evidence:

> *[Tobacco companies'] marketing activities are intended to bring in new, young, and hopefully long-lived smokers into the market to replace those who die (largely from tobacco-caused illnesses) or quit. - U.S. Department of Justice.* United States of America vs. Philip Morris USA, Inc. et al., Civil Action No. 99-2496

Key Takeaway

Tobacco companies claim they only market to adults who already smoke, but there is clear evidence that in fact, they target children and young adults. The tobacco industry seeks to create new generations of smokers with a lifelong addiction to nicotine.

During the 1950s, cigarette marketing was unregulated and ubiquitous in the media. Tobacco companies often made unfounded claims and used popular imagery to sell their product. Athletes, physicians, babies, and even Santa Claus figured in cigarette advertisements as tobacco companies reached out to audiences both old and young.

Movie 7.1 Winston Cigarettes Advertised in The Flintstones Cartoon



Cigarette companies sponsored many of the most popular television shows: The Ed Sullivan Show, I Love Lucy with Lucille Ball, and the Flintstones (Movie 7.1), to name a few examples.

After the release of the First Surgeon General's Report in 1964, and because of increasing scientific evidence on the harmful effects of smoking, cigarette advertising in the media began to be more closely scrutinized. Tobacco companies were criticized for their tactics. In response to that criticism, and in anticipation of inevitable legislation, the industry voluntarily adopted a code of advertising conduct that included the following provisions (Figure 7.1):

Figure 7.1 Voluntary Cigarette Advertising Code Adopted by Tobacco Industry

a) Natural persons depicted as smokers in cigarette advertising shall be at least twenty-five years of age and shall not be dressed or otherwise made to appear to be less than twenty-five years of age. Fictitious persons so depicted in the form of drawings, sketches, or any other manner shall appear to be at least twenty-five years of age in dress and otherwise.
b) Cigarette advertising shall not depict as a smoker any person participating in, or obviously having just participated in, physical activity requiring stamina or athletic conditioning beyond that of normal recreation.
c) Cigarette advertising shall not represent that cigarette smoking is essential to social prominence, distinction, success, or sexual attraction.

Figure 7.2 shows images of advertising used by tobacco companies since developing the provisions outlined in Figure 7.1. Reviewing these provisions alongside their advertisements gives ample evidence that, in spite of the code of conduct that the industry itself developed and publicized, the tobacco industry has used images of young people and athletes, as well as strong suggestions of social desirability and sexual attraction, to sell cigarettes.

Figure 7.2 Examples of Advertising Following the Voluntary Cigarette Advertising Code





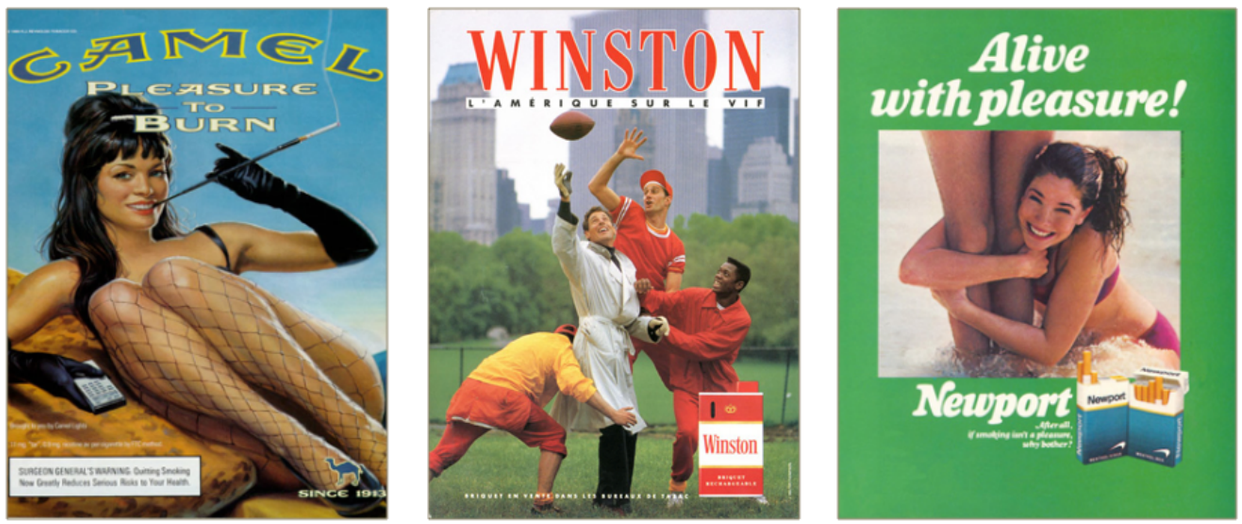






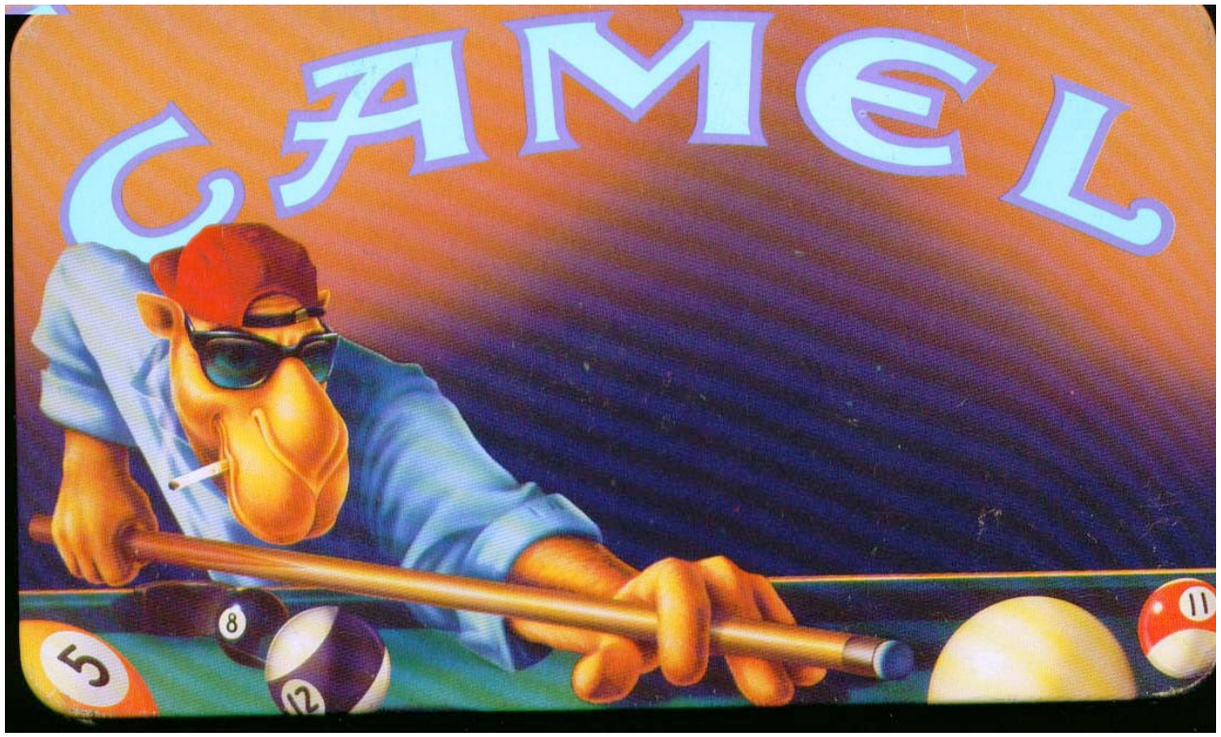


Figure 7.3 Examples of Tobacco Advertisements Making Smoking Look Desirable



Tobacco companies use advertising to make smoking look glamorous and sexy, and they do so in order to attract new smokers and to keep them smoking (Figure 7.3). As stated in an internal report from Philip Morris in 1999, "The ability to attract new smokers and develop them into a young adult franchise is key to brand development." What's at stake is not only brand development, but indeed the very survival of tobacco companies, since longitudinal research has shown that the first brand that teenagers smoke tends to be their lifetime brand of choice. Thus, targeting young people with their advertising is a way to secure long-term brand loyalty.

Figure 7.4 The Joe Camel Campaign was a Huge Success for Camel Cigarettes



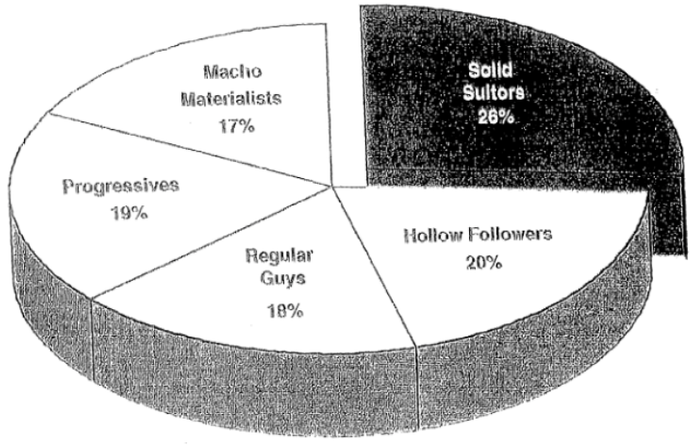
One of the most recognizable cigarette campaigns was the Joe Camel campaign that began in the early 1990s. Depicting a cartoon camel in a variety of glamorous settings, the campaign was aimed at youth who were attracted by the bold colors of the cartoons and Joe Camel's "cool" demeanor (Figure 7.4).

The tobacco industry's internal documents, many of which were made public as a result of the Master Settlement Agreement of 1998, provide remarkable insight into the tactics that tobacco companies have used to understand the motivations of their target audience and how they could be manipulated. The tobacco industry has spent billions of dollars in market research. For instance, Figure 7.5 shows an excerpt from a Philip Morris document summarizing the key elements in one of

Key Takeaway

The Joe Camel campaign was a carefully orchestrated effort to attract young people, involving detailed research into the personalities and aspirations of the campaign's target audience.

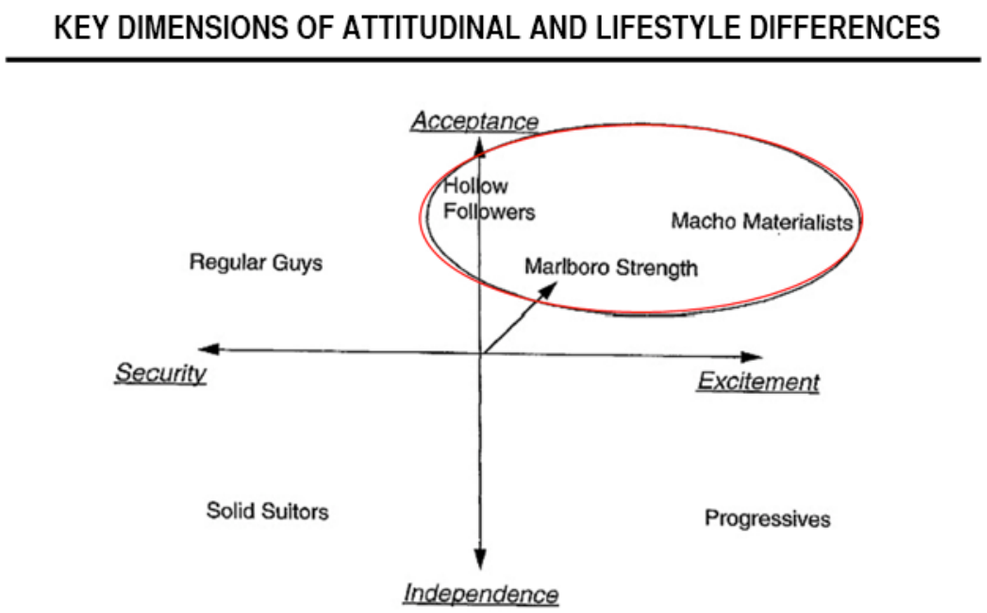
Figure 7.5 1994 Philip Morris Document Summarizing Key Elements of Young Adult Male Smokers



their studies of young adult male smokers in 1994. Far more than an analysis of their cigarette preferences, the document evaluated the attitudes, activities, aspirations, and social groups of young adults. Young male smokers were divided into five categories: Hollow Followers, Regular Guys, Progressives, Macho Materialists and Solid Suitors.

So how did Philip Morris use this information about the population of young male smokers in the 1990s? The company took the key characteristics of each segment and mapped them along two axes (Figure 7.6). At the opposite extremes of the horizontal axis were those who were driven by the desire for security, and on the other side

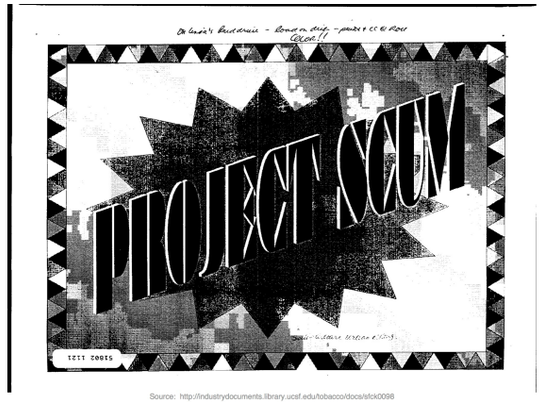
Figure 7.6 Philip Morris Classification of Young Adult Smoker Lifestyle and Attitude Segmentation



Hollow Followers 20%	Regular Guys 18%	Progressives 19%	Macho Materialists 17%	Solid Suitors 20%
Self described "followers" drawn to downscale glamour - want to fit in	Have a positive self image - "good looking, cool/hip, creative, popular"	See themselves as unique individualists - Value authenticity, creativity, and imagination	See themselves as tough, rugged, macho partyers	Responsible, hard working, honest
Brands and fashion seen as the way to peer acceptance	Brand and fashion conscious	Reject materialism - Don't seek to be "popular" or "cool/hip"	Value money, a flashy lifestyle and popularity as measures of success	Value intelligence, independence
Low on independence, authentic, hardworking, and unique	Active and outgoing	Key goal to be satisfied with their lives - Do what they want, not what they "should" do	Not concerned with relationships or long term goals – looking out for number one in the here and now	Future oriented - working and saving for long term goals
Prefer "old fashioned" gender roles and relationships	Socialness balanced by self image as "serious," "reliable" looking to get ahead and become successful leaders	Crave excitement, travel, cultural and intellectual stimulation	Like to hang out with friends, party and work on their cars	See women as equals socially and professionally
Not career or future oriented	Key segment for African Americans - form 38% of the cluster	Region 2, some college but not employed		Want a secure family life but not an "old fashioned marriage"

were those motivated by a desire for excitement. Meanwhile, the vertical axis portrayed independence as a motivation at the bottom and acceptance at the top. Mapping each of the five segments onto this graph, the market researchers at Philip Morris then determined which population Marlboro cigarettes would be most likely to attract. Figure 7.6 shows that Marlboro's strongest market was determined to be among youth who placed a high importance on being accepted by their peers and who also wanted a life of excitement. These were qualities that corresponded to the segments described as the Hollow Followers and the Macho Materialists. Thus, much of the market research

Figure 7.7 Project SCUM by R.J. Reynolds Targeted Gay and Homeless People in the Mid-1990s



Source: http://industrydocuments.library.ucsf.edu/tobacco/docs/sfck0098

subsequently done by Philip Morris focused on these two groups, seeking information about their lifestyle (How do they get their information? What television programs do they watch? What radio stations do they listen to? What do they read?) in order to better target them with advertisements.

This way of mapping consumers and potential consumers has been very effective for Philip Morris in terms of helping them to reach their target audience effectively. Another example of a closely researched and extremely targeted marketing campaign was one that was done by R.J. Reynolds in the mid-1990s, called Project SCUM (Figure 7.7). The letters stood for Sub-Culture Urban Marketing and the campaign was a strategic effort by R.J. Reynolds to introduce a brand of cigarettes called Red Kamel into the San Francisco area, with a focus on gay and homeless people.

Project SCUM was later used in an effective counter-marketing campaign created by the American Legacy Foundation (which became Truth Initiative® in 2015) to expose the truth about how tobacco companies regard their customer base and how they operate (Movie 7.2 and Figure 7.8).

Movie 7.2 Counter-Marketing Commercial Titled "What if Big Tobacco Spoke to You the Way they Speak About You?



Figure 7.8 Counter-Marketing Advertisement Titled "What if Big Tobacco Spoke to You the Way they Speak About You?"



Section 2 -Selected Case Studies of Tobacco Marketing

At the beginning of the twentieth century, it was regarded as socially unacceptable for women to smoke. Female smoking was considered a sign of loose morals and a tendency towards promiscuous behavior. As late as 1908, a woman was arrested in New York City for smoking in public.

Realizing that cultural norms discouraged smoking for roughly half the world's population, tobacco companies sought ways to promote smoking among women. The American Tobacco Company hired Edward Bernays to create a campaign that would expel the taboo against female smoking (Figure 7.9). The nephew of

Figure 7.9 Early Marlboro Advertisement Aimed at Women



Movie 7.3 Edward Bernays Attracts a New Audience to Tobacco Through "Torches of Freedom" March



Sigmund Freud and dubbed the "father of public relations," Bernays is credited with associating smoking with the fight for women's liberation. Movie 7.3 is Bernays's firsthand account of how he came up with the idea of making cigarettes "torches of freedom"—symbols of protest against "man's inhumanity to women." Figure 7.10 shows a woman smoking a "torch of freedom" during a march and an advertisement letting women know the stigma around female smoking is changing

Figure 7.10 Woman Smoking a "Torch of Freedom"





Around the same time that Bernays was associating smoking with women's freedom and the right to vote, other marketing campaigns targeted women by associating smoking with weight control. Figure 7.11, for example, shows advertisements for Lucky Strike that claim "reach[ing] for a Lucky instead of a sweet" helps keeps a slender figure.

Figure 7.11 Lucky Strike Advertisements Associate Smoking With Weight Control

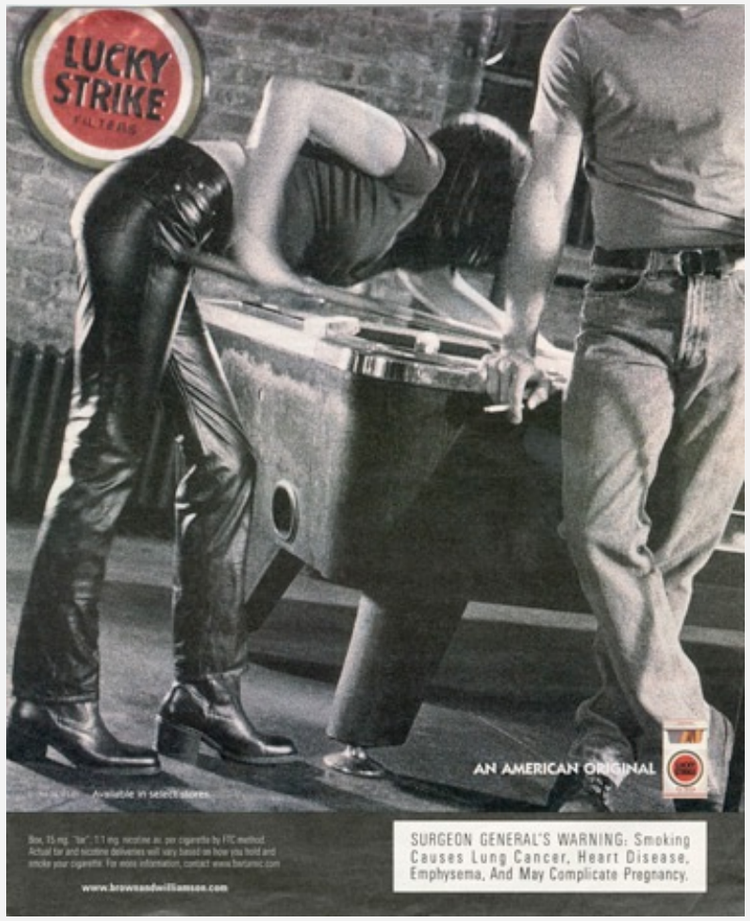


These overt associations of smoking with freedom, empowerment, and weight control may seem outrageous to us now—not something that would be tolerated in contemporary society—but in truth, tobacco advertisements still continue to appeal to these same aspirations. They portray images of women with an elevated social status, sexual allure, and vitality (Figure 7.12 and Figure 7.13).

Key Takeaway

Tobacco advertising associates smoking with freedom, independence, and empowerment to appeal to women.

Figure 7.12 Recent Tobacco Advertisements Still Target Women



This 2010 Lucky Strikes advertisement from American Tobacco was geared towards women. The Stanford Research Into the Impact of Tobacco Advertising group provides the following commentary about this particular advertisement and the likely intent and meaning behind the elements in the ad:

"In this recent advertisement, billiards is used as a mode for conveying sex appeal. The woman leans over the pool table, making a thrusting action with her cue toward the man, who leans against the table, his erect cigarette at about waist level, pointing directly toward the woman. The woman's bent knee is angled toward the hole in the pool table, igniting additional subliminal associations between smoking and penetration. Her leather pants, and the light cast upon them, accentuate her rear as she leans forward, while the Lucky Strike Filters bull's-eye sign on the wall - the only bit of color in the ad - is positioned directly above her rear, further implying a connection between sex appeal and Lucky Strike cigarettes."

Figure 7.13 2010 Advertisement for USA Gold Cigarettes



Another important case study of tobacco marketing tactics involves the introduction of light cigarettes in the 1970s. As discussed in Chapter 4, light cigarettes are no less harmful than full-flavored cigarettes, yet tobacco companies market them as a safer option for smokers. As the public became increasingly concerned about the harms of smoking, tobacco companies realized that they needed to provide "health reassurance to the concerned smoker" or risk losing their market share. Light cigarettes were created to "assuage smokers' guilt" for continuing to smoke, and were particularly targeted toward women, the market segment that was most concerned about the negative health consequences of smoking (Figure 7.14).

Figure 7.14 Light Cigarette Ad Intended to Assuage Guilt



The concept of light cigarettes goes beyond simply calling a cigarette "light;" it extended to the way cigarettes were packaged, the colors used in advertisements, and the way the cigarettes themselves looked. For example, a Philip Morris Vice President of Marketing was quoted as saying that the company used a "lighter, more white background" and a "white filter as opposed to a cork colored filter" to communicate to consumers

that the cigarettes are low-tar, even though in reality, these cigarettes are no less harmful than the traditional full-flavored variety (Figure 7.15).

Yet another case study of tobacco marketing tactics focuses on the industry's efforts to get young people to start smoking. As we learned in Chapter 3, the vast majority of adults who smoke every day started smoking before they were 18 years old. In other words, a person who does not smoke by the age of 18 is far less likely to ever become a smoker.

Figure 7.15 Examples of "Light" Cigarette Packaging

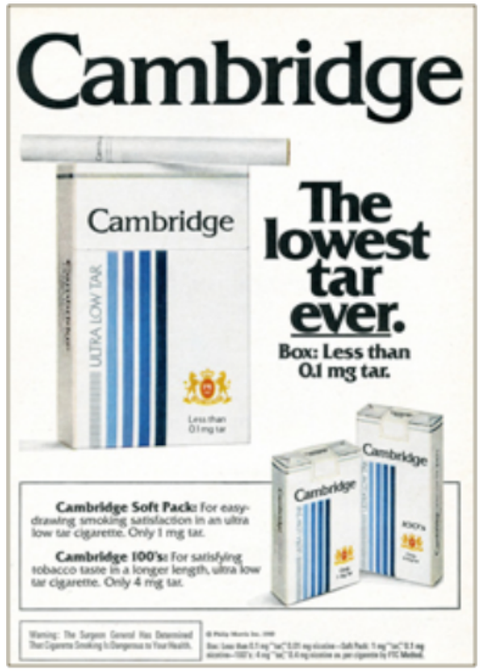




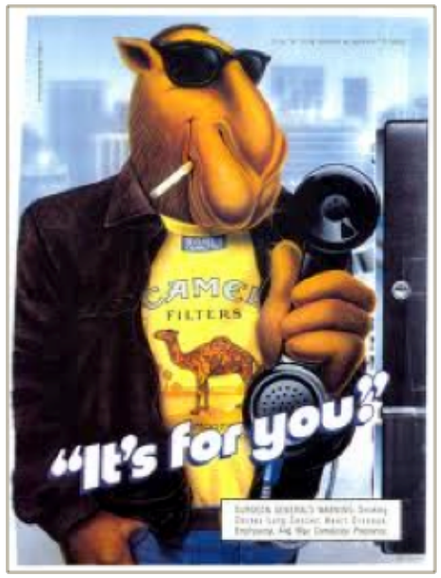




Figure 7.16 Advertising for Little Cigars was Still Legal in the U.S. in 2014



Figure 7.17 Joe Camel Advertisement from 1990



have made considerable effort to get young people to smoke their particular brand, in spite of their statements to the contrary. The tobacco industry still claims that the purpose of their advertising is strictly to influence the behavior of adults who already smoke. The ads shown in Figures 7.16, Figure 7.17, and Figure7.18 tell a very different story.

The advertisements featured above are brightly colored, reminiscent of candy and sweets, and are clearly directed at a younger market. Industry documents have revealed that Tobacco companies thus know the importance of making smoking attractive to youth. Moreover, as we learned earlier in this chapter, the first brand that teenagers smoke tends to be their brand of choice for their lifetime. Therefore, tobacco companies

Figure 7.18 2012 Russian Kiss Cigarette Ad Translated as "If you're not allowed it, but you really want it, then you can have it!"



Figure 7.19 Candy Cigarettes Strongly Resemble the Real Thing



tobacco companies worked with candy makers to create sweets that mimic cigarette pack designs (Figure 7.19). Indeed, the industry's efforts to get young people to see smoking as an appealing activity is vitally important to the success of tobacco.

The 1994 Surgeon General's Report concluded: "Cigarette advertising uses images rather than information to portray the attractiveness and function of smoking. Human models and cartoon characters in cigarette advertising convey independence, healthfulness, adventure-seeking, and youthful activities—themes correlated with psychosocial factors that appeal to young people."

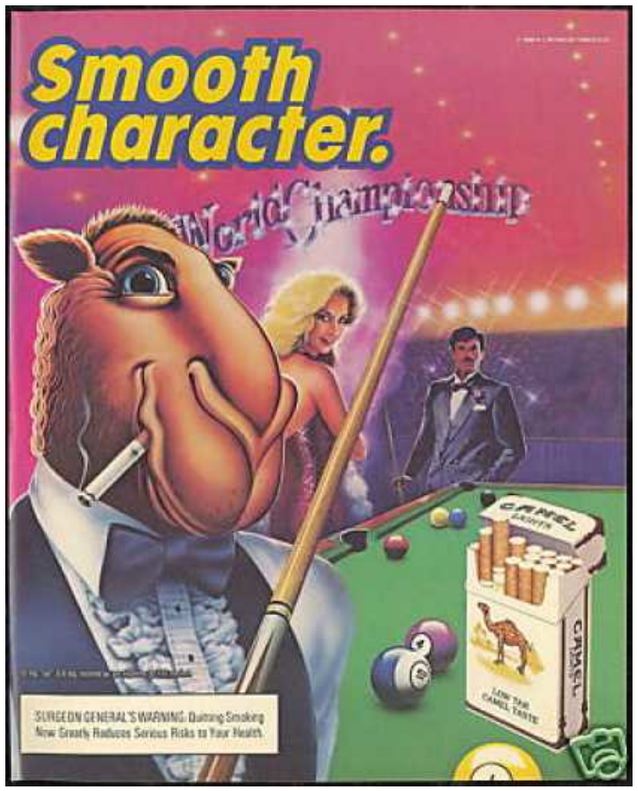
Cigarette advertising continues today in the United States, and tobacco companies continue to target young people. Between January 1993 and May 2003, Philip Morris USA spent a total of $133,727,300 on cigarette brand advertising in Sports Illustrated and other magazines popular among youth. According to magazine industry data, each issue in this time frame was read by an estimated 4.7 million readers aged 12-17 years.

If further proof is needed that cigarette advertisements are designed specifically to appeal to youth, it is worth taking a look at the Joe Camel

Key Takeaway

The tobacco industry uses cartoons, sweet flavors, and tried-and-true images of peer acceptance and sex appeal to target youth.

Figure 7.20 The Joe Camel Campaign by R.J. Reynolds Was Incredibly Successful



campaign that was developed in the 1980s (Figure 7.20). Among the tobacco industry's internal documents is a focus group report from 1985 that states: "Due to the growing importance of young adult smokers, Camel has developed a campaign which is directed solely towards this group." Further, an R.J. Reynolds document from the following year reveals: "Overall, Camel advertising will be directed toward using peer acceptance/influence to provide the motivation for target smokers to select Camel." The document goes on to state that Camel advertising would create "the perception that Camel smokers are non-conformist, self-confident and project a cool attitude, which is admired by their peers. . .Aspiration to be perceived as a cool member of the in-group is one of the strongest influences affecting the behavior of young adult smokers."

The Joe Camel campaign was extraordinarily successful. Prior to 1988, when the campaign was launched, Camel's market share had progressively fallen to only 3.2%. Camel's share of adult smokers only increased from 2.7% to 4% between 1988 and 1993. However, Camel's share of the teenage market grew to 13% by 1993. Since the start of the campaign, studies have shown that young people ages 10-17 could recognize Joe Camel and associate the character with smoking cigarettes just as they associated the Keebler elves with cookies. The proportion of youth who recognized Joe Camel

was higher than the proportion who knew that Ronald McDonald advertised McDonald's fast food chain (Figure 7.22). Clearly, the Joe Camel campaign was remarkably successful in terms of increasing visibility and recognition among younger audiences and accomplishing the strategic objectives of R.J. Reynolds, which centered around capturing a young adult market share for Camel. Many of today's tobacco advertisements may still be appealing to youth, such as the 2012 advertisement featured in Figure 7.22.

Figure 7.21 Young People Recognize Joe Camel More Than Other Popular Figures



Figure 7.22 Lil' Wayne's Brand of Cigars, Bogey Cigars, Could Be Appealing to Youth



Michael Eriksen, who served as the director of the CDC's Office on Smoking and Health from 1992 to 2000, comments on his experience of serving as an expert witness in litigation brought by the states against the tobacco companies in Movie 7.4.

Movie 7.4 Hear from the Experts: Michael Eriksen, ScD



Section 3 -Today's Tobacco Marketing

In the United States, some restrictions have been placed on tobacco marketing over the last twenty years largely due to litigation brought against the tobacco companies. These restrictions include:

- Bans on outdoor advertising within 1,000 feet of schools and playgrounds.
- Bans on brand sponsorships of sports and entertainment events.
- Bans on free giveaways of any non-tobacco items with the purchase of a product.
- Bans on free samples.
- Limits to outdoor and point-of-sale advertising.
- Restrictions on vending machines to adult-only facilities.
- Establishment of 18 as a federal nationwide minimum age for legal tobacco sales with strong federal penalties.
- Requirement for retailers to verify age for all over-the-counter sales and provides for federal enforcement and penalties against retailers who sell to minors.

While advertising in newspapers and magazines has declined due to restrictions, tobacco companies still take advantage of the lack of federal regulations to target young people through print media. For instance, undeterred by existing restrictions, Camel Crush ran ads in several magazines with a high youth readership in 2013, including *Entertainment Weekly, ESPN the Magazine, Sports Illustrated, Rolling Stone, People, Glamour, InStyle, Us Weekly,* and *Vogue*. In addition, young people are increasingly exposed to tobacco advertising through in-store ads and the Internet.

Figure 7.23 Camel Crush Bold Advertisement Seen in Magazines Commonly Read by Youth



A prominent feature of the ad shown in Figure 7.23 is the invitation to "Get your coupons and try it out." In addition to traditional marketing, which we tend to equate with print or online advertising, tobacco companies use price discounts and other efforts that lower the price of tobacco products and make them more affordable. This is of particular concern with regard to the youth market, because research has shown that young people are more sensitive to price increases than other age groups. That is, as cigarette prices go down, youth become more likely to use cigarettes, while price increases significantly discourage their use. Tobacco companies thus employ various tactics, such as coupons or in-store promotions like "buy one, get one free," as seen in Figure 7.24, to make tobacco

products as affordable as possible.

Figure 7.24 Tobacco Companies Promote Discounts



Another way that the tobacco companies appeal to young people to try their products is by adding flavors that mask the harsh taste of tobacco (Figure 7.25). In 2009, the Food and Drug Administration (FDA) banned the sale of flavored cigarettes based on studies that show "that 17-year-old smokers are three times as likely to use flavored cigarettes as smokers over the age of 25." However, the ban does not cover menthol products, cigars, cigarillos, or smokeless tobacco. These products are still marketed in flavors such as vanilla, strawberry, and cotton candy, which are attractive to youth.

Figure 7.25 Examples of Advertisements Promoting Flavors



In addition to price discounts and flavorings, tobacco companies continue to rely on the tried-and-true method of using sex appeal and social desirability in advertising. Cigarettes

Figure 7.26 Cigarette Advertisements Focused on Sex Appeal and Happiness



ads associate smoking with aspirations that people have to be attractive, glamorous, sexy, successful, and happy (Figure 7.26).

The tobacco industry also has a history of sponsoring sporting events such as tennis matches, auto races, and football games as in Figure 7.27. To give an example of the reach of this kind of marketing, the estimated value of R.J. Reynolds's Winston exposure in 2002 during televised racing events was $1.2 billion, with the advertisements reaching over 533 million viewers. While their ability to sponsor sports has been severely limited, tobacco companies are still allowed to have one major sponsorship event per year.

Figure 7.27 Examples of Advertisements for Sports Sponsorships



Today, we not only have to contend with the marketing of traditional tobacco products but also the aggressive marketing of e-cigarettes, pictured in Figure 7.28. As we discussed in Chapter 4, there is still much work to be done in order to determine whether e-

Figure 7.28 Today's E-Cigarette Advertisements







cigarettes will help smokers to quit or actually reinforce nicotine addiction. What we do know is that while traditional cigarettes have not been allowed to be advertised on television since 1971, e-cigarette advertising is allowed and they have become ubiquitous on television, in newspapers and magazines, on the Internet, and at point of purchase.

Tobacco companies advertise e-cigarettes using many of the same marketing tactics that were banned in the 1970s for cigarettes (Figure 7.29, Figure 7.30, and Figure 7.31). Additionally, point of sale advertising and placement also mimics that of traditional cigarettes, such as Figure 7.32 showing e-cigarettes placed directly next to candy in a convenient store.

Key Takeaway

Tobacco companies now advertise e-cigarettes using many of the marketing tactics that were banned for cigarettes in the1970s. People who were born within the last 40 years in the United States can now see advertisements from the tobacco industry on television for the first time in their lives.

Figure 7.29 Sex Appeal (1974 vs. 2014)



Figure 7.30 Nightlife (1973 vs. 2013)



Figure 7.31 Tough Guys (1983 vs. 2013)



Increasingly, e-cigarettes are marketed as an alternative option for smokers when they are in places where they are not allowed to smoke. Of particular concern, many ads for e-cigarettes encourage ex-smokers to enjoy smoking again. In other words, rather than helping people to quit smoking, the marketing for e-cigarettes actually presents the product as a way to obtain even more nicotine or as a way for ex-smokers to return to nicotine (Figure 7.33). E-cigarette marketing has a strong potential to undermine much of the progress made so far in tobacco control. FDA now has the authority to regulate all tobacco products, including e-cigarettes, and how they are marketed. Until this authority is put to use and regulations are enacted, tobacco control advocates must be wary of the potential population-level consequences use of these products might create.

Figure 7.32 E-Cigarettes Displayed Adjacent to Candy



Figure 7.33 Some E-Cigarette Ads May Encourage Former Smokers to Return to the Habit of Using Nicotine



Directing our focus on tobacco marketing around the world, we find that many countries have even more extensive bans on tobacco marketing than the United States. However, less than 10% of the world's population live in countries covered by a complete ban on all types of advertising, promotion, and sponsorship. Tobacco advertising is still alive and strong in much of the world, especially in low- and middle-income countries.

Figure 7.34 JTI Sponsored the 2011 Volleyball World Cup with Extensive Advertisements, Including Uniforms with the JTI Logo



The Global Adult Tobacco Survey (GATS) measures the varying levels of exposure to tobacco ads on different media around the world. Table 7.1 shows the results of the survey from 2008-2010.

In low- and middle-income countries, sponsoring sporting events remains a leading tobacco marketing tactic. To give a recent example, in 2012, Japan Tobacco International (JTI) sponsored the Volleyball World Cup, an event that has been hosted annually in Japan since 1997 (Figure 7.34). JTI placed its logo on national team uniforms, courtside digital billboards, and gave away "gift packages" to spectators.

A spokesman for WHO's Tobacco Free Initiative said WHO was contacting the international governing body of volleyball to convey WHO's disappointment and to remind it that in 2002 it publicly committed to making volleyball a tobacco free sport. WHO hoped JTI would soon abide by its international commitments to the FCTC.

Japan: JTI sponsors women's volleyball

In late 2011, JTI earned the unusual dishonor of being criticized by name by WHO. This occurred after the Japanese national team player Risa Shinnabe, a star volleyball player whose picture is doubtless on the bedroom walls of thousands of teenage Japanese girls, was pictured wearing a JTI logo as she waved to adoring fans after her team beat U.S. opponents in Tokyo. JTI's logo was reportedly emblazoned not only on team uniforms, but also on digital billboards around the volleyball court, on television advertisements and gift packs handed to schoolgirls, mothers and children entering the Yoyogi National Stadium and other arenas across Japan during the Volleyball

Table 7.1 Direct and Indirect Marketing Data in Select Countries

Percentage of persons aged ≥15 years aware of direct or indirect tobacco marketing, by marketing channel – Global Adult Tobacco Survey, 14 countries, 2008-2010														
Marketing channel	**Bangladesh**		**Brazil**		**China**		**Egypt**		**India**		**Mexico**		**Philippines**	
No. of participants	9,629		39,425		13,354		20,924		69,296		13,617		9,701	
Response rate (%)	93.6		94.0		96.0		97.2		91.8		82.5		94.7	
	%	**(95% CI)**	**%**	**(95% CI)**	**%**	**(95% CI)**	**%**	**(95% CI)**	**%**	**(95% CI)**	**%**	**(95% CI)**	**%**	**(95% CI)**
Direct marketing: advertising														
Television/Radio	6.0	(4.9–7.3)	NA	NA	7.6	(5.9–9.9)	0.8	(0.6–1.0)	7.2	(6.6–7.7)	NA	NA	29.1	(27.2–31.0)
Newspapers/Magazines	1.9	(1.4–2.6)	NA	NA	2.4	(1.5–3.8)	0.5	(0.4–0.7)	4.7	(4.2–5.2)	17.4	(16.0–19.0)	12.5	(11.4–13.7)
Billboards/Public walls	10.6	(9.3–12.1)	NA	NA	5.2	(3.9–6.8)	1.0	(0.8–1.3)	10.3	(9.6–11.1)	21.1	(19.5–22.7)	23.6	(21.9–25.4)
Internet	0.1	(0.0–0.2)	4.7	(4.4–5.0)	1.4	(0.9–2.2)	0.6	(0.4–0.8)	0.7	(0.6–0.9)	7.1	(6.2–8.1)	3.6	(3.0–4.3)
Stores (point-of-sale)	33.2	(30.6–36.0)	30.4	(29.6–31.3)	4.1	(3.1–5.3)	8.0	(7.4–8.7)	10.7	(10.0–11.4)	36.5	(35.0–38.1)	53.7	(51.7–55.7)
Any direct marketing	37.7	(34.9–40.5)	32.2	(31.3–33.1)	14.2	(11.6–17.4)	9.5	(8.8–10.2)	20.1	(19.1–21.2)	47.0	(45.0–49.0)	66.6	(64.6–68.5)
Indirect marketing: promotion														
Sports sponsorship	1.2	(0.8–1.8)	6.1	(5.7–6.5)	3.5	(2.6–4.7)	2.1	(1.8–2.4)	NA	NA	6.2	(5.6–6.9)	2.8	(2.3–3.3)
Free samples	6.9	(5.9–8.0)	0.7	(0.6–0.8)	0.5	(0.3–0.8)	0.4	(0.3–0.6)	1.0	(0.9–1.2)	2.8	(2.4–3.2)	8.3	(7.4–9.3)
Sales/Coupons	7.0	(5.9–8.3)	0.9	(0.8–1.0)	0.8	(0.5–1.4)	0.7	(0.5–0.8)	2.5	(2.3–2.9)	5.8	(5.2–6.4)	8.2§	(7.4–9.2)§
Clothing/Items with brand name or logo	4.8	(4.0–5.7)	1.8	(1.6–2.0)	1.3	(0.8–2.2)	2.1	(1.8–2.5)	3.0	(2.7–3.4)	11.0	(10.1–12.0)	18.3	(16.7–19.9)
Any indirect marketing	14.8	(13.4–16.4)	8.3	(7.9–8.8)	5.4	(4.3–6.8)	4.5	(4.1–5.1)	5.8	(5.3–6.3)	19.6	(18.5–20.6)	26.6	(24.9–28.4)
Any marketing	42.5	(39.9–45.1)	35.7	(34.8–36.6)	16.9	(14.3–20.0)	13.0	(12.2–13.9)	23.0	(21.9–24.1)	52.8	(50.9–54.7)	70.4	(68.4–72.2)

In responding to widespread criticism over the sponsorship, JTI claimed to abide by all laws and voluntary codes in Japan. “Nowhere in our corporate sponsorship of volleyball games do we advertise our cigarette brands or products,” a spokesman said. A sports journalist added that JTI was a sponsor “in the beverage category” because it also had a division selling tea, coffee and other drinks.

Figure 7.35 Billboard Advertisement for Concert Sponsored by L.A. Lights



Manabu Sakuta, a Tokyo doctor and head of Japan's society for tobacco control, said, "This is complete nonsense. It seems that they are not a national team, but a Japan Tobacco team." Other observers voiced the fear that Japan risked losing its bid to host the 2020 Olympic Games because of growing local and international opposition to JTI's sponsorship of World Cup volleyball.

Tobacco sponsorship extends not only to sporting events but also to music concerts and cultural functions. However, with efforts from public health advocates, these tactics can sometimes backfire on tobacco companies. For instance, in 2010, American Idol winner Kelly Clarkson was set to perform a concert in Indonesia that was sponsored by L.A. Lights, pictured in Figure 7.35. Public health advocates called on Clarkson to pull the cigarette sponsorship, and fans added more pressure by posting hundreds of Facebook messages and sending over 1,300 emails to her management.

Clarkson ultimately cancelled the sponsorship, ended her association with L.A. Lights, and continued with the concert.

Figure 7.36 Cigarette Ads Using Sex Appeal



Tobacco companies still use marketing to associate smoking with sex appeal, as the international ads in Figure 7.36 demonstrate. Figure 7.37 shows an especially egregious ad for Kiss Cigarettes, released in Russia in 2011, just prior to an anticipated ban on cigarette advertising in that country. The caption over the image of a rather young girl states, "I love everything new, delicious and round!"

Figure 7.37 Russian Kiss Advertisement Clearly Targeted at Young Women



In the United States, the Federal Trade Commission (FTC) tracks expenditures on tobacco marketing, including marketing for cigarettes and smokeless tobacco. The latest available figures are from 2013, during which $8.95 billion was spent on cigarette advertising and promotion in the country, a decrease from the $9.17 billion reported in 2012.

Table 7.2 2013 Cigarette Advertising and Promotional Expenses for the U.S.

CIGARETTE ADVERTISING AND PROMOTIONAL EXPENDITURES FOR 2013 (DOLLARS IN THOUSANDS)		
Price Discounts	7,642,441	85.4%
Promotional Allowances – Wholesalers	397,182	4.4%
Promotional Allowances – Retailers	291,334	3.3%
Coupons	248,833	2.8%
Public Entertainment – Adult-Only	104,647	1.2%
All Other: Point-of-sale, outdoor, magazines, specialty item distribution, direct mail, company website, Internet, etc.	263,773	2.9%

Table 7.2 reveals that most of the tobacco marketing dollars are spent on price discounts. This category includes coupons, two-for-one promotions, and other investments made by tobacco companies to make smoking more affordable and to nullify the impact of tax increases that occur in various states. Since marketing by other means is more strictly regulated, the tobacco industry takes advantage of the insufficient regulation around price discounts to make their products cheaper for customers.

The FTC breaks down the term "promotional allowances" into four subcategories:

Figure 7.38 Virginia Slims Direct-Mail Advertising and Coupons Closely Associated with Fashion



- **Price discounts** – manufacturers' reductions in the prices paid by retailers and/or wholesalers for tobacco products, who in turn reduce the prices to consumers (such as buy-downs and voluntary price reductions) (Figure 7.38).

Key Takeaway

Since marketing by other means is more strictly regulated in the United States, the tobacco industry takes advantage of the insufficient regulation around price discounts to make their products cheaper for customers.

- **Allowances paid to retailers** – payments from manufacturers to retailers to promote increased sales volume or secure preferred placement of their brands, such as volume rebates and other

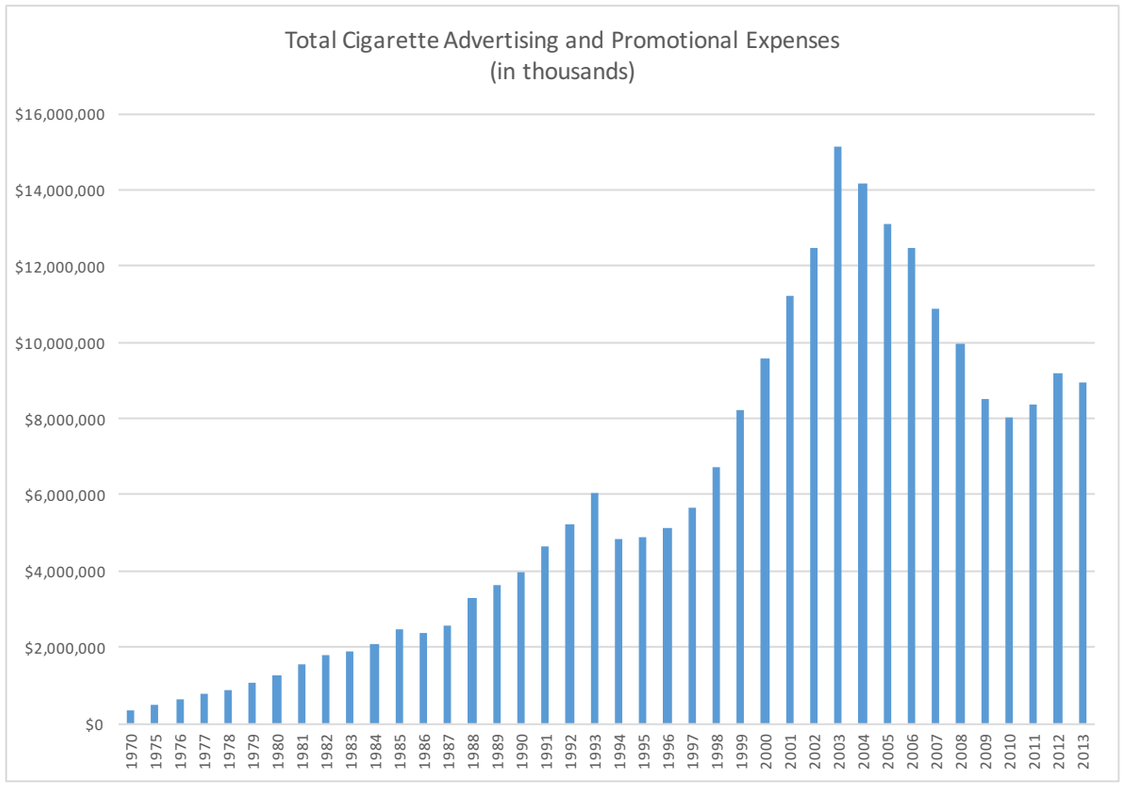
payments for stocking, shelving, displaying, and merchandising brands in a certain manner.

- **Allowances paid to wholesalers** – payments from manufactures to wholesalers, including volume rebates, incentive payments and fees for performing services related to retail value-added promotions.

- **"Other" allowances** – payments made to others (besides retailers and wholesalers) involved in the cigarette distribution and sales process, to promote the sale or placement of the manufacturer's brand.

The FTC reports are especially helpful not only in defining different kinds of marketing expenditures, but also in making it possible to track changes in tobacco marketing over time. Figure 7.39 shows the change in total advertising and promotional expenditures for cigarettes from 1970-2013. Additionally, the reports can be used to examine the shift from direct media marketing to price discounts in the last few

Figure 7.39 Total Domestic Cigarette Advertising and Promotional Expenditures, in Thousands (1970-2013)



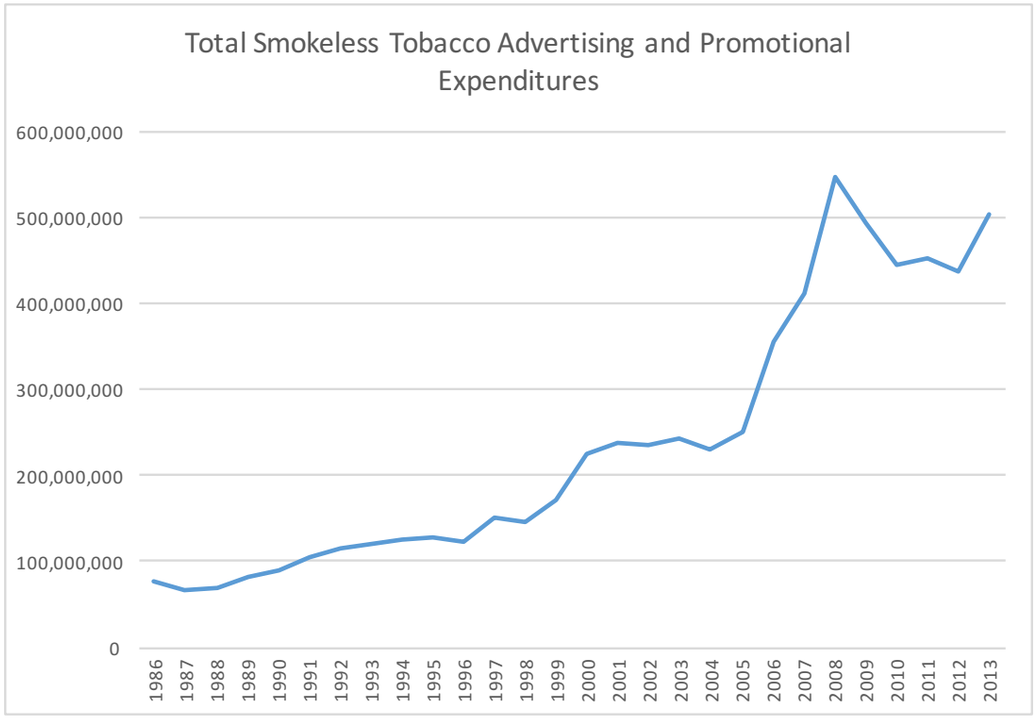
decades. Figure 7.40 shows how the percent of advertising dollars spent on price discounts and promotional allowances to retailers and wholesalers has increased over time. By 2013, more than 90% of advertising expenses were spent on price discounts, and promotional allowances (to retailers and wholesalers) in an effort to reduce the final cost of cigarettes to consumers (it is important to note the expenditure categories were changed in 2002 to capture price discounts separately from promotional allowances and other expenses).

Figure 7.40 Spending on Price Discounts and Promotional Allowances as a Percent of Total Domestic Cigarette Advertising and Promotional Expenditures (1970-2013)



Again from FTC data, Figure 7.41 shows the total advertising and promotional expenditures for smokeless tobacco products from 1986 to 2013. While tobacco companies spend far less annually on smokeless tobacco advertising than on cigarette advertising, it is still important to note how

Figure 7.41 Trends in Total Domestic Advertising and Promotional Expenditures for Smokeless Tobacco (1986-2013)



smokeless tobacco advertising has increased over time. In 2013, tobacco companies spent over $500 million marketing smokeless tobacco—three times the amount they spent in 1998, the year of the Master Settlement Agreement. This provides some indication of how tobacco companies are shifting their marketing and advertising efforts towards alternative products, such as smokeless tobacco.

Tobacco products are dependent on successful marketing campaigns. In the last century, tobacco companies developed very sophisticated and effective marketing strategies to sell their products in the United States and around the world. In some countries, many of the outlets for marketing and promotions have been restricted or banned. However, the current trend is the use of social media and the Internet to communicate about tobacco products. The Internet is currently unregulated by the Federal Communications Commission, and so cigarette and smokeless tobacco advertising can be done online and tobacco companies are rapidly increasing their expenditures for websites and

marketing on the Internet. Going forward, tobacco control advocates must be attentive to the industry's efforts to make tobacco use appear commonplace and desirable in these unregulated venues, as well as keep a close watch on novel products, including e-cigarettes, which are currently outside the realm of traditional marketing restrictions.

Chapter 7 Discussion Questions:

1. How has tobacco advertising changed in the last twenty years? Is it less or more effective in getting products sold?
2. Are tobacco companies using the Internet to advertise to youth? How can this reach be regulated in the future?
3. It is clear that advertising techniques used by tobacco companies are effective. Should public health more aggressively counter-market tobacco products at sporting events, on the Internet, and other venues currently utilized by tobacco companies?

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Source: Truth Initiative, 2013

Figure 7.9: Early Marlboro Advertisement Aimed at Women

Source: Amos, A., & Haglund, M. (2000). From social taboo to "torch of freedom": the marketing of cigarettes to women. Tobacco Control, 9(1), 3–8. doi:10.1136/tc.9.1.3.

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Chapter 8

Tobacco Control Frameworks

Chapter Objectives

1. Examine tobacco control interventions to determine if they are clinical or population-based.
2. Demonstrate how the social-ecological model relates to tobacco control.
3. Hypothesize how the role of changing social norms has impacted tobacco control and how this can be furthered as a tobacco control method.
4. Compare and contrast global frameworks for tobacco control.
5. Examine how tobacco control methods work differently in various locations and venues.
6. Contrast the pros and cons of the role of government in tobacco control.

Section 1 - Clinical vs. Population Approaches to Tobacco Control

The early history of tobacco control reveals an inclination to try to address the problem of tobacco use by developing smoking cessation interventions at the individual level. Such approaches emphasize one-on-one treatment delivered by healthcare providers and are often called clinical interventions. The following are different types of clinical interventions that are implemented today:

- **Healthcare Provider Interventions** – Formal and informal advice and information can influence the smoking habits of patients.

- **Individual Cessation Behavior** - Most smokers quit through self-quitting measures and there are many reasons why people may or may not quit smoking (role of addiction, weight gain, fear of withdrawal).

- **Pharmacotherapy** - Pharmacotherapy includes Nicotine Replacement Therapy (transdermal patches, gum, inhalers, lozenges, nasal spray) and medications that do not include nicotine (varenicline and bupropion).

- **Healthcare Systems** - Healthcare providers and clinicians are effective at screening individuals to determine smoking status and offering cessation advice. Health systems must support and enhance the work of clinicians.

During the 1980s, the focus of tobacco control efforts changed, under the leadership of Joseph Cullen, who served as Deputy Director of the National Cancer Institute from 1982-1989. Cullen emphasized a purposeful transformation of the field by shifting tobacco control efforts from a clinical orientation towards a population-based approach. Population-based interventions affect large numbers of people and are much less costly than individual approaches. Because of their effectiveness, population-based interventions have become more of the norm in tobacco control and are now being studied for other areas of public health, such as obesity and violence. The following are population-based approaches to tobacco control:

- **Tax Increases** - As price increases, consumption decreases.
- **Smoke-Free Policies and Laws** – Making smoking socially unacceptable can impact smoking and cessation rates.
- **Graphic Warning Labels and Plain Packaging** – The cigarette package is integral to the marketing strategy of tobacco companies.
- Marketing **Restrictions and Counter** Marketing **Campaigns** – Restrict the glamorization of smoking and tell the truth about tobacco.
- **Quitlines and Technology-Based Interventions** – Efficiently and effectively provide cessation support to large numbers of people.

The shift from a clinical focus to a population focus can be attributed in large part to what is known as the Rose hypothesis. Put forward by the eminent epidemiologist Geoffrey Rose in 1992, the Rose hypothesis suggests that greater population benefits can be achieved through small changes in many people than by large changes in a few people. Put more concretely, smoking cessation for a few individuals is important for those individuals, but large-scale population interventions that affect entire communities (sometimes entire nations) are more efficient and yield a much larger public health benefit.

Key Takeaway

Population-based interventions affect large numbers of people and are much less costly than individual approaches. Because of their effectiveness, population-based interventions have become more of the norm in tobacco control and are now being studied for other areas of public health, such as obesity and violence.

The Rose hypothesis:

Since diseases are rare, most individuals who adopt a behaviour designed to lower their risk of disease will not benefit directly, although a few individuals may benefit enormously. For example, any one person's decision to lose weight may only have a small impact on that person's risk of disease in the near future, but if many people each lose a little weight, this may have a substantial impact on the community's obesity-related disorders.

Not only are population-based interventions less costly than individual interventions, in some cases they actually raise money. Tax increases are a case in point. As we saw in the last chapter, the tobacco industry uses coupons and price discounts to manipulate the price of cigarettes because they know that making the product more affordable increases consumption. Correspondingly, studies have shown that raising the price of cigarettes with the addition of excise taxes is the most effective way of decreasing consumption, so taxes have become a very important population-based tobacco intervention (Chapter 10).

Another example of a population-based approach to tobacco control that has been very effective is implementing smoke-free policies and laws, which involves establishing clean indoor air regulations in private settings or in public venues (Chapter 9). In the United States, indoor smoking bans have been increasingly implemented and now cover almost the entire nation.

A third major type of population-based tobacco intervention is the implementation of graphic warning labels and plain packaging laws (Chapter 13, Section 3). In Australia, all tobacco products are required by law to be sold in plain packaging – no brand logos – and health warnings cover 75 per cent of the front of most tobacco packaging, 90 per cent of the back of cigarette packaging and 75 per cent of the back of most other tobacco product packaging (Figure 8.1). Knowing how important brand recognition is in tobacco companies' attempts to communicate a link between smoking their products and a certain kind of lifestyle or status, the cigarette package is integral to the industry's marketing efforts. Further, graphic warning labels on cigarette packs can have large population impact as the harms of smoking are disclosed to every smoker in a powerfully visual way with every pack of cigarettes he or she picks up.

Figure 8.1 Example of Australian Plain Packaging

Images used with permission of the Australian Government

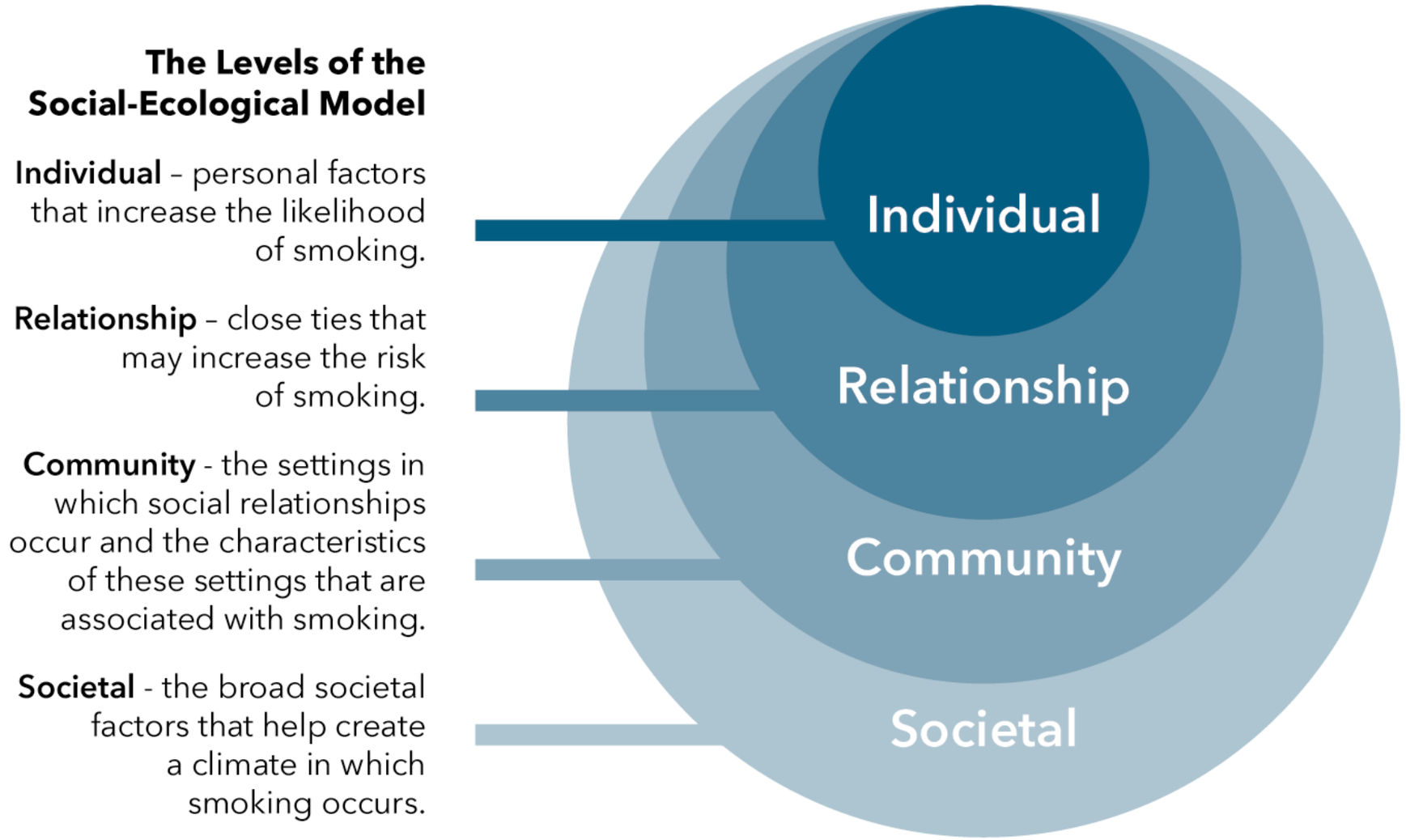


Fourth, restrictions on marketing and the use of counter-marketing campaigns have large population impacts (Chapter 11). As discussed in the last chapter, marketing of tobacco products is essential for the industry's commercial success, and studies have shown that counter-marketing campaigns are very effective in deterring use, particularly among youth.

Finally, quitlines and technology-based interventions provide cessation support to large numbers of people. Located somewhat at the border between individual- and population-based approaches to tobacco control, quitlines are being implemented at the state and national levels to provide support for smokers who want to quit. In the future, public health practitioners will likely harness smartphone technology to effectively reach smokers with messages to support their cessation efforts.

In addition to understanding the importance of population-based approaches, we must also keep in mind the need for a theoretical framework within which to understand behavior change and ways to sustain that change to benefit the public health. Currently, the CDC uses a four-level social-ecological model for understanding tobacco control from a theoretical perspective (Figure 8.2). Developed by Albert Bandura at Stanford University, the social-ecological model presents a comprehensive way of observing and sustaining change that involves both physical factors such as biological and genetic

Figure 8.2 The Social-Ecological Model



characteristics as well as behavioral factors. The model accounts for a person's relationships with his or her family and peer groups; the community setting in which these relationships exist and whether laws encourage or discourage certain behaviors; and the societal milieu in which normative factors come into play, creating a climate in which specific behaviors are either encouraged or discouraged.

Having this broad, theoretical perspective helps to ground interventions and makes for a more comprehensive and more effective treatment package.

A look at the history of tobacco control in China provides a good example of the far-reaching impact of population-based approaches. There are currently 300 million smokers in China, most of them male. The country has very low rates of cessation: only 10% of ever-smokers (persons who have smoked at least one hundred cigarettes and cigars) in China have quit. If China reached the current quit rate in the United States, which is about 50% of ever-smokers, there would be 150 million former Chinese smokers. There is, thus, a great opportunity for large-scale smoking cessation and the question rests on how this can be achieved by tobacco control. Reaching this vast number of people would be very difficult, if not impossible, using clinical cessation measures, treating one smoker at a time. It is far more efficient to achieve cessation through population-based measures such as tax increases, smoke-free laws, and other efforts that discourage smoking, build self-efficacy, and make smoking no longer socially acceptable.

The literature on tobacco control is replete with examples of the great impact of population interventions. With regard to tax increases, it is generally shown that a 10% increase in the price of tobacco results in a 3-5% increase in cessation rates. Clean indoor air laws not only protect nonsmokers from hazardous exposure to secondhand smoke, but also increase smokers' quit rates by 12-38%. In comparison, the success rates of individual or clinical approaches (such as nicotine replacement therapy or physician counseling) are lower and reach fewer smokers. It is important to note that most people who quit smoking (48%) do so "cold-turkey"—without any intervention. Only about 5% quit with the use of nicotine patches, 2%

Key Takeaway

The social-ecological model provides a theoretical framework for tobacco control efforts.

with pharmaceuticals, and 1% with nicotine gum. So, while all of these efforts, both individual and population-based, should be included in the armamentarium of tobacco control, the evidence is increasingly showing that population-based efforts are more efficient, more cost-effective, and have a greater impact on tobacco consumption than individual approaches.

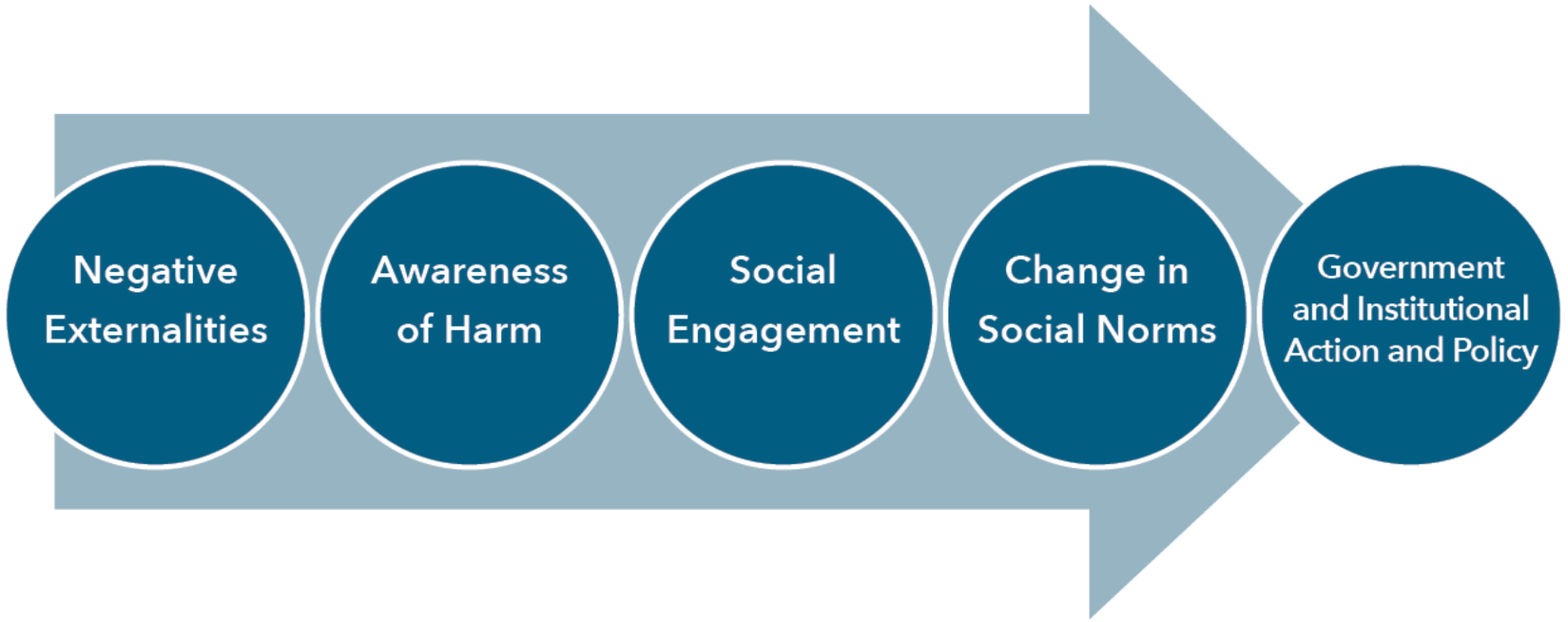
Section 2 - The Importance of Social Norms

The Dictionary of Sociology (1998) defines social norm as a "shared expectation of behaviour that connotes what is considered culturally desirable and appropriate." Norms are similar to regulations or rules in that they are prescriptive, but they lack the formal status of rules. If a person's behavior differs from the norm, it may be judged by others as "deviant." Social norms function at both micro and macro levels—i.e., they influence individuals as well as groups—and are therefore very important for tobacco control.

We can take the example of secondhand smoke to further our understanding of the importance of social norms. In the 1960s and 70s, as more and more people decided they did not want to be exposed to secondhand smoke, social norms began to change, and ultimately policies and laws were implemented. Smoke-free laws demonstrated a change in the social acceptability of smoking by: 1) changing the everyday practices of smokers; 2) making smoking in public places more difficult; and 3) relocating smokers to designated areas, which were often marginal places. This change in social norms resulted in an overall denormalization of smoking. In other words, though smoking was once viewed as the norm—something that occurred everywhere and was even viewed favorably, thanks to tobacco advertising—it came to be viewed increasingly as undesirable or at the very least, inconvenient. This normative change has in turn resulted in reduced smoking.

Figure 8.3 illustrates a conceptual model with which we can understand how social norms changed for tobacco. The movement to create smoke-free laws to protect non-smokers was a reaction to what we call a negative externality—a term borrowed from economics that denotes a person's behavior that affects someone else who did not choose the same behavior. Smoke was an example of a negative externality, since nonsmokers had to smell and inhale the smoke from others' cigarettes.

Figure 8.3 The Process of Changing Social Norms



The recognition of smoke as an inconvenience and as something unpleasant for nonsmokers prompted action. Shortly thereafter, nonsmokers' refusal to tolerate smoke was further intensified by emerging evidence about the harm caused by secondhand smoke in multiple scientific reports in the 1980s, including Reports of the Surgeon General and studies done by the National Research Council. The externality of being exposed to other people's smoke combined with greater awareness of harm

led to social engagement: nonsmokers mobilized to prevent smoking in shared spaces. As we will discuss in more detail, California was one of the first states to put measures on the ballot to ban smoking in workplaces and public places. Thus, social engagement facilitated changes in the social norms. Smoking no longer occurred in workplaces, at dinner parties, and other venues, and when people did smoke, they were seen as being deviant. Smoking was no longer socially acceptable. Ultimately, as a result of this cascade of effects, government and institutional policies began to change, codifying the demand from civil society that emanated from negative externalities, increased awareness, and social engagement. Notably, rather than the government leading the charge, it actually codified the protection of people only after citizen engagement and the denormalization of smoking were already in motion.

Key Takeaway

The history of tobacco control demonstrates that formal laws generally follow changes in social norms, rather than the other way around.

The California Tobacco Control Program (CTCP) was the first to integrate a "social norm change" approach as part of its core strategy for achieving goals, and its mission statement continues to emphasize the promotion of "social norms that create a tobacco-free environment." CTCP used the social-ecological model to create systems-level changes in organizations, such as schools, workplaces, government agencies, and entertainment venues, with the goal of "indirectly influenc[ing] current and potential future tobacco users by creating a social milieu and legal climate in which tobacco becomes less desirable, less acceptable and less accessible."

California's example has provided solid evidence that changing social norms is an effective tobacco control method. A study published in 2006 quantified the relationship between the social unacceptability of smoking and decreased cigarette consumption. Researchers found that effective tobacco control campaigns could increase the perceived social acceptability of smoking, resulting in

a 15% drop in cigarette consumption. This 15% drop was equivalent to what would be achieved by raising the excise tax on cigarettes by $1.17. Changing social norms is thus a proven cost-effective strategy for reducing tobacco consumption which, moreover, provides the ancillary benefit of protecting nonsmokers from exposure to secondhand smoke.

Section 3 - Strong Evidence for the Effectiveness of Tobacco Control

In tobacco control, we have many reasons to be optimistic. Numerous interventions have been scientifically proven to reduce the use of tobacco products. These interventions have been reflected in a variety of channels, including Surgeon General's Reports, Cochrane Reviews, guidance to countries (MPOWER), and international treaties (WHO Framework Convention on Tobacco Control). The latter two will be discussed in Chapter 13. These evidence-based interventions have been established through rigorous research programs and reinforce the importance of scientific study and evaluation to guide the development of tobacco control programs globally.

The first report of the Surgeon General, issued in 1964, identified smoking as a problem that required appropriate remedial action. The Surgeon General's Report in 2000 summarized the evidence from thousands of articles and described how interventions could be broken down into clinical and population approaches. This report, titled *Reducing Tobacco Use*, concluded that the approaches with a smaller span of impact (i.e., educational and clinical approaches) are of greater importance in helping individuals resist or abandon the use of tobacco; however, economic, regulatory, and comprehensive approaches are likely to have the greatest long-term population impact.

In addition to the summaries provided by the Surgeon General's Reports over the last fifty years, we have benefited from having a number of thorough and well-funded systematic reviews that help guide and summarize the evidence for the effectiveness of different types of tobacco control

interventions. One of the most influential and rigorous systematic reviews is the Community Guide to Preventive Services. Established in 1996 by the U.S. Department of Health and Human Services and directed by the Task Force on Community Preventive Services, the guide reviews evidence regarding specific aspects of tobacco control. Overall, it focuses on 22 topic areas of research within public health, including tobacco. The Community Guide is a valuable resource for tobacco control programs, reviewing 17 different interventions in this area.

Also very influential are Cochrane Reviews, the global systematic review of primary research in human health care and health policy. These reviews meet the highest standards in evidence-based healthcare. They are developed by the Cochrane Collaboration, a network of more than 31,000 reviewers from over 100 countries. Founded in 1993 and based in the United Kingdom, the Collaboration has published over 5,000 reviews online in the Cochrane Database of Systematic Reviews. As of December 2015, there are 91 reviews specifically focusing on tobacco, many with an emphasis on clinical interventions, but also some investigating issues around counter-marketing and the effect of advertising on tobacco use.

Unique among the other areas of public health, tobacco control has the benefit of an international treaty that helps guide countries in their efforts to reduce the burden of tobacco use. The World Health Organization's Framework Convention on Tobacco Control (WHO FCTC) and its guidelines provide a foundation for countries to implement and manage tobacco control. The World Health Assembly adopted the FCTC in May 2003 and as of early 2016, 180 parties (i.e., countries) have ratified the treaty.

The WHO FCTC embodies the evidence that has been scientifically proven through Reports of the Surgeon General, Cochrane Reviews, and other rigorous evaluations. It takes what we know about what works for reducing tobacco use and codifies this research into a treaty with numerous articles pertaining to specific aspects of tobacco control. The entire text of the FCTC is available online, but the following highlights some of the articles pertaining to protecting the public from the harms of tobacco:

- Article 5.3: Protection of public health policies with respect to tobacco control from commercial and other vested interests of the tobacco industry.
- Article 8: Protection from exposure to tobacco smoke.
- Articles 9 and 10: Regulation of the contents of tobacco products and of tobacco product disclosures.
- Article 11: Packaging and labeling of tobacco products.
- Article 12: Education, communication, training and awareness.
- Article 13: Tobacco advertising, promotion and sponsorship.
- Article 14: Demand reduction measures concerning tobacco dependence and cessation.

Dr. Douglas Bettcher is currently the Director of WHO's Department for Prevention of Noncommunicable Diseases based in Geneva, Switzerland. Dr. Bettcher is credited with promulgating the WHO FCTC, and in **Movie 8.1** he talks about his experience in pushing forward this important global health treaty.

In addition to the proven strategies we've discussed so far, we have what is known as the MPOWER package for reducing global tobacco use. To help facilitate the goals of the who FCTC, WHO introduced the MPOWER measures. These measures are "intended to assist in the country-level implementation of effective interventions to reduce the demand for tobacco, contained in the WHO FCTC."

Movie 8.1 Hear from the Experts: Dr. Douglas Bettcher



MPOWER stands for:

- M: Monitor tobacco use and prevention policies
- P: Protect people from tobacco smoke
- O: Offer help to quit tobacco use
- W: Warn about the dangers of tobacco
- E: Enforce bans on tobacco advertising, promotion and sponsorship
- R: Raise taxes on tobacco

Movie 8.2 Dr. Thomas Frieden on the Future of Global Tobacco Control



Today, 2.3 billion people in the world are covered by at least one MPOWER measure.

On April 14, 2011, Dr. Thomas Frieden, Director of the Centers for Disease Control and Prevention (CDC), offered his vision for the future of global tobacco control efforts. In Movie 8.2, he highlights the FCTC and emphasizes the importance of population-based tobacco control measures.

Section 4 - The Varying Levels of Tobacco Control

As we have learned so far, tobacco control interventions are implemented at different levels in a wide variety of locations. Anti-tobacco efforts can occur at the local, state, or national level, and we have even learned about global efforts such as the WHO FCTC. Each of these levels requires different strategies and different expectations of outcomes.

Because of the importance of social norms, it is crucial to engage citizens at the local level. Local settings include communities and schools, where people can be directly reached and where the dialogue about changing the status quo begins. Historically, smoke-free policies started at the local level with towns and cities passing clean indoor air laws, as exemplified by several cities in California in the early 1980s.

Key Takeaway

Anti-tobacco efforts can occur at the local, state, national, or global level. Each of these levels requires different strategies and different expectations of outcomes.

National laws are comprehensive in nature, but there is little national legislation around tobacco in the United States. Therefore, tobacco legislation falls under the authority of the individual states. Additionally, the Master Settlement Agreement was made between the tobacco companies and the states, thus giving states control over how the money from the settlement is spent. Some states are more progressive than others in terms of tobacco control; for example, California, Massachusetts, and Florida, have put strong tobacco control measures in place. States also have the authority to tax tobacco products and many have done so very effectively.

In some instances, however, states actually prohibit localities from enacting tobacco control laws that are more stringent than state laws, which is known as preemption. Tobacco companies are proponents of preemption, as it limits the ability of local jurisdictions from having rules, such as smoke-free laws and advertising bans, that are more restrictive than the state laws. Preemption wrests control from communities over problems they are concerned about and that can be effectively addressed at the local level.

National initiatives are generally more focused on surveillance, research, regulation, and laws banning advertising. In the United States, the Family Smoking Prevention and Tobacco Control Act, signed in 2009, gives the Food and Drug Administration (FDA) "authority to regulate the manufacture, distribution, and marketing of tobacco products to protect public health." We are optimistic that as the FDA obtains the needed research and data in the coming years, it will make great advances in nationally regulating tobacco products in a manner commensurate with the harm that they cause.

Lastly, there are international efforts to regulate tobacco. Because tobacco companies operate at the global level, there must be global tobacco control strategies and initiatives in response. These are best represented by the WHO FCTC and the MPOWER guidance discussed previously.

The social-ecological model suggests that each of the different levels of tobacco intervention plays an important role in protecting public health and supporting healthy behaviors. Some interventions work better at the societal level than at the individual level. For example, an advertising ban enacted at the community level in metro Atlanta would have a very limited impact—the efforts would be immediately negated by the ubiquity of national newspapers, magazines, and social media. However, a nationwide

restriction or an international treaty that codifies marketing restrictions or standards can be very effective.

The same is not true of all tobacco control measures, which is why it is so important to know what works best in specific contexts. To give another example, in the U.S., the strongest smoking restrictions have historically originated at the local level, with local jurisdictions first adopting comprehensive smoke-free laws beginning in the 1980s. In fact, today there is still no national clean indoor air law in the U.S., and we rely almost exclusively on local and state initiatives in this area.

Tobacco control laws starting at the local level, including smaller communities and municipalities, can be very advantageous when preemption has not blocked tobacco control laws from being implemented. Due to the sheer number of local jurisdictions, it is generally more difficult for the tobacco industry to respond to measures enacted at this level. Even more important, efforts at this level often result in engagement and dialogue, giving people an opportunity to express their concerns and take action. For many communities, such efforts constitute a way of living democracy at its best.

Section 5 - Anti-Government Sentiment Challenges Tobacco Control

In this chapter on tobacco control frameworks, we have emphasized that population strategies are more effective than individual approaches in creating long-lasting change. Population strategies often require government action; they rely on state- or nationwide enforcement of regulations, such as tax increases or restrictions on where people can smoke. In the era of anti-government sentiment that we live in, government intervention is unpopular, at best.

The issue of government involvement in public health has long been debated. Tom Frieden, Director of the CDC, presents one side of the argument:

> *For some issues, government may be the only entity capable of promoting the greater good by reconciling social and economic interests. Limiting promotion of tobacco and alcohol helps individuals by reducing consumption and benefits business by increasing workforce productivity and reducing health care costs. Although increased use of their products benefits tobacco and alcohol companies' employees and shareholders, other companies and society bear increased medical, economic, and social costs, as well as the illness and deaths caused by use of these products.*

> *Government has a responsibility to implement effective public health measures that increase the information available to the public and decision makers, protect people from harm, promote health, and create environments that support healthy behaviors.*

The appropriate level of responsibility and reach assigned to government is far from straightforward, however. A 2013 article by Chokshi and Stine in the *Journal of the American Medical Association* provides a helpful gloss on the issue of government involvement:

> *A central dilemma in public health is reconciling the role of the individual with the role of the government in promoting health. On the one hand, governmental policy approaches—taxes, bans, and other regulations—are seen as emblematic of "nanny state" overreach. In this view, public health regulation is part of a slippery slope toward escalating government intrusion on individual liberty. On the other hand, regulatory policy is described as a fundamental instrument for a "savvy state" to combat the conditions underlying an inexorable epidemic of chronic diseases.*

The "nanny state" is a term that conveys the view that a government is unduly protective or interfering. In Table 8.1, Choksi and Stine illustrate the contrasting perspectives of how a nanny state frames a health issue versus a "savvy state."

Antigovernment arguments are often used against tobacco control strategies. Smoke-free laws, taxes, and other tobacco regulations are unpopular in some locales because they can be framed in such a way so that they seem to oppose personal liberty. Many people miss the irony in the fact that these

Table 8.1 Nanny-State Framing vs Savvy-State Framing

Nanny State	Savvy State
Mandates affecting behavior are a restriction on individual liberty.	Some mandates (e.g., a ban on trans fat) deliver high public benefit at low individual costs and are part of a sensible regulatory design for healthy environments.
Taxes are heavy-handed instruments of government intervention.	In certain settings, taxes on unhealthy products encourage healthier choices while generating needed public revenue.
Private markets facilitate the exercise of free customer choice, allowing individuals to make healthy choices for themselves.	Unchecked private markets can lead to negative health externalities such as harmful food environments in low income communities (analogous to environmental externalities such as industrial pollution).
The state can provide information but not regulate a person's decisions.	Poverty, geography, and disproportionate marketing of unhealthy products limit a person's decisions, and the state has an interest in enabling individuals' freedom to make healthy choices.
Unhealthy behaviors are nobody's business but the individual.	All pay for the health care costs associated with chronic disease through government health spending and opportunity costs of other social spending.

Key Takeaway

Tobacco laws can be regarded as a way for governments to limit personal liberty; however, such laws are designed to prevent addiction—the very epitome of the loss of freedom and personal liberty.

government rules are aimed at preventing addiction—the very epitome of the loss of freedom and personal liberty. Government involvement in tobacco is always politically complicated because of entrenched opposition to government regulation, and the tobacco industry exploits anti-government sentiment. Thus, efforts to advance public health are often denounced as nanny-state overreach.

Looking more closely, we find that this is more than an ideological issue about the proper role of government in the lives of individuals. The tobacco industry, along with other industries, financially support organizations that promote anti-government sentiment.

In Australia, the tobacco industry attacked the national plain packaging legislation by invoking nanny-state overreach. In their advertising, tobacco companies promoted notions of personal freedom and choice, while calling for decreased government involvement. Movie 8.3 provides an example of the advertisements used by the Australian tobacco industry to attempt to defeat national plain packaging laws.

Movie 8.3 Australian Tobacco Industry Advertisement Aimed at Defeating Plain Packaging



To summarize this chapter on tobacco control frameworks, there is substantial scientific evidence on the effectiveness of tobacco control strategies. This evidence is documented in the Surgeon General Reports, the Cochrane Reports, systematic

reviews such as the Community Guide to Preventive Services, and global guidance such as the WHO FCTC and MPOWER. In spite of all the documentation and codification of evidence about what works in reducing the burden of tobacco use, it is often difficult to implement tobacco control largely because of anti-government sentiment, which is inflamed by the tobacco industry. Tobacco control advocates must be cognizant of the particular challenges posed by the industry's concerted efforts to maintain the status quo.

Chapter 8 Discussion Questions:

1. Describe the role the socio-ecological model played to promote or discourage tobacco use among the youth in the U.S.
2. How can public health further promote change in norms to promote tobacco control?
3. What additional roles can private companies play in promoting tobacco control? i.e. drug/ pharmacy stores stopped selling tobacco, companies giving workers incentives to stop smoking, etc.

Figures and Tables

Figure 8.1: Example of Australian Plain Packaging

Source: Australian Government, 2015

Figure 8.2: The Social-Ecological Model

Source: Centers for Disease Control. (2009). The social-ecological model: A framework for prevention - violence prevention - injury.

Figure 8.3: The Process of Changing Social Norms

Source: Eriksen, M. & Whitney, C. (2013). Risk factors: Tobacco. In McQueen, D.V. (Ed.). Global handbook on NCDs and health promotion, New York: Springer press.

Movie 8.1: Hear from the Experts: Dr. Douglas Bettcher

Table 8.1: Nanny-State Framing vs Savvy-State Framing

Source: Chokshi, D.A., & Stine, N.W. (2013). Reconsidering the politics of public health. JAMA. Published online August 22, 2013. doi:10.1001/jama.2013.110872.

Movie 8.2: Thomas Frieden on the Future of Global Tobacco Control

Movie 8.3: Australian Tobacco Industry Advertisement Aimed at Defeating Plain Packaging

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Chapter 9

Smoke-Free Air Laws

Chapter Objectives

1. Classify the types of smoke-free air laws and regulations and how they vary in the U.S. and internationally.
2. Analyze the reasons why smoke-free air laws have grown in popularity.
3. Appraise the science behind smoke-free air laws and how they work.
4. Discuss the future directions of smoke-free air laws, including the impact of electronic cigarettes on smoke-free policies.

Section 1 - What are Smoke-Free Air Laws and Why are They Popular?

In the previous chapter, we discussed smoke-free air laws as an example of an effective population-based tobacco control intervention. We will now look more closely at the different types of smoke-free air laws, their evolution over time, the evidence that supports their growth, as well as future directions and implications for novel nicotine products.

Smoke-free air (SFA) laws and regulations are enacted in order to protect the rights of nonsmokers to breathe smoke-free air. The World Health Organization's Tobacco Free Initiative includes implementing protection from exposure to tobacco smoke under Article 8 of the Framework Convention on Tobacco Control:

> *Each Party shall adopt and implement in areas of existing national jurisdiction as determined by national law and actively promote at other jurisdictional levels the adoption and implementation of effective legislative, executive, administrative and/or other measures, providing for protection from exposure to tobacco smoke in indoor workplaces, public transport, indoor public places and, as appropriate, other public places.*

Key Takeaway

Smoke-free air laws and regulations are enacted in order to protect the rights of nonsmokers to breathe smoke-free air.

While the impetus for the initial creation of smoke-free air laws was to protect nonsmokers, the objectives for such laws have expanded and now impact smokers themselves, as well as the norms associated with smoking.

As early as 1971, the United States Surgeon General's Report mentioned the hazards associated with involuntary exposure to smoke. In this report, then Surgeon General Jesse Steinfeld states, "Nonsmokers have as much right to clean air and wholesome air as smokers have to their so-called right to smoke, which I would define as a 'right to pollute.' It is high time to ban smoking from all confined public places such as restaurants, theaters, airplanes, trains and buses." In spite of Steinfeld's assessment, bans on smoking in public places still have not uniformly occurred in the United States.

The tobacco industry likewise realized the harms of secondhand smoke exposure in the 1970s. In 1978, the Tobacco Institute commissioned the Roper Organization to prepare a report on the issue of secondhand smoke and its implications for the tobacco industry. Based on a survey of public attitudes toward environmental tobacco smoke, the Roper Report stated:

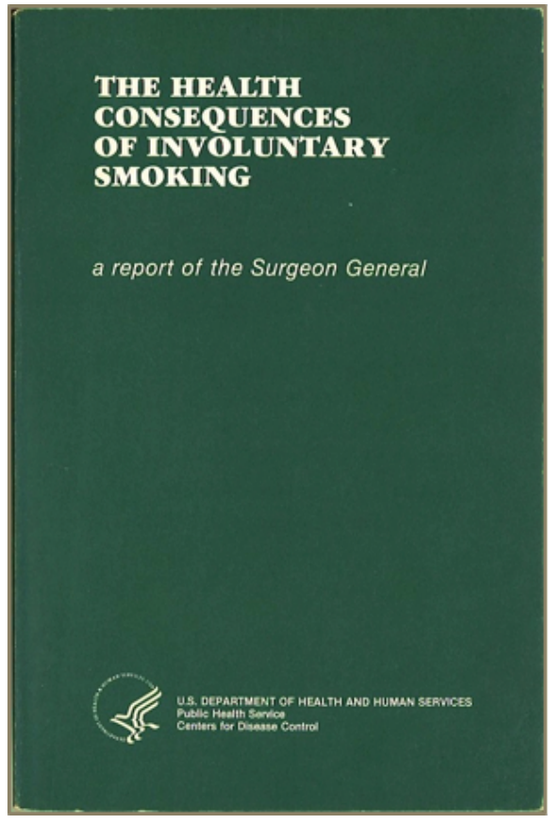
> *Nearly six out of ten believe that smoking is hazardous to the nonsmoker's health, up sharply over the last four years. More than two-thirds of nonsmokers believe it and nearly one half of all smokers believe it. This we see as the most dangerous development to the viability of the tobacco industry that has yet occurred.*

Clearly, the tobacco companies knew that the public's attitude toward secondhand smoke threatened the survival of their industry and had to be taken very seriously. The Roper Report of 1978 has

influenced the evolution and the spread of smoke-free air laws throughout the country, and it also helps to explain why tobacco companies have aggressively fought the implementation of laws that are intended to protect nonsmokers from exposure to secondhand smoke.

An enormous body of scientific literature has documented the harms associated with involuntary smoking. Following Surgeon General Steinfeld's 1971 Report and the Roper Report of 1978, Surgeon General C. Everett Koop devoted the 1986 Surgeon General's Report exclusively to secondhand smoke, concluding that exposure to it caused disease, including lung cancer, in otherwise healthy nonsmokers (Figure 9.1). Moreover, the report stated that mere separation of smokers and nonsmokers within the same air space was inadequate to protect nonsmokers. These conclusions were supported by other reports, for example from the National Research Council, which came out in the same year.

Figure 9.1 The 1986 Surgeon General's Report, The Health Consequences of Involuntary Smoking

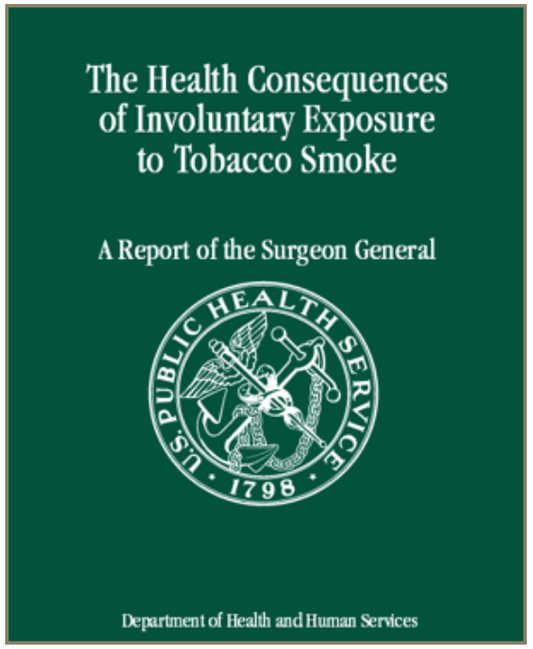


Adding to the scientific evidence of the harm caused by secondhand smoke, a 1992 report from the Environmental Protection Agency (EPA) corroborated the Surgeon General's Reports and classified secondhand smoke as a Class A carcinogen. The EPA estimated that more people die from exposure to secondhand smoke than from air pollution. Coming from a non-health organization, these findings from the EPA made a huge impact.

More recently, in 2006, evidence on the dangers of secondhand smoke was updated in the second full Surgeon General's Report dedicated to the topic. The report, titled The Health Consequences of Involuntary Exposure to Tobacco Smoke, summarized over a decade's worth of findings (Figure 9.2):

- Secondhand smoke is a U.S. EPA Class A carcinogen (1992).
- Secondhand smoke is classified by the International Agency on Research on Cancer (IARC) as a Group 1 carcinogen – Carcinogenic to Humans (2004).
- There is no risk-free level of exposure to secondhand smoke.
- Eliminating smoking in indoor spaces fully protects nonsmokers from exposure to secondhand smoke.
- Separating smokers from nonsmokers, cleaning the air, and ventilating buildings cannot eliminate exposures of nonsmokers to secondhand smoke.

Figure 9.2 2006 Surgeon General's Report, The Health Consequences of Involuntary Exposure to Tobacco



A number of different organizations have reinforced several decades' worth of scientific evidence showing the harm caused by secondhand smoke. There is no longer any question about the harm of involuntary smoking, and now the question has shifted to how to enact smoke-free air laws that are effective.

Implementing smoke-free air laws requires thoughtful planning. The Centers for Disease Control and Prevention (CDC), American Cancer Society, and the World Health Organization (WHO) provide a number of helpful documents giving guidance on how to implement such programs effectively. Often, successful programs urge the constituents who will be affected by the new regulations to become involved early on in the planning process. It is important to remember that smoke-free air laws can be enacted at various levels of government– federal, state, or local. In the United States, there is currently no nationwide smoke-free law (unlike Brazil, Canada, and Australia, for example). However, there are more people in the United States protected from secondhand smoke exposure than in any other country in the world as a result of state laws and local ordinances that prohibit smoking. More than half of the U.S. population live in areas where smoking is completely prohibited indoors. While there is strong local protection for the most part, those areas that do not enjoy such protection still suffer, and the goal is to have uniform coverage through a national smoke-free law.

There is much guidance available on how to implement smoke-free air laws. WHO makes the following recommendations for protection from secondhand smoke:

- 100% smoke-free environments, not just ventilation.
- Universal protection by law.
- Proper implementation and adequate enforcement of the law.
- Public education to reduce SHS exposure in the home.

Key Takeaway

Protecting the public from smoke means 100% smoke-free environments, not just ventilation.

These guidelines from WHO are further explained below:

Highlights from the WHO Policy Recommendations for Protection from Exposure to Secondhand Tobacco Smoke



- Smoke-free environments should be mandated by law, not by voluntary policies.
- Legislation should be simple, clear and enforceable, and comprehensive.
- Consider which jurisdictional level(s) will afford the most progress.
- Anticipate the opposition.
- Involve civil society.
- Educate and consult to ensure smooth implementation.
- Develop an implementation and enforcement plan and ensure infrastructure for enforcement.

Section 2 - The Spread of Smoke-Free Air Laws

As mentioned earlier, the diffusion of smoke-free air laws started in California in the 1980s. The map in Movie 9.1 shows how smoke-free air laws spread throughout the country. After California, Utah was the second state to become entirely smoke-free, and then other jurisdictions as well as other states, including New York and Florida, followed. The western United States rapidly became smoke-free, along with the Northeast. The Southeastern United States has had the least coverage in terms of statewide laws. It is no coincidence that the states growing the most tobacco are also the most unlikely to have comprehensive smoke-free laws. Of particular concern are reports showing higher rates of lung cancer and heart disease in the tobacco-growing states of the Southeast than the rest of the country.

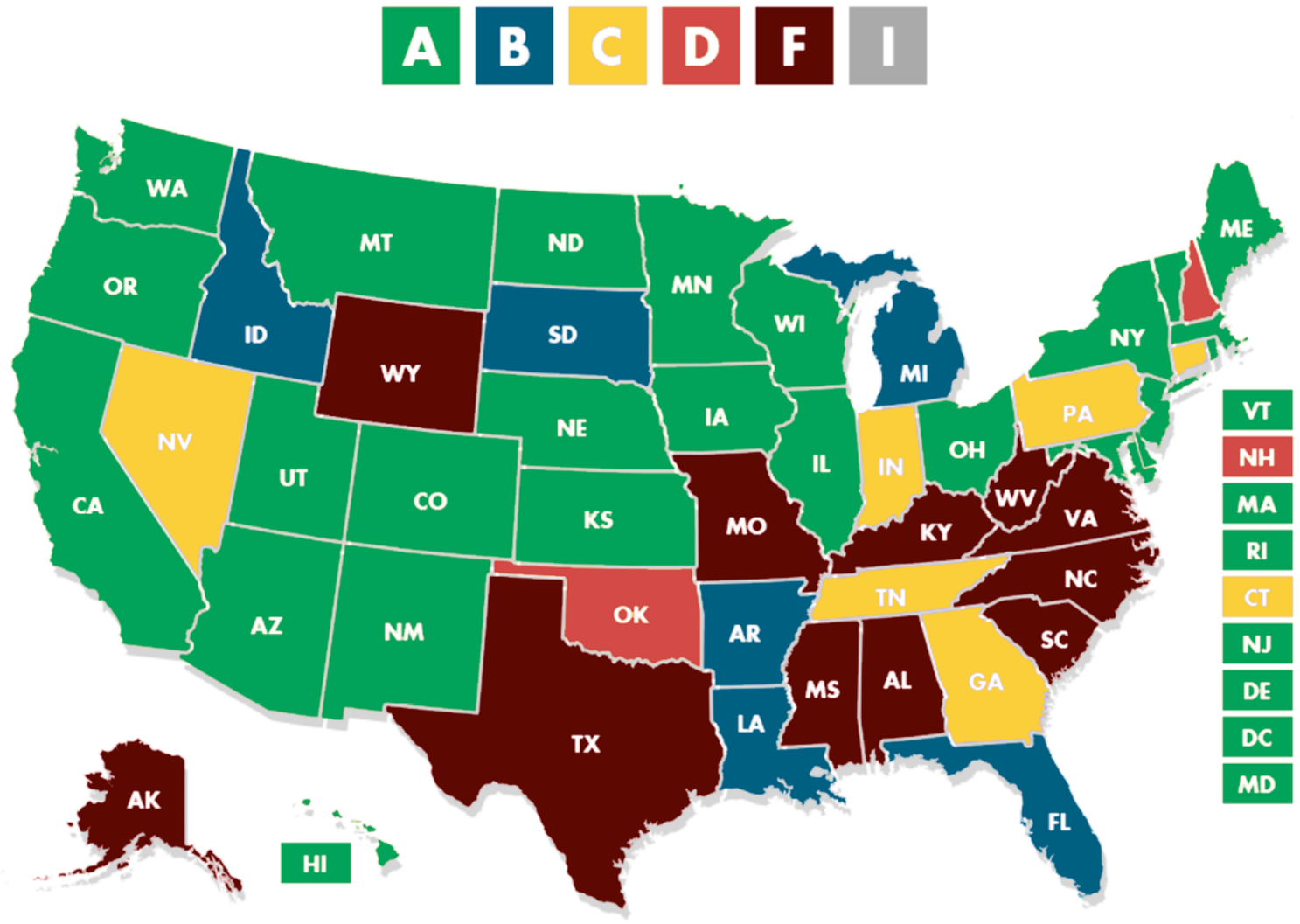
Movie 9.1 U.S. Smoke-Free Laws



The map in Figure 9.3 shows the level of protection provided by each state from secondhand smoke. The green

Figure 9.3 How Well Does Your State Protect the Public from Secondhand Smoke?

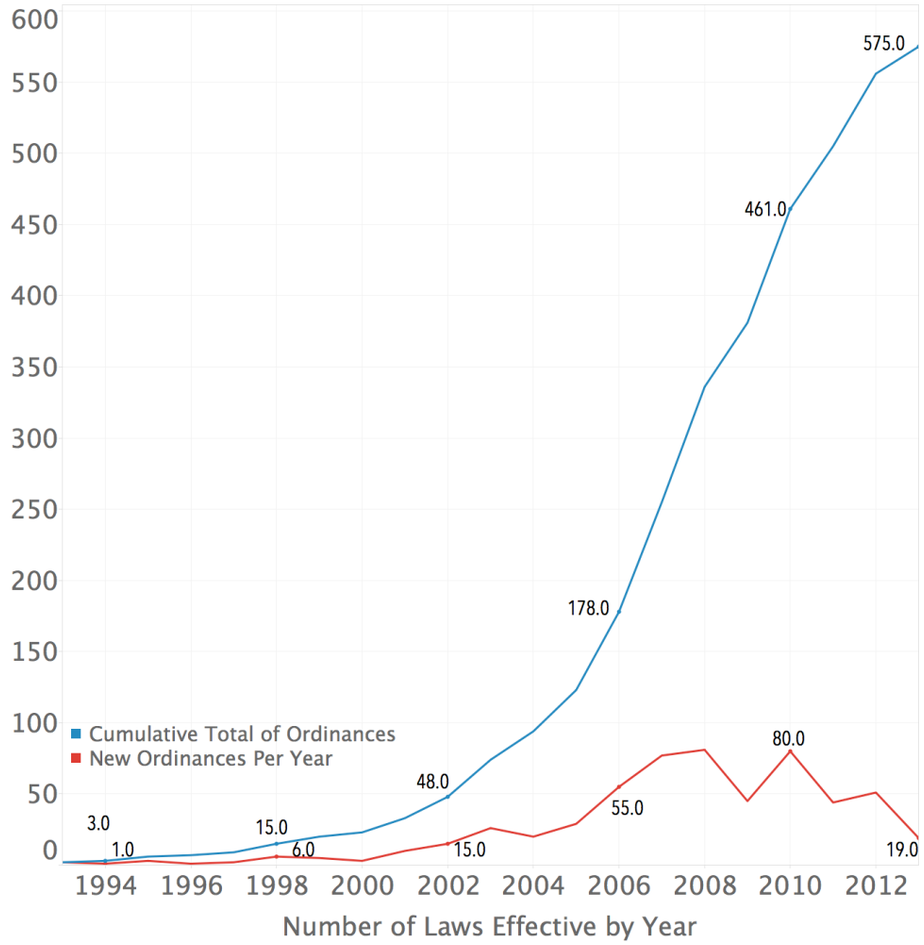
This grade tells you how well your state protects the public from toxic secondhand smoke. Strong smokefree laws help protect the public from this deadly pollutant, which can cause lung cancer and heart disease. Strong smokefree laws protect workers, who otherwise have to breathe this dangerous smoke every day on their jobs. When the laws go into place, they also encourage smokers to consider quitting.



states are those providing comprehensive protection, while crimson states provide the least. This map makes it obvious that while much of the country is doing well with implementing smoke-free air laws, the Southeast lags far behind. It makes a compelling argument in favor of enacting a national law that provides all people living in the U.S. with protection from secondhand smoke.

Smoke-free laws have grown exponentially over time in the U.S. A study done in July 2013 showed that 500 cities and towns throughout the country mandate 100% smoke-free workplaces, restaurants and bars (Figure 9.4).

Figure 9.4 Number of Local 100% Smoke-Free Laws in Workplaces, Restaurants and Bars, U.S., as of July 2013



Currently, approximately 50% of the U.S. population is covered by strong smoke-free air laws that prohibit smoking in workplaces, *and* restaurants, *and* bars. Thirty states, plus the District of Columbia, Puerto Rico, and the U.S. Virgin Islands require restaurants and bars to be 100% smoke-free.

Of concern to tobacco control advocates, there is an increasing number of states that have enacted preemptive legislation prohibiting localities from creating laws that are more stringent than or that vary from state law. Under preemption laws, many of these states do not allow for 100% smoke-free conditions in local jurisdictions. One of the Healthy People 2020 objectives is to "eliminate State laws that preempt stronger local tobacco control laws on smoke free indoor air."

Dr. Stanton Glantz, a Professor of Medicine at the University of California, San Francisco and an American Legacy Foundation Distinguished Professor of Tobacco Control, provides his insights on domestic tobacco control and the future of clean indoor air laws in Movie 9.2,

Movie 9.2 Hear from the Experts: Stanton Glantz



Now, looking at the global picture for smoke-free laws, we estimate that just over 50% of the countries in the world have some type of smoke-free policy in place (covering approximately 16% of the world's population), ranging in coverage from minimal to complete. Comprehensive bans on smoking in indoor areas and strict enforcement are still not the norm.

Key Takeaway

Approximately 50% of the world's countries, covering 16% of the world's population, have some type of smoke-free policy in place, ranging in coverage from minimal to complete.

Figure 9.5 Level of Protection Provided by National Clean Indoor Air Laws, 2013

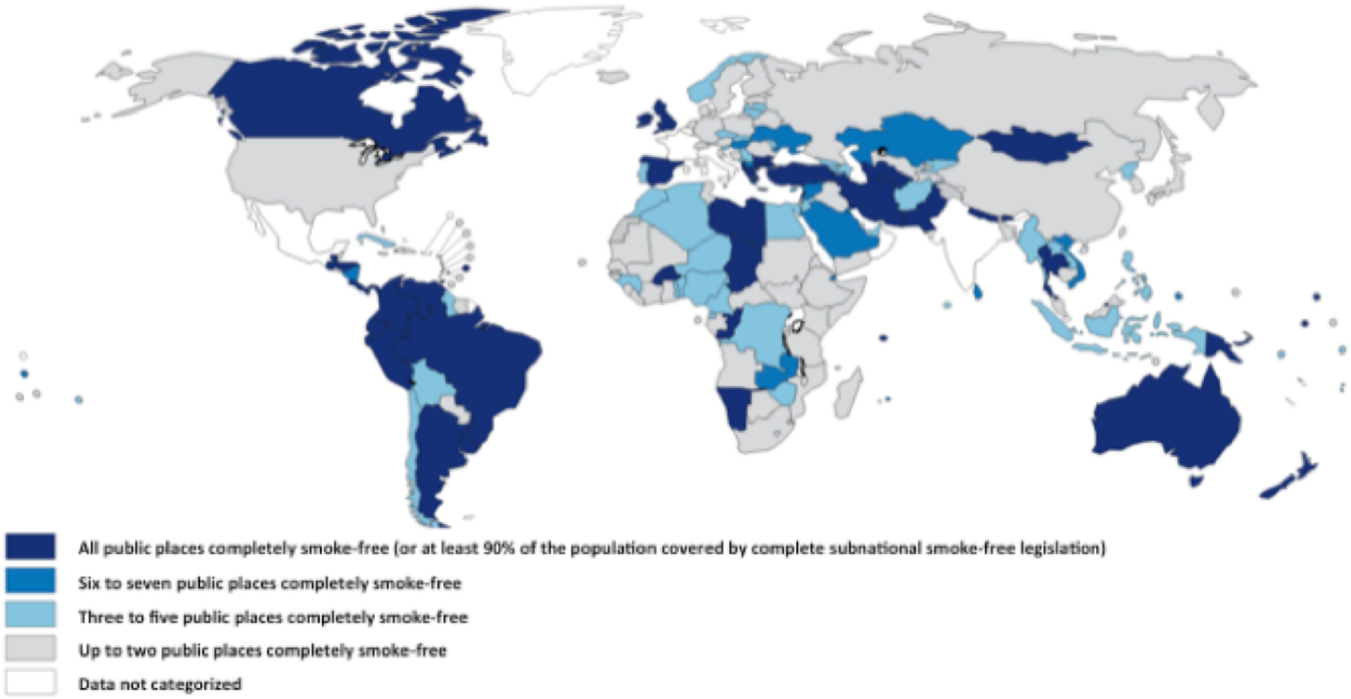


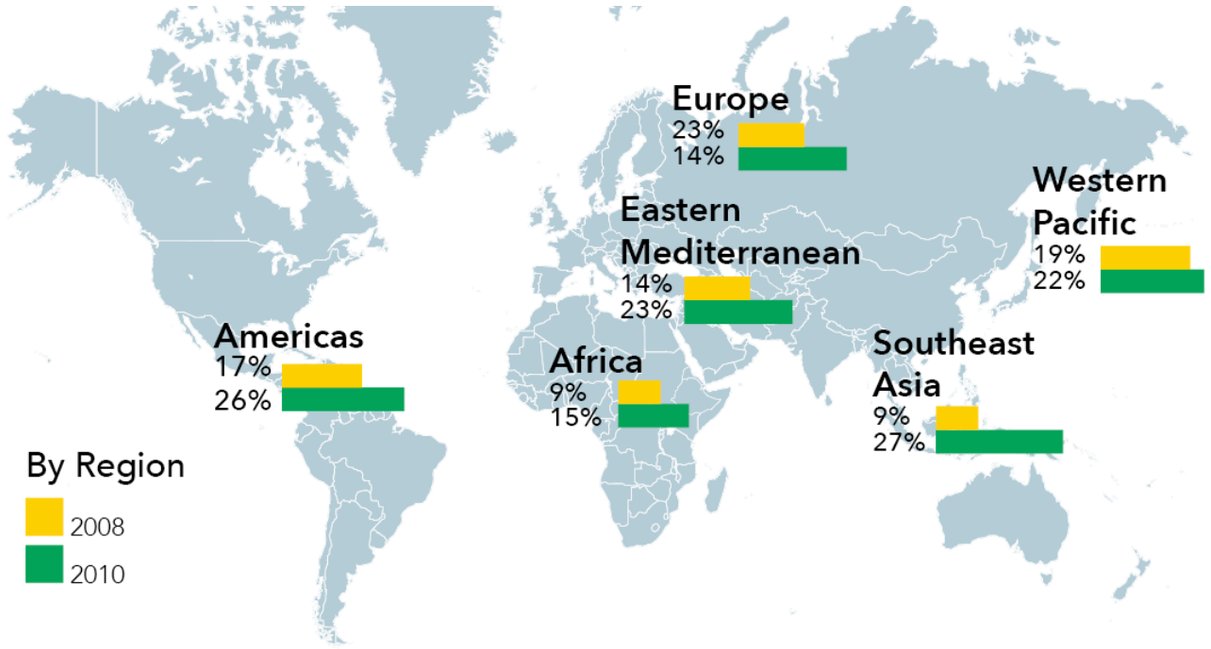
Figure 9.5 is a map of the world prepared by WHO that shows the level of protection provided by national clean indoor air laws among the 193 countries. The U.S. shows up as having the minimal level of national protection because of the lack of a nationwide smoke-free law. Other major countries without a nationwide law include China (Figure 9.6) and Russia.

Figure 9.6 Diners in a Beijing Restaurant Smoking in Spite of "No Smoking" Signs, Demonstrating the Uselessness of Smoking Laws if Not Enforced



Because of the proven effectiveness of smoke-free laws, there has been a rapid increase in smoking bans worldwide in the last decade. Figure 9.7 is a map adapted from the fourth edition of *The Tobacco Atlas* showing the increase in smoking bans in restaurants in just two years, from 2008 to 2010.

Figure 9.7 Smoking Bans in Restaurants are Increasing



Section 3 - Smoke-Free Air Laws Work

There is no longer any question that smoke-free air laws are effective in protecting non-smokers from exposure to secondhand smoke. While protecting non-smokers is the primary purpose of such laws, it has been demonstrated that they also benefit smokers in some cases.

The 2010 Cochrane Review provides an overview of the effectiveness of smoke-free air laws. Incorporating findings from 50 studies, the Review concluded that legislative bans reduce exposure to secondhand smoke. Moreover, contrary to the hypothesis that such bans simply cause smokers to smoke more at home, the evidence suggested that there was actually no change in self-reported secondhand smoke exposure in the home. Of the studies that measured smoking prevalence and behavior, a few reported the absence of change, but the majority showed a net reduction in the number of cigarettes smoked by a smoker as a result of smoke-free air laws. There is evidence emerging that smoke-free laws contribute to fewer children starting to smoke and more smokers quitting. Studies also showed health improvement in individuals

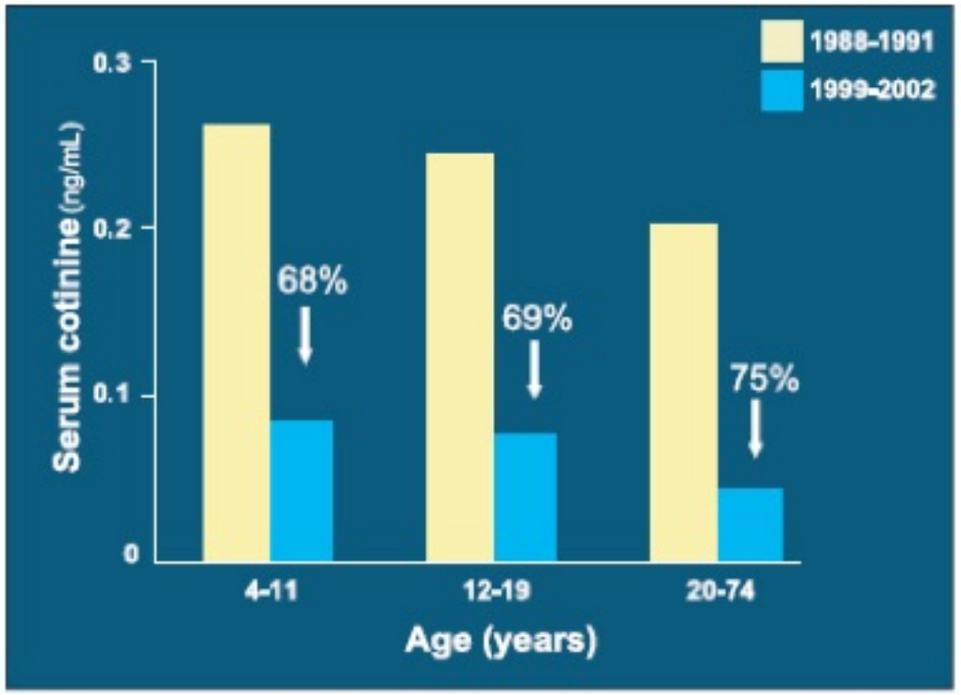
Smoke-free air laws have been shown to:

- Reduce exposure to secondhand smoke.
- Reduce health problems (e.g., fewer heart attacks and ambulance calls).
- Not have a negative impact on restaurants and bars.

–for example, a decrease in heart attacks and emergency room utilization–in cities with a smoking ban in place.

Figure 9.8 is a graphic representation of the dramatic reduction of secondhand smoke exposure resulting from smoke-free air laws. Incorporating data from the National Health and Nutrition Examination Surveys (NHANES) from the late 1980s through the early 2000s, the graph shows a significant (at least two-thirds and up to three-fourths) reduction in levels of serum cotinine in the U.S. population. Examining cotinine levels is a common and reliable way of measuring secondhand smoke exposure because it uses biological data rather than self-reported surveys. The sharp reduction in serum cotinine levels demonstrates that the implementation of clean indoor air laws has not only resulted in self reports of less exposure, but also biological evidence of reduced exposure.

Figure 9.8 Serum cotinine levels verify a decline in exposure to secondhand smoke in the U.S



Serum cotinine levels verify a decline in exposure to secondhand smoke in the U.S

Following up on the data from NHANES, an additional study examined the serum cotinine levels of almost 6,000 non-smoking adults from 57 survey locations in areas classified as having extensive, limited, or no coverage from a smoke-free law. The results showed that non-smoking adults had the following levels of secondhand smoke (SHS) exposure

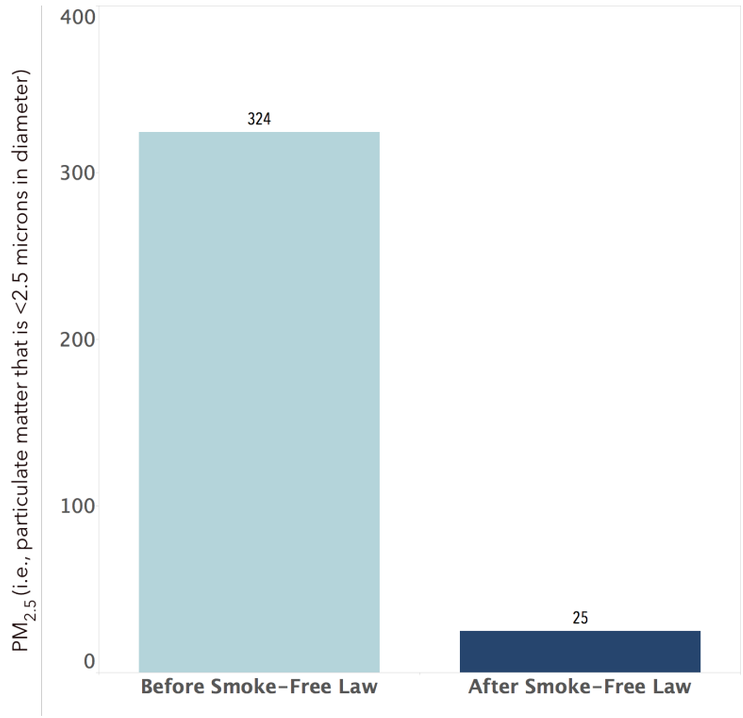
based on coverage type:

- Extensive smoke-free law coverage: 12.5% exposed to SHS.
- Limited smoke-free law coverage: 35.1% exposed to SHS.
- No smoke-free law coverage: 45.9% exposed to SHS.

Together with the results from NHANES, this study presents compelling evidence that smoke-free laws effectively protect individuals from exposure to secondhand smoke.

For further evidence, we can examine examples of how clean indoor air laws have affected individuals as well as businesses. In July 2003, New York implemented a comprehensive state law requiring most indoor workplaces and public places (e.g., restaurants, bars, and other hospitality venues) to be smoke-free. A report from the Centers for Disease Control and Prevention (CDC) assessed the changes in indoor air quality that occurred in 20 hospitality venues in western New York where smoking or indirect SHS exposure from an adjoining room was observed at baseline and post-ban. On average, the levels of respirable suspended particles (a marker for SHS) decreased 84% following the implementation of the law (Figure 9.9).

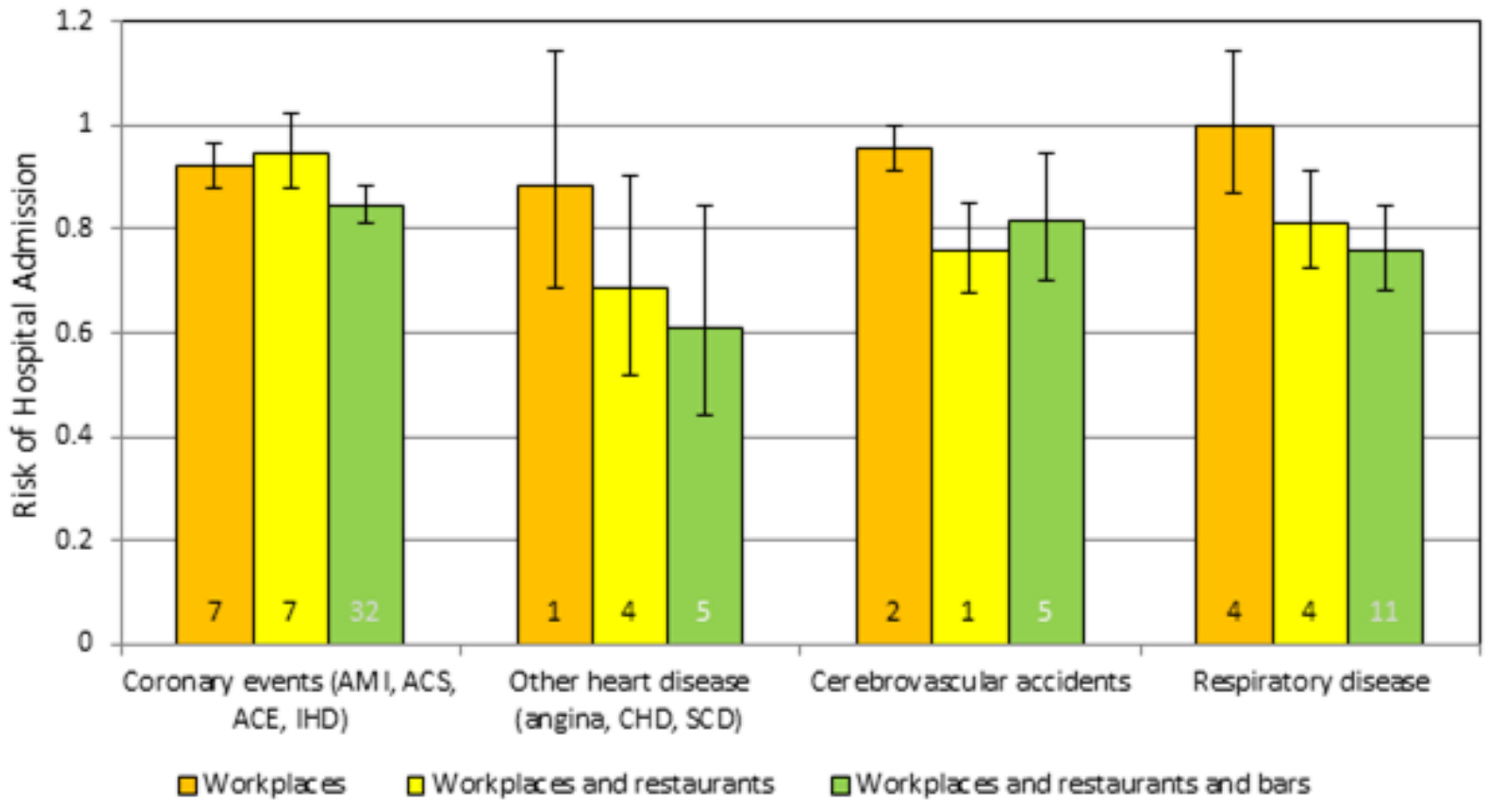
Figure 9.9 Indoor Air Quality in Hospitality Venues Before and After Implementation of a Clean Indoor Air Law - Western New York, 2003 (CDC)



Recent studies show that people living and working in areas covered by clean indoor air laws have a reduced prevalence of heart attacks—on average, smoke-free legislation reduced the risk of heart attacks by 13% (Figure 9.10).

Figure 9.10 Comprehensive Smoke-Free Legislation Associated with Significantly Lower Rates of Hospital Admissions

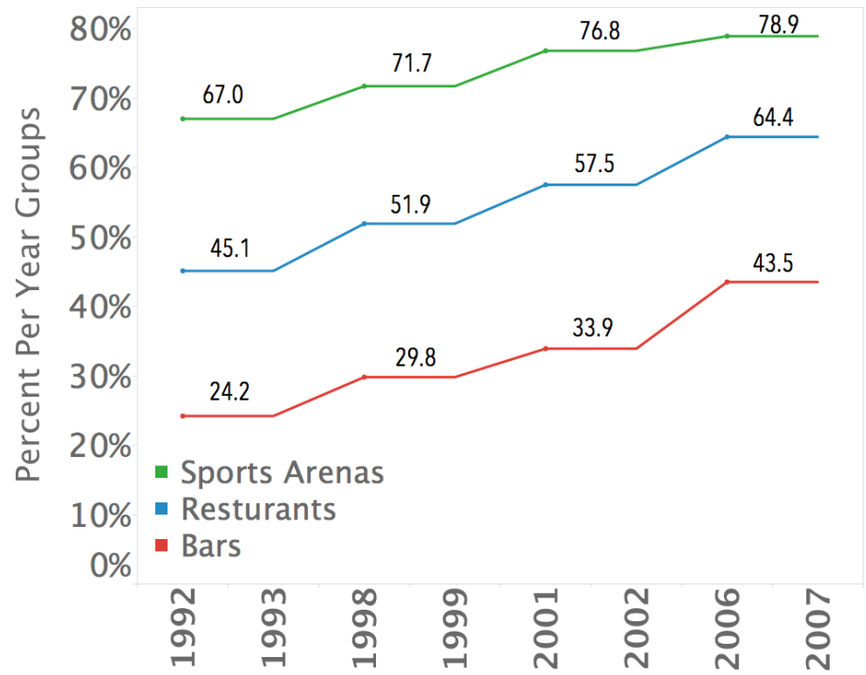
Relative risk of hospital admissions for four disease categories after implementation of a smoke-free law compared to before implementation of the law. 95% confidence intervals shown by error bars and numbers appearing above horizontal axis show number of studies included in estimate. AMI= acute myocardial infarction, ACS= acute coronary syndrome, ACE= acute coronary event, IHD= ischemic heart disease, CHD= coronary heart disease, SCD= sudden cardiac death.



In 2013, researchers looked at the likelihood of a call for an ambulance coming from a facility before and after the implementation of a smoke-free policy. A study done in Colorado County compared ambulance calls originating in casinos and those not originating in a casino for 2000 and 2012 (before and after a state-wide smoke-free law that was later extended to include casinos). When the smoke-free law went into effect, there was a 22.8% drop in ambulance calls not originating from a casino. During the initial period when casinos were exempt from the smoke-free law, there was no change in the number of ambulance calls originating from casinos. Later on, when the law was extended to casinos, there was a 19.1% drop in ambulance calls from casinos (and no change in those originating outside of casinos).

The tobacco industry and their front groups often purport to speak for the public, claiming that smoke-free air laws will harm businesses because they are regarded unfavorably by most people. However, studies have shown that the public supports laws banning smoking in restaurants, bars, and sports arenas and their support has actually increased over time (Figure 9.11). Non-smoking has been established as the norm, even in locations typically associated with "good times" and entertainment.

Figure 9.11 Percentage of Respondents Supporting Smoking Bans in Public Places



Furthermore, a study done in Hong Kong provides evidence that businesses, rather than being harmed by smoke-free air laws, can actually experience the opposite. Figure 9.12 shows an increase in restaurant receipts after a complete smoking ban was implemented in Hong Kong establishments. Various studies have demonstrated the same impact in other parts of the world, with establishments seeing an increase in business as they attract customers who wish to avoid smoke as they dine with their family and friends.

Figure 9.12 Smoking Bans Do Not Negatively Effect Restaurant Sales



In 2013, the CDC Foundation conducted a study to determine the association between local smoke-free air laws and economic outcomes in bars and restaurants in states without statewide laws. Among the states evaluated were Alabama, Indiana, Kentucky, Mississippi, Missouri, South Carolina, Texas, West Virginia, and North Carolina (Movie 9.3). The results showed that smoke-free

Movie 9.3 South Carolina - Business Has Never Been Healthier



laws did not have an adverse economic impact on restaurants or bars that became smoke-free in these states (a small increase in business was found in West Virginia). The CDC Foundation concluded that statewide smoke-free air laws would not have a negative economic impact on these states.

Key Takeaway

Contrary to the tobacco industry's claim that smoke-free rules harm businesses, studies show that going smoke-free does not have a negative economic impact on restaurants, bars, and other establishments.

We end this section on the effects of smoke-free air laws with a quote from the CDC Foundation, which presents the perspective of some restaurant and bar owners as they relate their experience of going smoke-free.

"Restaurant and bar business owners in communities throughout South Carolina were worried about non-smoking ordinances affecting their businesses. Business owners found that the ordinance was a positive thing as food sales increased and customers realized how great the food and atmosphere was without the smoke. Restaurant and bar business owners in communities throughout South Carolina were worried about non-smoking ordinances affecting their businesses. Business owners found that the ordinance was a positive thing as food sales increased and customers realized how great the food and atmosphere was without the smoke."

~ CDC Foundation, 2013

Going smoke-free won't hurt your bottom line

Section 4 - What are the Future Directions of Smoke-Free Air Laws?

With the growing popularity of smoking bans, legislation is now being drafted in the United States to cover more venues and populations, with varying levels of controversy. Smoke-free laws are now being expanded to outdoor areas such as parks and beaches. Arguments against smoking bans for outdoor venues usually question whether there is a proven health risk associated with exposure to secondhand smoke when it is diffused into the outside environment. We are also seeing more and more college campuses and health centers become completely smoke-free. In many instances, campuses ban not only tobacco use but also the sale and marketing of tobacco products on their premises. Moreover, we are seeing prisons increasingly becoming smoke-free, with onsite medical facilities offering smoking cessation services and nicotine replacement products to inmates.

Additionally, there is increasing focus on making mental health facilities smoke-free. As we saw in Chapter 2, people with mental illness use tobacco at a much higher rate than the national average, and the compounded risk and exposure to cigarettes have a dramatically adverse effect on their health. Indeed, a recent study found evidence suggesting that nearly half of the deaths of those with mental illness are attributable to smoking. Going smoke-free is an important way that mental health facilities can protect the health of their patients.

Yet another movement that has recently gained some ground is the push for smoke-free multi-family housing, particularly public housing apartments and condominiums where the air may be shared

among different dwellings. Lastly, there has been a vigorous effort to ban smoking in cars and even in private houses whenever children are present. Historically, tobacco control has steered away from private property, but serious attention and discussion is warranted when the behavior of an adult is having a deleterious effect on the health of a child (who usually has no choice but to be subject to the harms caused by that behavior). In 2014, the United Kingdom passed a law that made it illegal to smoke in a car if it is carrying children. More can be learned about this in the BBC News Article: "Car smoking ban 'will be brought in".

So far, our discussion has focused on combustible or traditional cigarettes. Now, we turn briefly to electronic cigarettes and consider what impact they may have with regard to smoke-free laws. Smoke-free has become more of the norm because the harms of smoking and inhaling secondhand smoke are well documented. On the other hand, because e-cigarettes are still relatively new on the market, there is much that we do not know about their effects on health. An e-cigarette does not involve combustion, so it does not emit smoke, only a vapor.

One of the risks presented by e-cigarettes is the potential to re-normalize smoking in public places, undermining the progress that has been made in tobacco control over the last four decades. E-cigarette manufacturers support allowing the use of e-cigarettes anywhere—in hotels, restaurants, workplaces, even in airplanes. Moreover, in the United States there is currently no ban on advertising for e-cigarettes as there is for traditional cigarettes. It is becoming normal to see celebrities and models using e-cigarettes in advertisements on television. A survey conducted by the School of Public Health at Georgia State University in 2012 found that out of more than 800 Georgia restaurant and bar managers and owners,

Key Takeaway

Allowing e-cigarette use in places where cigarettes are banned, as well as e-cigarette advertising in the media, may result in the re-normalization of smoking in our culture.

30% would allow people to smoke e-cigarettes in their establishment. In another survey, Georgia State researchers found that out of more than 4,000 individuals, 22% thought e-cigarettes should be allowed in public areas where smoking was prohibited, whereas the majority, 41%, were not sure if they should be allowed. This reflects the uncertainty that many people feel about the products.

We are at a crossroads in terms of deciding how to regulate the use and advertising of e-cigarettes. There is a clear intent behind e-cigarettes, as stated by Olivier Girard, the Chief Executive Officer of Smarty Q, an e-cigarette brand based in England: "We're trying to bring back the chic attitude, the sexiness in smoking." There have been proposals, in California for example, to ban e-cigarettes wherever cigarettes are banned. Prior to a decision from the government, some locations have already banned e-cigarettes, such as the AT&T Park where the San Francisco Giants play baseball (Figure 9.13). More research is needed to understand the health effects of secondhand exposure to e-cigarettes, but even more, we need to understand the implications of not restricting e-cigarette use and the risk of re-normalizing smoking in our culture.

Figure 9.13 Smoke-Free sign at AT&T Park



Chapter 9 Discussion Questions:

1. Based on what you learned in this chapter, list the immediate and long-term benefits of smoke-free laws.
2. Discuss the benefits and challenges of getting a law to ban smoking in private properties, such as cars and houses, with children present?
3. Is there enough evidence to implement smoke-free laws to e-cigarettes? What additional evidence would be helpful?

Figures and Tables

Figure 9.1: The 1986 Surgeon General's Report, The Health Consequences of Involuntary Smoking

Source: U.S. Department of Health and Human Services. (1986). The health consequences of involuntary smoking: A report of the Surgeon General. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

Figure 9.2: 2006 Surgeon General's Report, The Health Consequences of Involuntary Exposure to Tobacco

Source: U.S. Department of Health and Human Services. (2006). The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, Atlanta, GA, USA.

Movie 9.1: U.S. Smoke-Free Laws

Source: American for Nonsmokers' Rights Foundation, 2013

Figure 9.3: How Well Does Your State Protect the Public from Secondhand Smoke?

Source: State of Tobacco Control. (2013). Smoke-free air laws. American for Nonsmokers' Rights Foundation, 2013.

Figure 9.4: Number of Local 100% Smoke-Free Laws in Workplaces, Restaurants and Bars, U.S., as of July 2013

Source: American Nonsmokers' Rights Foundation, 2013

Movie 9.2: Hear from the Experts: Stanton Glantz

Figure 9.5: Level of protection provided by national clean indoor air laws among the 193 countries, 2013 (WHO)

Source: WHO. (2013). WHO Report on the Global Tobacco Epidemic, 2013: Enforcing bans on tobacco advertising, promotion and sponsorship. WHO Document Production Services.

Figure 9.6: Diners in a Beijing Restaurant Smoking in Spite of "No Smoking" Signs, Demonstrating the Uselessness of Smoking Laws if Not Enforced

Source: Pamela Redmon, 2009

Figures 9.7: Smoking Bans in Restaurants are Increasing

Source: Eriksen, M., Mackay, J., Ross, H. (2012). The Tobacco Atlas. American Cancer Society; New York, NY: World Lung Foundation.

Figure 9.8: Third National Report on Human Exposure to Environmental Chemicals (2005)

Source: Eriksen, M. P., & Cerak, R. L. (2008). The diffusion and impact of clean indoor air laws. Annual Review of Public Health, 29, 171–185. doi: 10.1146/annurev.publhealth.29.020907.090920.

Figure 9.9: Indoor Air Quality in Hospitality Venues Before and After Implementation of a Clean Indoor Air Law - Western New York, 2003 (CDC)

Source: Centers for Disease Control and Prevention. (2004). Indoor air quality in hospitality venues before and after implementation of a clean indoor air law --- Western New York, 2003. Morbidity and Mortality Weekly Report (MMWR), 53(44), 1038-1041.

Figure 9.10: Comprehensive Smoke-Free Legislation Associated with Significantly Lower Rates of Hospital Admissions

Source: Stanton Glantz, 2016 Personal Communication and Tan and Glantz, 2012, *Circulation*.

Figure 9.11: Percentage of Respondents Supporting Smoking Bans in public Places

Source: Robert Wood Johnson Foundation. (2011). Social norms and attitudes about smoking: 1991–2010.

Figure 9.12: Smoking Bans Do Not Negatively Effect Restaurant Sales

Source: Eriksen, M., Mackay, J., Ross, H. (2012). The Tobacco Atlas. American Cancer Society; New York, NY: World Lung Foundation.

Movie 9.3: South Carolina – Business has Never Been Healthier

Figure 9.13: Smoke-Free Sign at AT&T Park

Source: Judd Winick, 2013

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Chapter 10

Taxes and Funding Tobacco Control

Chapter Objectives

1. Examine how the economic concept of elasticity applies to tobacco prices and taxes.
2. Explain how tobacco taxes vary throughout the U.S.
3. Critique the arguments used by the tobacco industry against tobacco taxes.
4. Compare and contrast the various ways tobacco control is funded around the world.

Section 1 - As Price Goes Up, Consumption Goes Down

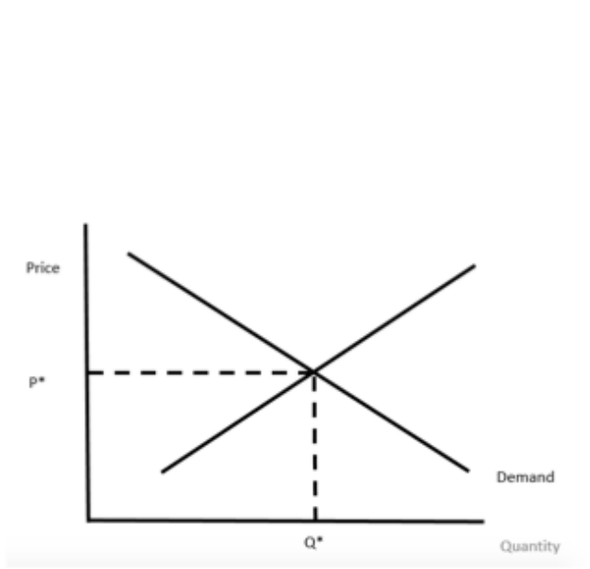
The law of demand states that when all else is constant, the higher the price of a good or service, the lower the quantity demanded of that good or service. And vice versa, the lower the price, the higher the quantity demanded. The elasticity of a product indicates how responsive demand is to changes in price.

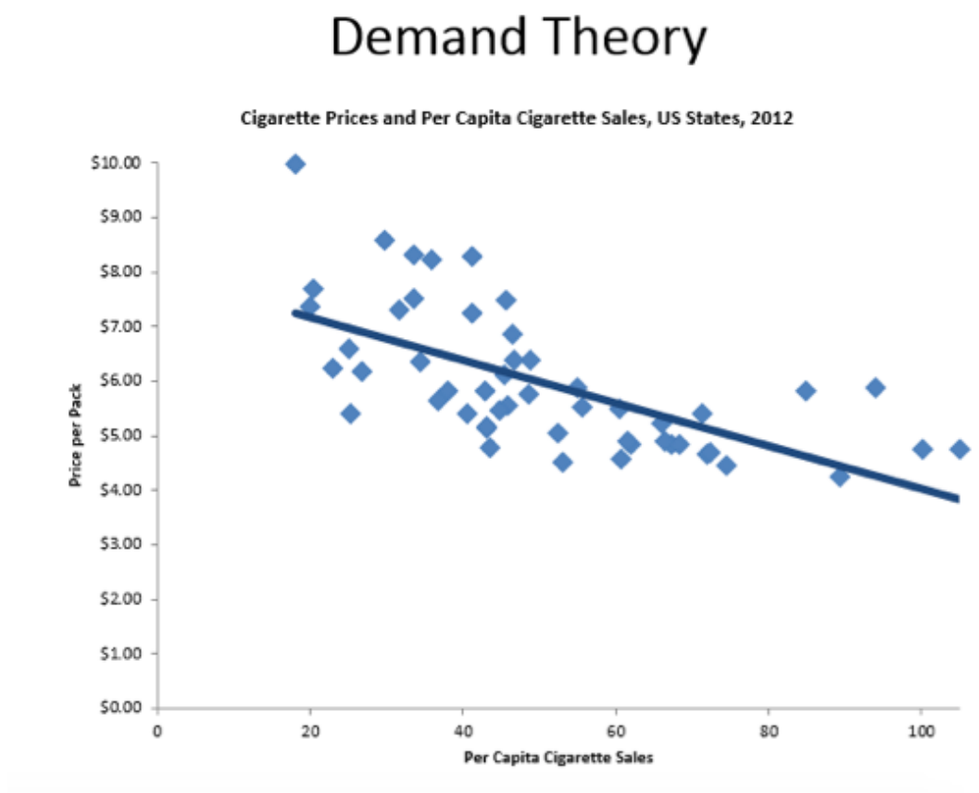
Tobacco is considered to be relatively inelastic since the demand for these products varies based on price and other factors. The first graph in Figure 10.1 shows how the interaction with supply determines market price and consumption. The second graph in Figure 10.1 shows this concept in relation to cigarette prices in the U.S. For example, per capita cigarette sales were much lower in states with a higher cost per pack; and per capita cigarette sales were much higher in states with a low cost per pack.

In high-income countries, like the U.S., the price elasticity of demand for tobacco products is estimated to be -0.4 meaning that a 10% increase in price would result in a 4% decrease in consumption. When prices go up, smokers quit, reduce the number of cigarettes smoked per day, or youth never start smoking. Cigarettes and other tobacco products are relatively inelastic (that is, the reduction in consumption is proportionally less than the increase in price) for two reasons: 1) there are few substitute goods, and 2) the addictive nature of nicotine keeps some people smoking regardless of the price of the product.

Tobacco is considered to be relatively inelastic. In high-income countries, like the U.S., elasticity for tobacco products is estimated to be -.4 meaning that a 10% increase in price would result in a 4% decrease in consumption. When prices go up, smokers quit, reduce the number of cigarettes smoked per day, or youth never start smoking. Cigarettes and other tobacco products are relatively inelastic (that is, the reduction in consumption is proportionally less than the increase in price) for two reasons: 1) there are few substitute goods, and 2) the addictive nature of nicotine keeps some people smoking regardless of the price of the product.

Figure 10.1 Demand Theory In Action – Graph 1: Interaction with Supply Determines Market Prices and Consumption and Graph 2: U.S. Consumption and Pack Price Examples



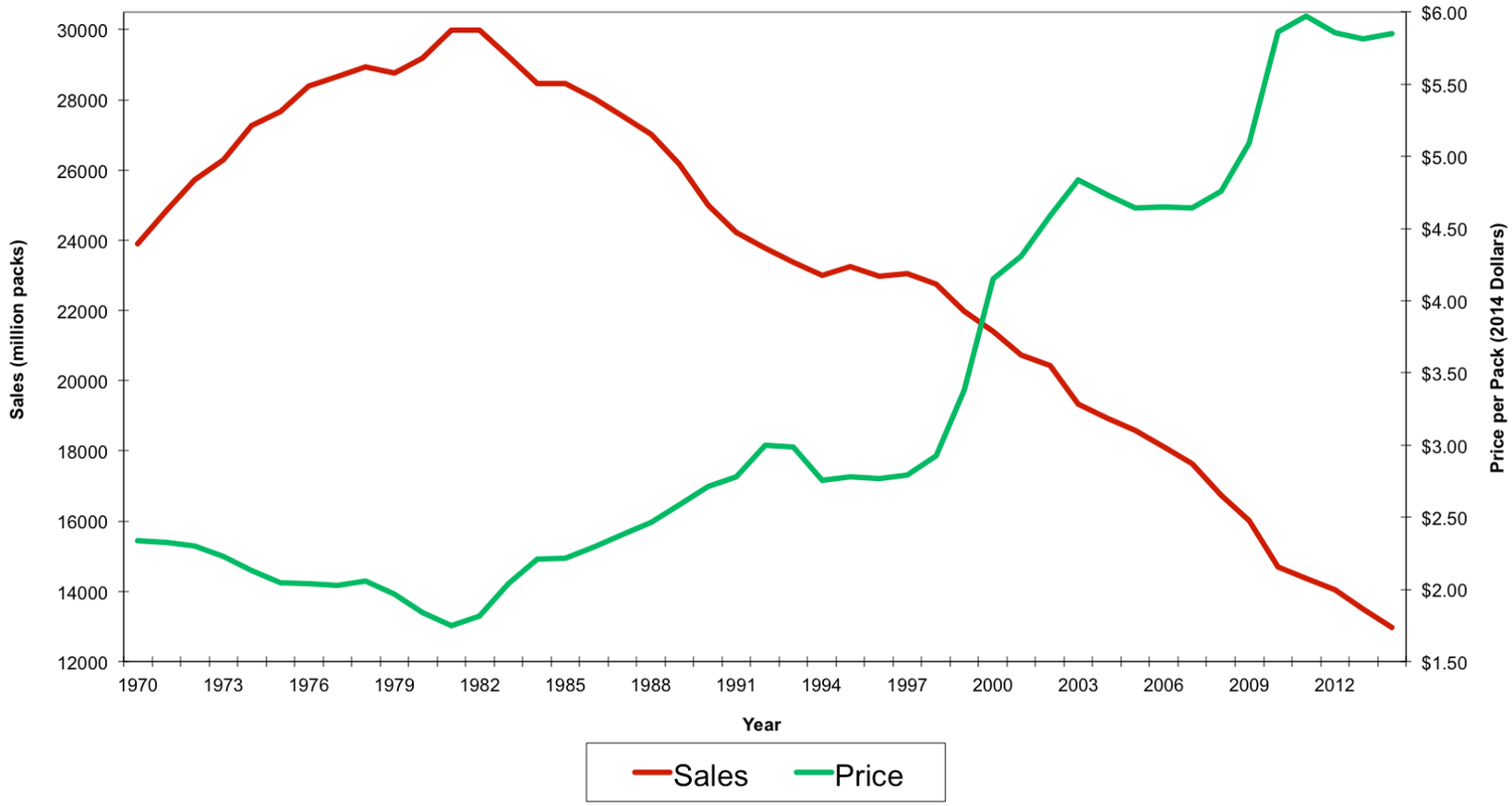


Key Takeaway

Tobacco is a relatively inelastic product. As tobacco prices go up, consumption goes down; however, the reduction in consumption is proportionally less than the increase in price.

To really understand how cigarette consumption is impacted by price, look at Figure 10.2. On this graph, the price of a pack of cigarettes has been adjusted for inflation and the change in price over time has been overlaid onto a graph of the number of cigarette packs sold (in millions). In this type of ecologic comparison, it is important to remember that there may be other factors that influence trends in consumption; however, when investigating the relationship between price elasticity and tobacco consumption, researchers typically control for other factors such as the presence of advertising bans or the implementation of

Figure 10.2 Cigarette Sales and Average Price per Pack, 1970-2014



clean indoor air laws. The data show that significant increases in tobacco taxes and price are the most effective intervention for reducing tobacco use, especially among the young and poor.

In Chapter 9, we discussed the Roper Institute's warning to the tobacco companies in 1978 that concerns about secondhand smoke were the greatest threat to the viability of the tobacco industry. Since then, there has been a similar concern within the industry about tobacco taxes. In 1985, a representative from Philip Morris was quoted as saying:

> *Of all the concerns, there is one - taxation - that alarms us the most. While marketing restrictions and public and passive smoking [restrictions] do depress volume, in our experience taxation depresses it much more severely. Our concern for taxation is, therefore, central to our thinking.*

The known effect of taxes on their sales volume has driven the tobacco companies' strategy for pricing their products. They will at first try to prevent increased taxation from occurring, but if an increase happens, the strategy shifts to offering discounts and coupons to reduce the price of tobacco products and minimize the impact of the tax increase.

To abet their case, tobacco companies argue that increasing taxes will result in decreased revenue for a state, since fewer people will continue to buy cigarettes at a higher price; but this is not true. Table 10.1 highlights the major tax increases on cigarettes between 2006 and 2010. All states that increased their cigarette tax by at least $0.50 in this period saw their revenues increase, and at the same time, almost all of them saw a decline in the number of packs sold. This study clearly shows that raising the

Table 10.1 Raising Cigarette Taxes Increases State Revenue and Reduces Smoking

State Revenue Gains from Recent Cigarette Tax Rate Increases

State	Effective Date	Tax Increase Amount (per pack)	New State Tax Rate (per pack)	State Pack Sales Decline	Nationwide Pack Sales Trend	Revenue Increase	New Revenues (millions)
Arizona	12/8/06	82¢	$2.00	- 32.5%	- 4.4%	+ 13.6%	$44.5
Arkansas	3/1/09	56¢	$1.15	- 27.8%	- 10.2%	+ 33.5%	$46.5
Delaware	7/31/07	60¢	$1.15	- 35.1%	- 4.9%	+ 35.1%	$31.8
Washington, DC	10/1/08	$1.00	$2.00	- 25.9%	- 7.0%	+ 57.3%	$13.2
Florida	7/1/09	$1.00	$1.339	- 27.4 %	- 8.4%	+ 193.2%	$828.8
Hawaii	7/1/09	60¢	$2.60	- 11.3%	- 8.4%	+ 14.5%	$15.1
Iowa	3/15/07	$1.00	$1.36	- 30.6%	- 4.7%	+ 140.2%	$128.0
Maryland	1/1/08	$1.00	$2.00	- 27.1%	- 4.2%	+ 45.8%	$126.9
Massachusetts	7/1/08	$1.00	$2.51	- 20.3%	- 5.3%	+ 32.2%	$137.8
Mississippi	5/15/09	50¢	$0.68	- 22.8%	- 9.5%	+ 188.3%	$88.9
New Mexico	7/1/10	$0.75	$1.66	- 7.8%	- 2.6%	+ 67.5%	$37.5
New York	6/3/08	$1.25	$2.75	- 15.2%	- 5.8%	+ 40.3%	$377.4
New York	7/1/10	$1.60	$4.35	- 24.8%	- 2.6%	+ 18.8%	$244.6
Rhode Island	4/10/09	$1.00	$3.46	- 14.7%	- 11.1%	+ 15.1%	$17.8
South Carolina	7/1/10	50¢	$0.57	+ 7.8%*	- 2.6%	+ 434.2%	$116.8
South Dakota	1/1/07	$1.00	$1.53	- 25.8%	- 4.9%	+ 115.4%	$31.8
Texas	1/1/07	$1.00	$1.41	- 21.0%	- 4.9%	+ 191.7%	$1,003.7
Utah	7/1/10	$1.005	$1.70	- 24.5%	- 2.6%	+ 85.0%	$47.0
Vermont	7/1/06	60¢	$1.79	- 15.2%	- 3.0%	+ 27.9%	$13.2
Washington	5/1/10	$1.00	$3.025	- 20.5%	- 3.9%	+ 17.0%	$62.0
Wisconsin	1/1/08	$1.00	$1.77	- 15.0%	- 4.2%	+ 93.9%	$283.0

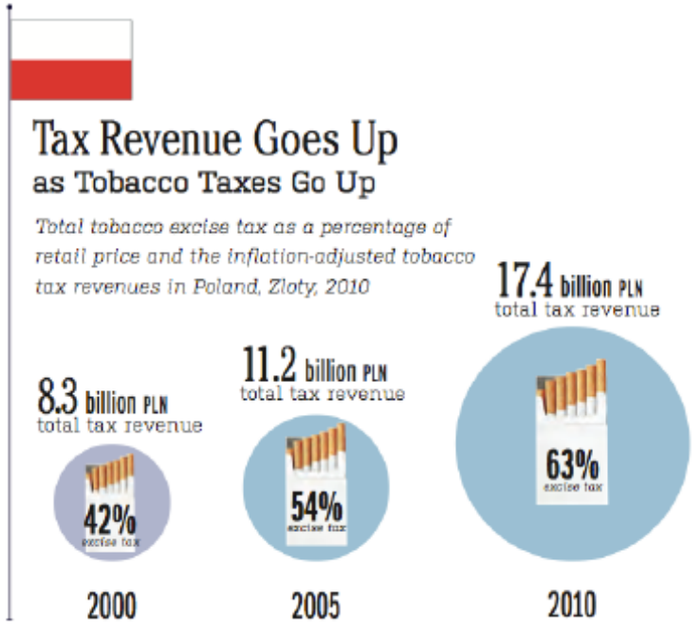
Sources: Orzechowski & Walker, *Tax Burden on Tobacco*. U.S. Alcohol and Tobacco Tax and Trade Bureau. Consumption declines and revenue increases are for the 12 months before and after the tax increase. Nationwide consumption declines are for the 50 states and DC. Trends for rate increases after January 2008 include the impact of the 61.66-cent federal cigarette tax increase (effective April 1, 2009).

tobacco tax by at least $0.50 increases state revenue while at the same time discouraging people from smoking.

How can there be an increase in revenue when there are fewer smokers? Going back to the concept of elasticity, tobacco is a relatively inelastic product. As mentioned prevoiusly, a 10% increase in price would result in only a 4% reduction in consumption, which means that many people still continue to buy cigarettes even at the higher price, and tax revenue continues to come in (and even increases as a result of the higher tax). This study demonstrates that raising the tobacco tax discourages people from smoking, but overall state revenue still increases.

This phenomenon of increasing revenue with tobacco tax increases has not only been observed in every instance in the United States, but has also been found globally.

Figure 10.3 Increased Tobacco Taxes Increase Tax Revenue, Poland, 2010



to 200 cigarettes per capita over a 20-year period—a change largely attributed to price increases.

But there's even more to the concept of elasticity. Some groups are more sensitive to changes in tobacco prices than others. For instance, youth are two to three times more sensitive to tobacco prices than adults.

Figure 10.3 illustrates an example from Poland. In 2000, excise taxes made up 42% of the price of a pack of cigarettes, yielding 8.3 billion PLN in total tax revenue. By 2010, taxes made up 63% of the pack price, and tobacco tax revenues had more than doubled.

For another example, Figure 10.4 illustrates the relationship between price and consumption of cigarettes in Israel. Here, we can see a dramatic drop in per capita cigarette consumption—from around 1,600

Figure 10.4 Cigarette Consumption Goes Down as Tobacco Taxes Go Up, Israel

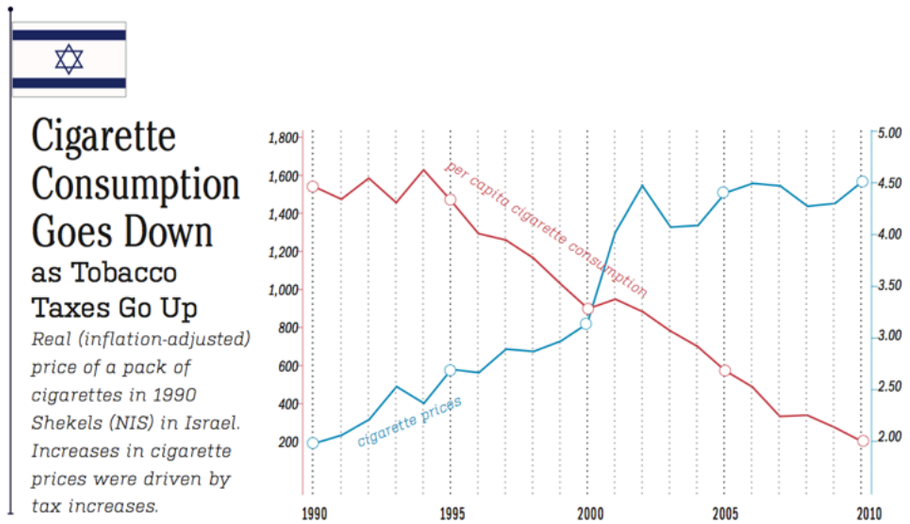


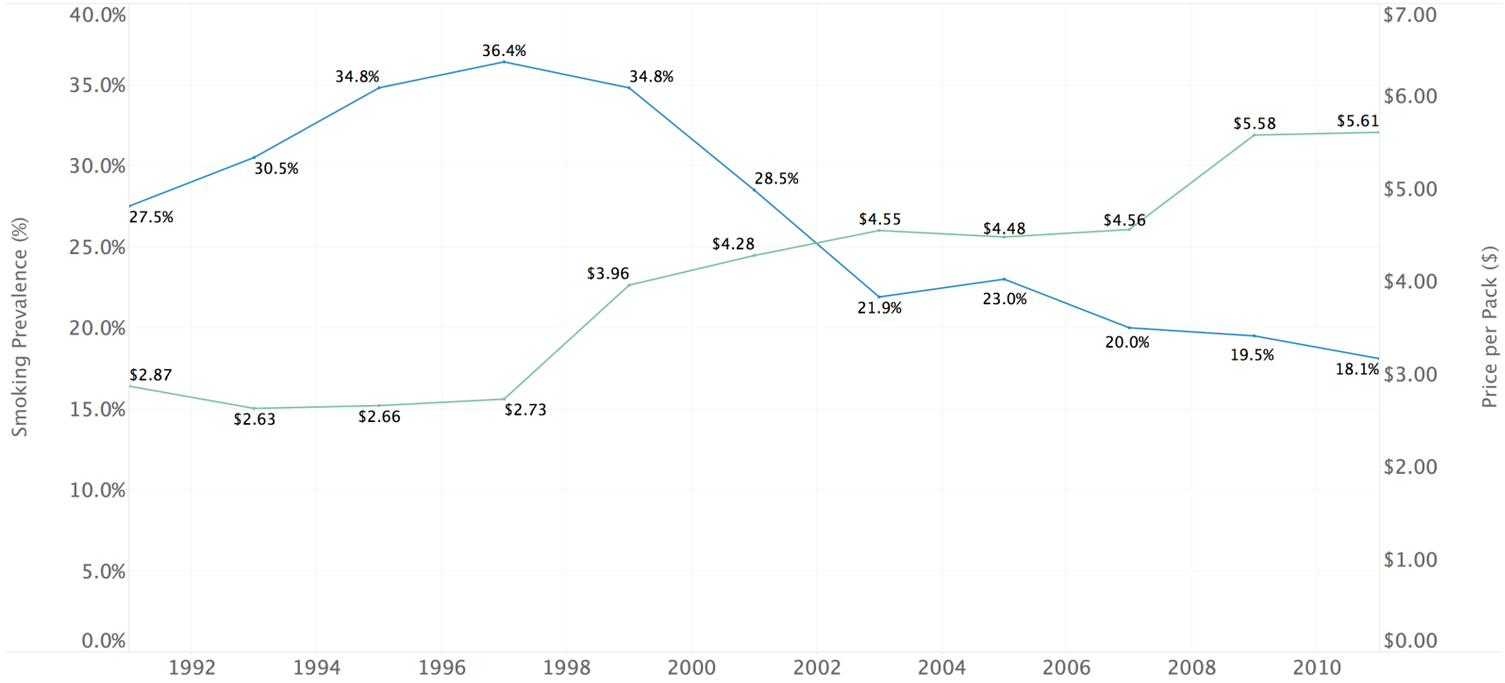
Table 10.2 Certain Groups are More Sensitive to Tobacco Prices than Others

Group	Estimated Elasticity
Adults – High Income Countries	-0.4
Youth – High Income Countries	-0.5 to -1.2
Low and Middle Income Countries	-0.2 to -0.8

In Table 10.2, we can see that while elasticity for tobacco products among adults is -0.4, it ranges from -0.5 to -1.2 among youth, who tend to have less expendable money than adults and are also less likely to be already addicted to cigarettes. We also see different levels of elasticity associated with high-income countries as opposed to low- and middle-income countries.

Looking now at trend data for young people in the U.S., we again see the relationship between price and consumption in Figure 10.5. Even minimal tobacco price changes correspond to changes in youth smoking rates. This graph is particularly interesting as we consider the federal cigarette tax increase of 2009. That year, the tax on a pack of cigarettes went from $0.39 to $1.01, and it is estimated that in the 30 days following the increase, smoking rates among teenagers decreased by about 10%, resulting in approximately a quarter of a million fewer smokers among middle and high school students.

Figure 10.5 U.S. Youth Smoking Prevalence vs. Cigarette Pack Price, 1991-2011



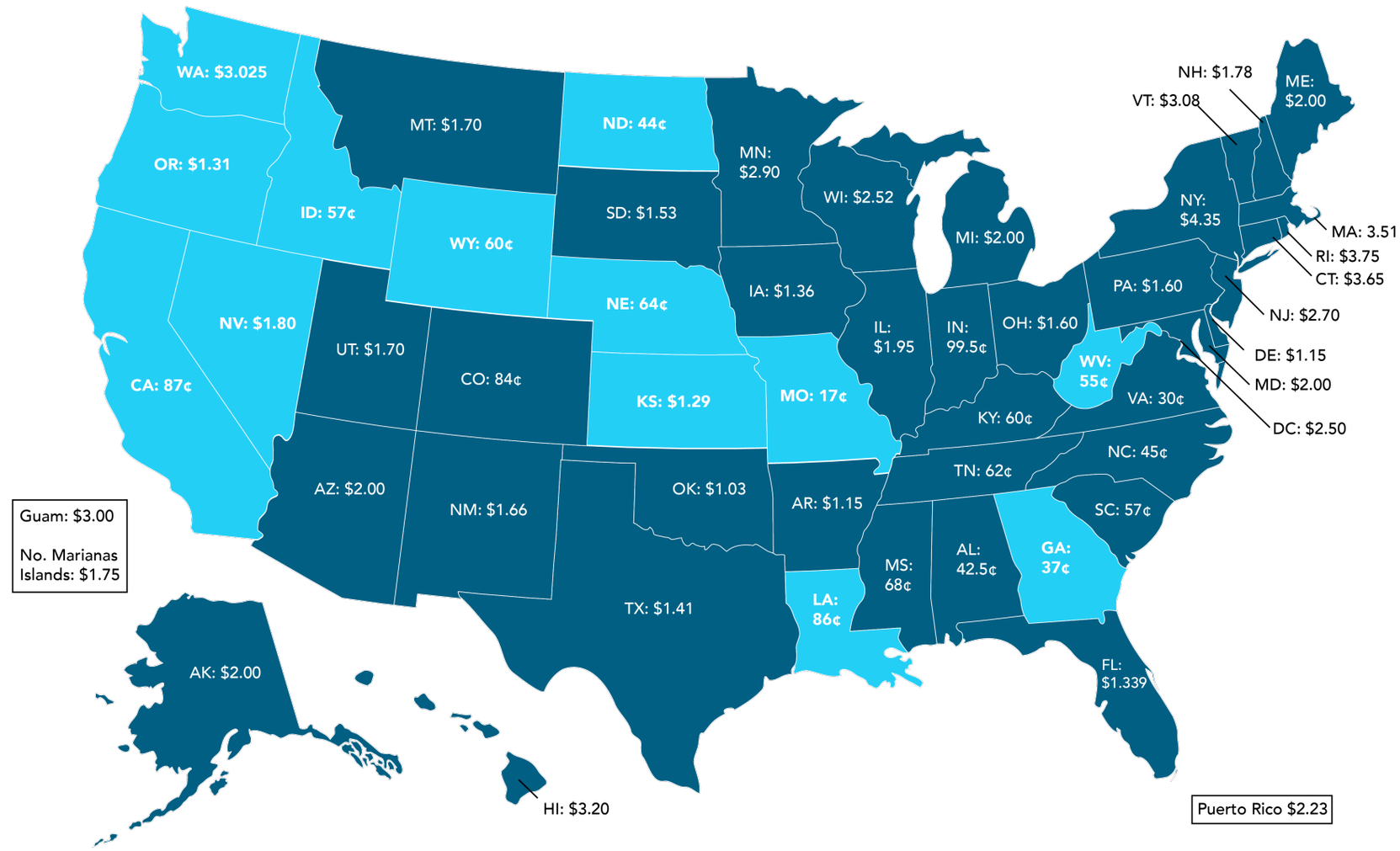
Section 2 - Tobacco Taxes Vary Widely Throughout the World

In this section, we turn our attention first to tobacco taxes in the U.S., and then examine them in the global context. In the U.S., excise taxes have proven to be a win-win situation. Increasing taxes on tobacco provides a steady revenue stream to state and federal governments, and at the same time cigarette consumption decreases. The history of tobacco taxation in the U.S. goes back more than a hundred years, with the first excise tax implemented in 1864. In 1951, the tax was set at $0.08 per pack of cigarettes, and it took over three decades to double, up to $0.18 per pack in 1983. Almost twenty years later, the tax was raised to $0.39 per pack in 2002. The largest increase in the federal excise tax occurred in 2009, going up to $1.01 per pack (not including state or local taxes).

In addition to the federal excise tax, currently at $1.01, every state has a tobacco tax, ranging from a low of $0.17 in Missouri to a high of $4.35 per pack in New York. Overall, the average state cigarette tax is $1.60 per pack. We see a great deal of variation among the states, but it must be noted that the average tobacco tax in states with major tobacco production and/or manufacturing is 48.5¢ per pack —much lower than the national average. In non tobacco-producing and/or manufacturing states, the average is $1.75.

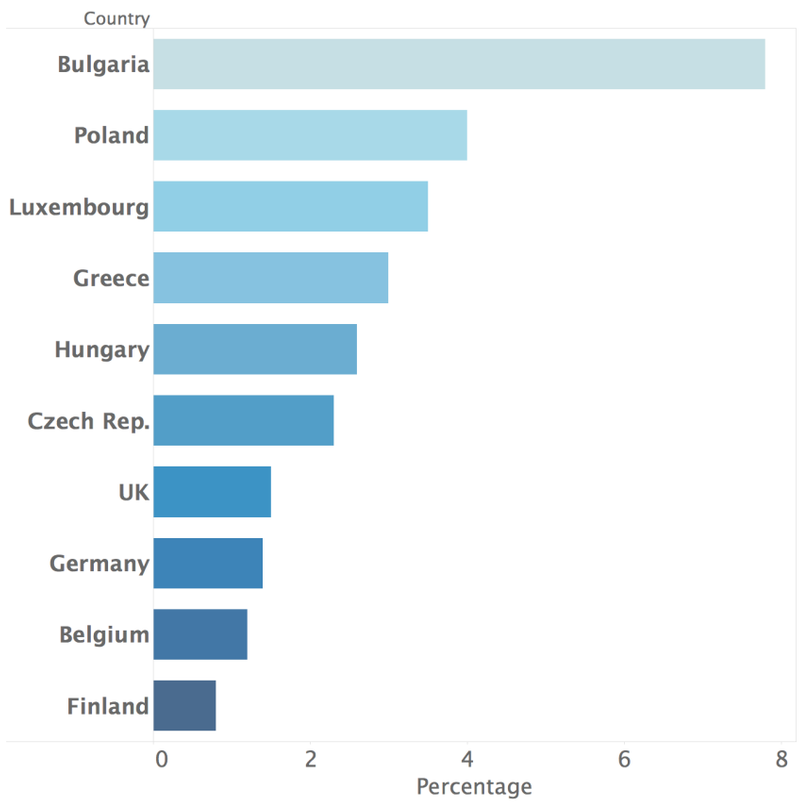
Some counties and cities also levy their own tobacco taxes in addition to state and federal taxes. For instance, New York City has a $1.50 tax on tobacco products; in Illinois, the city of Chicago has a $1.18 tax and Cook County, in which Chicago is located, has an additional $3.00 tax on tobacco.

Figure 10.6 State Tobacco Excise Tax Rates Throughout the U.S., 2015



Looking more closely at the variation in cigarette taxes in the U.S., we can make some interesting comparisons (Figure 10.6). First, we can see that the lowest taxes are in the Southeast, the region that has the most tobacco-growing states. The majority of states in this region have taxes less than $1.00 per pack. The states which are bolded have not increased their tobacco tax since 2005 or earlier. There are 32 states that have a tax of $1.00 or more—15 of these have a tax of $2.00 or more, and

Figure 10.7 Tobacco Excise Tax Revenue as a Percentage of Total Tax Revenues, Selected European Countries, 2008

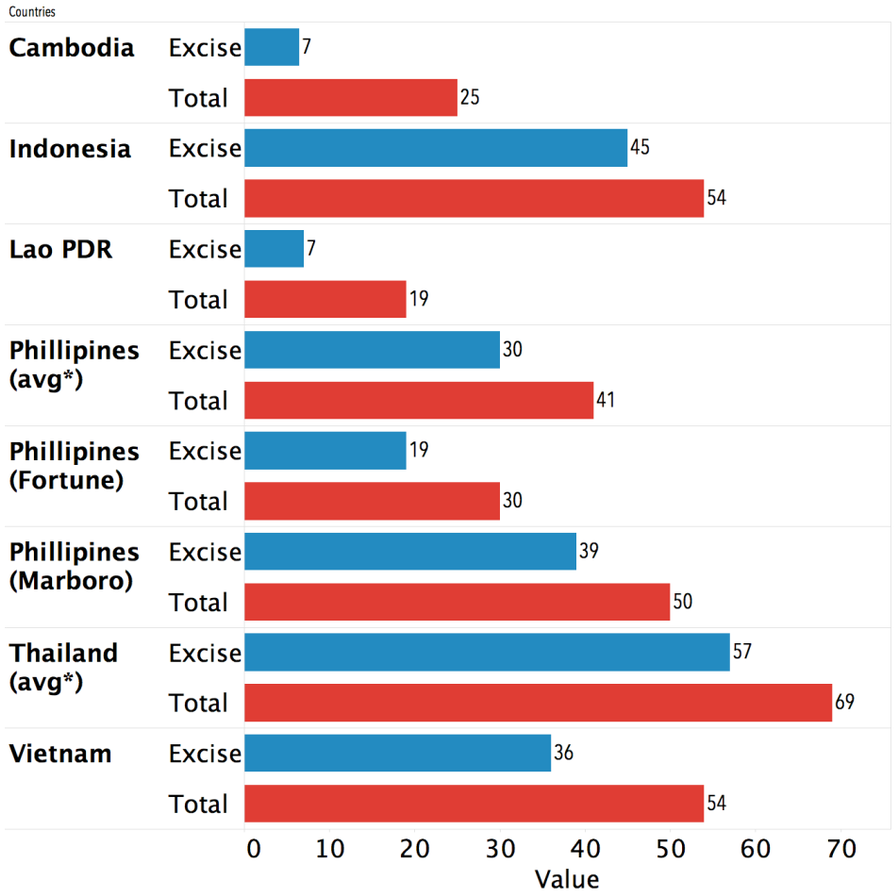


seven states have a tax of $3.00 or more. New York is the only state that has a tax higher than $4.00 per pack.

Cigarette taxes have the potential to create significant revenue for federal and state governments. As of 2014, combining federal and tobacco taxes together, the retail price of a pack of 20 cigarettes ranged from a low of $5.05 in Missouri to a high of $10.56 in New York. The federal cigarette tax rate has been set at $1.01 since April 2009. In fiscal year 2014, federal tobacco taxes grossed more than $13.4 billion in tax revenue and states grossed more than $16.5 billion in tobacco taxes. Combined, this accounts for over $30 billion in revenue from cigarette taxes in 2014.

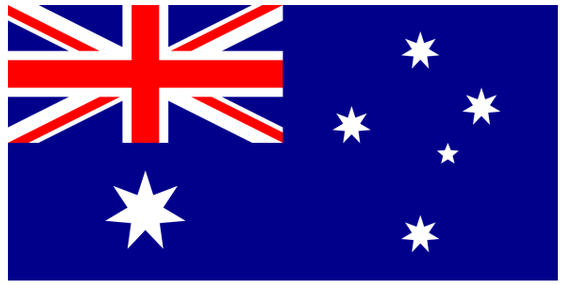
The World Health Organization recommends that excise taxes should make up at least 70% of the retail price of a pack of cigarettes (Figure 10.7). So far, only five countries have achieved this recommendation: Cuba, Egypt, the United Kingdom, Fiji, and San Marino. In many countries, excise taxes make up less than half of the pack price.

Figure 10.8 Percentage of Excise and Total Tax Burden Relative to Retail Price on a Pack of Cigarettes, 2010



In Figure10.8 we look at data from the Southeast Asian region, comparing the proportion of the price of a pack of cigarettes attributable to taxes. The red bars show the percentage of the price that comes from taxes. In Thailand, taxes make up almost 70% of the pack price, whereas in Laos, they make up less than 20% of the price. There can be great variation even within one country, as we see in the Philippines, where the proportion varies depending on the brand of cigarettes.

Australia has been one of the boldest countries in using excise taxes as a form of tobacco control. In 2013, the Australian Prime Minister raised tobacco taxes by 12.5% to increase revenue and to boost the government's economic credibility prior to elections. This resulted in an increase in the price of cigarettes to nearly AU $1.00 per stick, making the cost of a pack over AU $20.00. This increase will generate an extra AU$5.3 billion (US$4.7 billion) per year.





China provides another noteworthy case study illustrating the importance of price and revenue to tobacco control. China National Tobacco Corporation is a government-owned monopoly; in addition to receiving tobacco revenue through taxes as in other countries, the Chinese government uniquely receives revenue through profits from tobacco. In 2012, for example, the government collected 864.9 billion Yuan (US$137.7 billion) in tax revenue, and 716.6 billion Yuan in profits. These amounts represent an increase of 15.7% and 19%, respectively, over the previous year. It is estimated that 7-10% of the Chinese government's entire operating revenue comes from tobacco profit and taxes. The economic importance of tobacco to the Chinese government is a key item to address in efforts to reduce smoking in China, which tobacco control advocates must do in a way that optimizes both health and revenue.

Section 3 - The Tobacco Industry Claims that Tobacco Taxes are Regressive and Create Illicit Trade

Knowing the impact of tobacco prices on cigarette consumption, the tobacco industry works hard and invests substantial resources to oppose tobacco taxes. There are two industry tactics or arguments against taxation that have become fairly common: 1) they claim that tobacco taxes are regressive and harm those who can least afford it; and 2) they claim that tobacco taxes lead to illicit trade and tax avoidance. With these arguments, tobacco companies try to influence politics at the state and federal level to prevent additional taxes on their products.

With regard to the first argument against taxes, let us first clarify what is meant by a regressive tax. In contrast to a progressive tax, in which the tax rate increases as the amount subject to taxation increases (as is the case with the U.S. federal income tax, for instance), a regressive tax is one in which the tax rate decreases as the taxable amount increases, or the tax rate remains the same regardless of the taxable amount. The latter is the case with the sales tax and tobacco tax in the U.S. Since the same amount of sales tax is taken with every purchase, regardless of who the purchaser is, sales taxes hurt those with a lower income proportionally more than those with a higher income. The tobacco companies use this as an argument that the poor end up shouldering a greater burden than the rich when it comes to tobacco excise taxes.

Key Takeaway

The tobacco industry claims taxes impact those who can least afford to pay and lead to illicit cigarette trade and tax avoidance.

This view is expressed in the following quote from Altria:

> *[Excise taxes] are unfair to adult tobacco consumers. Revenues from tobacco product excise taxes are often used to fund general government spending that benefits many, while the economic burden of tobacco taxation is placed solely on tobacco consumers. In addition, because* tobacco excise taxes *are based on the product and not on income level, tobacco excise taxes are highly regressive, adversely affecting low-income tobacco consumers more than high-income tobacco consumers.*

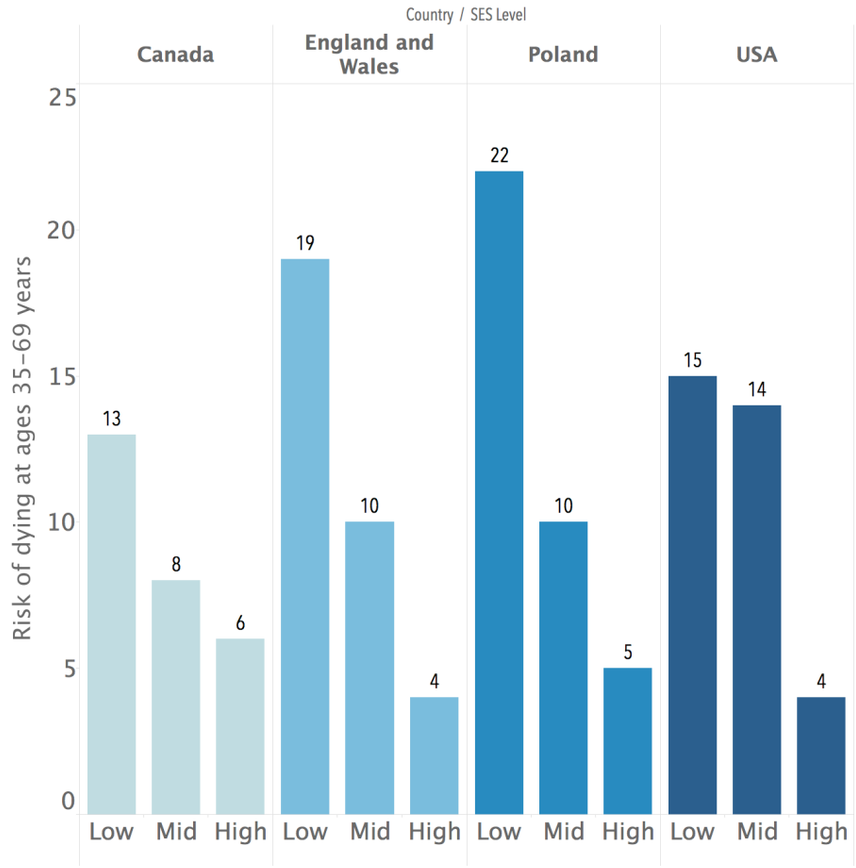
The following data from the U.S. Department of Labor show that indeed, the proportion of income spent on tobacco products is much higher among those in the lower income brackets (Table 10.3). For instance, people who make between $5,000 and $10,000 per year spend on average 3.79% of their income on tobacco products, while people who make $70,000 or more spend only 0.25% of their income on tobacco. Since the poor end up spending a disproportionate part of their income on smoking, they have less money to spend on food, housing, education, health care, and other necessities.

However, the truly regressive aspect in this situation is the fact that the harmful effects of tobacco use are disproportionately experienced by lower-income populations. Figure 10.9 illustrates data from a selection of countries showing that the risk of dying from smoking between the ages of 35 and 69 years is remarkably higher for people with a lower socioeconomic status. We know that people who belong to a lower social class, who are less educated, and who make less income—the people that tobacco companies claim to be concerned about and that they want to "protect" from regressive excise taxes on tobacco—are already the ones who disproportionately suffer from greater levels of

Table 10.3 Income Before Taxes (Average Annual Expenditures and Characteristics), 2011

Income Brackets	Average Income before taxes	Average Amount Spent on Tobacco Products	% of income
All	$63,685	$351	0.55%
Less than $5,000	-$1,393	$299	-21.46%
$5,000 to $9,999	$8,056	$305	3.79%
$10,000 to $14,999	$12,654	$332	2.62%
$15,000 to 19,999	$17,563	$328	1.87%
$20,000 to $29,999	$24,940	$361	1.45%
$30,000 to $39,999	$34,777	$379	1.09%
$40,000 to $49,999	$44,698	$416	0.93%
$50,000 to $69,999	$59,306	$392	0.66%
$70,000 and more	$130,588	$321	0.25%

Figure 10.9 Differential Health Outcomes Due to Smoking



individuals with a higher income. In other words, a significant price or tax increase would result in proportionately more people with low income reducing their consumption—thus improving their health and financial situation. In the best-case scenario, revenues from the tobacco tax would be used to invest in programs that help the low-

illness and early death from smoking. If the tobacco tax disproportionately affects the poor, advocates for tobacco taxation argue that the poor also deserve to have a greater motivation to stop using tobacco products than other groups.

We know too that price more heavily impacts the tobacco consumption of individuals with lower socioeconomic status. Thus, while they pay a larger proportion of their income for tobacco products as the price increases, they are also much more likely to quit than

Figure 10.10 Varying Levels of Tobacco Taxation Across States, 2015

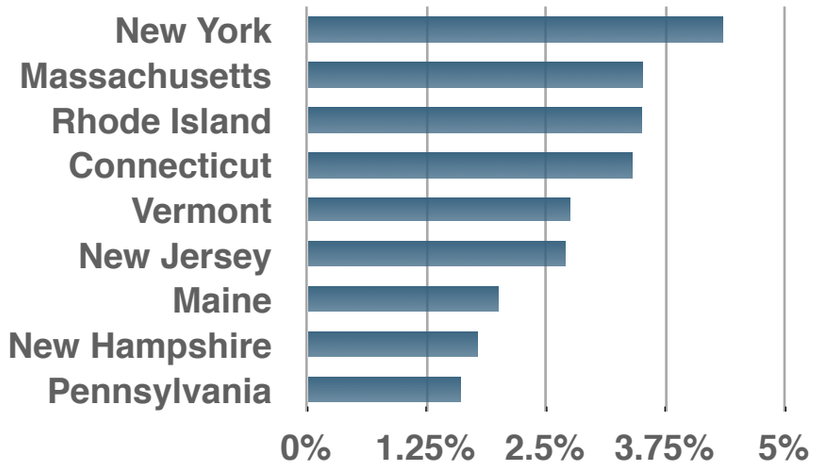


Figure 10.11 The Industry Tends to Exaggerate the Scope of Illicit Trade as a Counterargument Against Tobacco Control Measures



income population to quit smoking.

The second argument commonly used by tobacco companies against tobacco taxes is that they lead to illicit trade and tax avoidance. This matter is of real concern, as there is in fact some level of illicit trade and tax evasion that occurs when neighboring states and counties have widely varying levels of taxation. For example, New York, as mentioned above, has a much higher tax on tobacco than its neighboring states (Figure 10.10). In 2013, two individuals were arrested in New York City for running a cigarette smuggling ring believed to have generated $22 million in just 17 months.

Smuggling and tax evasion are a reality; however, the tobacco industry vastly exaggerates the extent of these violations. Where the emphasis should be on using resources to enforce the law, tobacco companies instead argue that illicit trade is a reason not to levy additional taxes on their products. As shown in Figure 10.11, they intentionally overestimate the scope of illicit trade in order to promote their agenda. The industry's estimates of illicit trade is double that obtained from objective academic studies in each of the examples—the U.K., South Africa, and Poland. The inflated figures for illicit trade are used as a scare tactic to push

Key Takeaway

The tobacco industry exaggerates the scope of illicit trade in order to promote their argument that tobacco control measures lead to illicit trade and tax avoidance.

back on tobacco control measures—not only against excise taxes on tobacco, but also against plain packaging restrictions. They claim that if a package of cigarettes is not allowed to display a brand name, they are easier to counterfeit and will thus lead to an increase in illicit trade.

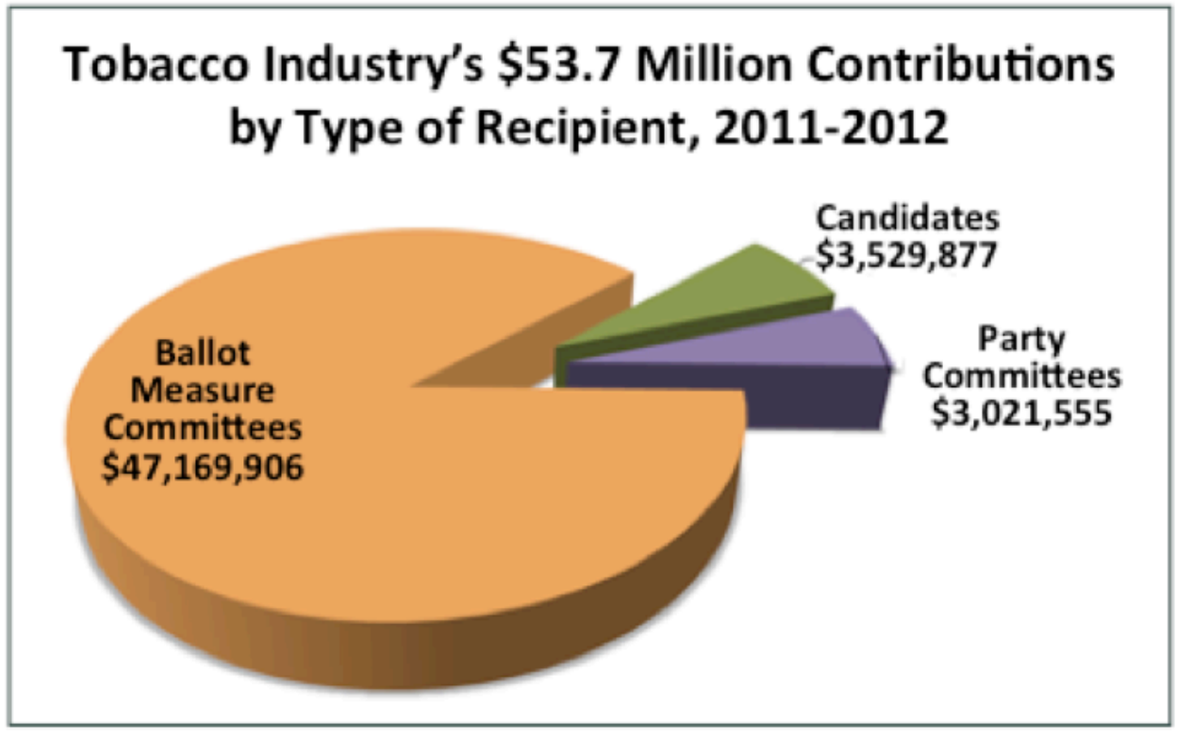
However, the tobacco industry claims that taxes (as well as plain packaging) encourage illicit trade are misleading. A 2013 research letter published in *Tobacco Control* discussed how most of the increase in tobacco prices have been the result of tobacco companies themselves raising their prices, rather than taxes. According to the authors, the tobacco industry's claims about taxes leading to illicit trade,

> *are made despite evidence of the far more complex supply-side drivers of the illicit tobacco trade (including tobacco industry involvement), recent survey evidence showing that price was unrelated to levels of illicit tobacco use across Europe, and data from her Majesty's Revenue and Customs showing that levels of illicit cigarettes in the UK have declined steadily to reach an estimated nine per cent by 2010-11.*
>
> *- Gilmore and Reed, 2013*

The argument that the price of tobacco is what drives illicit trade is disingenuous, and, moreover, illicit trade has in fact declined even while tobacco taxes have increased over time.

Ultimately, even if smuggling and illicit trade were to increase as a result of a tax increase, the fact is that higher taxes on tobacco still result in greater revenues for government and decreased consumption of the product. Certainly, smuggling and illicit trade should be addressed. Governments can do so by having strong tax administrators, increased enforcements, swift and severe penalties for tax avoidance, and collaboration with neighboring regions to even out tax rates. The

Figure 10.12 Tobacco Industry's Political Contributions by Recipient Type, 2011-2012



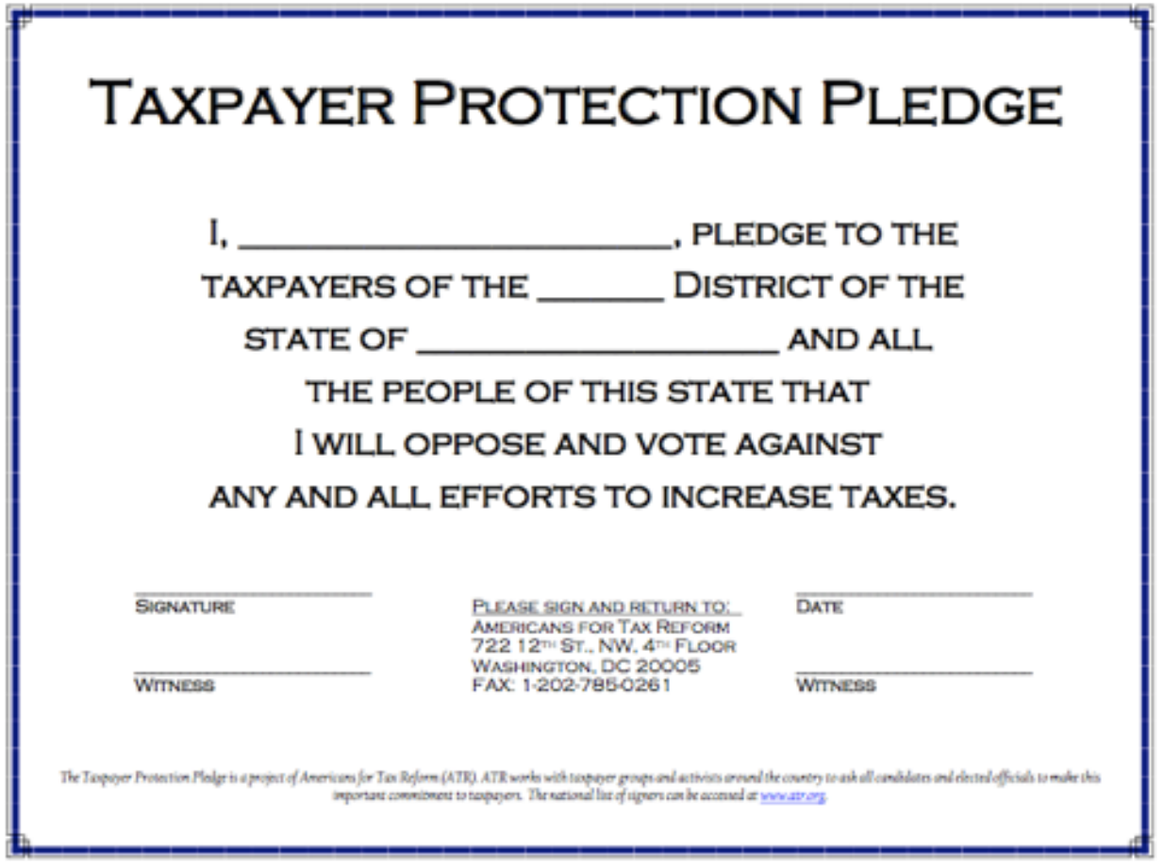
illicit trade in tobacco should not be accepted as a reason not to levy taxes on tobacco.

The real driving force for the tobacco industry is money. Tobacco companies are willing to accept increases in the price of cigarettes if they get to pocket the additional profit, but price increases from government taxes are a different story.

They invest an enormous amount of their resources to defeat efforts to raise the tax on tobacco products (Figure 10.12). In 2011-2012, the four leading tobacco manufacturers—Philip Morris USA, Reynolds American Inc., U.S. Smokeless Tobacco Company, and Altria—contributed $47.4 million to defeat ballot measures that would increase taxes on tobacco.

The issue of tobacco tax increases has been very much politicized in recent years. Politicians are encouraged to pledge not to increase taxes of any type. Since 1986, over 1,100 state office holders have signed the Americans for Tax Reform pledge (Figure 10.13), which includes a promise to oppose tobacco taxes. The tobacco industry has tended to latch onto conservative politicians who are

Figure 10.13 Taxpayer Protection Pledge, from the Americans for Tax Reform



TAXPAYER PROTECTION PLEDGE

I, _____, PLEDGE TO THE TAXPAYERS OF THE _____ DISTRICT OF THE STATE OF _____ AND ALL THE PEOPLE OF THIS STATE THAT I WILL OPPOSE AND VOTE AGAINST ANY AND ALL EFFORTS TO INCREASE TAXES.

SIGNATURE

WITNESS

PLEASE SIGN AND RETURN TO:
AMERICANS FOR TAX REFORM
722 12TH ST., NW, 4TH FLOOR
WASHINGTON, DC 20005
FAX: 1-202-785-0261

DATE

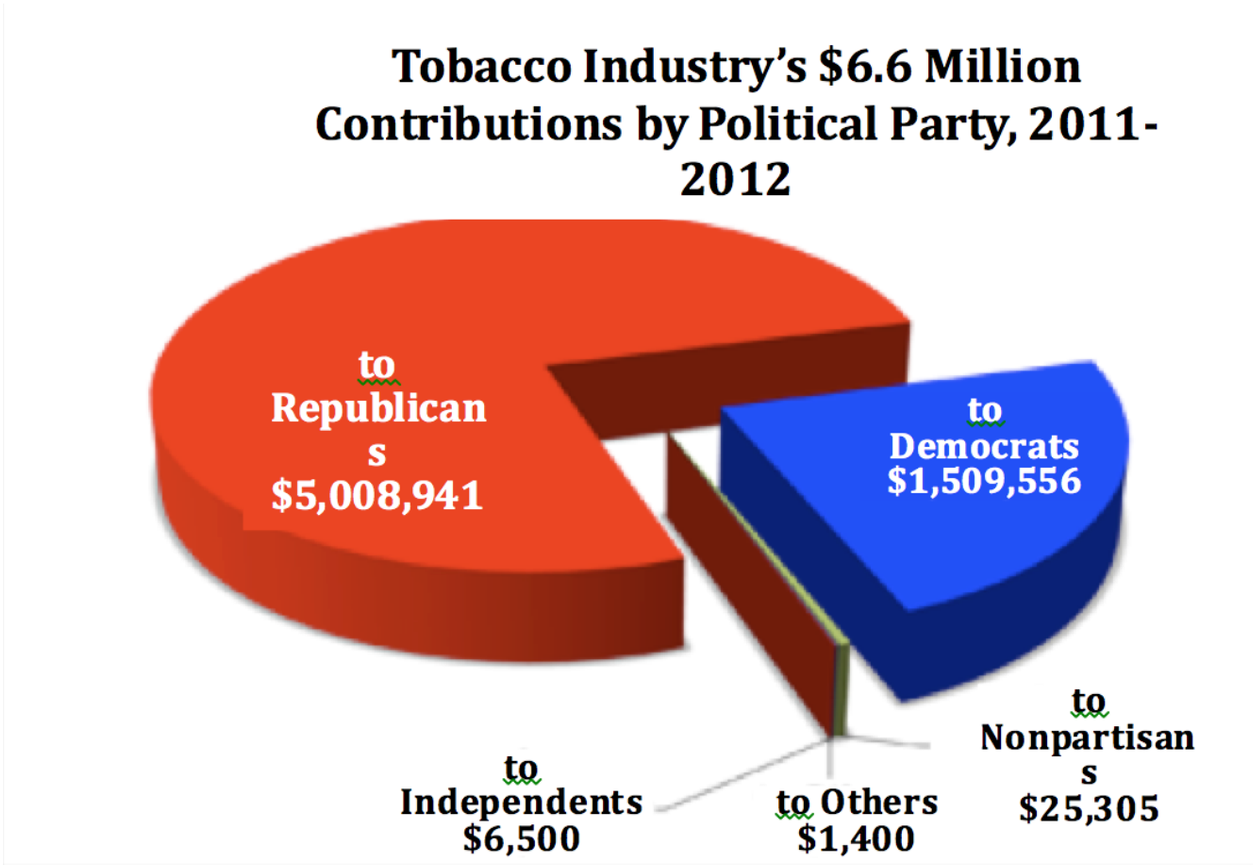
WITNESS

The Taxpayer Protection Pledge is a project of Americans for Tax Reform (ATR). ATR works with taxpayer groups and activists around the country to ask all candidates and elected officials to make this important commitment to taxpayers. The national list of signers can be accessed at www.atr.org.

typically opposed to tax increases, which has led to the politicization of a public health issue that should otherwise be nonpartisan (Figure 10.14).

The Centers for Disease Control and Prevention (CDC) estimate that the health costs and productivity losses caused by smoking equal $10.47 for every pack sold. To tax tobacco in a way that would be commensurate with the harm it causes might mean taxing it by that amount—$10.47 per pack—in every state and locality. We are still far from that scenario, and an important role for tobacco control advocates is to depoliticize the issue of tobacco taxes and ensure that legislators and voters understand the benefits of raising taxes on tobacco, which include the reduction of smoking as well as the increase of resources that can be used to further advance the population's health outcomes.

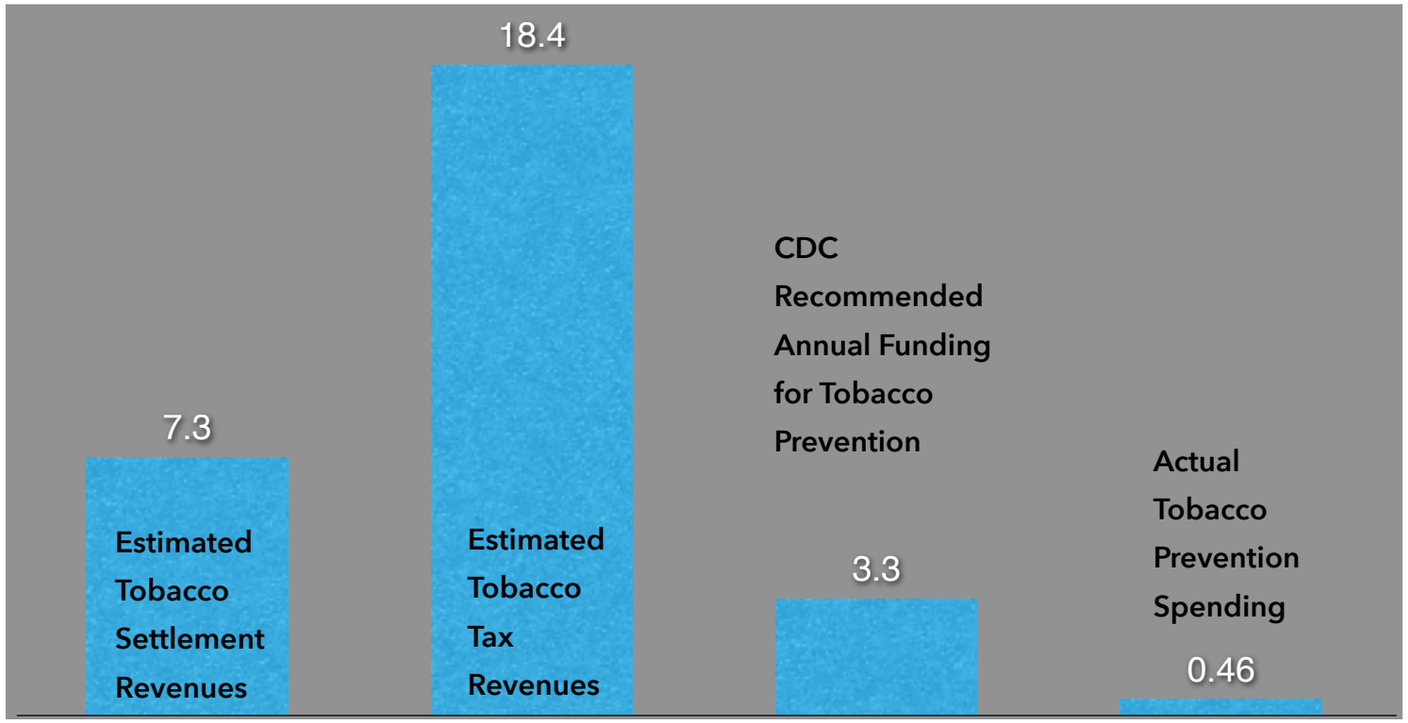
Figure 10.14 Tobacco Industry's Political Contributions by Political Party, 2011-2012



Section 4 - Funding Tobacco Control Through Taxes and the Master Settlement Agreement

In 1998, the largest civil litigation in U.S. history (at the time) came to an end with the signing of the Master Settlement Agreement (MSA). This agreement between the four major tobacco companies, 46 states, the District of Columbia, and five U.S. territories requires the tobacco companies to pay the states and territories billions of dollars in yearly installments to compensate them for taxpayer money that has been spent in connection with tobacco-related diseases. An estimated $246 billion will be paid out in the first 25 years. At the time of signing, both parties agreed conceptually that the funds would be used to prevent future harm from tobacco, and in particular to keep youth from

Table 10.4 Fiscal Year 2015 Tobacco Money for Tobacco Prevention (in billions)



smoking. However, the agreement provides no written restriction on how the states can use these funds, since the allocation of funds is determined by legislatures rather than by legal agreements.

Table 10.4 illustrates the disastrous result of the lack of restrictions on how MSA funds are to be used. The total state tobacco revenue in fiscal year 2015 was $25.6 billion, taking into account revenues from both state tobacco taxes and tobacco settlements. The CDC put forward an estimate of $3.3 billion as the amount that states should spend annually to prevent and control tobacco use. However, we can see that the actual amount spent on tobacco control efforts in the United States is less than half a billion dollars.

Based on these figures, there are some who argue that overly aggressive efforts in reducing tobacco use will ultimately reduce the billions of dollars in state revenue that are generated by the sale of tobacco. But while some find this a worrying prospect, others would welcome such a reduction since a decrease in tobacco consumption is the ultimate goal.

Table 10.5 shows the top ten states that spend the most money on tobacco control. Alaska is in the lead, spending slightly more than the CDC recommended level. On the other end of the spectrum, four states (New Hampshire, New Jersey, North Carolina, and Ohio) do not spend any money on tobacco control. It is also important to note that several states spend less than 2% of the CDC's recommended levels for tobacco control. We can thus see a wide variation in the amount invested in tobacco control programs by each state.

Table 10.5 Top 10 U.S. States Spending the Most Money on Tobacco Control

State	FY2014 Current Annual Funding (millions)	CDC Annual Recommendation (millions)	FY2015 Percent of CDC's Recommendation	Current Rank
North Dakota	$9.5	$9.8	97.1%	1
Alaska	$9.7	$10.2	95.6%	2
Delaware	$8.7	$13.0	66.7%	3
Oklahoma	$23.6	$42.3	55.7%	4
Hawaii	$7.5	$13.7	55.0%	5
Wyoming	$4.6	$8.5	54.1%	6
Maine	$8.2	$15.9	51.4%	7
Arkansas	$17.5	$36.7	47.6%	8
Vermont	$3.9	$8.4	46.4%	9
Colorado	$23.1	$52.9	43.7%	10

Most of the funds coming from state excise taxes on tobacco and the MSA go into each state's general budget. They are not generally earmarked for any particular purpose, and are often used to balance the budget rather than to help deal with the problem of tobacco use. This means that increases in excise taxes are more often prompted by budget shortfalls, rather than public health concerns. If every state and the District of Columbia raised its tax by $1 per pack, they would gain over $8.6 billion in new revenue and save over $1 billion in medical expenses that are avoided due to decreased consumption (Figure 10.15).

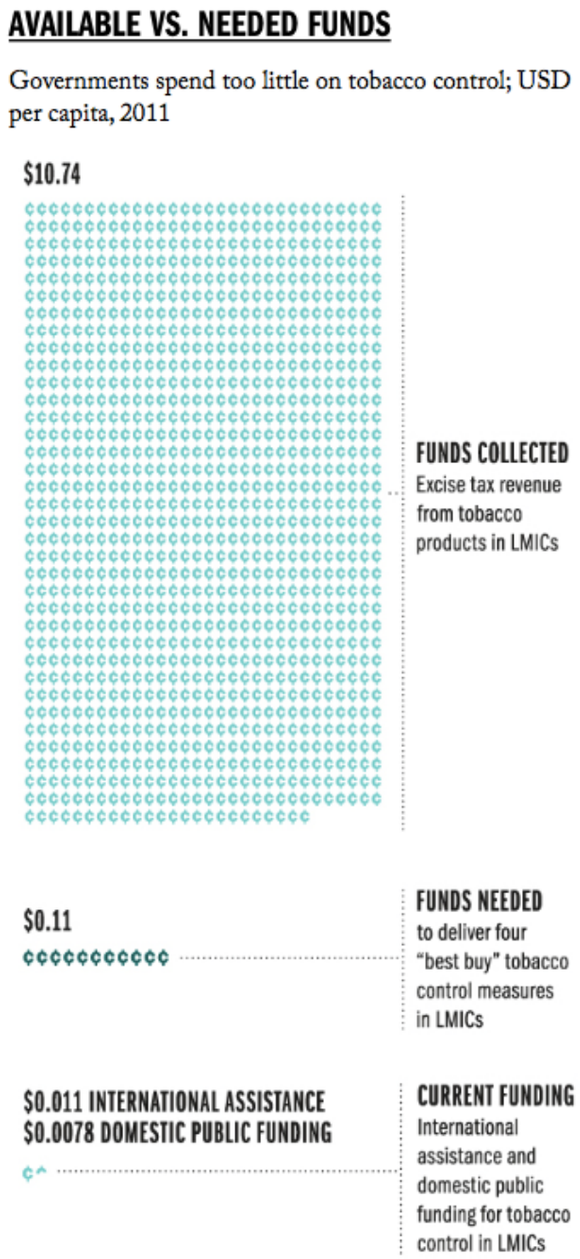
Figure 10.15 Health and Economic Impact of Tobacco Taxes, 2011 (ACS-CAN)

Lung Cancer Treatment Savings	Heart Attack and Stroke Treatment Savings	States' Medicaid Program Savings	Smoking-Related Pregnancy Treatment Savings	Increase in State Revenue
$199.20M	$443.73M	$146.34M	$406.69M	$8.62B

Some states provide great examples of using tobacco revenues for tobacco control efforts. For instance, Alaska spends 20% of its revenues from the MSA and some of its tax revenues for tobacco control. California dedicates 20% of its excise tax revenue to fund its tobacco control program, which is one of the most successful in the country. It is no coincidence that California has one of the lowest smoking rates of any state in the country.

As mentioned above, most revenue from excise taxes and the MSA are not earmarked for any particular purpose. One major exception to this is the $0.62 federal tax increase on tobacco in 2009 (which raised the tax from $0.39 to $1.01 per pack). The funds associated with this tax increase are dedicated to expand the State Children's Health Insurance Program (SCHIP). This program covers 8 million children in families with incomes that are too high to qualify for Medicaid but still can't afford private insurance coverage. This is a good example of using revenue for a public health purpose that at least begins to balance out the harm caused by tobacco products.

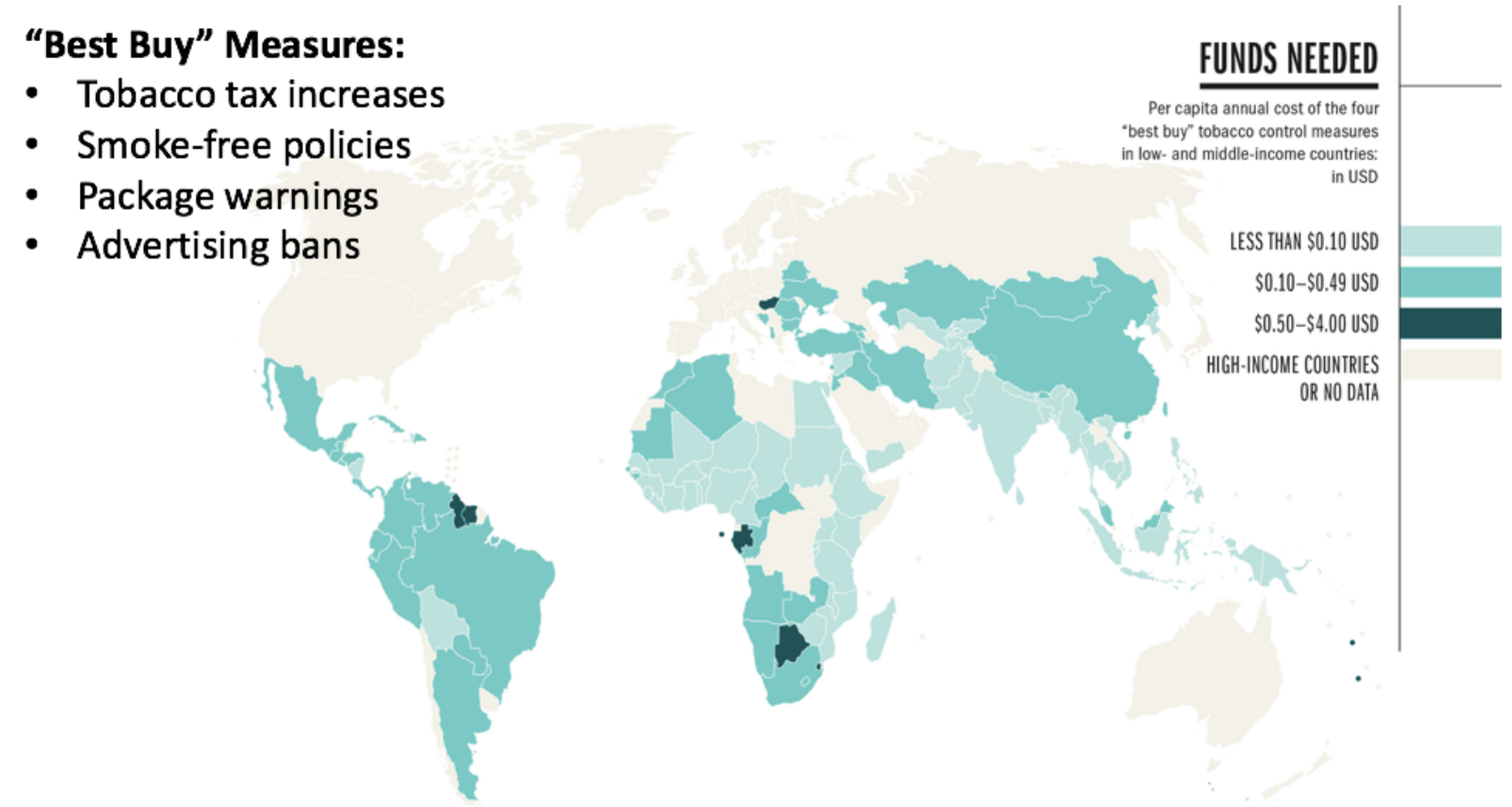
Figure 10.16 Underfunding of Tobacco Control is a Global Problem



Underfunding of tobacco control is not unique to the U.S., but rather it is a global problem. Figure 10.16 shows the per capita dollar amount of funds collected from tobacco excise taxes in low- and middle-income countries (LMICs) ($10.74 per person). In these countries, 11 cents per person is needed to deliver the four "best buy" tobacco control interventions in LMICs. As you can see in Figure 10.17, most of the low- and middle-income countries in the world can provide the four "best buy" measures, including tobacco tax increases, smoke-free policies, package warnings and advertising bans, for less than a dollar per person (USD). Despite these insignificant costs and the availability of funding from tobacco taxes, very little money is designated for tobacco control in LMICs.

In summary, this chapter emphasizes that tobacco tax increases are the single most effective tobacco control strategy for reducing tobacco use. Currently, there is great variation between states, and globally, in the rate of taxation and how revenue is used. Going forward, we can expect to see continued effort to raise the tax on tobacco products and debate on how the funds generated by tobacco sales should be used.

Figure 10.17 Per Capita Funds Required to Implement "Best Buy" Measures in LMICs



Chapter 10 Discussion Questions:

1. Compare the situation in China where the government has a monopoly on the tobacco industry with the situation in the U.S. where tobacco companies fund candidates, parties, and ballot measures committees? How are they similar or different?
2. Should revenues from tobacco tax and the MSA be restricted to tobacco control or public health purposes?

Figures and Tables

Figure 10.1: Demand Theory In Action – Graph 1: Interaction with Supply Determines Market Prices and Consumption and Graph 2: U.S. Consumption and Pack Price Examples
Source: Frank Chalupka, Personal Communication, 2016

Figure 10.2: Cigarette Sales and Average Price per Pack, 1970-2014.
Source: Chaloupka, F. (2015). The Economics of tobacco taxation. Chicago, IL: ImpacTEEN, University of Illinois at Chicago.

Table 10.1: Raising Cigarette Taxes Increases State Revenue and Reduces Smoking
Source: Campaign for Tobacco-Free Kids. (2013). Raising cigarette taxes always increases state revenues (And always reduces smoking).

Figure 10.3: Increased Tobacco Taxes Increase Tax Revenue, Poland, 2010
Source: Eriksen, M., Mackay, J., & Ross, H. (2012). The Tobacco Atlas (Fourth Edition). American Cancer Society.

Figure 10.4: Cigarette Consumption Goes Down as Tobacco Taxes Go Up, Israel

Source: Eriksen, M., Mackay, J., & Ross, H. (2012). The Tobacco Atlas (Fourth Edition). American Cancer Society.

Table 10.2: Certain Groups are More Sensitive to Tobacco Prices than Others

Source: Perucic, A.-M., & WHO. (2012). The demand for cigarettes and other tobacco products.

Figure 10.5: U.S. Youth Smoking Prevalence vs. Cigarette Pack Price, 1991-2011

Source: Campaign for Tobacco-Free Kids. (2015). Raising cigarette taxes always increases state revenues (And always reduces smoking).

Figure 10.6: State Tobacco Excise Tax Rates Throughout the U.S., 2015

Source: Campaign for Tobacco-Free Kids. (2015). Raising cigarette taxes always increases state revenues (And always reduces smoking).

Figure 10.7: Tobacco Excise Tax Revenue as a Percentage of Total Tax Revenues, Selected European Countries, 2008

Source: Eriksen, M., Mackay, J., & Ross, H. (2012). The Tobacco Atlas (Fourth Edition). American Cancer Society.

Figure 10.8: Percentage of Excise and Total Tax Burden Relative to Retail Price on a Pack of Cigarettes, 2010

Source: Ratanachena, S. & Dorotheo, U. (2012). Affordability of cigarettes and the impact of raising tobacco excise taxes in Southeast Asia : Cambodia, Indonesia, Lao PDR, Philippines, Thailand and Vietnam. Southeast Asia Initiative on Tobacco Tax.

Table 10.3: Income before taxes: average annual expenditures and characteristics, 2011

Source: United States Department of Labor, Bureau of Labor Statistics. (2011). Table 2 - Income before taxes: Average annual expenditures and characteristics, Consumer Expenditure Survey.

Figure 10.9: Differential Health Outcomes Due to Smoking

Source: WHO, 2011, Technical Manual on Tobacco Taxation

Figure 10.10: Varying Levels of Tobacco Taxation Across States

Source: The Tax Burden on Tobacco, 2014

Figure10.11: The Industry Tends to Exaggerate the Scope of Illicit Trade as a Counterargument Against Tobacco Control Measures

Source: Eriksen, M., Mackay, J., & Ross, H. (2012). The Tobacco Atlas (Fourth Edition). American Cancer Society.

Figure 10.12: Tobacco Industry's Political Contributions by Recipient Type, 2011-2012

Source: Parkinson, R. (2013). Big Tobacco wins tax battles. National Institute on Money in State Politics.

Figure 10.13: Taxpayer Protection Pledge, from the Americans for Tax Reform

Source: Americans for Tax Reform. (2013). What is the taxpayer protection pledge?

Figure 10.14: Tobacco Industry's $6.6 Million Contributions by Political Party, 2011-2012

Source: Parkinson, R. (2013). Big Tobacco wins tax battles. National Institute on Money in State Politics.

Table 10.4: Fiscal Year 2015 Tobacco Money for Tobacco Prevention (in billions)

Source: Campaign for Tobacco-Free Kids. (2012). Broken promises to our children: The 1998 state tobacco settlement 16 years later.

Table 10.5: Top 10 U.S. States Spending the Most Money on Tobacco Control

Source: Campaign for Tobacco-Free Kids. (2012). FY 2015 State Rankings: States Ranked by Percent of CDC-Recommended Funding Levels

Figure 10.15: Health and Economic Impact of Tobacco Taxes, 2011 (ACS-CAN)

Source: American Cancer Society Cancer Action Network. (2011). Saving lives, saving money: A state-by-state report on the health and economic impact of tobacco taxes.

Figure 10.16: Underfunding of Tobacco Control is a Global Problem

Source: Eriksen M., Mackay J., Schluger, N., Islami, F., Drope, J. (2015). *The Tobacco Atlas*. Fifth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 10.17: Per Capita Funds Required to Implement "Best Buy" Measures in LMICs

Source: Eriksen M., Mackay J., Schluger, N., Islami, F., Drope, J. (2015). *The Tobacco Atlas* (Fifth Edition). American Cancer Society.

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Chapter 11

Marketing Restrictions and Counter-Marketing

Chapter Objectives

1. Explain why marketing restrictions are important in tobacco control efforts.
2. Contrast the purpose and effectiveness of various tobacco marketing restrictions and counter-marketing.
3. Examine the American Legacy Foundation's counter-marketing programs as an example of effective tobacco control counter-marketing.
4. Analyze the concept of warning labels and plain packaging and its potential impact on global tobacco control.

Section 1 - Why Use Marketing Restrictions to Curb Tobacco

In the previous chapters, we discussed the importance of marketing to the survival of the tobacco industry. We know that tobacco kills up to half of all lifetime users. Tobacco companies want to addict new smokers and will do so by any means. We also know that tobacco marketing persuades individuals to start smoking, especially youth. In this section, we will investigate how public health advocates can use restrictions to limit people's exposure to tobacco marketing and help to decrease tobacco consumption. Our discussion will also cover graphic warning labels and counter-marketing strategies that help inform the public about the hazardous effects of smoking and secondhand smoke.

In spite of the claim by tobacco companies that they only market their products in order to get adults who already smoke to either switch their cigarette brand or maintain their brand loyalty, the truth is that tobacco advertising and sponsorships target young people, giving tobacco companies new clients and lifetime addicts. There is no question that tobacco advertising, promotion, and sponsorship are a substantial contributing factor to the initiation of tobacco use among teenagers. Globally, 78% of youth 13 to 15 years of age report regular exposure to some form of tobacco marketing. They are much more likely than adults to be offered free cigarettes by a representative of a tobacco company. Further, in the United States 66% of movies rated PG-13 contain images of smoking.

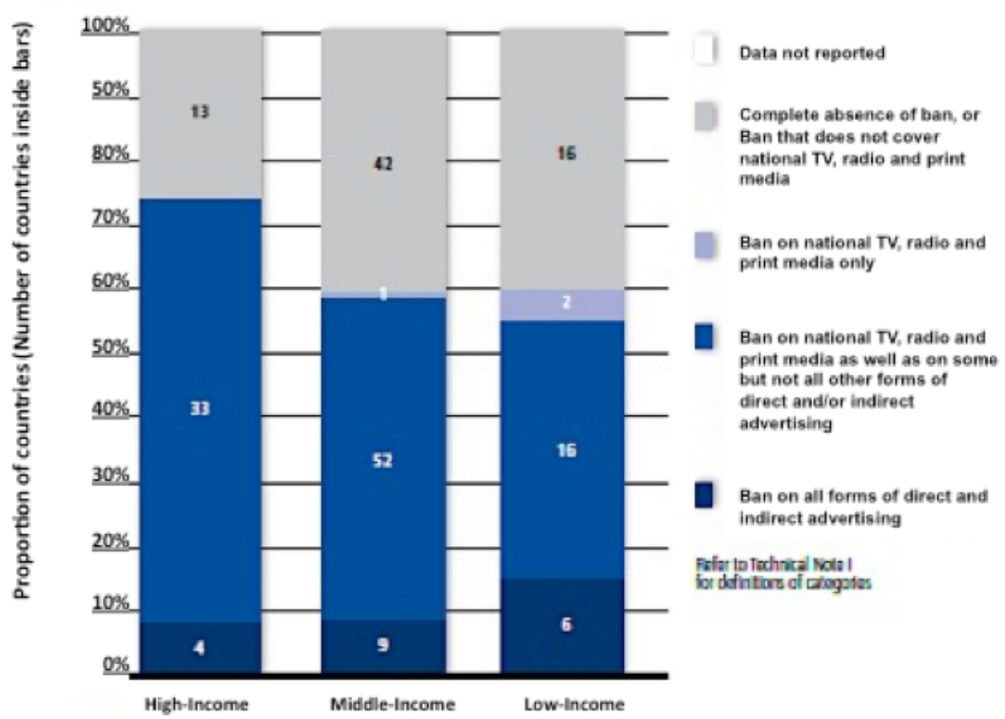
Studies have shown that marketing restrictions are effective in reducing people's exposure to tobacco advertising and, in turn, reducing tobacco consumption. A comprehensive ban on all tobacco advertising, promotion, and sponsorship has the potential to decrease tobacco consumption by approximately 7%, with some countries experiencing up to a 16% decline in consumption. In accordance with its constitution and constitutional principles, the WHO Framework Convention on Tobacco Control (WHO FCTC) requires its member parties to implement a comprehensive ban on all tobacco advertising, promotion and sponsorship. However, so far only 24 countries have met this requirement, representing only 10% of the world's population. Approximately one in three countries has minimal or no restrictions on tobacco marketing.

Key Takeaway

Marketing restrictions are effective in reducing people's exposure to tobacco advertising and, in turn, reducing tobacco consumption

Figure 11.1 is a graph from the WHO Report on the Global Tobacco Epidemic showing the spread of different types of advertising and marketing restrictions for high-, middle-, and low-income countries. It is important to note that there are a greater proportion of low-

Figure 11.1 Global Bans on Advertising, Promotion and Sponsorships, 2011



income countries banning all forms of direct and indirect advertising than high-income countries. In many instances, the U.S. being one example, high-income countries feel limited in their ability to ban all forms of marketing for constitutional reasons. Often, developing countries have greater ability to incorporate such restrictions as laws are still becoming established.

The fight against tobacco marketing in the U.S. has an interesting history. As we have suggested previously, tobacco companies were among the largest advertisers on television in the 1960s. The first Report of the Surgeon General was published in 1964, concluding that cigarette smoking was causally related to lung cancer, but even then, tobacco advertising continued to be aired on television. At that time, the Federal Communications Commission (FCC) had a policy called the Fairness Doctrine, which required broadcast stations to present issues of public importance in a balanced manner. This meant that television stations, for example, could not show only one point of view on a given issue or present a biased perspective; they had to present multiple perspectives and be equitable in their production of television programming. A young attorney named John F. Banzhaf III petitioned the FCC to apply the Fairness Doctrine to cigarette advertising, on the premise that these advertisements were providing an unfair perspective on smoking and disregarding the harm caused by smoking. The other side of the story needed to be told, and Banzhaf demanded equal airtime for anti-smoking messages. To the surprise of many people, the FCC concurred with Banzhaf, and announced on June 5, 1967, that the Fairness Doctrine applied to cigarette advertising. All the television networks that were broadcasting cigarette ads were required to broadcast one anti-smoking commercial for every three cigarette ads that they aired (**Movie 11.1**).

Movie 11.1 Example of Anti-Smoking Commercial Broadcast Following Fairness Doctrine, 1967



As a result of the application of the Fairness Doctrine to cigarette advertising, smoking rates dropped between 1967 and 1970 more than they had in any previous period. Tobacco companies, concerned that more advertising would only result in more counter-advertising on television and radio, voluntarily removed many of their ads from broadcast media. Then, in 1971, the U.S. Congress banned broadcast advertising of cigarettes altogether. Following the voluntary agreement by tobacco companies and the subsequent congressional ban, the focus of tobacco companies shifted to print media advertising. Coverage of smoking and health in magazines carrying cigarette advertisements fell in the post-ban period and cigarette ad revenues increased.

Since then, tobacco companies have spent billions of dollars each year on print and billboard advertisements, with most of their efforts directed at attracting youth. The most egregious example was the Joe Camel campaign (Chapter 7: Tobacco Marketing) in the late 1980s, developed by R.J. Reynolds to get teenage boys to smoke Camel cigarettes. The company's internal memos document the use of extensive market research and focus groups to create a cartoon character that would influence boys to smoke. Camel's share of the teenage market more than quadrupled in just five years as a result of this campaign.

Largely spurred on by the alarming ability of the Camel advertisements to influence young people, the Federal Trade Commission (FTC) launched an investigation into the company's marketing

practices. The study confirmed that Joe Camel was a substantial contributing factor to the onset of smoking among youth. At around the same time as the investigation, the Master Settlement Agreement (MSA) was finalized between the tobacco companies and the state attorneys general. A number of marketing restrictions were included in the MSA: it eliminated billboard and transit advertising, and tobacco companies could no longer use cartoon characters to promote tobacco products. Consequently, the FTC decided not to proceed with further action against Joe Camel because the MSA, by banning cartoon characters in tobacco advertising, had already put in place the very remedy they were seeking. In addition, the MSA restricted free product distribution to only those venues that do not permit children and limited event sponsorships by tobacco companies.

The MSA represented a big step in restricting tobacco marketing in the United States, but the restrictions were by no means comprehensive.

Tobacco companies were still permitted to use human images in their advertising—the Marlboro Man, for instance, could still be used to sell cigarettes. Though billboards were restricted, outdoor advertising up to 14 square feet could still be used on buildings or on the property of places where tobacco is sold (Figure 11.2). Tobacco advertising in magazines and newspapers remained ubiquitous. Today, there are very few countries in the world that remain as lenient on tobacco marketing as the United States.

Figure 11.2 Despite MSA Marketing Restrictions, Tobacco Advertising is Still Visible, as in this L.A. example



A very important debate is now occurring around the marketing of e-cigarettes. As we mentioned, tobacco advertising has been banned from television and radio since 1971. However, the existing laws restricting tobacco advertising do not apply to e-cigarettes. We can now see ads for e-cigarettes on television, in spite of the fact that e-cigarettes are legally considered tobacco products. Indeed, e-cigarettes are not currently regulated by any agency in the U.S., and for the first time, ads like the one shown in Movie 11.2 are allowed to be shown on television.

Movie 11.2 Ad for blu e-cigarette



The most recent effort to curb tobacco use occurred in June 2009, with the signing of the Family Smoking Prevention and Tobacco Control Act by President Barack Obama (Movie 11.3). This act, which went into effect in 2010, gives the U.S. Food and Drug Administration (FDA) comprehensive authority to regulate the manufacturing, marketing and sale of tobacco products. It includes a number of new requirements related to the marketing (labeling, advertising, and promotion) of tobacco products.

Movie 11.3 President Obama Signs the Family Smoking Prevention and Tobacco Control Act into Law, 2009



The Family Smoking Prevention and Tobacco Control Act (FSPTCA):

- Prohibits tobacco brand name sponsorship of any athletic, musical, or other social or cultural event, or any team or entry in those events.
- Requires that audio ads use only words with no music or sound effects.
- Prohibits the sale or distribution of items, such as hats and t-shirts, with cigarette and smokeless tobacco brands or logos.

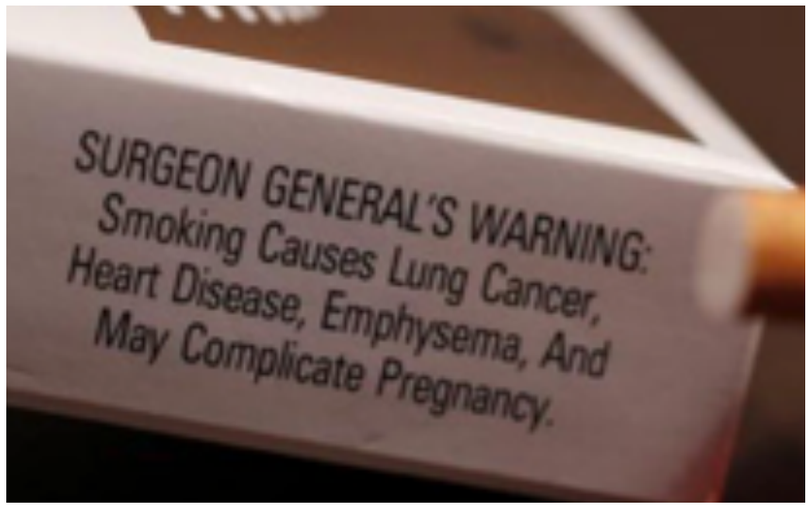
It has been nearly five years since the law was passed, yet many of the restrictions associated with it are still under legal consideration. If fully implemented, the FDA law will require graphic warning labels on cigarette packages and restrict cigarette advertising to black-and-white text, removing color and imagery from tobacco ads. Some steps have already been taken by the FDA to put these new restrictions into action; however, many of the actions are still under litigation in a variety of courts around the country. Tobacco companies have challenged the requirement of graphic warning labels on the grounds that it violates the First Amendment. The graphic warning labels, pictured in Figure 11.3, were deemed unconstitutional in March 2012. The FDA decided not to appeal the ruling and is now in the process of designing new graphic warning labels that comply with the 2009 FSPTCA. Most recently in May 2016, FDA issued a final deeming ruling on e-cigarettes and other tobacco products, such as premium cigars and hookah. The ruling gives FDA the authority to regulate these products in the same manner it regulates traditional cigarettes and smokeless tobacco. Additionally, it establishes several regulations related to the marketing and sale of these products. For example, e-cigarettes cannot be sold to individuals under the age of 18, companies must show what is included in the

products, and health warnings must appear on packaging and advertisements. The FDA is expected to issue further marketing regulations in the future.

Figure 11.3 Revised U.S. Graphic Warning Labels Were Defeated

Graphic warning labels in the U.S. were supposed to look like this as of September 2012





This is how warning labels still look today

Section 2 -Types of Campaigns and Guidelines

So far, we have discussed the important role of marketing in achieving the tobacco industry's purpose of keeping smokers addicted and attracting new smokers, especially among young people. The good news is that marketing campaigns can also be used effectively by tobacco control advocates to protect the public from the harm of tobacco use. Mass media campaigns can reduce tobacco consumption by influencing norms, perceptions, and attitudes toward smoking. They can also be used to protect nonsmokers from exposure to secondhand smoke by encouraging them to advocate for smoke-free environments. They can convince young people to reject the tobacco industry's exploitative marketing efforts. Over half of the world's population live in one of 37 countries that have implemented at least one strong anti-tobacco mass media campaign within the last two years. Mass media campaigns can be very cost-effective and can be implemented in a much shorter time than other tobacco control initiatives, which often require legislation or litigation and take several years, even decades, to accomplish.

The Community Preventive Services Task Force recommends using mass media campaigns on the basis of strong evidence of their effectiveness in reducing tobacco use among adolescents. These campaigns are especially effective when they are combined with other community interventions so that people are exposed to a consistent message that tobacco is harmful

Key Takeaway

Anti-tobacco campaigns in the mass media reduce tobacco consumption by influencing norms, perceptions and attitudes toward smoking.

Figure 11.4 World Lung Foundation's Mass Media Advertising Campaign Guide



and nonsmoking is the norm. Studies conducted in the U.S., Norway, and Finland showed that in follow-up periods ranging from two to five years, self-reported tobacco use was 2.4% lower in groups that were exposed to a mass media campaign. To assist in creating successful mass media advertising campaigns, the World Lung Foundation (which became Vital Statistics in 2016) created a 360 degree process and planning guide (Figure 11.4).

In the U.S., we have seen the launch of a number of counter-marketing campaigns in recent years. The American Legacy Foundation (now known as Truth Initiative) started the truth® campaign in 2000, releasing several anti-tobacco ads with the goal of reducing tobacco use.

Most recently, the FDA has started its own anti-tobacco campaign, under the authority granted in 2009 by President Obama. In February 2014, the "Real Cost" campaign was launched, focusing on preventing youth tobacco use. Targeting young people ages 12 to 17 who have never smoked, the campaign is a comprehensive effort that incorporates ads on television, radio, the Internet, and social media to spread the message about the real cost of smoking (**Movie 11.4**).

Movie 11.4 "The Real Cost" Campaign



The Centers for Disease Control and Prevention (CDC) likewise launched its own national anti-smoking campaign called "Tips from Former Smokers" (Movie 11.5). The campaign ran for three months in 2012 and was re-launched in 2014, providing hard-hitting, emotionally evocative television ads that depict the smoking-related suffering of real people. Upon thorough scientific evaluation of the 2012 campaign, researchers found that it resulted in a 12% increase in quit attempts; that is, an estimated 1.64 million additional smokers made a quit attempt after viewing the ads. In addition, the prevalence of people talking with friends and family about the dangers of smoking rose, resulting in six million people having conversations about smoking's adverse effects.

> "We know that early intervention is critical, with almost nine out of every ten regular adult smokers picking up their first cigarette by age 18."
>
> - FDA Commissioner Margaret A. Hamburg, M.D.

Movie 11.5 Tips from Former Smokers



Though it is often difficult to determine the effect on smoking and quit rates of any single independent intervention (particularly with ongoing developments around FDA regulation, changes in the price of tobacco, additional coverage of clean air laws, and so on), there is

no question that tobacco control interventions are collectively making a difference and will hopefully accelerate the decline of tobacco use. We should, however, temper our optimism with this sobering fact: tobacco control marketing campaigns are still dwarfed by tobacco industry marketing expenditures (Figure 11.5). For instance, CDC's Tips campaign cost $54 million and ran for three months, making it the largest national counter-marketing campaign for adults to have appeared in the U.S. In contrast, the tobacco industry spends $23 million each day on tobacco advertising and promotions. In other words, tobacco companies spend more than 150 times as much on marketing their deadly and addicting product than the CDC spends on spreading anti-tobacco messaging.

Figure 11.5 Comparing Marketing Expenditures of Tobacco Companies vs. CDC Counter-Marketing Campaign



In light of the enormous importance of marketing in the fight against tobacco, the CDC has developed a resource called the Media Campaign Resource Center (MCRC), which provides access to advertisements licensed by the CDC for use by tobacco-control organizations. The MCRC helps state and local jurisdictions that wish to conduct their own counter-marketing efforts by providing tools to

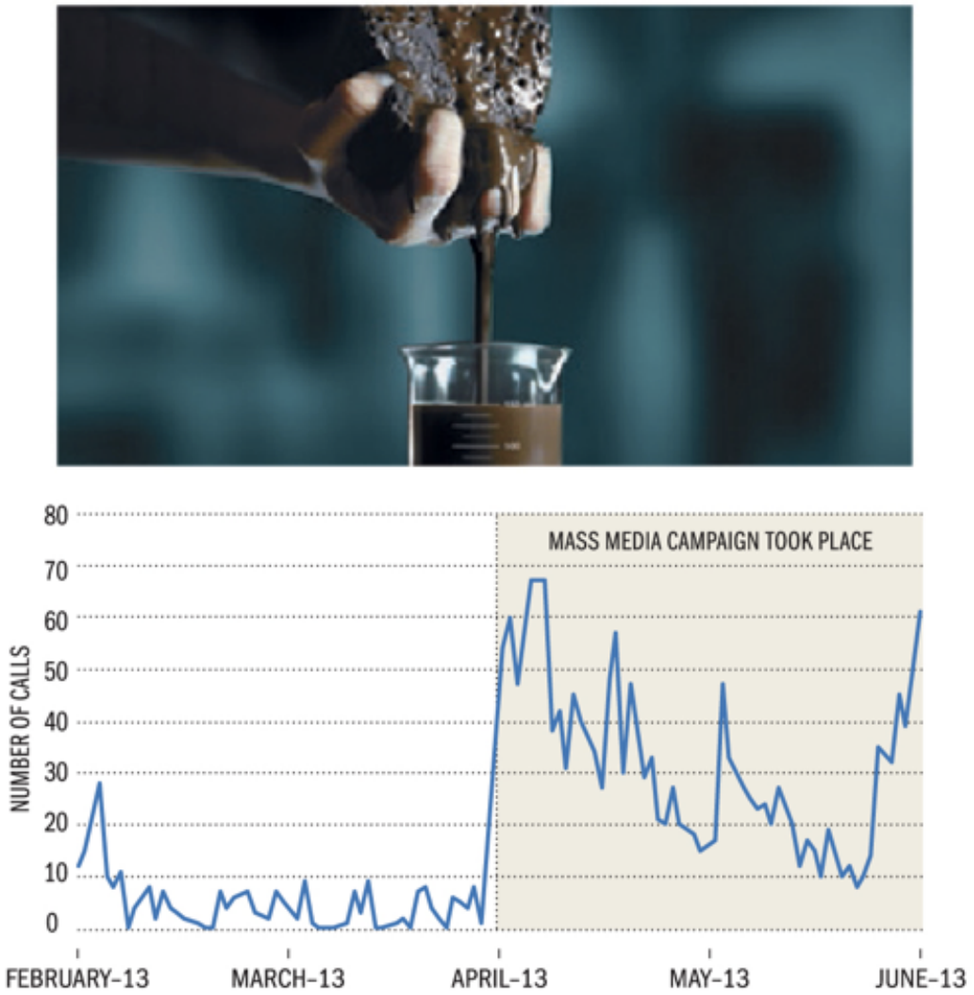
find, learn about, and order already existing tobacco counter-ads without incurring additional expenses.

Based on the experience of a variety of locations in the U.S. and around the world with mass media campaigns, there are eight characteristics that have been identified with successful anti-tobacco programs. These include:

- A strong and sustained presence over time, meaning the campaigns run over many years and are refreshed periodically;
- Adequate funding - the U.S. CDC recommends spending $1.36 - $3.90 per person, per year for an effective media campaign in the U.S.;
- Integrated communication components that complement each other;
- The campaign is integral to a wider tobacco control program and mass media tools are designed to enhance and improve the impact of other tobacco control interventions;
- The campaign is part of a long-term strategic plan;
- Strong creative material that motivates smokers to quit;
- Cultural acceptability and tailoring of campaigns so they are appropriate for target audiences; and
- Thorough pre- and post-campaign evaluation.

Mass media campaigns are an effective global tobacco control tool. Tobacco companies have utilized mass media for decades as a way of promoting smoking. Tobacco control is also using mass media to change these perspectives and provide the truth about the dangers of smoking. Mass media campaigns can be in the form of TV, print and social media, and are used to portray graphic, emotional messages about the dangers of tobacco use. While TV is the most effective medium for tobacco control advertising, radio plays an important role in low- and middle-income countries. As seen in Figure 11.6, the "Sponge" campaign aired in Senegal in April and May 2013 and was extremely effective, resulting in an almost 600% increase in calls to the National Quit Line in Senegal.

Figure 11.6 National TV Campaign Increases Calls to Quit Line in Senegal, 2013



Section 3 - Case Study on Truth Initiative, formerly the American Legacy Foundation

Located in Washington, D.C., the American Legacy Foundation (which became Truth Initiative® in 2015) was created as a result of the November 1998 Master Settlement Agreement reached between attorneys general from 46 states, five U.S. territories and the tobacco industry. A portion of the money received by the states as a result of the settlement was used to establish and fund Truth Initiative, the first national public health organization in the United States dedicated to tobacco control. Truth Initiative envisions an America where tobacco is a thing of the past, where all youth and young adults reject tobacco use. Truth Initiative's public education programs, including truth® and EX®, have been proven effective and nationally-recognized.

Movie 11.6 truth®: Visit truth (www.thetruth.com) For Finish It Campaign Videos and Promotional Material



Truth Initiative has created a variety of groundbreaking tobacco counter-advertisements on the Internet, in print, and on television to get its message to young people. For example, the "Finish It" campaign (**Movie 11.6**) focuses on declining smoking rates among youth, encouraging them to make the fight to end smoking for good. A very marked decrease in teenage smoking between 1997 and 2002 has been attributed to Truth

Initiative's truth® campaign (Figure 11.7). During this period, rates of smoking among youth declined from 28% to 18%. At least 22% of this change has been attributed to the truth® counter-marketing campaign.

Figure 11.7 Changes in Current Smoking Prevalence Among U.S. Students Before and After the Launch of the truth® Campaign in 2000: 1997-2002

	Prevalence of Current Smoking, %			Average Annual Percentage Change (95% Confidence Interval)	
Grade	1997	2002	Change	1997–1999	2000–2002
All	28.0	18.0	-35.7	-3.2 (-3.8, -2.6)	-6.8 (-7.5, -6.1)
8th	19.4	10.7	-44.8	-3.4 (-4.6, -2.1)	-9.0 (-10.4, -7.6
10th	29.8	17.7	-40.6	-4.6 (-5.6, -3.6)	-8.7 (-9.8, -7.5)
12th	36.5	26.7	-26.8	-1.8 (-2.7, -1.0)	-5.1 (-6.1, -3.9)

Along with its youth prevention efforts, Truth Initiative has also invested substantially in programs to help smokers quit. The EX Plan is a free quit-smoking program designed to show smokers a new way to think about quitting. The "Become an EX" campaign was developed in consultation with ex-smokers and scientific researchers from the Mayo Clinic who shared their experiences and knowledge about effective ways to quit smoking and stay quit. Their insights have been incorporated into mass media campaigns and free web resources.

Section 4 - The Ultimate Counter-Marketing – Warning Labels and Plain Packaging

One of the most controversial areas related to tobacco marketing and counter-marketing strategies in the U.S. involves warning labels and plain packaging for tobacco products. Around the world, health warning labels on cigarette packages range from minimal (text-only warnings), to graphic warning labels (pictorial warnings covering the majority of the pack), to plain packaging which takes away all color and logos from the product. According to WHO, the goal of warning labels is to "shift the value of packaging away from marketing and towards public health messaging." We may forget the power of packaging, but just consider for a moment some of our favorite products–think about the logo, the specific coloration of a package,

Figure 11.8 Knowledge About Tobacco Harms is Higher in Countries with Package Warnings, 2011

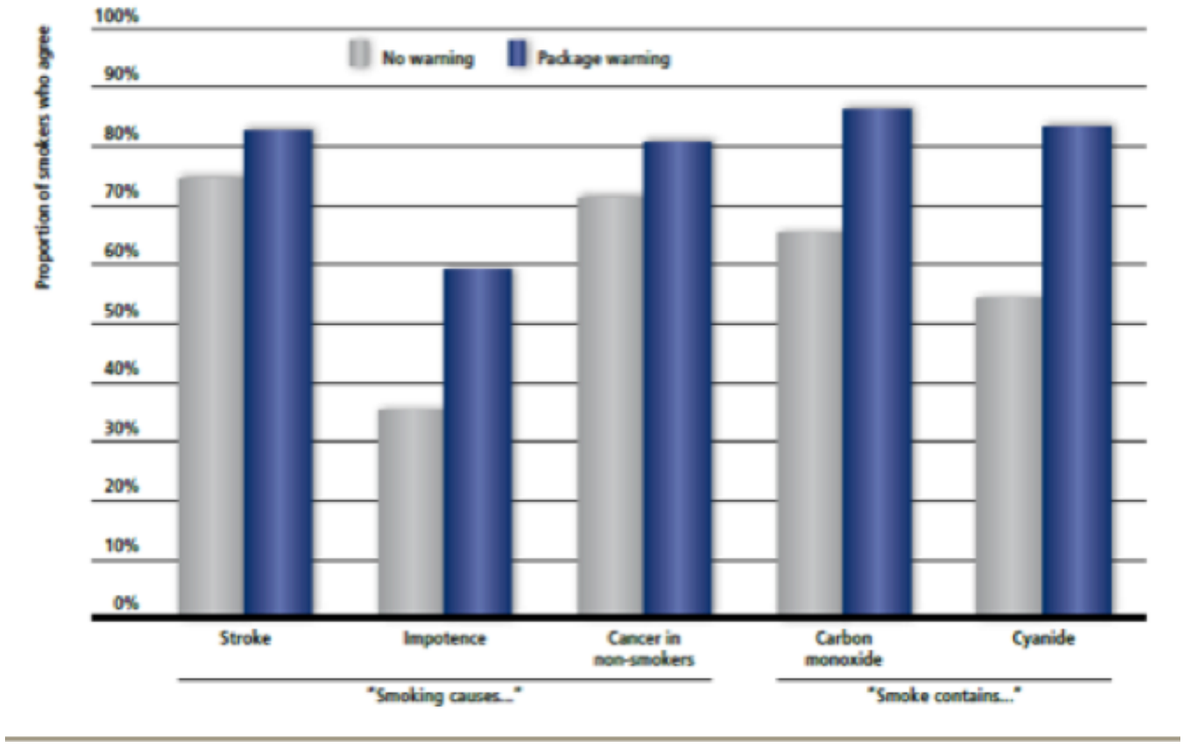


Figure 11.9 U.S. Text-Only Warnings are on the Side of Tobacco Products



Figure 11.10 U.K.'s Larger Text-Only Warnings are on the Front of a Pack



the way the packaging forms an integral part of the identity of the product—may give an idea of the importance of packaging.

As Figure 11.8 demonstrates, people who live in countries that require tobacco package warnings know more about the risk for specific diseases and specific constituents of tobacco smoke than those living in countries that don't require such warnings. At a minimum, warning labels are effective at increasing knowledge about the harms of tobacco use.

In the U.S., tobacco products have text-only warning labels, which minimally impact the appearance of the package (Figure 11.9). The text labels found on the side of a pack of cigarettes are not much different from how they were 40 years ago. The health messages they portray are not very noticeable and can thus be quite ineffective. Some countries, like the U.K., have larger, more prominent text-only messages on the front rather than, or sometimes in addition to, the side of the pack (Figure 11.10).

More recently, the concept of warning labels has expanded from text-only warnings to graphic pictorial warnings (Figure 11.11). Studies have shown that graphic pictorial warnings on

Figure 11.11 An Example From the WHO FCTC Health Warnings Database



cigarette packages reduce the number of youth who start smoking as well as increase the number of current smokers who quit. They also significantly increase people's awareness of the harms of tobacco use. Currently, there are 30 countries (most of them low- or middle-income, and representing 14% of the world's population) that meet best practices for pictorial warnings. Best practices for pictorial warnings recommend warnings in the local language covering at least half of the front as well as the back of cigarette packs. Figure 11.12 shows the top 12 countries in the world in terms of the percentage of the cigarette package that is covered by by graphic labels.

Figure 11.12 Countries with Graphic Warning Labels Covering the Largest Percentage of Pack Area, 2014

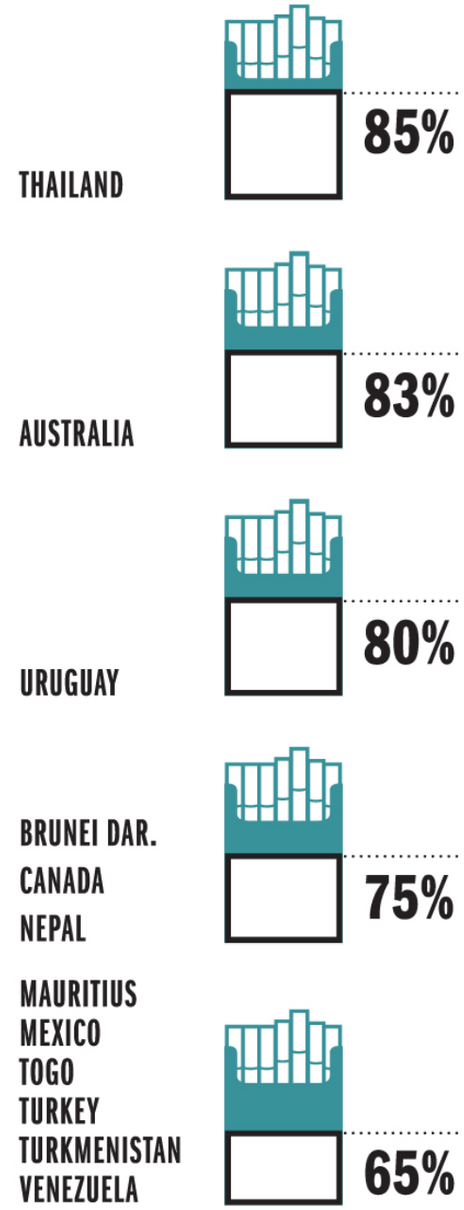


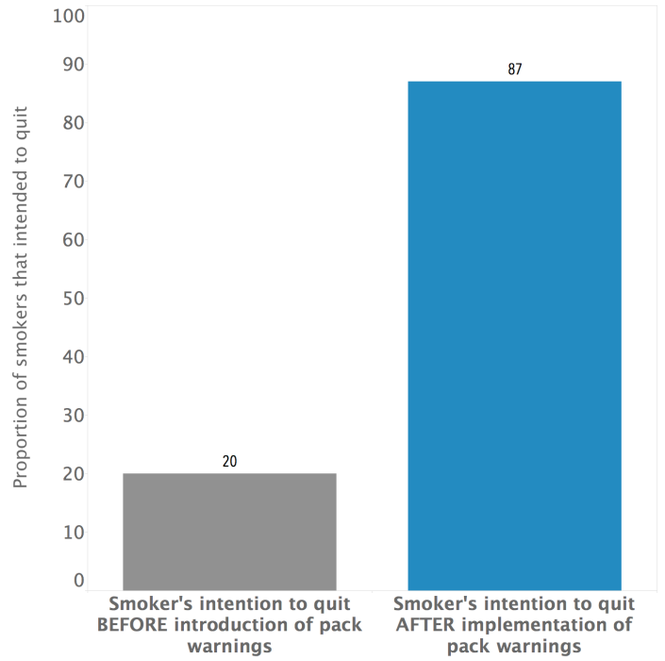
Figure 11.13 Comparison of Graphic vs. Text Warning Labels



In 2012, researchers at the University of Pennsylvania showed that graphic warning labels improve smokers' recall of the warning and health risks associated with smoking, again confirming that graphic warning labels are much more powerful than text-only warnings.

Figure 11.13 shows a side by side comparison of a text-only label compared to a graphic warning label, showing aa child inhaling secondhand cigarette smoke. Researchers have found that graphic warning labels are overwhelmingly supported by the public, often with levels of support at 85-90% or higher, and even most smokers support labeling requirements. Following the introduction of graphic warning labels in Canada, there was a dramatic increase in smokers' intention to quit (Figure 11.14).

Figure 11.14 Intention to Quit Increased with Canadian Pack Warnings, 2011



While graphic warning labels have become standard practice in many countries, the U.S. still lags behind in implementing them to help reduce tobacco use. In this country, there has been an effort to include graphic warning labels (they were part of the law

signed by President Obama in 2009), but the tobacco companies have brought litigation against the FDA and the courts have mandated revisions to the warning labels as they were originally designed. Additional litigation is expected (and it is likely that the case will ultimately be taken to the Supreme Court) before the revised warning labels can be implemented.

Pictorial health warnings on tobacco packages are a proven, cost-effective means of increasing public awareness about the dangers of tobacco use. WHO collects tobacco package health warnings from around the world in its WHO FCTC Health Warnings Database, with the aim of helping countries to share effective pictorial health warnings and messages with one another. Article 11 of the WHO FCTC specifies that member parties (i.e., countries that ratified the Convention) need to have warning labels on the packaging of tobacco products and recommends strongly that these warning labels should be graphic (Figure 11.15).

Key Takeaway

Graphic pictorial warnings on cigarette packages reduce the number of youth who start smoking, increase the number of current smokers who quit, and significantly increase people's awareness of the harms of tobacco use.

FCTC
WHO FRAMEWORK CONVENTION ON TOBACCO CONTROL

Each Party shall, within a period of three years after entry into force of this Convention for that Party, adopt and implement, in accordance with its national law, effective measures to ensure that:

- Each unit packet and package of tobacco products and any outside packaging and labeling of such products also carry health warnings describing the harmful effects of tobacco use, and may include other

Figure 11.15 Brazilian Graphic Warning Label



The following is Philip Morris International's (PMI) position on warning labels and plain packaging:

"Because smoking causes a number of diseases, we support laws that mandate that health warnings *rotate to allow for several different messages. . . However, we do not support excessive warning sizes. . . Our distinctive trademarks, logos, and pack designs are extremely valuable intellectual property, and using warnings for the purpose of debasing or overwhelming that property as opposed to informing consumers is inappropriate."*

PMI acknowledges that smoking causes disease (in spite of having denied this for decades), but uses the guise of protecting its "valuable intellectual property" to reject prominent health messaging on cigarette packages.

Indeed, what companies like PMI fear most is the implementation of plain packaging. Considered the gold standard of warning labels, plain packaging is the standardization of cigarette packaging that removes all product advertising, including colors, logos, and brand imagery, and enforces restrictions on font size and type that can be used on tobacco packages (Figure 11.16).

Figure 11.16 Plain Packaging - The Gold Standard of Warning Labels

Images used with permission of the Australian Government



Key Takeaway

Australia was the first country to implement plain packaging legislation in 2012, and several other countries around the world are now considering the same.

In 2012, Australia became the first country to pass plain packaging legislation. Australia's government has been extraordinarily aggressive in trying to reduce tobacco use and the goal of the plain packaging law was to prevent tobacco advertising and promotion on tobacco product packaging in order to reduce their attractiveness and appeal for consumers, especially youth (Figure 11.17). Plain packaging also increases the noticeability and effectiveness of the health warnings on the package. Overall, the Australian tobacco packaging laws reduce the ability of tobacco companies to use the packaging of their products to continue to mislead consumers about the harm caused by smoking. These laws contribute to the long-term objectives and efforts of Australia's comprehensive tobacco control program to reduce smoking rates. A year after plain packaging was introduced in Australia, smoking prevalence fell by 15%.

Following Australia's example of implementing plain packaging, a number of other countries have looked into passing similar legislation. Ireland is expected to be the second country to pass plain packaging; Scotland and the U.K. are also considering plain packaging.

The widespread implementation of plain packaging laws would be a huge step for tobacco control. As expected, Australia's announcement of plain packaging generated an immediate reaction from the tobacco companies. Often, we can tell the

Figure 11.17 Tobacco Packaging is a Means of Marketing, and Plain Packaging Disrupts this Marketing Avenue for Tobacco Companies

Images used with the permission of the Australian Government



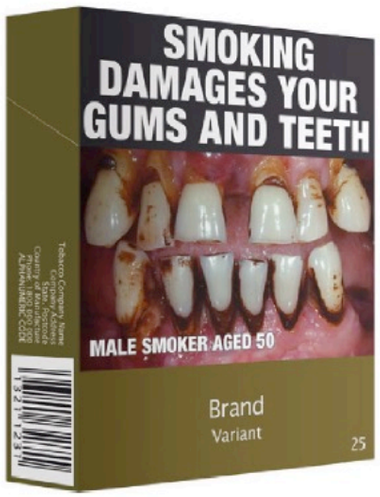
effectiveness of a particular tobacco control intervention by observing tobacco companies' reactions to its implementation. The industry launched mass media campaigns, funded front groups, funded their own research, sued the Australian government, and began to dispute plain packaging in terms of existing trade agreements through the World Trade Organization. These reactions from the tobacco industry demonstrate just how important the packaging is for tobacco and the extent to which it is used as a means of marketing and maintaining a brand image (Figure 11.18). Tobacco companies fear losing this last, mostly unregulated marketing avenue.

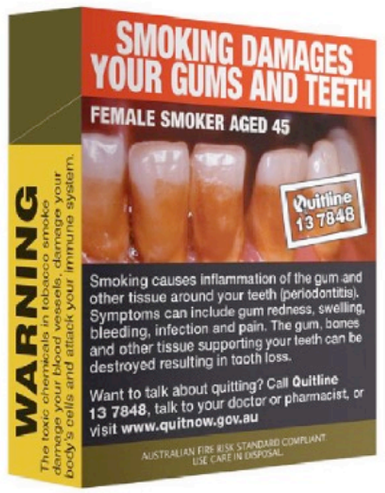
Extremely concerned about the spread of plain packaging laws around the world, the tobacco companies are attacking the policy on two fronts. First, they claim that generic packaging or plain packaging has not been proven to be effective in cutting rates of smoking—that there is no evidence that it actually works as a tobacco control measure. Second, they suggest that plain packaging leads to illicit trade and criminal behavior, as people would go across national borders to acquire cigarettes in their traditional packs. Indeed, plain packaging

Figure 11.18 Example of Australian Plain Packaging

Images used with permission of the Australian Government

Health Warning Image © Professor Laurence J Walsh, The University of Queensland





has caused such panic among tobacco companies that we see PMI actually pushing for governments to disregard this policy—on the grounds that it is as yet "untested, speculative"—and instead "implement and reinforce proven, effective measures to reduce youth smoking and address concerns about the harm caused by tobacco." We know that these proven, effective measures are tax increases, clean indoor air laws, and marketing restrictions—the very things that the tobacco industry spends billions fighting against in other venues.

Ultimately, the tobacco industry may or may not be able to influence governments on the issue of plain packaging. But there are challenges on other fronts as well. As already mentioned, because the tobacco companies were unsuccessful in overturning the Australian decision, they have taken their complaints to the World Trade Organization (WTO). Located in Geneva, Switzerland, the WTO oversees 159 countries, ensuring that member economies

Here is what Philip Morris International says about plain packaging:

"The scientific studies of generic packaging conducted in the last decade and a half have failed to produce credible evidence supporting generic packaging. These studies have not even attempted to establish a meaningful link between youth smoking uptake and cigarette packaging."

And further:

"In lieu of implementing generic packaging—an untested, speculative measure likely to backfire—governments can implement and enforce proven, effective measures to reduce youth smoking and address concerns about the harm caused by tobacco."

respect the rules of global commerce. Indonesia, Ukraine, Honduras, the Dominican Republic, and Cuba have challenged Australia at WTO over plain packaging. The plaintiff countries argue that Australia's law breaches international trade rules and intellectual property rights to brands. The complaints are still in process at WTO, but the Australian government re-affirms its commitment to tobacco plain packaging laws. In the meantime, Australia is certainly free to continue to enforce plain packaging within its own borders—the complaints have to do only with tobacco products traded and exported outside of those borders. Other countries may do well not to wait for the outcome of the WTO proceedings, which may take several years, but to establish their own plain packaging rules within their sovereign boundaries. Interestingly, in June 2015 Ukraine, the first of the five countries to challenge Australia's plain packaging laws suspended its legal proceedings against Australia. Leaders of Ukraine, a party to the WHO FCTC, stated that the country intends to pursue a mutually agreed upon solution with Australia on the issue of plain packaging.

Movie 11.7 Hear from the Experts: Simon Chapman



To conclude this chapter on marketing restrictions, we have an inspiring video from Dr. Simon Chapman (Movie 11.7), who shares his experience with plain packaging in Australia. Dr. Chapman is a Professor of Public Health at the University of Sydney and has won many awards for his leadership in tobacco control.

Chapter 11 Discussion Questions:

1. Are you surprised to learn that the U.S. has one of the least restrictive laws for tobacco advertising? Why do you think this is the case even as compared to other democratic countries?
2. Present arguments for and against plain packaging laws keeping in mind the tobacco industry's claim of first amendment rights.
3. While the U.S. and other countries are working to implement plain packaging laws, brainstorm other counter-marketing methods that can be pursued.

Figures and Tables

Figure 11.1: Global Bans on Advertising, Promotion and Sponsorships

Source: WHO Report on the global tobacco epidemic, 2011: Warning about the dangers of tobacco

Movie 11.1: Example of Anti-Smoking Commercial Broadcast Following 1967 Fairness Doctrine

Figure 11.2: Despite MSA Marketing Restrictions, Tobacco Advertising is Still Visible

Source: Ban Billboard Blight

Movie 11.2: Ad for blu e-cigarette

Movie 11.3: President Obama Signs the Family Smoking Prevention and Tobacco Control Act into Law

Figure 11.3: Revised U.S. Graphic Warning Labels Were Defeated

Source: CNN. (2013). FDA changes course on graphic warning labels for cigarettes

Source: Truth in Advertising

Figure 11.4: World Lung Foundation's Mass Media Advertising Campaign Guide

Movie 11.4: "The Real Cost" Campaign

Movie 11.5: Tips from Former Smokers

Figure 11.5: Comparing Marketing Expenditures of Tobacco Companies vs. CDC Countermarketing Campaign

Source: Georgia State University School of Public Health, 2013

Movie 11.6: truth®: Visit truth For Finish It Campaign Videos and Promotional Material

Figure 11.6: National TV Campaign Increases Calls to Quit Line in Senegal, 2013

Source: Eriksen, M., Mackay J., Schluger, N., Islami, F., Drope, J. (2015). *The Tobacco Atlas*. Fifth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 11.7: Changes in Current Smoking Prevalence Among U.S. Students Before and After the Launch of the truth® Campaign in 2000

Source: Farrelly, M. C., Davis, K. C., Haviland, M. L., Messeri, P., & Healton, C. G. (2005). Evidence of a dose-response relationship between "truth" antismoking ads and youth smoking prevalence. American Journal of Public Health, 95(3), 425–431. doi:10.2105/AJPH.2004.049692.

Figure 11.8: Knowledge About Tobacco Harms is Higher in Countries with Package Warnings

Source: World Health Organization. (2011). WHO Report on the global tobacco epidemic, 2011: Warning about the dangers of tobacco.

Figure 11.9: U.S. Text-Only Warnings are on the Side of Tobacco Products

Source: Carrie Whitney, 2016

Figure 11.10: U.K.'s Larger Text-Only Warnings are on the Front of a Pack

Figure 11.11: An Example From the WHO FCTC Health Warnings Database

Source: World Health Organization. (2013). Health Canada: Cigarettes cause lung cancer.

Figure 11.12: Countries with Graphic Warning Labels Covering the Largest Percentage of Pack Area, 2014

Source: Eriksen M., Mackay J., Schluger, N., Islami, F., Drope, J. (2015). *The Tobacco Atlas*. Fifth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 11.13: Comparison of Graphic vs. Text Warning Labels

Source: Stanford Research Into The Impact of Tobacco Advertising

Figure 11.14: Intention to Quit Increased with Canadian Pack Warnings, 2011

Source: World Health Organization. (2011). WHO Report on the global tobacco epidemic, 2011: Warning about the dangers of tobacco.

Figure 11.15: Brazilian Graphic Warning Label

Source: Stanford Research Into The Impact of Tobacco Advertising

Figure 11.16: Plain Packaging - The Gold Standard of Warning Labels

Source: Australian Government, 2015

Figure 11.17: Tobacco Packaging is a Means of Marketing, and Plain Packaging Disrupts this Marketing Avenue for Tobacco Companies

Source: Australian Government, 2015

Figure 11.18: Example of Australian Plain Packaging

Source: Australian Government, 2015

Movie 11.7: Hear from the Experts: Simon Chapman

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Chapter 12

Tobacco Cessation

Chapter Objectives

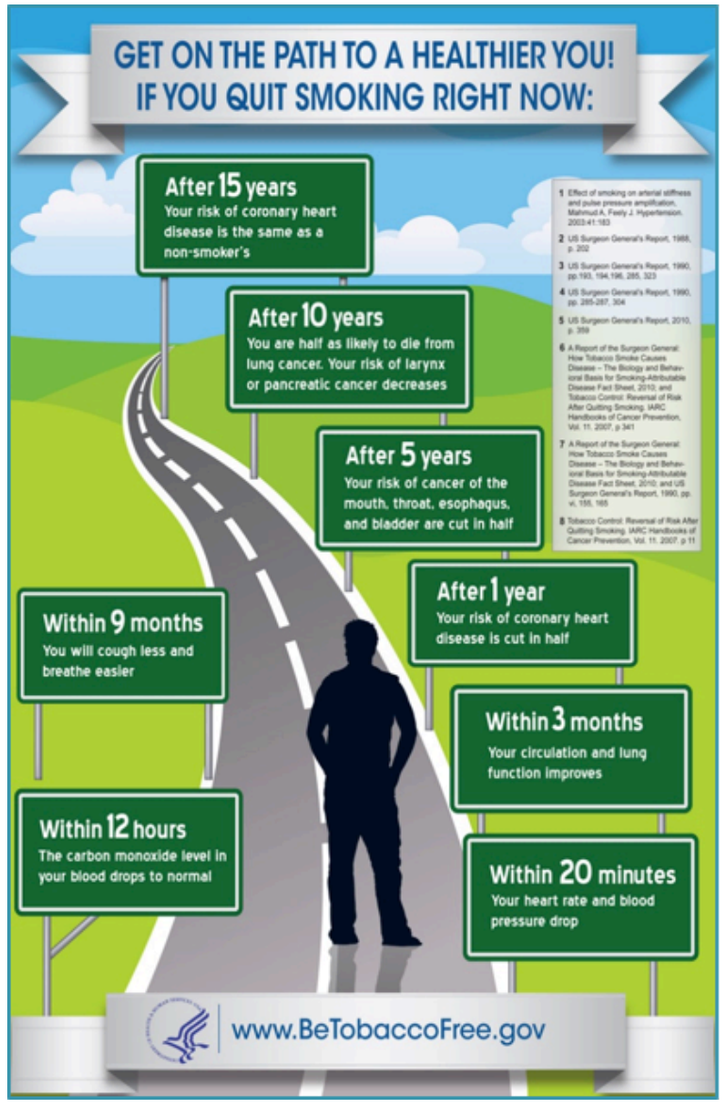
1. Recognize that nicotine addiction is a chronic condition often requiring multiple interventions and quit attempts.
2. Classify interventions as either population-based or clinical.
3. Analyze the effectiveness of population-based interventions and their role in a comprehensive tobacco control program.
4. Contrast clinical-level cessation support and interventions.
5. Examine why special populations experience additional challenges around cessation.

Section 1 - The Basics of Cessation

In the previous chapters, we learned about the harm of tobacco use. We know that tobacco smoke contains a deadly mix of more than 7,000 chemicals, of which about 70 are known to cause cancer. There are more deaths each year caused by tobacco use than deaths from HIV, illegal drug use, alcohol use, motor vehicle injuries, suicides, and murders combined. The adverse health effects from cigarette smoking account for nearly one in every five deaths each year in the United States, making tobacco use the leading preventable cause of death in this country. Those who stop smoking greatly reduce their risk for disease and premature death, and efforts to increase smoking cessation are among the most important public health interventions.

Quitting smoking has many immediate as well as long-term results. One of the reasons why smokers have an elevated risk of heart disease is that oxygen in the blood

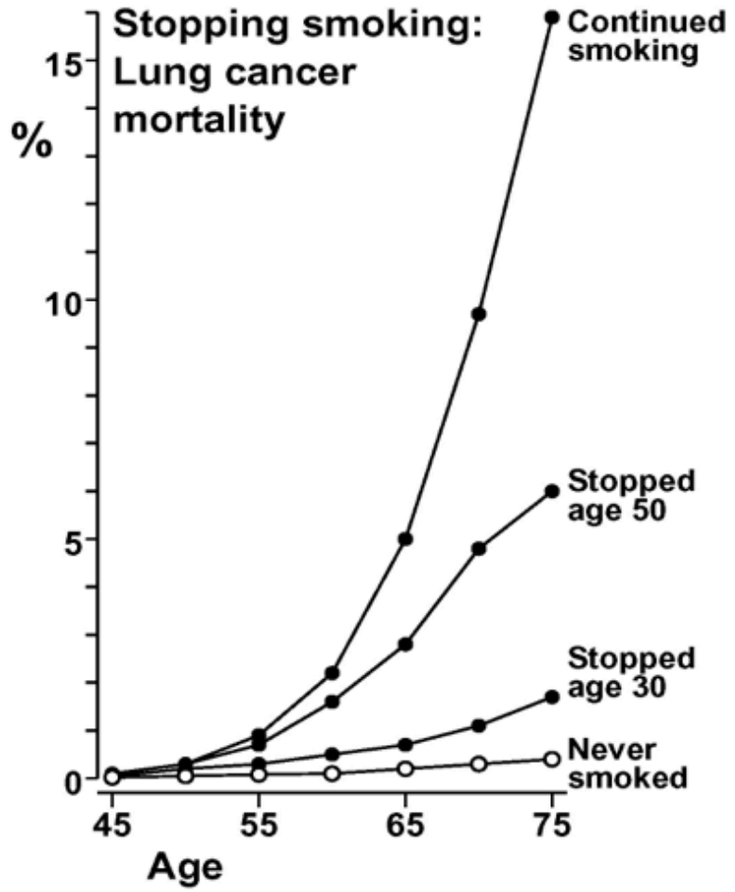
Figure 12.1 Smoking Cessation Infographic from the U.S. Department of Health and Human Services, 2012



is replaced by the carbon monoxide from smoke. Within only 12 hours after quitting, carbon monoxide levels in the blood return to normal. After a year, the risk of coronary heart disease is cut in half; after 5 years, the risk of some cancers are likewise reduced by half; after 10 years, the risk of death from lung cancer is reduced by half; and after 15 years, the risk for coronary heart disease is the same as that of a never-smoker (Figure 12.1).

Researchers from Oxford University conducted studies on smoking-related deaths, collecting data starting from 1950. Figure 12.2 provides a compelling summation of the benefit of quitting, and especially of quitting earlier rather than later. For a never-smoker, the risk of dying from lung cancer is close to 0%. Smokers who quit at the age of 30 have significantly less risk of lung cancer mortality than those who smoke until age 50 or older.

Figure 12.2 Stopping Smoking: Lung Cancer Mortality



Putting smoking cessation within the broader context of public health, Figure 12.3 comes from a World Bank report that looks at projections of tobacco-caused deaths over the first half of the 21st century. If there is no change in tobacco uptake and cessation rates, the number of deaths from

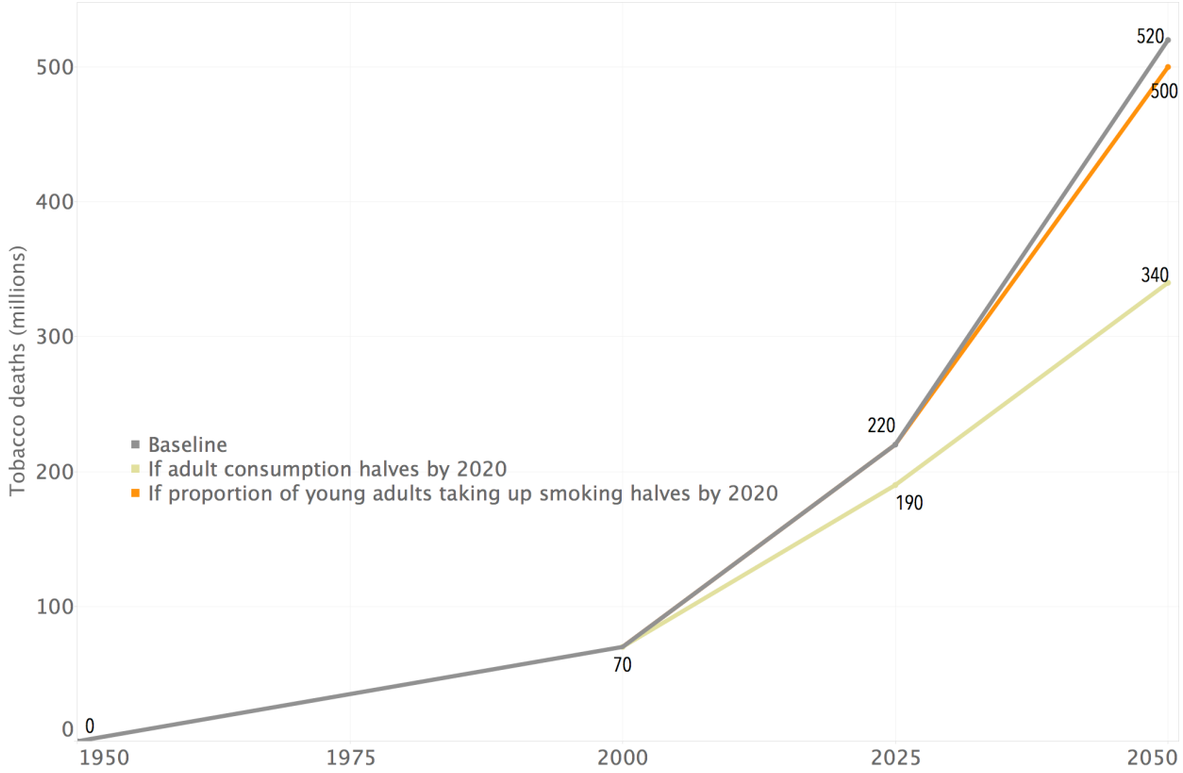
Key Takeaway

Unless current smokers quit, tobacco deaths will rise dramatically in the next 50 years.

tobacco will total approximately 520 million by the year 2050. But if we are successful at cutting in half the proportion of young adults who take up smoking, the number of tobacco deaths would be reduced to 500 million. This would certainly be an achievement, but it is still a rather small impact on mortality. This may be explained by the fact that deaths from tobacco normally do not happen within 40 years of the initial uptake, which means that changes in youth tobacco initiation rates would not be likely to affect overall tobacco mortality until after 2050. In order to have a significant impact on tobacco mortality before 2050, the consumption of cigarettes by current adult smokers must be reduced. If the adult consumption rate is halved by 2020, tobacco mortality in 2050 would be closer to 340 million rather than the projected 520 million.

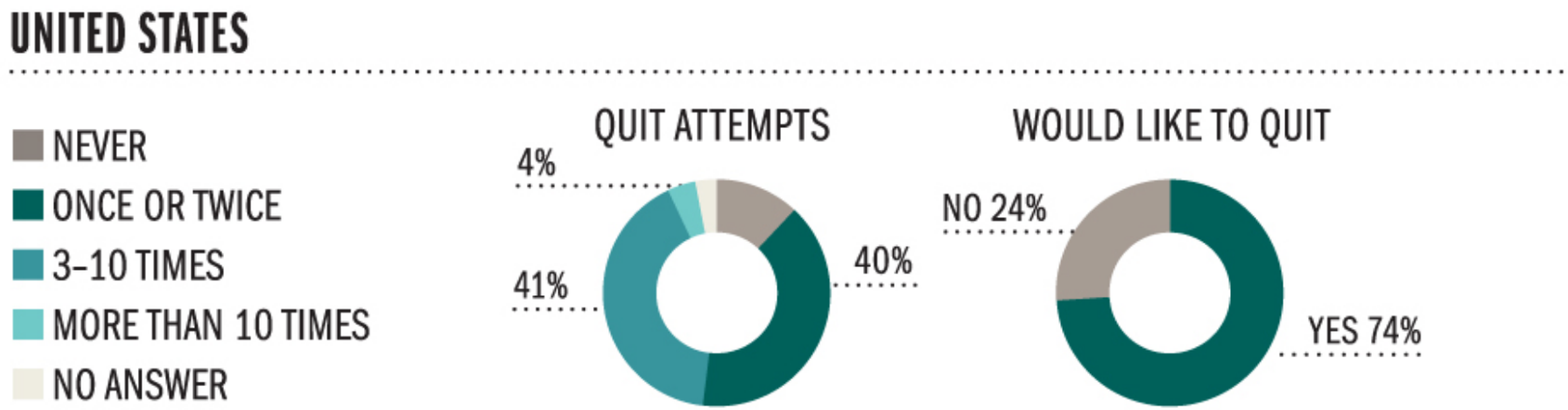
No one really disputes that smoking cessation would have a dramatic impact on public health. However, it

Figure 12.3 Estimated Cumulative Tobacco Deaths 1950-2050, with Different Intervention Strategies



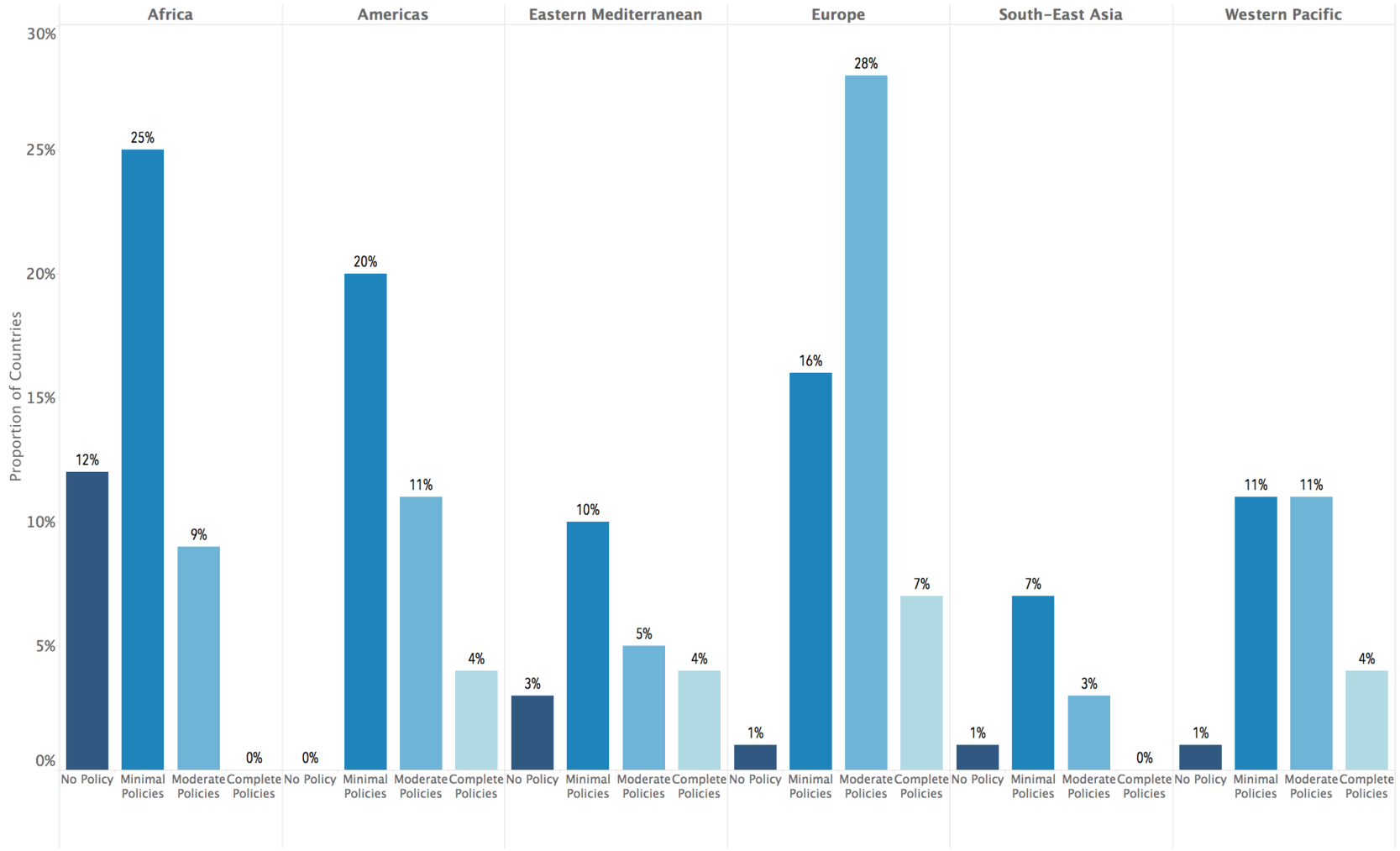
remains a daunting challenge because smoking is addictive and quitting can be very difficult. In Figure 12.4, we see 2013 data that shows almost 75% of smokers would like to quite and that most make multiple quit attempts. In the U.S., there are now more ex-smokers than there are current smokers.

Figure 12.4 Most Smokers in the U.S. Would Like to Quit and Make Multiple Quit Attempts, 2013



A couple of points should be made clear about cessation. The first is that nicotine dependence is a chronic condition that requires repeated interventions and treatments. Most smokers quit multiple times before they are able to quit permanently, and so it requires an ongoing effort to encourage and reinforce cessation attempts and the knowledge that relapse can occur. Population-based interventions have made a positive impact on cessation rates (Chapter 8: Tobacco Control Frameworks). Cost-effective and targeted at large groups of smokers at once, population-based interventions include strategies such as smoke-free air laws, tax increases, marketing restrictions, and graphic warning labels. Individual cessation programs are helpful in assisting individuals to quit and

Figure 12.5 Cessation Programmes Policies, by WHO Region, 2010



include such treatments as nicotine replacement therapy, physician counseling, and behavioral cessation therapies. Both population-based and individual interventions are necessary in order to have a large collective effect on the prevalence of smoking.

The World Health Organization (WHO) estimates that over 85% of the world's population do not have access to comprehensive treatments for tobacco dependence, especially in developing countries (Figure 12.5).

Table 12.1 shows data collected from select countries, which are all WHO Member States, using the Global Adult Tobacco Survey and compares the proportion of smokers who have attempted to quit, thought about quitting or been advised by a healthcare professional to quit. Of the countries included, Mexico had the highest proportion of smokers making at least one quit attempt in the past 12 months (56.9%). We see extremely low rates of smokers who are thinking about quitting in Viet

Table 12.1 Cessation Among WHO Member States in a GATS Survey

	China (2010)	Brazil (2008)	India (2010)	Mexico (2015)	Viet Nam (2010)	Russia (2010)
Smokers who made a quit attempt in the past 12 months (%)	36.4	45.6	38.4	56.9	55.3	32.1
Current smokers who plan to or are thinking about quitting (%)	16.1	52.1	no data	78.3	9.5	60.3
Smokers advised to quiet by a health care professional in the past 12 months (%)	33.9	57.1	46.3	19.3	29.7	31.8

Nam and China. The data also shows that in five out of these six countries, less than half of those who smoke received a recommendation to quit smoking from their health care provider.

China provides a particularly interesting case study for cessation. In China, there are 375 million "ever-smokers"—a term used to refer to people who have smoked more than 100 cigarettes in their life. Of these, 25 million (7%) have quit smoking, while 350 million (93%) continue to smoke. As a point of comparison, the United States has 90.7 million ever-smokers. Of these, 47.3 million (52%) have quit, and 43.4 (48%) million still smoke. In other words, the number of ex-smokers in the U.S. constitutes the majority of ever-smokers, and quitting smoking is more of the norm. If the norms could be similarly changed in China, so that about half of China's smoking population quit, the result would be an additional 160 million ex-smokers in the country. Such a change requires effective strategies to help smokers in China quit their addiction to cigarettes.

Section 2 - Population-Based Cessation

As mentioned previously, the proportion of ever-smokers in the U.S. who have quit has increased dramatically over the last 50 years, thanks in large part to population-based interventions. In 1965, only a little over 20% of ever-smokers had quit, whereas for the last ten years this proportion has been at or above 50%.

Figure 12.6 is an apt illustration of the role of population-based interventions in the quitting process. Smokers may contemplate quitting after hearing messages about the harm of smoking and the importance of cessation from their physician or the mass media. This may lead to them making an attempt to quit. Some smokers will be successful at quitting, but many more will experience relapse. Implementing telephone hotlines can be an effective strategy to help prevent smoking relapse. For smokers

Figure 12.6 Percentage of Adult Former Smokers, 1965-2009

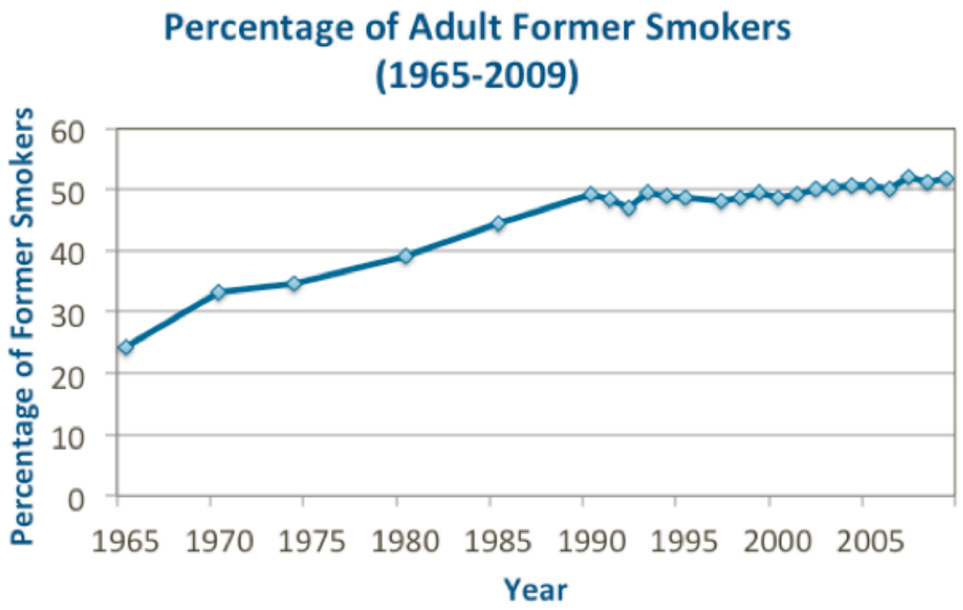
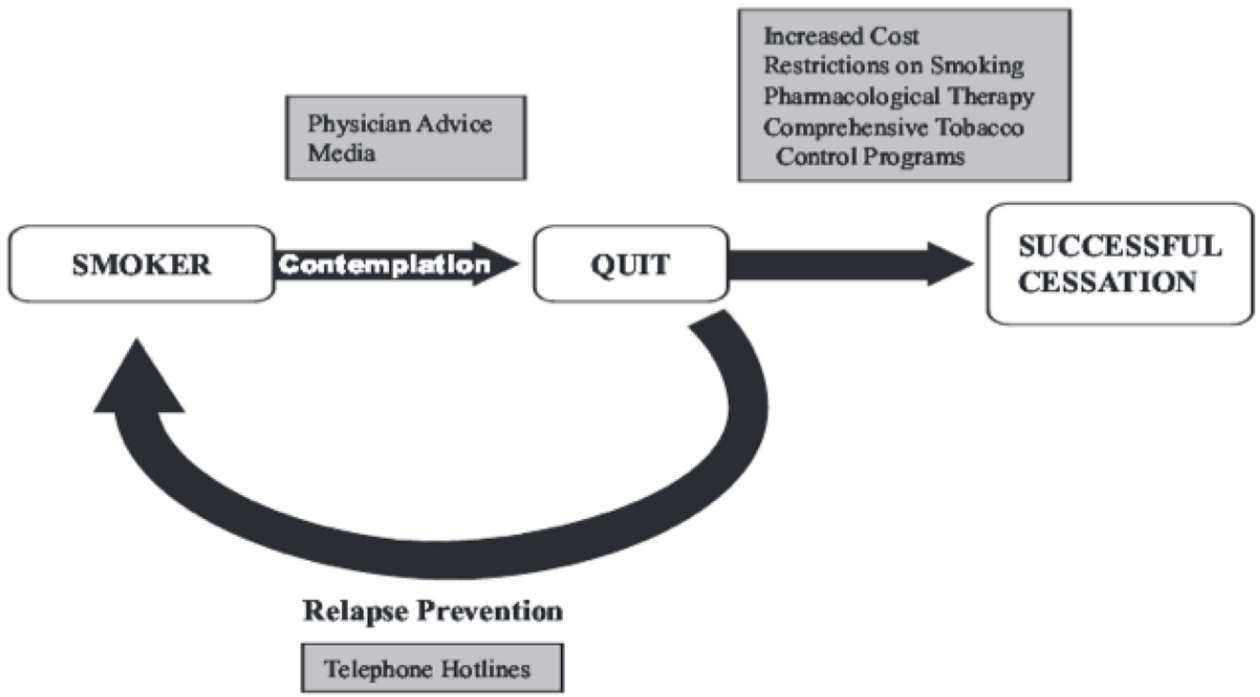


Figure 12.7 Population-Based Smoking Cessation



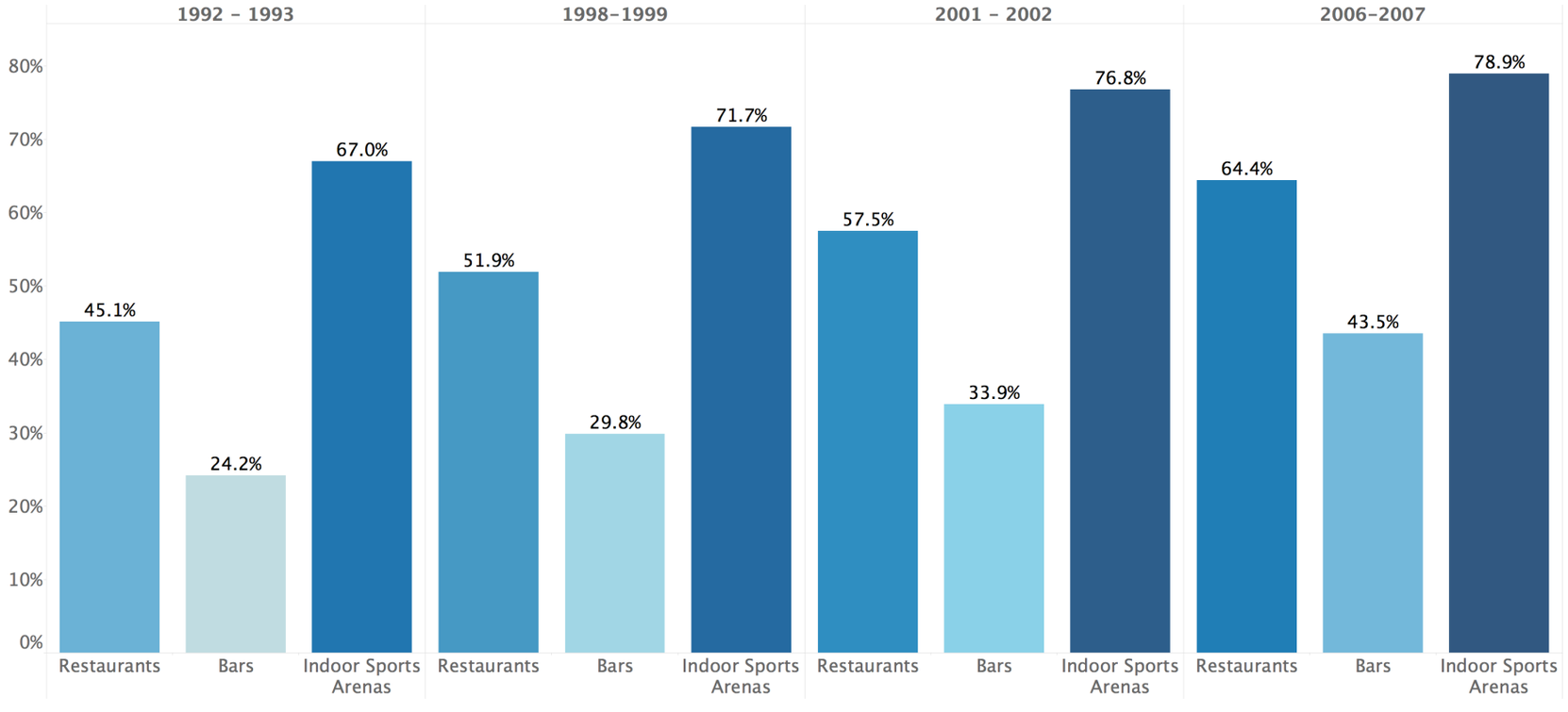
restrictions on smoking in public places, and pharmacological therapy. Comprehensive tobacco control programs create an environment that reinforces people's desire to quit as well as building their ability to do so (Figure 12.7).

Population-based cessation interventions, if successful, can cause dramatic changes to have a much better chance of quitting permanently, it is important to have a network of strategies in place that all encourage cessation, including additional taxes to increase the cost of cigarettes,

Population-based Cessation Interventions

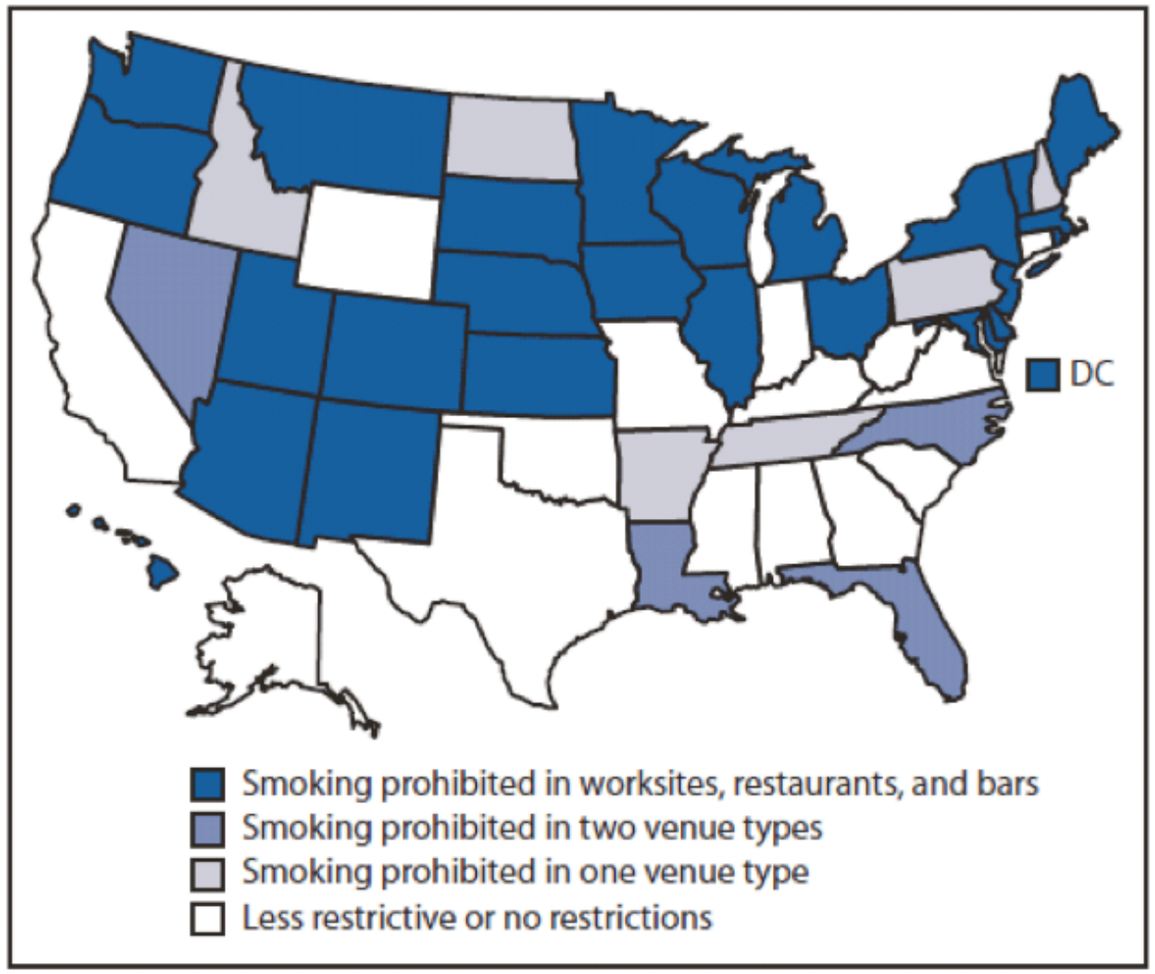
- Change in social norms
- Smoke free air laws
- Taxes
- Marketing restrictions and counter marketing
- Packaging, warning labels and plain packaging
- Quitlines
- Other resources and technology

Figure 12.8 Percentage of Respondents Supporting Smoking Bans in Public Places



in social norms around smoking. In turn, changing social norms lead to changes in policies and smoking behaviors. Indeed, social norms and attitudes toward smoking have played an important role in making positive changes in tobacco control and smoking behavior during the latter half of the 20th century. In Figure 12.8, for example, we can see the change over time in the level of support for smoking bans among the U.S. population. A 2015 Gallup Poll shows the majority of Americans (58%) believe it should be illegal to smoke in all public places, a trend that has continued since 2011. To a large extent, the desire for smoke-free public places is associated with increasing public awareness and acceptance of the idea that all people have a right to live in a smoke-free environment. Social norms have an interactive relationship with policy change, since policy-makers are sensitive to public attitudes toward risky behaviors. In tobacco control, many of the changes in policy and legislation

Figure 12.9 Smoke-Free Indoor Air Laws for Private Worksites, Restaurants and Bars, U.S., 2010



were initially driven by changes in social norms that motivated citizens to push for new laws at the state level. But the relationship between social norms and policy can also be said to be bidirectional, since instituting even an unpopular policy can decrease a risky behavior and, in doing so, gradually alter social norms and attitudes.

The impact of clean indoor air laws cannot be overestimated. While there is currently no federal smoke-free air law in the U.S., more than half of the population live in states covered by comprehensive laws prohibiting smoking in worksites, restaurants, bars, and other public places (Figure 12.9). These state laws have come about because citizens demanded smoke-free public areas. As clean indoor air laws spread, they not only help nonsmokers to avoid secondhand smoke but also has the residual benefit of helping smokers to successfully quit smoking by reinforcing smoke-free as the norm—and they do so without costing businesses anything.

Previous chapters have discussed different strategies to encourage smokers to quit, including tax increases, marketing restrictions, counter-marketing campaigns, warning labels and plain packaging. In addition to these, technology-based cessation measures such as quitlines and text messaging services have been proven to be effective. A quitline is a tobacco cessation service available through a toll-free telephone number (Figure 12.10). Callers receive individualized counseling, support, and in some instances, pharmacologic assistance free of charge over the telephone to help them to quit smoking. Though they resemble tobacco interventions at the individual or clinical level, quitlines are considered a population-based approach; they are often more feasible to implement in a cost-effective way to reach the entire population (Movie 12.1).

Movie 12.1 A video from the "Dear Me" campaign to promote the Washington State Quitline

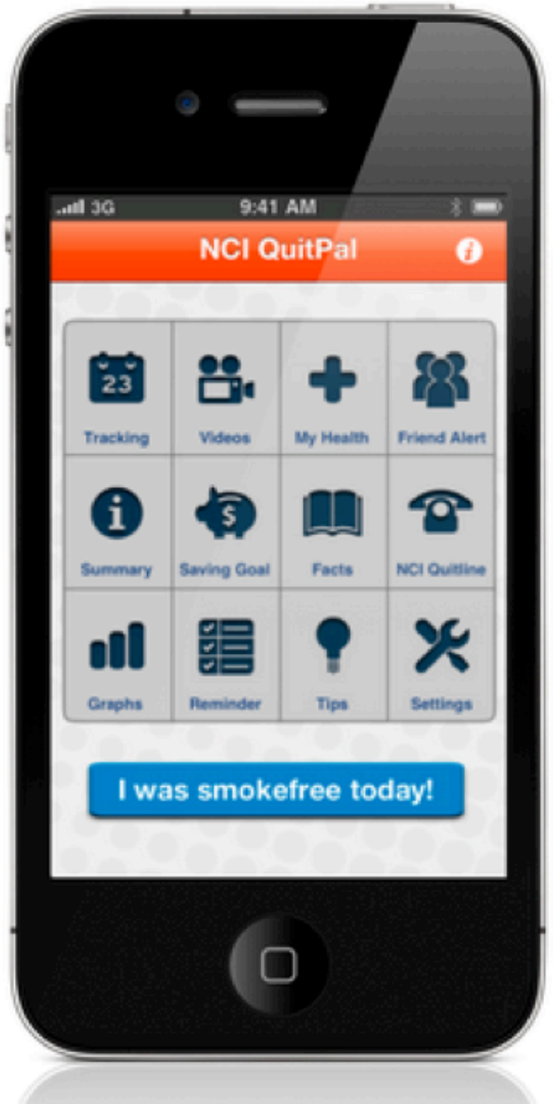


Figure 12.10 Tobacco Quitline Advertisement



The Community Preventive Services Task Force recommends quitline interventions, particularly those that offer follow-up counseling calls. According to twelve trials involving over 30,000 people, telephone quitlines with call-back counseling increased the relative success of quit attempts by 25-50%. Moreover, quitlines are cost-effective at providing counseling and cessation

Figure 12.11 NCI QuitPal iPhone App

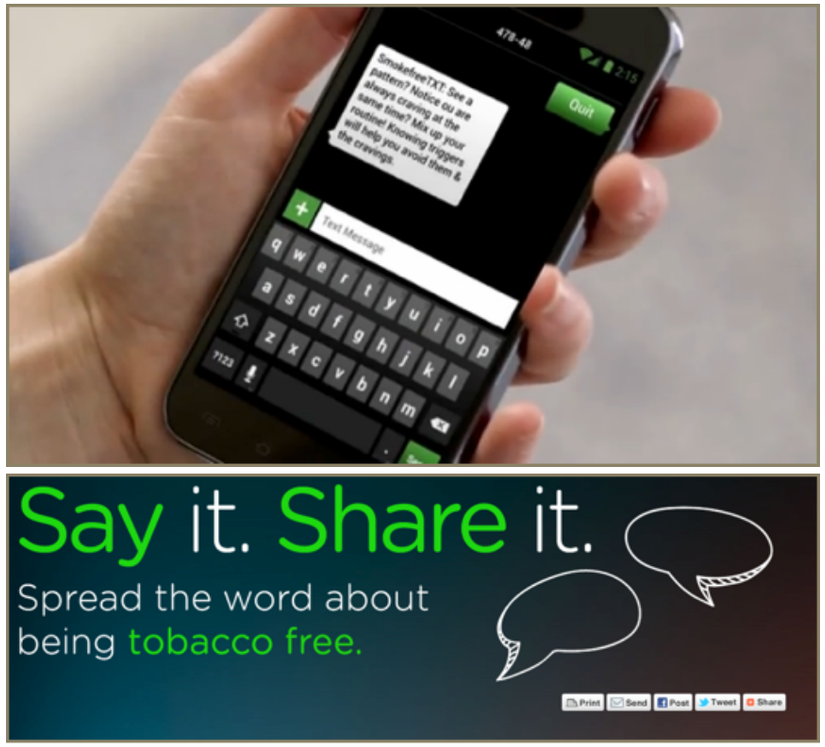


information and result in a median of $2,012 saved per quality-adjusted life year (QALY).

Increasingly, tobacco control advocates are turning to smartphone technology to promote smoking cessation. For example, the National Cancer Institute's QuitPal app is a free smartphone app that was developed to provide support to smokers who are trying to quit (Figure 12.11). The app allows users to set a quit date, financial goals, and reminders; users can also track their daily smoking habit, and graph the amount of money they have saved and the number of packs not smoked. Through the app, users can be connected to social media networks, allowing them to give milestone updates and benefit from reinforcement and support from their peers.

In addition to quitlines and smartphone apps, there are also text-messaging services available. SmokefreeTXT is a mobile text-messaging service available 24/7 that provides encouragement, advice, and tips to help smokers quit smoking (Figure 12.12 and Movie 12.2).

Figure 12.12 SmokefreeTXT Mobile Text-Messaging Service



Movie 12.2 Commercial for SmokefreeTXT



Section 3 - Clinical or Individual-Level Cessation

We now turn our focus to clinical or individual-level approaches to cessation. As we suggested in the previous section, cessation represents a desired end result to what is usually a lengthy, demanding, and often frustrating undertaking. Although millions of Americans say they want to quit smoking, studies suggest that only about 6% of individuals who try to quit at any given time are successful for more than one month. For most people, it takes multiple attempts before they can finally quit. It is also important to note that most people who do succeed actually

Key Takeaway

Quitting smoking is hard and most individuals try multiple times before succeeding.

The CDC provides the following advice for those who want to quit smoking:

- **Don't smoke any cigarettes.** Even occasional smoking is harmful.
- **Write down why you want to quit.** Really wanting to quit is important to success.
- **Know that it will take commitment and effort to quit.** Nicotine is very addictive, and there are many ways to quit, including nicotine replacement products.
- **Get help if you want it.** Free assistance is available through quitlines. Healthcare providers are a good source of help.

quit "cold turkey"; they succeed because they are ready, they have a strong desire to quit, and they are confident in their ability to quit.

Dr. Michael Fiore is a nationally recognized expert on tobacco, providing perspectives on the subject to audiences ranging from Good Morning America to the United States Senate. He has written numerous articles, chapters, and books on how to quit smoking and was a co-author and consulting editor of *Reducing Tobacco Use: A Report of the Surgeon General*, 2000. In Movie 12.3, he discusses clinical approaches to tobacco cessation.

Movie 12.3 Hear from the Experts: Michael Fiore, MD, MPH



In 2008, Dr. Fiore chaired a panel that produced the U.S. Public Health Service Clinical Practice Guideline for treating tobacco use and dependence. The document included ten key guideline recommendations, as follows:

1. Tobacco dependence is a chronic disease that often requires repeated intervention and multiple attempts to quit.

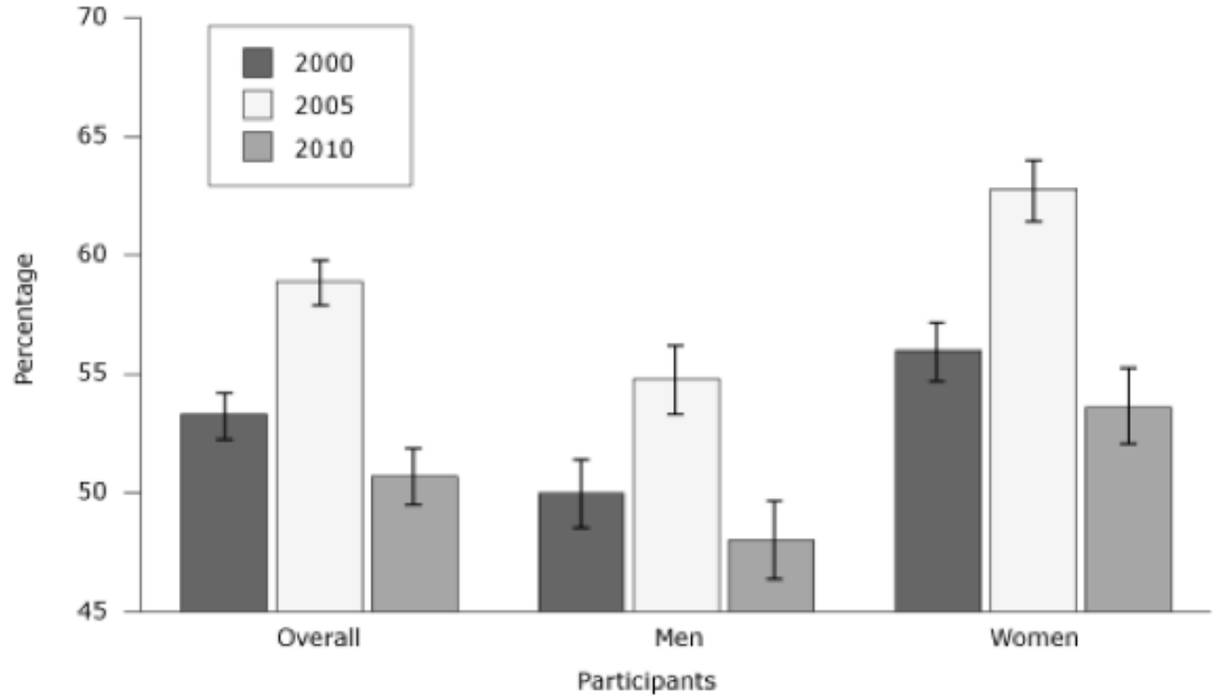
2. It is essential that clinicians and health care delivery systems consistently identify and document tobacco use status in a health care setting.

3. Tobacco dependence treatments are effective across a broad range of populations.
4. Brief tobacco dependence treatment is effective.
5. Individual, group, and telephone counseling are effective, and their effectiveness increases with treatment intensity.
6. Numerous effective medications are available for tobacco dependence, and clinicians should encourage their use.
7. Clinicians should encourage all individuals making a quit attempt to use both counseling and medication.
8. Telephone quitline counseling is effective with diverse populations and has broad reach.
9. If a tobacco user currently is unwilling to make a quit attempt, clinicians should use motivational treatments.
10. Insurers and purchasers should ensure that all insurance plans include the counseling and medication identified as effective in the Guideline as covered benefits.

Because of the difficulty of quitting, the role of healthcare providers is vitally important in encouraging patients in their cessation efforts. Unfortunately, as we can see from Figure 12.13, the likelihood of patients receiving advice to quit smoking from their healthcare provider actually decreased between 2000 and 2010, a decrease which warrants further study.

There are many reasons why brief counseling from healthcare providers makes a difference in cessation. The majority of smokers, 70%, see a physician and 50% see a dentist every year. Smokers view clinicians as credible and persuasive, and clinic visits represent teachable moments when health concerns are salient. There are actually higher levels of satisfaction among patients who receive tobacco advice and support from their healthcare provider. Moreover, meta-analyses show that physician advice on cessation results in modest, but consistent, positive effects. Compared with other medical services, brief cessation counseling is highly cost-effective.

Figure 12.13 Percentage of Current Smokers (Aged 18 or Older) Who Received Health Care Provider Advice to Quit Smoking in the Past Year



The U.S. Preventive Services Task Force (USPSTF) recommends counseling interventions for tobacco cessation in adults and pregnant women. They developed the "5-A's" Framework for counseling, which is comprised of the following steps:

1. **A**sk about tobacco use.
2. **A**dvise to quit through clear personalized messages.
3. **A**ssess willingness to quit.
4. **A**ssist to quit.
5. **A**rrange follow-up and support.

Again, there is an emphasis on follow-up counseling and support to increase the chances of success in cessation.

In addition to counseling, medication can also play an important role in helping individuals to quit smoking. FDA-approved pharmacotherapy includes nicotine replacement therapy (NRT), bupropion, and varenicline.

NRT is a treatment that provides small, steady doses of nicotine to help stop cravings for those trying to quit (Figure 12.14). Most commonly, NRT comes in the form of a patch or gum, which are approved by the FDA as safe and effective methods for quitting tobacco use. Formerly prescription medications, NRT patches and gum are now available over-the-counter. NRT is also available as an inhaler, nasal spray, or lozenges.

Figure 12.14 Different Types of Nicotine Replacement Therapy



In all of these forms, NRT provides nicotine to help lessen withdrawal symptoms until individuals are able to wean themselves. Not all NRT products are FDA-approved, however. Those sold by pharmaceutical companies have undergone premarket testing to establish the safety and efficacy of the product, while those sold by tobacco companies have not obtained FDA approval and are not necessarily proven to aid in cessation.

Table 12.2 Prescription Cessation Treatments: Bupropion and Varenicline

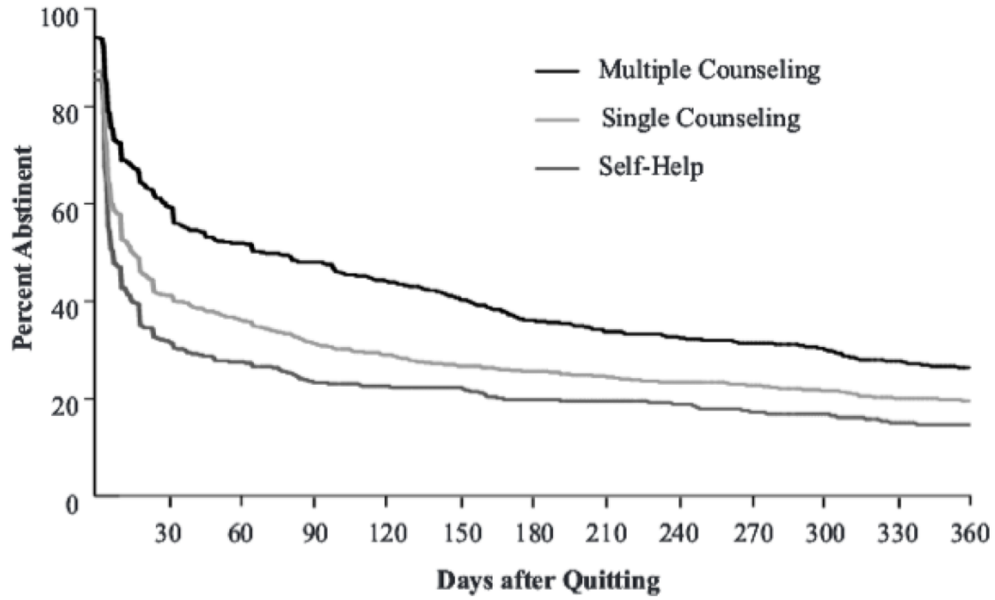
Method	Description
Buproprion	Also known as Zyban®, helps reduce nicotine withdrawal and the urge to smoke.
Varenicline	Also known as Chantix®, reduces withdrawal symptoms and blocks the effects of nicotine if the user starts smoking again.

Additionally, prescription cessation treatments are available to help smokers to quit. Two of the most common medications are bupropion and varenicline, both of which reduce nicotine withdrawal symptoms and cigarette cravings, without any added nicotine (Table 12.2).

As we look at cessation efforts at either the population or individual level, it is important to remember that cessation is a difficult process; relapse is common and those who want to quit smoking should have a plan for what to do if they relapse. According to Figure 12.15, between half and two-thirds of people who attempt to quit smoking relapse back to smoking within the first 30 days following a quit attempt. The percentage varies depending upon the type of assistance used by the smoker to quit

smoking. Regardless of whether quit attempts are supported by counseling, aided with pharmacotherapy, or occur unassisted, relapse is a major concern and smokers must be educated so that they do not become discouraged about their relapse patterns. Individuals can learn to identify what conditions and cues are associated with their relapse to smoking so they can try to avoid those factors in future quit attempts. Cessation must be understood as a process rather than a discrete event.

Figure 12.15 Relapse Curves for Self-Help, Single Counseling, and Multiple Counseling



Source: Zhu et al., 1996a

Section 4 - Cessation Among Special Populations

There are certain populations that smoke at higher levels than the general population or otherwise deserve special attention. They include people who participate in substance abuse or who have been diagnosed with mental illness. Lesbian, gay, bisexual, and transgender (LGBT) individuals experience higher smoking prevalence rates, as do minorities and people with low socioeconomic status (SES). Pregnant women, while experiencing low smoking rates relative to the general population, are a group that deserves special attention because of the adverse health effects of smoking during pregnancy. In order to be effective among these populations, smoking cessation efforts must be specifically tailored to meet the needs of these groups.

It is estimated that 40% of all cigarettes consumed in the U.S. are smoked by people with a mental illness or addiction. According to Table 12.3, 60% of people diagnosed with depression are smokers, as are

Table 12.3 Individuals with a Diagnosable Mental Illness Smoke at Higher Rates

Disorder	Percent of people with disorder who are current or former smokers
Lifetime Depression	60%
Bipolar Disorder	70%
Schizophrenia	88%

Table 12.4 Tobacco-Related Mortality in People with Mental Illness

Disorder	Percent of total deaths due to tobacco-related conditions	Standardized Mortality Ratio (SMR)
Schizophrenia	53%	2.45 (95%CI = 2.41-2.48)
Bipolar Disorder	48%	1.57 (95% CI = 1.53-1.62)
Depression	50%	1.95 (95% CI = 1.93-1.98)

70% of those diagnosed with bipolar disorder and 88% of those diagnosed with schizophrenia. Many people agree that there is a level of self-medication associated with smoking among these populations, and that nicotine may help with symptom management, particularly for those with schizophrenia. This has led to some debates about implementing smoking cessation treatments while patients are recovering from these illnesses. While some argue against recommending smoking cessation during recovery, research shows that smoking cessation does not harm recovery and many substance abuse and addiction treatment facilities have successfully become smoke-free.

Researchers have examined the implications of the increased rates of smoking among individuals with mental illness and have found that tobacco-related mortality is also higher in people with mental illness compared with the general public. The percentage of total deaths resulting directly from smoking among individuals with schizophrenia, bipolar disorder, or depression hovers around 50% (Table 12.4). The connection between tobacco-caused deaths and the presence of mental illness is one that deserves urgent attention from the public health community.

Key Takeaway

Individuals with psychiatric conditions have a smoking prevalence 2-4 times greater than the general population.

Another group that deserves special attention in terms of smoking cessation is the LGBT (lesbian, gay, bisexual and transgender) population. According to the 2012-2013 National Adult Tobacco Survey (NATS), the prevalence of tobacco use among LGBT adults is higher in many categories compared to heterosexual adults (Table 12.5), with the exception of smokeless tobacco. Factors that may be associated with this increase in tobacco use include social stress, frequent patronage of bars and clubs, and direct targeting of LGBT consumers by the tobacco industry. This, too, is an area for additional research and is of particular concern when considered alongside the disproportionate prevalence of HIV/AIDS among the LGBT population. Due to the compromised pulmonary function and immunity associated with smoking, individuals with HIV/AIDS experience much poorer health outcomes if they smoke.

Table 12.5 LGBT Populations Smoke at Higher Rates

Tobacco Type	Prevalence for LGBT adults	Prevalence for Heterosexual adults	Prevalence for adults with Unspecified sexual orientation
Any Tobacco Product	30.8%	20.5%	24.0%
Cigarettes	27.7%	17.3%	20.4%
Cigars, Cigarillos or Filtered Little Cigars	3.0%	1.9%	2.6%
E-Cigarettes	4.5%	1.9%	1.5%
Smokeless Tobacco	1.9%	2.6%	2.7%

Minorities and low-SES groups need special consideration for smoking cessation for a variety of reasons. For decades, tobacco companies have specifically targeted minority communities with intense advertising and promotional efforts. Research suggests that tobacco retailer density near schools is higher in minority or low-income communities. It is estimated that 29% of adults who are below the poverty level are smokers, compared with 18% of adults who are at or above the poverty level. Fortunately, there are solutions available for addressing these disparities: for instance, we know that low-SES smokers are more sensitive to changes in the price of tobacco, so one of the best methods to prompt lower-income smokers to quit is through raising cigarette taxes. However, those who are low-SES and continue to smoke are in even more need of assistance to quit because they will end up spending a higher proportion of their income on tobacco products. Thus, providing additional help through cessation resources and medications is crucial in helping low-SES populations quit smoking for good.

Lastly, we must say a word about the importance of smoking cessation for pregnant women. Smoking during pregnancy causes many health problems, including premature birth, birth defects, and infant death. According to the 2010 Pregnancy Risk Assessment and Monitoring Data (PRAMS) from the CDC, approximately 10.7% of women reported smoking during the last three months of their pregnancy. Nicotine replacement therapy during pregnancy is controversial because of concerns about the possible effects of nicotine on a developing fetus, and more research is needed in this area.

Smoking is not only harmful during pregnancy, it is also harmful before conception and after delivery. Smoking can delay conception among females, and smoking near conception is associated with cleft lip and cleft palate. After delivery, exposure to secondhand smoke increases an infant's risk for respiratory tract infections, ear infections, and Sudden Infant Death Syndrome (SIDS). Thus, in addition to helping women who are pregnant to quit smoking, public health advocates and healthcare practitioners must help all women of reproductive age to understand the importance of smoking cessation prior to conception—for their health and the health of their babies.

To conclude, smoking cessation is an important public health strategy, though it tends to be undervalued in the U.S. Cessation efforts have the potential to make a dramatic impact on the rates of preventable deaths in this country and around the world.

Chapter 12 Discussion Questions:

1. Brainstorm additional technology based population-based interventions for smoking cessation.
2. Propose funding mechanisms to increase population-based interventions for smoking cessation in the United States.

Figures and Tables

Figure 12.1: Smoking Cessation Infographic from the U.S. Department of Health and Human Services, 2012

Source: U.S. Department of Health and Human Services. (2012). Get on a path to a healthier you (quitting).

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Source: Richard Peto, Personal Communication

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Source: Peto, Richard et al. (1994). Mortality from Smoking in Developed Countries 1950-2000. Oxford University Press.

World Bank. Global Patterns of Smoking and Smoking-Attributable Mortality.

Figure 12.4: Most Smokers in the U.S. Would Like to Quit and Make Multiple Quit Attempts, 2013

Source: Eriksen M., Mackay J., Schluger, N., Islami, F., Drope, J. (2015). *The Tobacco Atlas*. Fifth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation.

Figure 12.5: Cessation Programmes Policies, by WHO Region, 2010

Source: World Health Organization. (2010). WHO Cessation programmes.

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Source: GATS China Fact Sheet (2010); GATS Brazil Country Report (2010); GATS India Fact Sheet (2009-2010); GATS Mexico Fact Sheet, 2015; GATS Viet Nam Fact Sheet (2010); GATS Russian Federation Fact Sheet (2010).

Figure 12.6: Percentage of Adult Former Smokers, 1965-2009

Source: American Lung Association. (2011). Trends in tobacco use.

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Source: U.S. Department of Health and Human Services. Public Health Service, National Institutes of Health, National Cancer Institute. (2000). Monograph 12: Population Based Smoking Cessation: Proceedings of a Conference on What Works to Influence Cessation in the General Population.

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Source: Robert-Wood Johnson Foundation (RWJF). (2011). RWJF Retrospective Series: Social Norms and Attitudes About Smoking, 1991-2010.

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Source: Centers for Disease Control and Prevention. (2011). State smoke-free laws for worksites, restaurants, and bars --- United States, 2000--2010.

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Source: U.S. Department of Health and Human Services. (2013). SmokefreeTXT.

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Source: CDC, 2012

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Source: U.S. Department of Health and Human Services. (2013). Explore medications. Smokefree.gov.

Figure 12.15: Relapse Curves for Self-Help, Single Counseling, and Multiple Counseling

Source: U.S. Department of Health and Human Services. Public Health Service, National Institutes of Health, National Cancer Institute. (2000). Monograph 12: Population Based Smoking Cessation: Proceedings of a Conference on What Works to Influence Cessation in the General Population.

Table 12.3: Individuals with a Diagnosable Mental Illness Smoke at Higher Rates

Source: Callaghan, R. C., et al. (2013). Patterns of tobacco-related mortality among individuals diagnosed with schizophrenia, bipolar disorder, or depression. Journal of Psychiatric Research. doi:10.1016/j.jpsychires.2013.09.014.

Table 12.4: Tobacco-Related Mortality in People with Mental Illness schizophrenia

Table 12.5: LGBT Populations Smoke at Higher Rates

Source: Tobacco Product Use Among Adults – United States, 2012–2013, MMWR 2014

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Chapter 13

Laws, Litigation, and Regulation

Chapter Objectives

1. Describe the variability of tobacco control laws in the U.S. and globally.
2. Diagram the evolution of the three waves of tobacco litigation in the U.S.
3. Contrast the results and outcomes of the major tobacco control legal proceedings in the U.S. (including the Waxman hearings, MSA, RICO ruling, and the 2009 FSPTCA).
4. Analyze the role the WHO FCTC has in supporting tobacco control laws, litigation, and regulation.
5. Examine the ways in which the tobacco industry opposes legal tobacco control measures globally.

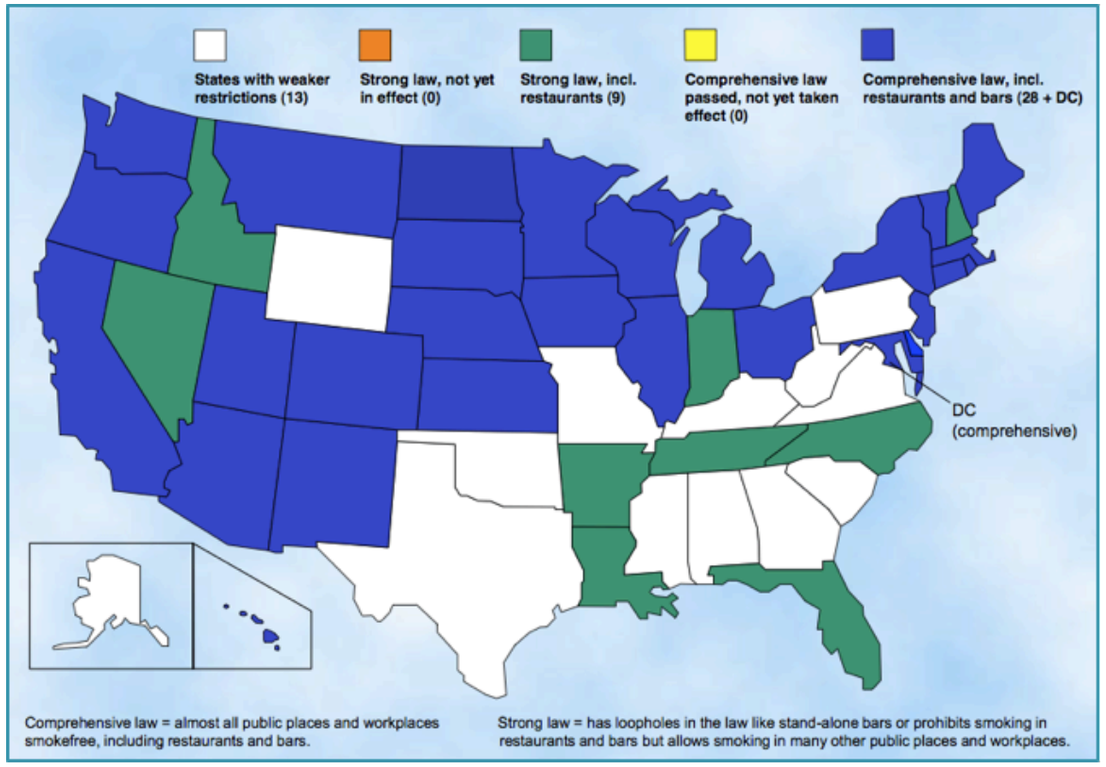
Section 1 - Laws

There are a myriad of ways in which different aspects of tobacco can be controlled by laws at the local, state, and federal levels. The major areas in which laws are used as tobacco control strategies are related to clean indoor air, taxation, restriction of access for minors, and restrictions on marketing of tobacco products.



To begin, we will review smoke-free laws, also known as clean indoor air laws (also Chapter 9: Smoke-Free Air Laws). The smoke-free movement started in California in the 1980s and has spread throughout the United States. Smoke-free laws may be applied to schools, restaurants, bars, government buildings, parks, and private cars (especially when children are passengers). Though the U.S. has no federal clean indoor air law, most people in this country are protected by local and state laws restricting where people are allowed to smoke. However, the strength of smoke-free laws and policies varies widely from state to state. Figure 13.1 features a map created by the American Lung Association that shows the distribution of comprehensive clean indoor air laws throughout the U.S. in 2012. There are 28 states with comprehensive laws. Much of the South and many of the states within the Appalachian region have the weakest restrictions. Unsurprisingly, these areas also tend to have higher rates of smoking and smoking-caused mortality.

Figure 13.1 The Strength of Smoke-Free Air Laws/Policies Varies Widely Throughout the U.S.



In addition to clean indoor air laws, states and federal governments use laws to levy taxes on tobacco products (also Chapter 10: Taxes and Funding Tobacco Control). Every state collects a tobacco excise tax in addition to the federal tax on tobacco products. The amount of tax varies from state to state, with rates per pack ranging from a high of $4.35 in New York to a low of $0.17 in Missouri. The national average is $1.49 per pack of cigarettes. The variation in tax rates is somewhat problematic in that it encourages cross-border sales, as well as some level of smuggling and tax avoidance. Some have argued that the greatly varying state excise taxes should be replaced by one uniform federal excise tax on tobacco—covering not just cigarettes but all tobacco products.

Another way in which laws have been used as an effective tobacco control strategy is the restriction of young people's access to tobacco products. Here again, restrictions come in many different forms. U.S. federal regulation sets the minimum age for purchasing cigarettes at 18 and requires vendors to verify age if the customer appears to be under the age of 26. Four states—Alabama, Alaska, New

Jersey, and Utah—have the minimum age of purchase set at 19, and in May 2014, New York City raised the minimum age to 21. Under a provision known as the Synar Amendment, all states are required to monitor the sale of cigarettes and other tobacco products to underage customers. They must also perform random inspections of stores that sell tobacco products and report the extent of illegal sales to the Substance Abuse and Mental Health Services Administration (SAMHSA). The Synar Amendment has been associated with a significant drop in in the proportion of vendors selling cigarettes illegally to minors—from over 60% to below 10% for many states. In addition to imposing a minimum age of purchase, states also implement laws prohibiting the possession and use of tobacco products by minors. They may use laws to regulate signage related to tobacco, the placement of tobacco products, Internet sales of tobacco products, and photo identification requirements associated with the purchase of tobacco products at retail outlets.

Additional laws have been implemented by the U.S. government and various states to further protect youth from the harms of tobacco. Vendors were previously able to sell cigarettes individually or in mini-packs of five cigarettes, making them more affordable for young people. Federal laws now set the minimum at 20 cigarettes per pack. The law also prohibits free sampling of tobacco products (with some exceptions), as well as the sale of cigarettes in vending machines except in establishments where retailers have ensured that minors are not permitted. Two states, Idaho and Vermont, completely prohibit the sale of tobacco products through vending machines.

As we have seen in previous chapters (especially Chapter 11: Marketing Restrictions), laws restrict the advertising and promotion of tobacco products. The U.S. is somewhat unique in the world in terms of having a specific protection of free speech written as the First Amendment to the Constitution. Originally intended to protect the free speech of individuals, the First Amendment has been

Table 13.1 States Considering Smokers a Protected Class (and Protected from Discrimination)

State	Year Passed	State	Year Passed
California	2005	New Jersey	1991
Colorado	1990	New Mexico	1991
Connecticut	2003	New York	1992
District of Columbia	1993	North Carolina	1991
Illinois	1987	North Dakota	1993
Indiana	2006	Oklahoma	1991
Kentucky	2010	Oregon	2005
Louisiana	1991	Rhode Island	2005
Maine	1991	South Carolina	1991
Minnesota	1992	South Dakota	1991
Mississippi	1994	Tennessee	1990
Missouri	1992	Virginia	1989
Montana	1993	West Virginia	1992
Nevada	1991	Wisconsin	1991
New Hampshire	1991	Wyoming	1992

increasingly invoked by corporations to protect commercial speech, making it more difficult to limit the advertising and promotion of products. Efforts to enforce laws or judicial findings that call for such restrictions are often thwarted by tobacco companies that sue for the protection of their First Amendment rights (Table 13.1).

Other areas covered by law include licensing requirements for tobacco sellers, smoker protections, products disclosure, tobacco industry liability, the use of tobacco settlement (specifically, Master Settlement Agreement) funds, preemption, tobacco control programs, fire safety standards, and divestment. Laws are used to protect smokers against discrimination: 29 states and the District of Columbia have passed laws prohibiting employers from discriminating against smokers based on concerns around increased health care costs. In other states, many companies have instituted policies against hiring smokers, for both ethical and economic reasons.

In the context of discussing laws that govern tobacco, it is important to also include the issue of preemption. As we mentioned in Chapter 8, preemption is the restriction or prohibition that one level of government imposes on a lower level regarding the enactment of enforcement of more stringent laws (Figure 13.2). For example, if a state passes a relatively weak law with respect to clean indoor air, they may, as part of that law, explicitly preempt local jurisdictions from having laws that are stronger than the state standard. Supporting state preemption has been a major strategy of the tobacco industry over the last three decades because tobacco companies can lobby much more effectively at the state level rather than at the local level. For instance, in Oregon in 2001, the tobacco industry supported a state law that would prohibit smoking in several public venues such as restaurants. The reason for their support: the legislation preempted more comprehensive bans that were already

being put into effect in some municipalities, thus taking away the ability of Oregon's cities and towns to impose stronger smoke-free laws.

Key Takeaway

Supporting state preemption has been a major strategy of the tobacco industry over the last three decades, because tobacco companies can lobby much more effectively at the state level than at the local level.

Figure 13.2 Examples of States with Preemption Clauses Prohibiting Cities and Municipalities from Passing Stronger Tobacco Control Laws

State	Issue Area Where Preemption Exists	Specific Provisions Preempted
California	Youth Access	Only preempts the amount of fines localities may impose for violations of certain youth access laws.
Connecticut	Smoking Restrictions	Any stronger local laws/ordinances further restricting smoking enacted after October 1, 1993 are not allowed under state law.
Delaware	Youth Access	Local laws/ordinances further restricting youth access to tobacco products enacted after June 30, 1996 are not allowed under state law.
Florida	Smoking Restrictions	State law supersedes any municipal or county ordinance on the subject of the regulation of smoking.

CASE STUDY: The Anti-Bloomberg Bill

During his tenure as mayor of New York City, Michael Bloomberg was an active supporter of tobacco control and other public health measures that were stronger than those adopted by the rest of the state of New York. These included higher excise taxes and comprehensive clean indoor air laws, but also measures designed to prevent and reverse obesity—bans of trans fats and, more recently, an attempt to set the maximum size of sugary drinks at 16 ounces. Responding to such efforts, the state of Mississippi passed the "Anti-Bloomberg Bill" in 2013, specifically to preempt local jurisdictions from having any law stronger than the state law with respect to limiting portion sizes of soda. According to the law, only the state can regulate the sale and marketing of food in Mississippi. Thus, the issue of preemption not only applies to tobacco control but also to other areas of public health, such as obesity prevention (also Chapter 14: Lessons Learned).

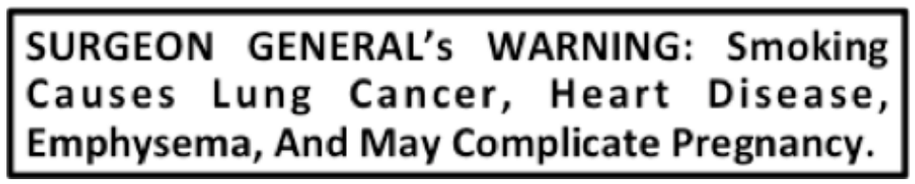
Federal tobacco control laws remain relatively limited in the U.S. Until the enactment of the Family Smoking Prevention and Tobacco Control Act (FSPTCA) of 2009, the U.S. government was virtually inactive with regard to nationwide tobacco control efforts. Even today, there continues to be no federal clean indoor air law providing uniform coverage throughout the country. The government does tax tobacco products, and there are continued efforts to raise the tobacco excise tax. The laws that are in place are constantly challenged by tobacco companies, whose strategies often involves using litigation to obfuscate the facts in order to gain additional time to maintain the status quo and addict more users.

Section 2 - Litigation

Litigation has proven to be an extraordinarily effective tool for advancing tobacco control. When one party sues another, both parties are required to provide relevant documents in a process known as discovery. Litigation has thus resulted in the discovery and subsequent publication of tobacco industry documents, and in this manner has served to dramatically transform the public's perception of the industry. For decades, tobacco companies pleaded ignorance and resorted to outright denial of the harm caused by tobacco use and the addictiveness of nicotine, but the internal documents that were exposed in the course of litigation proved that they knew all along how false these claims were. After the publication of these documents, the public and the media no longer regarded the industry as being truthful and responsible. The disclosure of these documents also led the tobacco companies to realize they needed to engage in more responsible language and behavior—at least in public. Litigation has also promoted tobacco control by prompting substantial increases in the price of tobacco products after the companies were found guilty or agreed to a settlement.

Key Takeaway

Lawsuits have been filed against tobacco companies in three distinct waves starting in 1954.



Over the last 60 years, lawsuits have been filed against tobacco companies in three distinct waves. The first wave, spanning the period from 1954 to 1983, began when scientific evidence linking

smoking to cancer was first published. During this time, there were a number of lawsuits brought against tobacco companies, but none of them were successful. The first tobacco lawsuit was filed in 1954 on behalf of a Missouri smoker who got lung cancer. After 13 years of litigation, the lung cancer victim dropped the case. Over the next three decades, 150 cases were filed alleging that tobacco manufacturers were liable for the medical expenses, lost wages, and pain and suffering caused by their products. In every one of these cases, the tobacco industry successfully defended itself on the grounds that the medical evidence of smoking-caused harm was still controversial.

During the second wave, from 1983 to 1992, there were an additional 200 personal injury cases filed against the tobacco industry, whose defense tactic shifted from denying that there was sufficient evidence about the relationship between smoking and harm to now saying that the harm caused by smoking was common knowledge, and that smokers had "assumed the risk" of death and disease knowingly. By this time, warning labels were printed on packs of cigarettes, providing tobacco companies some protection from liability. Once again, as was the case in the first wave, the tobacco industry won the second wave of litigation.

During this second wave, however, there was one case, *Cipollone vs. Liggett Group, Inc.*, which proved to be a harbinger of the later success of tobacco control. This was a personal injury case filed in 1983 on behalf of New Jersey smoker and lung cancer victim Rose Cipollone and her husband Tony (Figure 13.3). The case was unique in that it focused on gaining access to industry documents

Figure 13.3 Rose Cipollone



as part of the litigation, and some of the requested documents were ultimately released. It was also the first trial in 30 years in which the jury awarded the plaintiff $400,000 in damages, though this was later overturned. Though it did not result in any payment to the plaintiff, it was nonetheless important because it was the first case that was won by a plaintiff suing a tobacco company for the harm caused by their product. The case was filed in 1983, lasted until 1985, was appealed into the following decade, and was finally concluded in 1992 when the plaintiff's attorney could no longer fund the efforts. By then, we estimate the amount spent on the plaintiff's attorney at $3 million, whereas the tobacco companies spent an estimated $50-$75 million defending themselves in trial.

The industry's expenditure of this exorbitant amount is consistent with the "scorched earth" strategy they used during this period to combat litigation. This strategy involves using unlimited funds "to make even the most straightforward case a grinding, exhausting, and ultimately unsustainable, ordeal." The attorney for R.J. Reynolds was quoted as saying,

> *[T]he aggressive posture we have taken regarding depositions and discovery in general continues to make these cases extremely burdensome and expensive for plaintiffs' lawyers, particularly sole practitioners. To paraphrase General Patton, the way we won these cases was not by spending all of [R.J. Reynolds's] money, but by making that other son of a bitch spend all of his.*

The strategy of investing hundreds of millions of dollars in lawyers' fees proved successful for the tobacco industry—that is, until they came up against the government itself as the plaintiff.

The litigation environment began to change a great deal in the 1990s as a result of documents that were released by whistleblowers from within tobacco companies. Among the first was a paralegal from Brown and Williamson (a subsidiary of British American Tobacco), who leaked tobacco industry documents that were disseminated and analyzed in the media from the Wall Street Journal to the Journal of the American Medical Association. These documents led to subsequent disclosures, most famously by Jeffrey Wigand, a former Brown and Williamson Research Director. As a result, the Food and Drug Administration (FDA), under the direction of David Kessler, began an inquiry into the addictiveness of nicotine and the ways in which the tobacco companies sought to manipulate the delivery of nicotine to the body to make their products as addictive as possible. This investigation led, in turn, to what became known as the Waxman Hearings—the congressional inquiry in 1994 that forever tainted the tobacco industry (Chapter 6: Tobacco Industry Behavior).

Key Takeaway

The tobacco industry's litigation strategy involves using unlimited funds "to make even the most straightforward case a grinding, exhausting, and ultimately unsustainable, ordeal."

The Waxman Hearings mark the beginning of the third wave of litigation, which still continues today. More and more industry documents became available as a result of the congressional hearings and the FDA inquiry. These documents were so powerful that it led the American Medical Association to conclude:

> *[T]hese documents and the analyses merit . . . careful attention . . . because they provide massive, detailed, and damning evidence of the tactics of the tobacco industry. They show us how this industry has managed to spread confusion by suppressing, manipulating, and distorting the scientific record. They also make clear how the tobacco*

industry has been able to avoid paying a penny in damages and how it has managed to remain hugely profitable from the sale of a substance long known by scientists and physicians to be lethal.

With the disclosures of the whistleblowers and the new availability of industry documents, there was mounting evidence not only of the addictiveness of tobacco but also of the tobacco companies' deliberate efforts to target young people. Their statements about their customers' "assumption of risk" became less acceptable. Third parties, such as the government, began to place the responsibility on the industry for significant health care costs they had incurred as a direct result of smoking. Tobacco companies could no longer argue that these parties had voluntarily assumed the risks of smoking and the resulting costly diseases.

All of these efforts culminated in the ultimate tobacco litigation, the result of which was the 1998 Master Settlement Agreement (MSA). This monumental undertaking was initiated by then Mississippi Attorney General Michael Moore (Figure 13.4), who announced his plan to sue the tobacco companies for the harm they had caused. At the time, tobacco companies had never paid a single cent in damages to any plaintiff. Moore brought much passion to the issue, calling on other states to join in the effort. It became an effort for all fifty states to use litigation to recoup the money spent on treating diseases caused by smoking. For the first time in history, the tobacco companies settled individually with four states:

Figure 13.4 Mississippi Attorney General Michael Moore



Mississippi, Florida, Texas, and Minnesota. The 46 remaining states settled as a group in what we now know as the Master Settlement Agreement (MSA). Under the terms of the settlement, the tobacco companies must provide $280 billion to the states over 25 years, and the states agreed to drop their suits and never sue the tobacco companies again.

In addition to the monetary compensation provided to the states, there were a number of provisions included in the MSA that were big advances for public health. The tobacco companies agreed to no longer use billboards or cartoon characters such as Joe Camel to market their products, and they funded the American Legacy Foundation (now known as Truth Initiative), an organization that was created to educate the youth of America in order to prevent tobacco from becoming a problem for future generations. The MSA also required the various trade groups of the tobacco industry to dissolve and prohibited them from reforming. These were the same trade groups, or lobbying firms, that had organized the misinformation campaigns to obscure and obfuscate the truth about tobacco and the industry's practices and delay any reasonable action against the industry. They were the Tobacco Institute, the Council on Tobacco Research, and the Center for Indoor Air Research.

Collectively, the litigation efforts of the 1980s and 1990s resulted in billions of dollars being paid by tobacco companies to individual plaintiffs as well as to state attorneys general, but perhaps even more important is the disclosure of thousands of pages of documents from the tobacco companies. These documents can now be freely accessed on a variety of websites paid for by the tobacco industry, allowing us to study the industry's behavior and thus improve our efforts to counter their tactics.

Thus far, we have discussed litigation brought against the tobacco companies by the states—but the federal government also incurs expenses that are used to treat diseases caused by smoking. Indeed, the expenses incurred by the federal government overshadows that of the states, as it covers Medicaid, Medicare, the Veterans Administration, and the Indian Health Service. In January 1999, during his final State of the Union Address, President Bill Clinton authorized U.S. Attorney General Janet Reno to pursue litigation against the tobacco industry. In September of the same year, the U.S. Department of Justice (DOJ) filed suit against the tobacco companies under the Racketeer Influenced and Corrupt Organizations Act (RICO) on the grounds that they had engaged in a decades-long conspiracy to:

- Mislead the public about the risks of smoking;
- Mislead the public about the danger of secondhand smoke;
- Misrepresent the addictiveness of nicotine;
- Manipulate cigarette design to increase nicotine addiction;
- Deceptively market cigarettes characterized as "light" or "low tar," while knowing that those cigarettes were at least as hazardous as full-flavored cigarettes;
- Target youth; and
- Fail to produce safer cigarettes.

The litigation took six years, including nine months of trial, hundreds of depositions, and thousands of exhibits. Judge Gladys Kessler presided over the case and in August 2006 she delivered her ruling

that the tobacco companies were guilty of RICO violations and of defrauding the American public. The following words from Judge Kessler capture the essence of the findings resulting from the six-year effort:



> *[This case] is about an industry, and in particular these Defendants, that survives, and profits, from selling a highly addictive product which causes diseases that lead to a staggering number of deaths per year, an immeasurable amount of human suffering and economic loss, and a profound burden on our national health care system. Defendants have known many of these facts for at least 50 years or more. Despite that knowledge, they have consistently, repeatedly and with enormous skill and sophistication, denied these facts to the public, the Government, and to the public health community.*

Judge Kessler ruled in favor of the government on all counts and ordered remedies to be implemented. It was intended that the U.S. government would collect financial remedies in a manner similar to the terms of the MSA, but ultimately, these remedies were denied since the RICO statute is intended to prevent and restrain future conduct rather than punish past conduct. In other words, the tobacco companies could not be ordered to pay financial penalties as a result of being found guilty. The remedies that were approved were steps that would prevent future violations of RICO, and they included a call for the release of corrective statements to disclose the truth about the harm of tobacco

and the industry's practices to the public. The final order also called for additional documents and the disclosure of marketing data, which would give evidence of the relationship between the tobacco industry's marketing expenditures and the population's smoking behaviors. This way, the tobacco companies could no longer deny this direct relationship.

Unfortunately, the corrective statements ordered by Judge Kessler have yet to appear (Figure 13.5). The tobacco companies have filed suit, invoking their First Amendment rights. Thus, even though the tobacco companies were found guilty, they paid no money as a result of this litigation and as of now, there is a stay on the remedies pending the results of their appeal. They are suing over the content of the corrective statements, claiming that they are being compelled to engage in speech that is not in their best interest. It is highly likely that the case will go to the Supreme Court, and the corrective statements will not appear until 2016 or later. These actions are consistent with the tobacco industry's strategy of delaying remedies and changes to their business practices that have been stipulated by courts of law or by Congress. By the time the corrective statements appear, a decade will have passed since the official ruling.

Figure 13.5 Corrective Statements for Adverse Health Effects of Smoking

A Federal Court has ruled that Philip Morris USA, R.J. Reynolds Tobacco, Lorillard, and Altria deliberately deceived the American public about the health effects of smoking, and has ordered those companies to make this statement. Here is the truth:
• Smoking kills, on average, 1200 Americans. Every day.
• More people die every year from smoking than from murder, AIDS, suicide, drugs, car crashes, and alcohol, combined.
• Smoking causes heart disease, emphysema, acute myeloid leukemia, and cancer of the mouth, esophagus, larynx, lung, stomach, kidney, bladder, and pancreas.
• Smoking also causes reduced fertility, low birth weight in newborns, and cancer of the cervix.

Section 3 - Regulation

In 2009, President Barack Obama signed the Family Smoking Prevention and Tobacco Control Act (FSPTCA), giving the FDA the authority to regulate the manufacturing, marketing, and sale of tobacco products, including cigarettes, smokeless tobacco and roll-your-own tobacco. The road to get there was a long one, and in this section we will look at some of the highlights in the complicated history of the FDA and tobacco.

Throughout the 1960s and 70s, the FDA justified the lack of regulation around cigarettes by stating that cigarettes were neither a food nor a drug—they were considered, rather, a "device of pleasure." It was not until 1994 that the FDA, under the leadership of David Kessler, began the process of regulating tobacco products on the grounds that cigarettes were a means of manipulating the delivery of nicotine, which was a drug and thus subject to FDA regulation. Within a short period, regulations were put in place primarily around the marketing and sale of tobacco products to young people. Immediately, the tobacco industry sued the FDA, effectively putting a stay on regulatory action against their products. The litigation went all the way to the Supreme Court, and in 2000, the Supreme Court decided in a 5 to 4 vote that the regulation of tobacco was needed, but that the FDA did not have the authority to do so. This authority had to come from Congress, and it took another nine years after

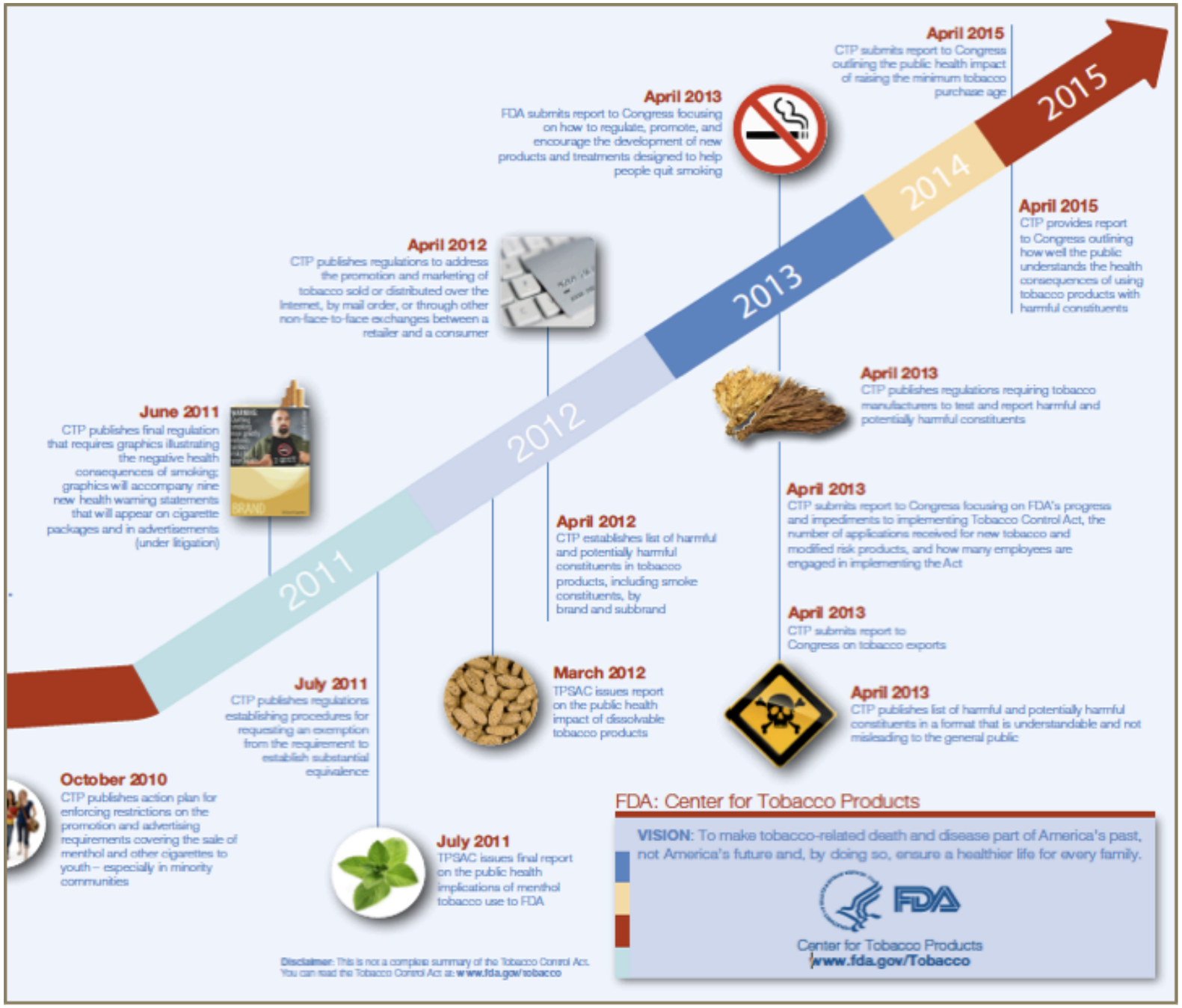
Key Takeaway

In 2009, President Barack Obama signed the Family Smoking Prevention and Tobacco Control Act (FSPTCA), giving the FDA the authority to regulate the manufacturing, marketing, and sale of tobacco products.

Figure 13.6 FSPTCA Infographic Section 1



Figure 13.7 FSPTCA Infographic Section 2



the Supreme Court ruling for Congress to approve the FSPTCA.

Since President Obama's signing of the bill, the tobacco companies have challenged virtually all aspects of the FDA's action in courts of law, using litigation as an aggressive response to regulation and as a strategy to delay the implementation of anti-tobacco measures. Some of the most contentious issues are around menthol flavoring of cigarettes, warning labels, and, more recently, the classification of novel tobacco products, including e-cigarettes. In this section, we will discuss the different aspects of FSPTCA and the controversy that continues to be raised around them.

In Figure 13.6, developed by the FDA, the first section provides an overview of the harm caused by smoking, and the bottom section details some of the key events and milestones in U.S. tobacco regulation since the FSPTCA was signed in 2009, including the establishment of the Center for Tobacco Products and efforts to begin to implement the various aspects of the law.

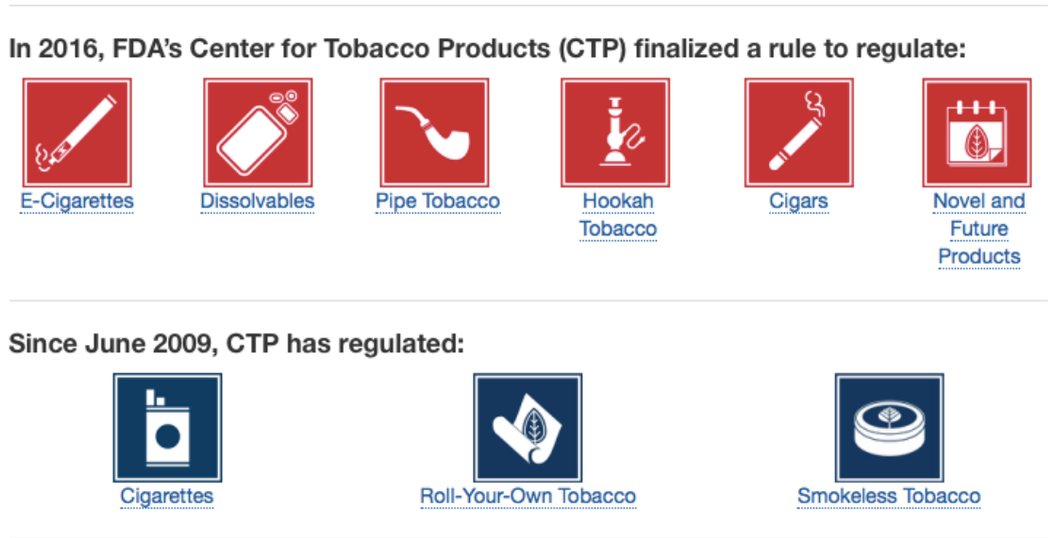
Figure 13.7 continues the timeline of key events and milestones in U.S. tobacco regulation. In June 2011, the Center for Tobacco Products published the final regulation requiring graphic warning labels on cigarette packages. However, the FDA's efforts to implement these warning labels have been challenged by the tobacco industry and litigation continues to this day. During this same period, the FDA has also submitted proposals to regulate menthol, a flavoring for cigarettes that is of concern in terms of facilitating the initiation of smoking. The FDA has banned all flavorings in tobacco products other than menthol and efforts are focused on including menthol in that ban.

The law gives the FDA extensive power to regulate tobacco products in ways that would reduce tobacco consumption and prevent tobacco companies from engaging in practices that would facilitate youth smoking initiation. The FDA can restrict tobacco advertising and promotion to black-

and-white text-only messages—a measure that, again, has been disputed by the tobacco industry in the courts under the First Amendment protecting the freedom of speech. The law also allows the FDA to enforce the prohibition of illegal sales of tobacco products to minors, as well as health claims about purported reduced risk products, where such claims are not scientifically proven or would cause net public health harms (for example, by discouraging current tobacco users from quitting or encouraging new users to start). Moreover, the FDA is given authority to require tobacco companies to disclose the contents of tobacco products, any changes made to their products, and the results of industry research on the health effects of their products.

The FSPTCA gives the FDA authority over tobacco products, namely cigarettes, smokeless tobacco and roll-your-own tobacco. However, since 2009, a new world of novel products has emerged on the market, including e-cigarettes, snus, and dissolvables (Chapter 4: Novel Nicotine Products). All of these products fell outside of FDA regulation because they were introduced after the law went into effect. In 2013, FDA issued a notice of proposed rule-making that would deem certain tobacco products, including e-cigarettes, to be subject to the same regulation outlined in the FSTCPA. In May 2016, this deeming rule was

Figure 13.8 Tobacco Products Regulated by the FDA



finalized, and it extends the FDA's authority to include the regulation of electronic nicotine delivery systems (such as e-cigarettes and vape pens), all cigars, hookah (waterpipe) tobacco, pipe tobacco and nicotine gels (Figure 13.8).

Table 13.2 The Differences Between Regulation of Cigarettes and E-Cigarettes Varies Significantly

U.S. Product Comparison	Combustible Cigarettes	E-Cigarettes
Product Regulation	• Manufacturing, sales and marketing regulated by FDA as of 2009	• As of May 2016, FDA passed legislation to begin regulating aspects of e-cigarettes • Health warnings required on packaging • Ingredients must be disclosed • Packaging must be child-proof
Marketing	• 1971 Broadcast Media Ban • Limited print ads • Extensive point of purchase	• No restrictions • Ads allowed on TV for 1st time in 40 years
Restrictions on where Products Can Be Used	• No Federal law • Cigarettes are generally banned in indoor areas as a result of state and local laws.	• No Federal law • NYC and Chicago treat e-cigs like other tobacco products
Minimum Age of Purchase	• Nationwide – 18 years • NYC and other jurisdictions have increased to 21 years	• May 2016 regulation will require e-cigs cannot be sold to individuals under 18 years of age • Prior to federal regulation, some states and cities had passed minimum age of 18
Product Ownership	• Exclusively major tobacco companies	• Primarily Lorillard (blu) and small entrepreneurs - NJOY • Most tobacco companies have an e-cig brand or are acquiring one

Table 13.2 provides a helpful comparison of how traditional combusted cigarettes are regulated in the U.S. versus e-cigarettes. The FDA's authority over the manufacturing, sales, and marketing of traditional cigarettes is only beginning to be extended to e-cigarettes. While some regulations in the May 2016 deeming ruling will go into effect in August 2016, these regulations are just the beginning and do not provide the same level of regulation that traditional cigarettes receive. While cigarette advertising has been banned on television and radio since 1971 as a result of

Table 13.3 The Differences in the Regulation of Nicotine Products Varies Significantly in the U.S. (bold lettering indicates the presence of regulation)

Product	Evidence on Safety and Premarket Approval	Ban on TV Ads	Ban on Flavors	Minimum Age of Purchase	Excise Taxes	Warning Labels	Limits on Where Product Can Be Used
E-Cigarettes	None, but less harmful than combusted cigarettes	First time smoking is seen on TV in 40 years	Countless flavors, including bubble gum, fruit, candy, etc.	**May 2016 regulation will require not to be sold to ppl under 18 years**	None	**May 2016 regulation will require warning statements on packaging**	None, any regulation in place occurs at the state and local level
Cigarettes	Most deadly tobacco product known	**Banned**	Menthol allowed	**18 years as federal law; Some states/ localities set as 21 years**	**Federal and State Taxes**	**Required**	**Yes**
Rx Drug Delivery Device	**Required**	Extensive broadcast and print ads	**Yes**	**Yes**	None	**Required**	None
Rx Cessation Aids	**Required**	Allowed but limited	Mint and fruit flavors allowed	**Yes**	None	**Required**	None

legislative action, there are no such marketing restrictions on e-cigarettes. Likewise, state and local restrictions on where traditional cigarettes can be used generally do not apply to e-cigarettes; the exceptions are New York City and Chicago, which treat e-cigarettes the same as tobacco products. Nationwide, the minimum age of purchase for traditional cigarettes is 18 years, and the ruling has just been made that e-cigarettes cannot be sold to individuals under age 18. Prior to the federal law, less than half of the states had independently passed laws setting a minimum age for buying e-cigarettes. Recently, Hawaii, California and hundreds of local jurisdictions have enacted legislation increasing the minimum purchase age of traditional cigarettes to 21 years of age.

To expand our comparison, Table 13.3 describes regulation of traditional cigarettes and e-cigarettes alongside prescription nicotine delivery devices and cessation aids. While scientific evidence on the safety and effectiveness of prescription devices and nicotine replacement therapy is required before they can be sold on the market, there is no such requirement for e-cigarettes—they can be manufactured and sold by companies without having to do research or clinical trials to prove that they are safe and effective when used as intended. The 2016 deeming regulation will require e-cigarette companies to register with the government, report ingredients, and require premarket review of new tobacco products. While this regulation is a start, we can see from the table that the current regulatory status of nicotine products sold in the U.S. varies widely and is often shaped by the influence of special interests. The regulation of nicotine products should be based not on special-interest lobbying or historical precedent, but rather on the level of harm that they cause.

The 2009 FSPTCA Act bans all cigarettes that have a characterizing flavor, including all fruit and candy flavors, other than tobacco flavor or menthol (Figure 13.9). The FDA has the power to ban menthol and they have proposed a course of action that is now being considered within the administration.

Figure 13.9 Menthol-Flavored Cigarettes



When the matter was opened for public comment in July 2013, over 200,000 comments were received which are now being read, evaluated, and documented so that they can help to inform the ultimate regulation of menthol in tobacco products. The issue is an important one, with 30% of adults and more than 40% of youth smoking menthol cigarettes, as well as 70% of African Americans; it should be regulated to the extent that it contributes to the initiation and continuation of smoking.

Cigarettes used to come in all sorts of flavors. Camel, for instance, carried a piña colada cigarette. While the FDA has banned all flavors except menthol for cigarettes, flavors are still allowed for e-cigarettes, little cigars, and cigarillos (Figure 13.10). These products continue to be sold with a variety of flavors such as strawberry, cotton candy, and licorice. This is particularly concerning (as we noted in Chapter 4) because these flavors are particularly attractive to young people. The 2016 deeming regulation states the FDA's intent to issue a proposed product standard relating to flavorings in the future, but at this point in time, flavorings remain unregulated.

Figure 13.10 E-Cigarettes Come in Many Fruit and Candy Flavors



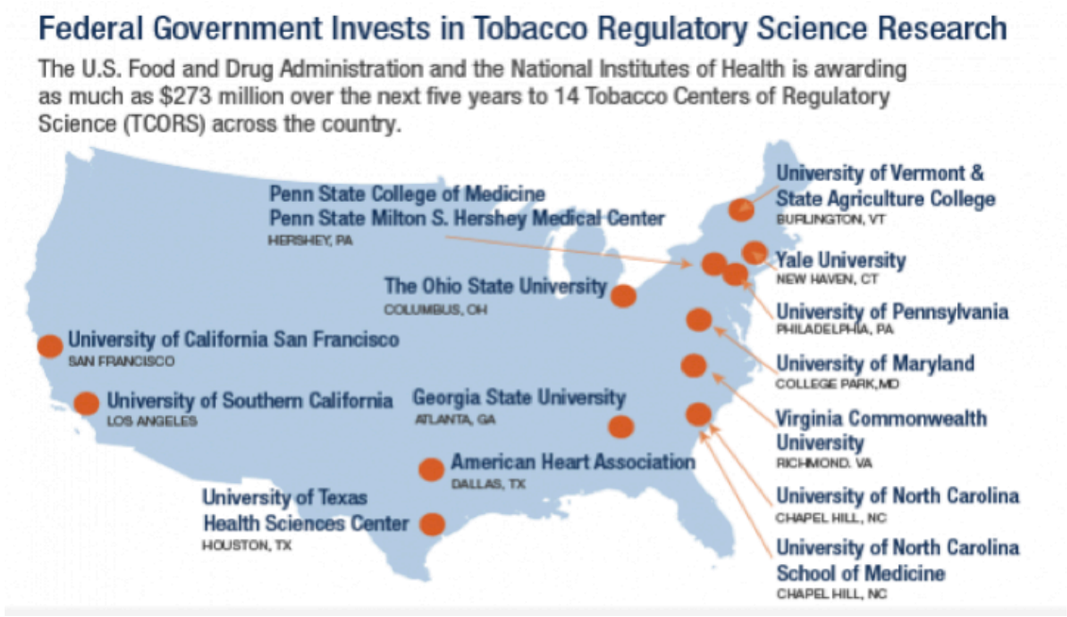
Figure 13.11 Proposed FDA Cigarette Warning Labels



Additionally, the FSPTCA prohibits terms such as "light," "mild," and "low-tar" on tobacco product packages and advertisements, while also authorizing the FDA to restrict additional terms in the future. The 2016 deeming regulation will prohibit e-cigarettes to be sold as modifiable risk products or to include the same "light," "mild," or "low" labeling.

Further, the 2009 law requires bigger, more prominent warning labels on cigarettes and smokeless tobacco products. Figure 13.11 shows examples of the cigarette warning labels that were proposed by the FDA. These immediately elicited litigation from R.J. Reynolds, who found such

Figure 13.12 The FDA and NIH Invest in Tobacco Centers of Regulatory Science Across the Country



warnings to impede freedom of speech. With litigation happening in various courts, some judges have ruled in favor of R.J. Reynolds, and some have ruled on behalf of the FDA. Regardless of the outcomes of these individual cases, the FDA has withdrawn the graphic warning labels and has gone back to attempt to develop new labels that correspond to U.S. case law, in addition to being accurate and informative. Though graphic warning labels have become a common practice in other nations throughout the world, and in spite of the 2009 act which calls for such labels to be implemented—not to mention the fact that the labels depict real conditions caused by smoking—it will likely be many years before they become part of cigarette packaging in the U.S. (Figure 13.11). The 2016 deeming regulations will require e-cigarette packaging to carry health warnings, such as "WARNING: This product contains nicotine. Nicotine is an addictive chemical," or "This product is made from tobacco."

There are many challenges still to be met in implementing the FSPTCA and the 2016 deeming ruling. But in spite of the limitations of the law and the litigation undertaken by the tobacco industry, it is exciting to have a federal agency exerting regulatory authority over tobacco products. The FDA has invested heavily in a number of Tobacco Centers of Regulatory Science (TCORS), which are intended to provide the objective scientific evidence that will guide FDA rule-making in the years to come. Under the TCORS program, researchers from 14 institutions around the country will focus on finding evidence that will inform the FDA's regulatory actions on tobacco (Figure 13.12).

Essentially, tobacco regulation can occur at every stage of the tobacco lifecycle, including the production, display, purchase and use of tobacco products. As shown in Figure 13.13, adopting regulations at each stage of the tobacco lifecycle is possible, and it has the potential to limit the harm caused by these products.

Figure 13.13 Regulations Can and Should Occur at all Stages of the Tobacco Life Cycle

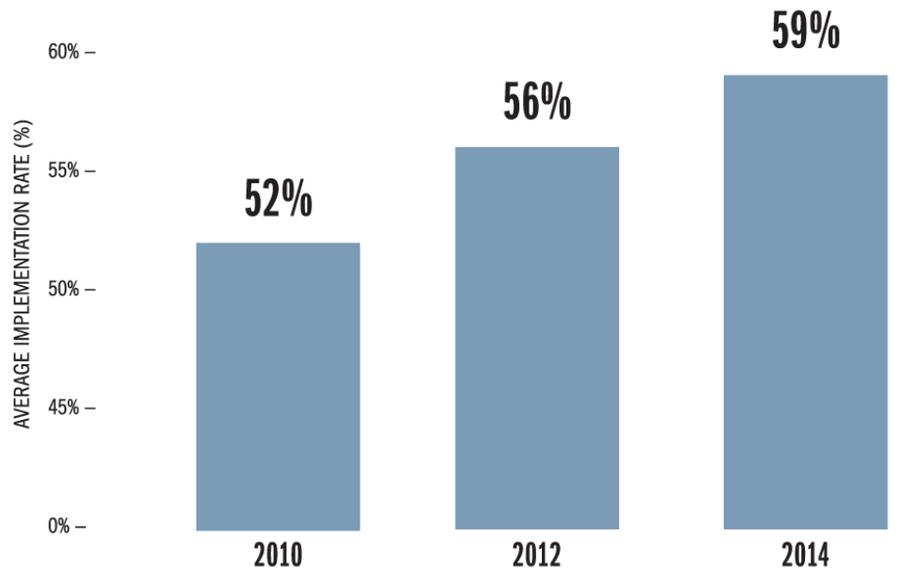


Source: tobaccoatlas.org

Section 4 - Global Effects

While this chapter so far has focused on the laws, litigation, and regulation around tobacco products in the United States, it is important to also recognize the efforts being made in these regards by other countries around the world. The most important global tobacco control effort to date is the WHO Framework Convention on Tobacco Control, an important evidence-based treaty that has been ratified by 179 countries. Member countries are obligated to implement tobacco control measures, such as smoke-free environments, advertising restrictions, and health warnings (also Chapter 8: Tobacco Control Frameworks). In essence, it is a legal obligation to protect the population's health against the tobacco epidemic. The WHO FCTC has made an important difference in getting effective tobacco control programs, laws, and regulations put into place. Figure 13.14 shows the average implementation rate of substantive WHO FCTC articles in

Figure 13.14 Average Implementation Rate of Substantive WHO FCTC Articles Over Time



from 126 parties that were analyzed between 2010 and 2014. Results show a steady increase in the number of countries establishing important tobacco control articles outlined by WHO FCTC over time. Since 2005, more than 35 FCTC member parties have enacted or implemented strong smoke-free legislation across the globe, including Australia and Canada. In Latin America, 14 countries have passed strong smoke-free legislation. Among them is Brazil, the most populous country in the world to enact 100% smoke-free legislation. More than 68 countries have enacted or implemented graphic warning labels that cover at least 30% of tobacco packaging. At least 37 countries have enacted legislation that strengthens restrictions on tobacco advertising, promotion and sponsorship.

Needless to say, the tobacco companies have fought back against smoke-free legislation in foreign countries. In more than 20 countries, the courts have referred to the WHO FCTC when affirming the government's right to protect the health of citizens from tobacco. For a specific example, we can look at the following case study from Canada.

In 2007, tobacco manufacturers complained that a law requiring graphic health warnings to cover 50% of pack labels infringed upon their right to freedom of expression under the Canadian Charter of Rights and Freedoms. The Canadian court rejected their argument, referencing the WHO FCTC and the work of other countries that had embraced similar laws in accordance with the treaty. Since the WHO FCTC holds legal sway in countries that ratified the treaty, courts of law can use it to counter the tobacco industry's claims.

Key Takeaway

Since the WHO FCTC holds legal sway in countries that ratified the treaty, courts of law can use it to counter the tobacco industry's claims.

To take another example, a law prohibiting smoking in any enclosed space was challenged in 2010 by the Guatemalan Chamber of Commerce, which opposed "unreasonably restricting the exercise of constitutional freedoms of industry and commerce on the basis that it would render the manufacture, production, distribution or marketing of tobacco-based products 'worthless.'" The Constitutional Court upheld the law and concluded that the Guatemalan Constitution's "right to health" mandate entitled the government to implement these prohibitions to be consistent with the WHO FCTC.

A final recent example comes to us from South Africa, where, British American Tobacco challenged a law banning tobacco advertising and promotion in 2012. The South African court upheld the law on the basis that any limitation on the freedom of commercial speech was justified, making it clear that by ratifying the WHO FCTC, the country had "accepted the link between advertising and consumption as incontrovertible" and had a duty to "have regard to international law when interpreting the Bill of Rights." In these and many other ways, the WHO FCTC has provided countries with the legal justification to oppose tobacco industry efforts to undermine effective tobacco control measures.

We end this chapter with a few words from Dr. Judith Mackay, a British medical doctor living in Hong Kong who has focused much of her work since 1984 on tobacco control in developing countries (Movie 13.1). Dr. Mackay serves as a Senior Advisor to the World Lung Foundation. She has been identified by the tobacco industry as one of the three most dangerous people in the

world and has been counted among TIME Magazine's 100 Most Influential People. Here, she gives her perspective on the importance of law, legislation, and regulation for tobacco control.

Movie 13.1 Hear from the Experts: Judith Mackay



Chapter 13 Discussion Questions:

1. The U.S. is a party to the WHO Framework Convention on Tobacco Control but has not ratified or entered the Framework into force. Hypothesize why it has not done so and what are the ramifications of not ratifying or entering the Framework into force.
2. If the U.S. does ratify and enter the Framework into enforce, would it be helpful in rebutting the tobacco industry's First Amendment arguments? How?
3. Are there any other national situations where an industry has tried to manipulate the legal system's efforts at regulation for over 50 hears? Can or should the U.S. expedite the processes for judicial and executive actions against the tobacco industry?

Figures and Tables

Figure 13.1: The Strength of Smoke-Free Air Laws/Policies Varies Widely Throughout the U.S.

Source: American Lung Association. (2012). State Legislated Actions on Tobacco Issues (SLATI) Overview.

Table 13.1: States Considering Smokers a Protected Class (and Protected from Discrimination)

Figure 13.2: Examples of States with Preemption Clauses Prohibiting Cities and Municipalities from Passing Stronger Tobacco Control Laws

Figure 13.3: Rose Cipollone

Figure 13.4: Mississippi Attorney General Michael Moore

Source: Governing The States and Localities. (1998). Big Tobacco's Nemesis: Billions from a novel and untested legal strategy.

Figure 13.5: Corrective Statements for Adverse Health Effects of Smoking

Source: Campaign for Tobacco-Free Kids

Figure 13.6: FSPTCA Infographic Section 1

Source: FDA. (2013). Timeline (Infographic): Family Smoking Prevention and Tobacco Control Act.

Figure 13.7: FSPTCA Infographic Section 2

Source: FDA. (2013). Timeline (Infographic): Family Smoking Prevention and Tobacco Control Act.

Table 13.2: The Differences Between Regulation of Cigarettes and E-Cigarettes Varies Significantly

Table 13.3: The Differences in the Regulation of Nicotine Products Varies Significantly in the U.S.

Figure 13.8: Tobacco Products Regulated by the FDA

Figure 13.9: Menthol-Flavored Cigarettes

Source: Carrie Whitney, 2016

Figure 13.10: E-Cigarettes Come in Many Fruit and Candy Flavors

Source: Stanford Research Into the Impact of Tobacco Advertising

Figure 13.11: Proposed FDA Cigarette Warning Labels.

Figure 13.12: The FDA and NIH Invest in Tobacco Centers of Regulatory Science Across the Country

Source: University of California, San Francisco. Tobacco Center of Regulatory Science (TCORS).

Movie 13.1: Hear from the Experts: Judith Mackay

Figure 13.13: Regulations Can and Should Occur at all Stages of the Tobacco Life Cycle

Source: Eriksen, M., Mackay, J., Schluger, N., Gomeshtapeh, FI, Drope, J. (2015). *The Tobacco Atlas*, Fifth Edition. American Cancer Society and World Lung Foundation.

Figure 13.14: Average Implementation Rate of Substantive WHO FCTC Articles Over Time

Source: Eriksen, M., Mackay, J., Schluger, N., Gomeshtapeh, FI, Drope, J. (2015). *The Tobacco Atlas*, Fifth Edition. American Cancer Society and World Lung Foundation.

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Chapter 14

Lessons Learned

Chapter Objectives

1. Examine how the process of social change applies to tobacco and other public health issues.
2. Compare and contrast tactics used by the tobacco industry with those used by the food and alcohol industries.
3. Hypothesize how tobacco control methods, such as taxes and marketing restrictions, can impact other public health issues.
4. Analyze how the food industry can be a part of the battle against obesity.

Section 1 - Understanding Externalities and Social Change

Since 1964, we have learned many lessons in the course of our efforts to control tobacco. The tobacco industry's motives and tactics have been exposed and, to an extent, the industry has been held accountable for the damages caused by smoking. Today, evidence-based practices for tobacco control and comprehensive tobacco control programs have become the norm in many countries. In this chapter, we will explore how lessons learned from tobacco control can be applied to other public health problems, such as obesity and alcohol abuse, with a particular emphasis on how the process of social change can be accelerated to promote public health.

Tobacco control is widely considered to be a success story. The lives saved and healthy years extended as a result of the movement is considered one of the most important public health victories from the latter half of the 20th century and the beginning of the 21st. In 2014, the 50th anniversary edition of the Surgeon General's Report was published, lauding the remarkable progress in reducing tobacco use in the United States (Figure 14.1). Since the first Surgeon General's Report, smoking prevalence among

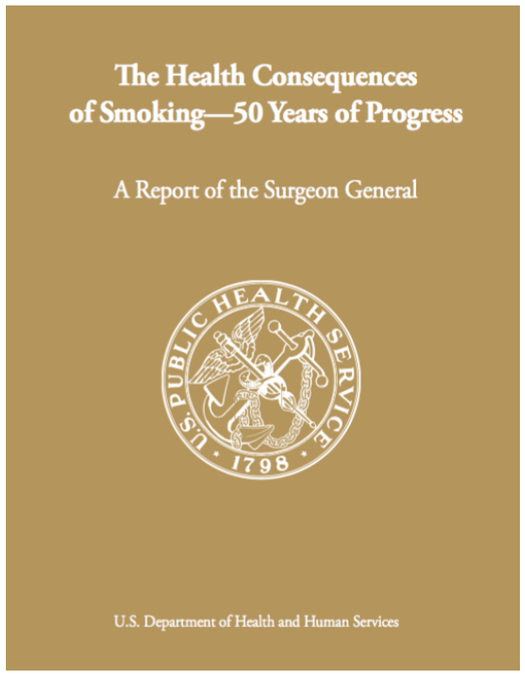


Figure 14.1 Cover of the 50th Anniversary Edition of the Surgeon General's Report on Smoking and Health, 2014

U.S. adults has been reduced by half; ex-smokers now outnumber current smokers in this country. However, tobacco use remains the leading preventable cause of disease, disability, and death in the U.S. The 2014 Surgeon General's Report not only commemorates the progress that has been made so far, but also calls for urgent action and accelerated progress to further reduce the burden caused by tobacco use. If we are to prevent the hundreds and thousands of annual deaths that are projected globally, tobacco control must disrupt the status quo. We can start by understanding how and why progress has been achieved so far, the time and resources it has taken, and the relevance of this progress for other public health problems.

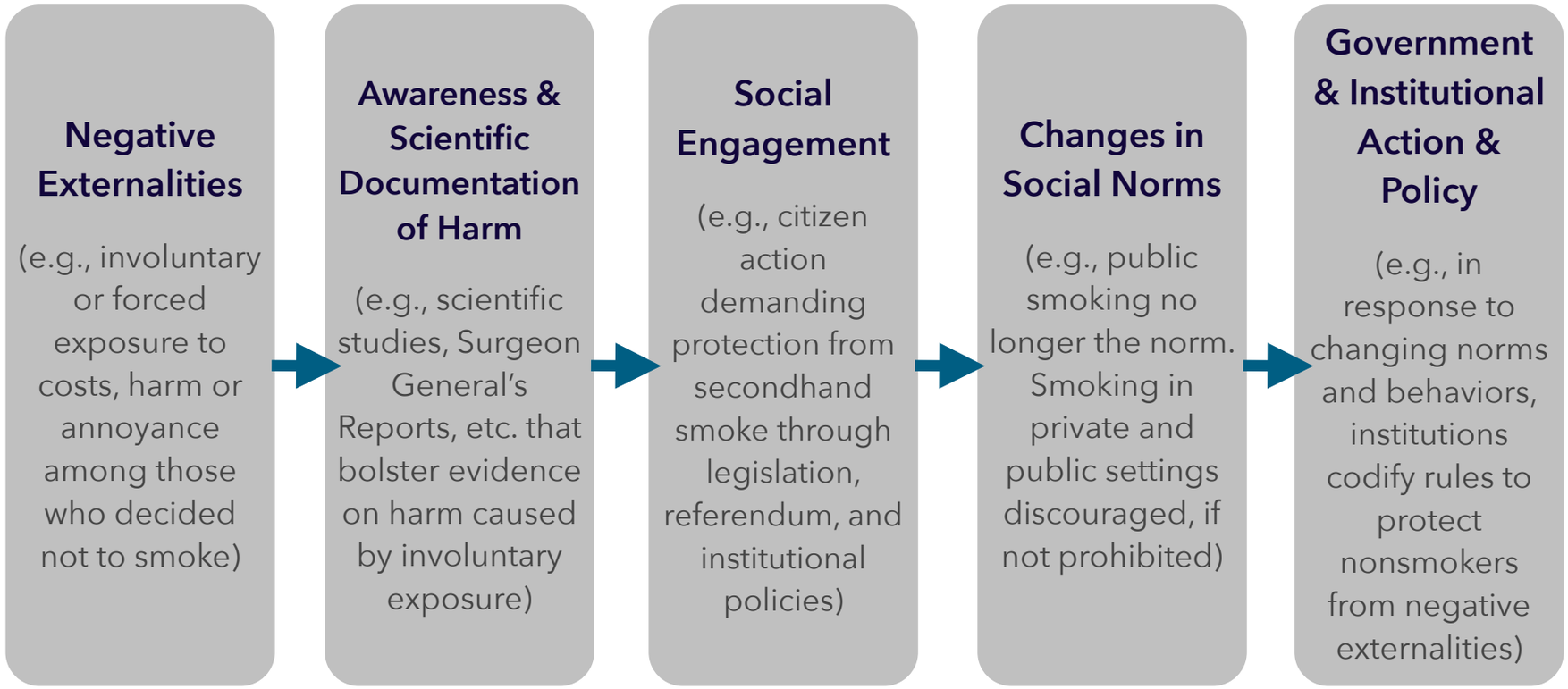
One of the ways in which tobacco control is unique among other areas of public health has to do with the issue of externalities. We use the phrase **negative externality** to describe the costs to society that are generated as a result of an individual's decision to engage in a certain type of behavior. In the case of smoking, there are many known negative externalities: secondhand smoke can be seen, smelled, and even tasted by those in close proximity to a smoker; there is strong scientific evidence proving harm from secondhand smoke; and nonsmokers experience health risks caused by the decision made by others to smoke. These very salient and palpable dimensions of exposure to secondhand smoke spurred on local movements advocating for nonsmokers' rights in the early 1980s, marking the beginning of sweeping changes in public opinion regarding where smoking should and should not be allowed, as well as paving the way for government intervention in the issue.

To a large extent, the reversal of social norms around tobacco use in the United States resulted from the extraordinarily visible externalities associated with smoking; the question now lies in how we can use our understanding of externalities to address other public health issues. Looking at problems such as obesity, alcohol consumption, or even climate change, we can ask the following questions:

- What behaviors do some people engage in that harm others?
- How can we make these externalities more real, immediate, and salient to the public?
- What strategies can be implemented to mitigate the harm caused by these externalities?

Recognizing the tobacco control movement's success in changing social norms, public health advocates are now putting much effort into understanding the process of social change. As shown in Figure 14.2, the process involves several steps that must happen before policies become enacted at the government or institutional level. In the case of tobacco, social change began with the recognition of the negative externalities associated with smoking—for instance, the pervasive smell of smoke in

Figure 14.2 The Process of Social Change



public places was a very palpable externality, at the very least an annoyance to those who chose not to smoke. Nonsmokers felt it was unfair to be exposed to smoke, and their decision to take action was bolstered by increasing awareness and scientific documentation of the harm caused by long-term exposure to secondhand smoke. An unprecedented level of social engagement around the issue occurred as citizens demanded protection from involuntary exposure; advocacy groups put pressure on institutions and local governments to create legislation or to put referendums on the ballot so that citizens could have their voices heard on the issue. More and more rapidly, social norms around smoking started to change; in just a matter of years, smoking was no longer considered a socially acceptable activity. It developed the status of a deviant behavior, and one no longer seen in any public indoor areas. This process of transformation reached its culmination as governments and institutions codified, or formally put into law, the smoke-free policies that had emerged as a reaction from citizens opposed to secondhand smoke exposure. The lesson here, of course, is that social change did not start with government and institutional policies, but rather from citizen action to address the negative externalities of smoking. Public health advocates working in other domains look at the phases of social change in the context of tobacco control and attempt to answer the question: How can the process of social change be initiated in the absence of large negative externalities?

Even without negative externalities to stimulate the process of social change, there are a number of elements that can help push along needed changes in social norms. First, there must be a persuasive scientific base documenting the threat to the public health. Such documentation is particularly helpful if it also addresses the economic implications of the threat and if it can gain the support of mass media channels. Strategic leadership is key—such movements especially benefit from a prominent and highly visible champion; but equally important, there must be a diverse constituency of highly

Key Takeaway

Negative externalities stimulate the process of social change.

effective advocates bringing many different perspectives and serving a variety of roles in order to push the agenda in ways that government officials cannot. Lastly, laws, regulations, and policies codify new norms and further enable sweeping changes to take place.

Often, creating lasting social change requires the government codifying the new norms in the form of laws, regulations, and policies. Knowing this, tobacco companies work aggressively to question and undermine the role of government in regulating public health matters. For instance, the Imperial Tobacco Company sponsored a campaign that was aired in Australia in 2011 (Movie 14.1), which was designed to provoke fears of the "Nanny State." The campaign was part of an effort to defeat plain packaging legislation in that country. Organized efforts to severely limit the role of government have become commonplace, and antigovernment sentiment is one of the greatest challenges now facing advocates of public health.

Movie 14.1 Imperial Tobacco's 2011 "No Nanny State" Campaign Against Plain Packaging



New York City provides an interesting case study in terms of progressive public health action from the government that was met with fierce opposition from commercial interests. Former Mayor Michael Bloomberg put a number of proactive measures in place to reduce obesity as well as tobacco use, which have been met with a strong backlash from affected industries. These efforts include restricting the amount of sodium in prepared meals, requiring chain restaurants to include calorie counts on

their menus, requiring health department grades to be posted by restaurants, limiting the use of tobacco products, and regulating sugary drinks.

Among the public, there is ambivalence regarding the appropriateness and effectiveness of certain interventions. Partly, this is stimulated by commercial interests advocating against the "Nanny State," but also by widespread concerns about frivolous lawsuits, the appropriate role of government, and an increasing emphasis on personal responsibility for health behaviors. We don't know all the answers, and there is certainly no formula for stimulating social change, but we have learned much from the last fifty years of tobacco control that can be applied to many other public health problems. Positive change will require small steps sustained over time. As we learned from tobacco control, citizens led the charge in changing social norms and only later were sweeping changes put in place in the form of laws and regulations. Likewise, for issues like obesity and alcohol, we know that effective solutions will require the involvement of all sectors of society.

Section 2 - Relating Tobacco and Obesity

In this section, we focus on how lessons learned from tobacco control can be applied to preventing obesity. Tobacco and obesity share many **similarities** (Figure 14.3): they both cause illness and disease and thus contribute to rising healthcare costs; tobacco and unhealthy foods that cause obesity are marketed aggressively, with a special focus on attracting youth; and they disproportionately affect low-income individuals.

Figure 14.3 Many Lessons From Tobacco Control Can Be Applied to the Obesity Epidemic



They are also very different from one another. Tobacco causes disease and death when it is used as intended, and the same is not true for unhealthy food products. Indeed, there is no single food product that is as harmful as cigarettes. Moreover, cigarettes are not necessary for life, whereas food must be consumed daily. Still further, the adverse effects of obesity can be ameliorated by other factors, such as physical exercise. These differences set obesity prevention efforts quite apart from tobacco control and lend more nuance to the issue.

In comparing the tobacco experience to obesity, it is important to look at externalities, as we discussed previously. One of the

first questions that we need to address is the following: Does a person's poor food choices affect another person in a way similar to secondhand smoke? Clearly, the externalities differ between the two risk behaviors; the externalities associated with obesity have significantly less impact on others compared with those associated with smoking. However, there are economic costs that are shared by everyone. The estimated annual medical cost of obesity in the U.S. was $147 billion in 2008; medical costs for people who are obese were $1,429 higher on average than those of normal weight.

We also find similarities in the way that the food industry and the tobacco companies conduct business. As a matter of fact, the food industry has taken several tips from the tobacco industry, employing many of the same arguments and tactics used in the tobacco wars. For instance, the food industry ascribes the cause of the nation's unhealthy diet to personal responsibility. It tries to raise fears that government action impacts personal freedom, often using terms associated with freedom and liberty to promote products that may actually be harmful. It vilifies critics by characterizing them as totalitarian, leaders of a nanny state, food police, and even "food fascists." The food industry also criticizes studies that hurt its public image, dismissing them as "junk science." Further, the industry emphasizes physical activity over diet; it uses terms that imply health (for example, "all-natural") but are not consistently defined; the industry states that there are no good or bad foods; hence no food or food type should be targeted. The tactic is to plant doubt whenever concerns are raised about the industry—the same tactic used for decades by the tobacco companies.

Key Takeaway

The food industry uses many of the same tactics used by tobacco companies to promote specific foods and brands.

Given all these similarities, there are a number of strategies that have worked for tobacco control that may have relevance for obesity prevention. As in the fight against tobacco, advocates of obesity prevention must have a good grasp of the information environment,

which includes marketing and advertising from the food industry, the use of counter-marketing and media campaigns to improve risk perceptions and health behaviors, as well as the impact of warning labels on products and the way ingredients are disclosed. Obesity prevention advocates should also pay attention to the ease of access to certain foods in communities and schools. In the case of tobacco, there are fairly stringent restrictions on who can access the products and where they can be used, and there has been a push to restrict some foods in a similar manner (for example, removing sugary drinks from schools or Mayor Bloomberg's proposal to limit the size of sugary drinks to 16 ounces). Further, economic factors must be taken into account. For tobacco control, efforts to increase the excise tax has proven to be an important strategy, given the inverse relationship between price and consumption, and a parallel move for food products, particularly sweetened soft drinks, has been much discussed recently. The legal and regulatory environment may also be key in obesity prevention. As of yet, the food industry has not faced litigation from the states or the federal government, unlike the tobacco industry, which has had to pay billions of dollars in payments to the states as a result of the Master Settlement Agreement and being found guilty of fraud and misleading the public. However, public health advocates are now seriously considering such efforts against the food industry, particularly around the marketing of food products. Besides the potential of having stricter regulations on food advertising, litigation could result in the disclosure of the food industry's internal documents through the discovery process at trial, just as it did for tobacco, exposing the industry's efforts to mislead consumers about its products. Lastly, obesity prevention strategies must take into account the importance of social norms and how they change. As we discussed, the social norms with respect to tobacco were turned upside down over a 50-year period, with smoking going from being a socially acceptable activity to becoming a deviant behavior. Obesity is much less

straightforward in this regard, and efforts to change the acceptability of obesity in our culture must be careful to avoid stigmatizing those who are obese.

The five domains outlined in the box below cover the types of interventions that have been shown to be successful in combating tobacco; whether they will also work for obesity prevention, and to what extent, still remains to be seen. Looking more closely at marketing, we know that the tobacco companies have, for decades, promulgated an advertising code whereby they advocate for self-regulation of tobacco product advertising. The food industry has taken a similar approach, putting forward a self-regulation policy for their marketing. Unfortunately, as we have found with tobacco, the food industry's advertising code does little to nothing in terms of limiting the claims they make or their targeting of children with their marketing. A recent study examined quick-serve restaurants (QSRs) and found that self-regulation did not work: QSRs advertised heavily to children (particularly McDonald's, Burger King, and Subway),

What public health domains can we focus on for obesity prevention?

The information environment: marketing & advertising, media campaigns, warning labels, ingredient disclosure

- Access and opportunity: ease of access in communities and schools
- Economic factors: taxes, agriculture & farming interests
- Legal and regulatory environment: laws, product liability, FDA & FTC regulation
- Social environment: changing social norms, education

with the majority of these ads mentioning some type of toy giveaway. Movie tie-ins were present in 55% of children's advertisements, compared with 14% in advertisements geared towards an adult audience. Ads targeting children were also more likely to include strong branding: images of food packaging were present in 88% of ads aimed at children, compared with 23% of ads targeting adults.

The marketing of food products to youth is the subject of a number of recent studies. A report from the Kaiser Family Foundation examined data from 2005 and found that food was the most heavily advertised product to youth, with ads for candy and snacks making up 34% of food ads. Ads for cereal made up 28% and fast food 10%. There were no ads for fruits and vegetables. The same study showed that preschoolers or children in early elementary school saw an average of about twelve ads per day, adding up to thousands of ads seen over the course of a year (Table 14.1). Of note, a separate study done in 2004 by the American Psychological Association found that children under the age of eight were unable to critically interpret televised advertising messages. Unlike adults, children

Table 14.1 Children's Exposure to Food Advertising on TV, On Average

Age	Number of Food Ads Seen per Day	Number of Food Ads Seen per Year	Hr:Min of Food Ads Seen per Year
2-7	12	4,427	29:31
8-12	21	7,609	50:48
13-17	17	6,098	40:50

cannot differentiate fact from fiction and tend to believe what they were told by advertisements. Dr. Brian Wilcox, who was among the psychologists who performed the study, concluded: "Because younger children do not understand persuasive intent in advertising, they are easy targets for commercial persuasion." Along the same lines, the Institute of Medicine found that "[t]elevision advertising influenced the food preferences, purchase requests, and diets, at least of children under age 12 years, and is associated with the increased rates of obesity among children and youth" (Figure 14.4). All told, these studies provide a compelling argument for regulating advertising that reaches young children to ensure that they provide truthful and non-distorted messages.

Labeling of foods is a food industry marketing tactic that can be controversial. In 2008 and 2009, the food companies Kraft, Kellogg, and Unilever took part in

Figure 14.4 Like Tobacco, Food Companies Use Celebrities, Sponsorship and Giveaways to Attract Youth

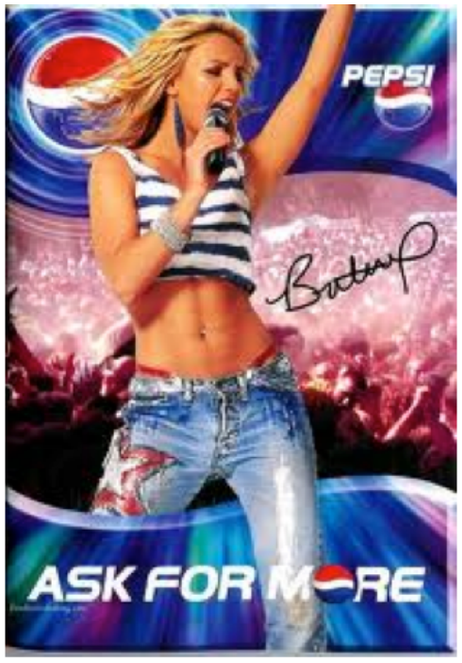








Figure 14.5 Food Items that Feature the Smart Choices Label





the Smart Choices program, which aimed to offer consumers an easy way to identify healthy choices by placing a green check mark on foods. Among the products that received the green check mark were Fudgsicles and Fruit Loops, pictured in Figure 14.5. The Smart Choices program was pulled after the FDA announced it would be analyzing misleading food labels more closely.

Rep. Henry Waxman, who chaired the Congressional hearings that revealed the secret activities of the tobacco industry to the public, has also held a hearing on restricting marketing from the food industry. These hearings were highlighted in an HBO documentary titled The Weight of the Nation.

In addition to marketing and advertising, we know that economic factors play an important role in people's food choices just as they do in people's decision to smoke or not to smoke. Many countries and states are now looking at taxes as a way to regulate consumption of unhealthy foods. However, levying taxes on certain foods is a much more complicated matter than taxing tobacco. Taxing unhealthy foods requires first determining which foods are unhealthy or defining what constitutes a "snack" food. Notwithstanding the complications of judging the health value of different foods, soda

and sugar-sweetened beverages have emerged as ideal candidates for taxation due to their lack of nutritional value, their ease of categorization, and empirical association with added calories in children's diets.

Key Takeaway

Many countries and states are now looking at taxes as a way to regulate consumption of unhealthy foods.

Mexico was the first country to levy a soda tax as part of an effort to reduce obesity. Soda is taxed at one peso per liter, and researchers are monitoring and evaluating the program's success in terms of reducing obesity in Mexico but also in terms of the revenue that is collected as a result. Already, there has been extensive lobbying to try to defeat this type of tax on sugar-sweetened beverages in the U.S., and it is expected that opposition from the affected industries will continue to be strong.

Thus, the precedent set by tobacco control of using increased taxation to discourage the consumption of harmful products is now being applied to unhealthy foods. The practice comes with several advantages, and in some ways, it is easier to implement for food than for tobacco. Unlike advertising, taxes are not covered under the First Amendment; while taxes are unpopular, there is no constitutional protection against taxation and local, state, and federal jurisdictions can consider taxes as a way of discouraging unhealthy behaviors when necessary and appropriate. The public more readily accepts these types of taxes if revenues are used for public health programs like subsidizing healthier options or providing better access to healthy foods particularly in impoverished areas. Arguably, taxes on food are less regressive than tobacco taxes since food products are not addictive like nicotine. It is easier for individuals to change their behavior as a response to increased taxes on food. As with cigarettes and substitute products like cigarillos and chewing tobacco, taxing sodas may not be enough. Taxing all sugar-sweetened beverages is important, including those disguised as "healthy" options. While taxation can be complicated by the need to specify the exact types of food

that will be affected, progress is being made in implementing a taxing strategy for food products in ways that reduce the prevalence of obesity.

In addition to the push for marketing regulations and increased taxation, restricting access to unhealthy foods is yet another way in which the obesity prevention movement has followed the lead of tobacco control in recent years. In 2010, the Healthy, Hunger-Free Kids Act required the U.S. Department of Agriculture (USDA) to establish nutrition standards for all foods served in schools—not just the federally-supported meal programs. Before the new standards, many of the items available for purchase at school were filled with empty calories, as shown in Figure 14.6. Drawing on data from the Institute of Medicine, the USDA

Figure 14.6 Examples of Foods Served in Schools Before and After the Hunger-Free Kids Act of 2010



established a set of standards governing the types of food that could be sold in schools.

The 2010 law provides snacks in schools that have fewer calories overall, and with a much lower proportion of empty calories. Though the law allows schools to bend the rules a bit for special events like bake sales and fundraisers, it has changed the ease of access to high-calorie, low-valued foods in schools, in ways that will hopefully make a difference in preventing obesity.

More recently, the Food and Drug Administration (FDA) proposed a ban on trans fats in food. In November 2013, the FDA made a preliminary determination that partially hydrogenated oils, or trans fats, contained in processed foods are no longer "Generally Recognized as Safe" ("GRAS"), a designation that a compound or chemical must have in order to be used in the U.S. food system. The final determination was made in June 2015, and food manufacturers have three years to remove partially hydrogenated oils from their products. The proposed restrictions on trans fats could prevent 20,000 heart attacks and 7,000 deaths per year. If the FDA makes a final determination that trans fats are not safe, a company could not use them in food without special approval from the FDA.

To conclude our comparison of tobacco control and obesity prevention measures, we turn once more to former New York City Mayor Bloomberg, who has successfully championed a number of public health initiatives on both fronts. During his tenure, Mayor Bloomberg was able to ban smoking in public places, increased the purchasing age for cigarettes to 21, and required posted calorie counts in chain restaurants. However, some of his initiatives have failed to go through: limiting the size of sugary drinks, implementing a sales tax on soda, and excluding sugar-sweetened beverages from food stamps. These issues remain controversial, and though they failed to pass in New York City, they

provide examples of the types of laws and policies that leaders can push in their jurisdictions to advance the public health.

Indeed, Mayor Bloomberg's efforts have been so controversial that the state of Mississippi—which has one of the highest obesity rates in the country—passed a state law prohibiting cities and municipalities from legislating the portion size of sodas. This link shows a clip from CNN discussing the role of government and the appropriateness of putting policies in place that promote the public health.

Section 3 - Relating Tobacco and Alcohol

As was the case with tobacco and obesity, tobacco and alcohol share a number of similarities but also have distinct differences. Both the tobacco and alcohol industries target youth, even though both products are illegal for youth to consume. Both have negative impacts on the health of consumers, and there are negative externalities associated with both products. They differ in that there is no safe level of consumption for tobacco products, as there is for alcohol. That is, while tobacco consumption is harmful whatever the amount, alcohol consumption can be safe and there is even some evidence that moderate consumption may be beneficial.

Alcohol overuse is associated with a number of externalities, including illness, death, and harm to others. Worldwide, 1.8 million deaths in 2000 were attributable to alcohol use, which caused 3.2% of all deaths and contributed to 4% of the disease burden. In the U.S., there are approximately 80,000 deaths attributable to excessive alcohol consumption each year, which may be equated to about 2.3 million years of potential life lost. This number includes not just the lives of the drinkers themselves, but also those killed in alcohol-related traffic accidents, falls, drownings, burns, and unintentional firearm injuries. The externalities of alcohol overuse also extend to intimate partner violence and child maltreatment, as well as a greater chance of engaging in risky sexual behaviors like having unprotected sex or sex with multiple partners. Moreover, alcohol is the cause of Fetal Alcohol Syndrome.

As with obesity, it is important to understand the economic costs of alcohol use. It is estimated that excessive alcohol consumption created an economic burden of $223.5 billion in the U.S. in 2006. The cost varied widely from state to state, with a median of $2.9 billion, and ranging from a low of $420 million in North Dakota to a high of $32 billion in California. For each alcohol drink consumed, the median cost to the state was about $1.91, and about $2.00 of every $5.00 in state costs were paid by the government. Costs associated with excessive drinking largely resulted from losses in workplace productivity, health care expenses, and other costs incurred from a combination of criminal justice expenses, motor vehicle crash costs, and property damage.

Alcohol consumption among youth is a major concern (**Movie 14.2**). Youth who start drinking before the age of 15 are five times more likely to develop alcohol dependence or abuse in their lifetime compared to those who begin drinking at age 21 or later. Every day in the U.S., more than 4,750 children under 16 years of age have their first full drink of alcohol. Alcohol is the drug most used by youth in this country. In a national study, 13.8% of eighth-graders reported having at least one drink in the past 30 days, and 11.5% had been drunk at least once in the past year. Approximately 10 million people ages 12 to 20 (26.3%) reported drinking alcohol in the past month, with 6.5 million (17.0%) reporting themselves as binge drinkers and 2 million (5.1%) as heavy drinkers. Among college students, almost

Movie 14.2 Exposure to Alcohol and Marketing Starts Young



half (48%) of all alcohol use is attributable to those who are underage.

Just like the tobacco companies, the alcohol industry tries to recruit young people to use their products. Underage drinking is estimated to account for 11% to 20% of the U.S. alcohol market. The lower estimate of 11% represents 3.6 billion drinks each year. Numerous studies have shown that greater exposure to alcohol advertising contributes to an increase in drinking among youth. A study published in January 2006 found that for each additional ad a young person saw (above the monthly youth average of 23), he or she drank 1% more. And for each additional dollar per capita spent on alcohol advertising in a local market (above the national average of $6.80 per capita), young people drank 3% more. Conclusively, the more ads youth see, the more likely they are to drink. Like cigarettes, exposure to in-store displays, magazine advertising, and other people drinking at public events all contribute to an increased frequency of drinking among youth.

Movie 14.3 "Close Encounters," a Bud Light Commercial using Humor and Sex Appeal to Attract Young People



Movie 14.3 illustrates an example of how the alcohol industry promotes their products in a way that is particularly appealing to young people.

Restricting advertising for alcohol is a complicated matter, just as it is for tobacco. The Alcohol and Tobacco Tax and Trade Bureau (a subgroup of the U.S. Department of the Treasury) regulates some alcohol advertising. The following are generally prohibited:

- Statements that are false or untrue;
- Statements that are inconsistent with approved product labels;
- False or misleading statements that are disparaging of a competitor's product;
- Health-related statements that are false or misleading; and
- Misleading guarantees (though money-back guarantees are not prohibited).

While there is some regulation of egregious advertising behaviors, the alcohol industry subtly implies associations between drinking alcohol and sex, glamour, and elevated social status without consequence.

Implementing legal restrictions on advertising for products like tobacco and alcohol is very difficult because of the freedom of speech guaranteed by the First Amendment. Rather than trying to regulate the alcohol industry using laws, the Institute of Medicine and the U.S. Surgeon General have called for more self-regulation by the industry. The Surgeon General specifically recommends that the industry should not portray alcohol as an appropriate rite of passage from childhood to adulthood or as an essential element in achieving popularity, social success, or a fulfilling life. It also recommends that the industry's placement of alcohol advertising, promotion and other means of marketing do not disproportionally expose youth to messages about alcohol. Products should not be designated to

disproportionately appeal to youth. And lastly, the content and design of industry websites and alcohol advertising on the Internet should not especially attract or appeal to adolescents or others under the legal drinking age.

The alcohol advertising environment is vastly different from that of tobacco. Alcohol advertising is permitted on television, and the alcohol industry takes advantage of the lack of formal marketing restrictions by using sex appeal, sports, and celebrities to attract youth, just as the tobacco industry did before these practices were prohibited for tobacco marketing. In 2008, the Federal Trade Commission (FTC) reviewed the alcohol industry's voluntary guidelines for advertising and marketing to underage audiences and suggested that the industry's efforts at self-regulation have been largely effective. The alcohol industry's voluntary measures have even at times exceeded accepted standards of self-regulation, which includes guidelines around the placement and content of advertising and limits on college marketing. Even so, the FTC did note room for improvement in the current standards; their suggestions included reducing product placement in films, reducing access to minors, and reducing sponsorship of events and ad placements in print and broadcast media.

Just as we have seen in the case of tobacco, self-regulation is often not effective in limiting the alcohol industry's ability to recruit young people to use its products. The industry provides a variety of products, sometimes referred to as "starter" products, which introduce young people to alcohol. For example, they offer many kinds of "alcopops," which are viewed by many as a bridge between soda and beer (Figure 14.7). Like flavored cigarettes, these beverages mask the taste of alcohol and are very popular among youth. The newest fad, powdered alcohol, raises additional concerns. Data from Monitoring the Future shows that 78% of 8th graders, as opposed to 35% of 25 to 30 year olds, had consumed an alcopop in the past 30 days. Classifying them as a malt beverage makes them more widely available to youth and also cheaper, since beer is often taxed at lower rates than distilled spirits.

Like novel nicotine products, novel alcohol products target young people. Products such as Four Loko are a combination of energy drink and alcoholic beverage. Each 23.5 ounce can contains 12% alcohol, 660 calories, and the caffeine equivalent of two cups of coffee. The alcohol content is about equivalent to five light beers, and a can costs only $2.50. The product has been extremely popular on college campuses, where it is known among students as "Blackout In A Can."

Clearly, the marketing and advertising environment of alcohol is

Figure 14.7 "Alcopops" Mask the Taste of Alcohol and Are Popular Among Youth



Table 14.2 Federal Alcohol Taxes Vary Depending on Alcohol Type and Percentage

Product	Tax	Tax per Package
Beer	$18/ barrel	$0.05/ 12 oz. can
Wine (14% alcohol or less)	$1.07/ gallon	$0.21/ 750 mL bottle
Wine (21% to 24%)	$3.15/ gallon	$0.62/ 750 mL bottle
Naturally Sparkling	$3.40/ gallon	$0.67/ 750 mL bottle
Hard Cider	$0.226/ gallon	$0.04/ 750 mL bottle
Distilled Spirits	$13.50/ proof gallon*	$2.14 (at 80 proof)

* A proof gallon is a gallon of liquid that is 100 proof, or 50% alcohol. The tax is adjusted, depending on the alcohol percentage of the product.

quite different from that of tobacco. But the differences can also be identified as opportunities to implement stricter measures and legislation to keep the alcohol industry in check, as has been done with tobacco.

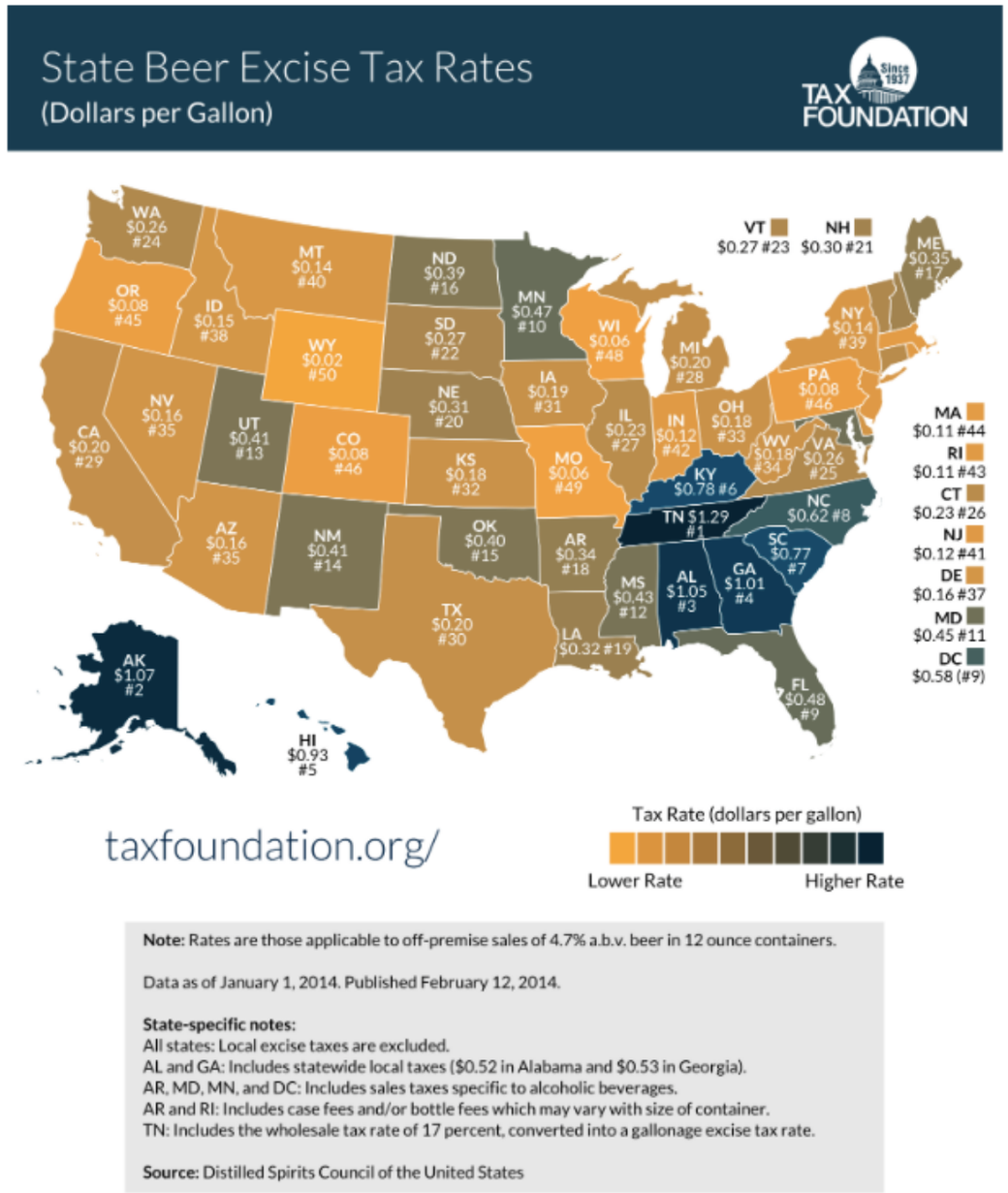
Another area in which tobacco control may have some relevant lessons for alcohol is in taxation. Just like tobacco, alcohol is taxed at both the federal and state levels, with federal alcohol taxes varying as a function of the type of alcohol and a product's alcohol percentage. Table 14.2 illustrates the differential tax rates for different types of products.

Tax rates for alcohol vary significantly by state as well as by product (beer, wine, or liquor), much the same way that tax rates vary for cigarettes, smokeless tobacco, and so forth.

Alcohol appears to be more price sensitive than tobacco (or slightly more elastic). Whereas a 10% increase in the price of cigarettes results in a 4% decrease in consumption (showing a -4% elasticity), an equivalent increase in the price of beer results in a 7.7% decrease in consumption (-7.7% elasticity). This suggests that increases in the price of alcoholic beverages are likely to have almost twice the impact on consumption as an increase in cigarette prices would have on cigarette consumption.

The following three maps illustrate the variation in alcohol tax rates across the U.S. for beer, wine, and distilled spirits. First, Figure 14.8 shows the state excise

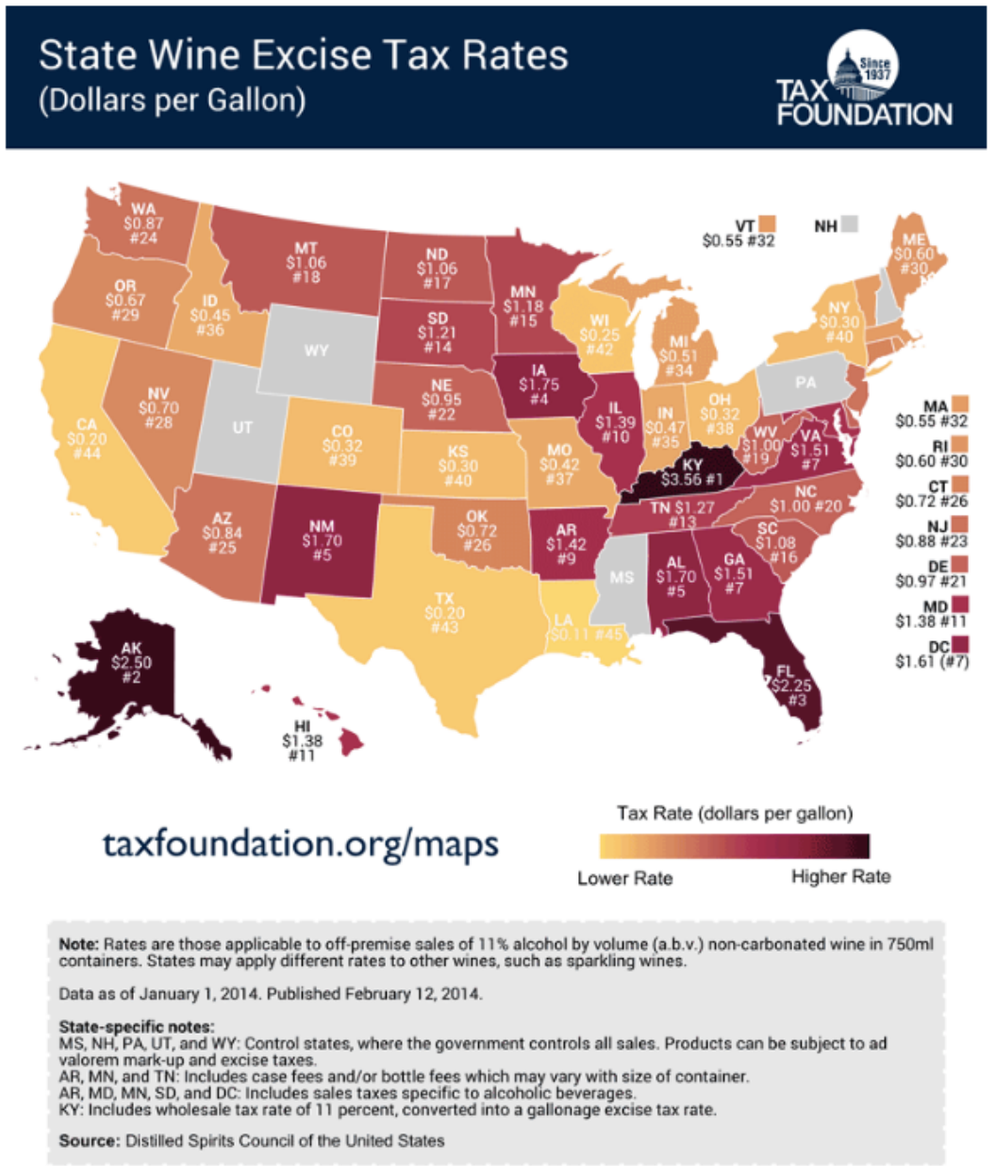
Figure 14.8 State Beer Excise Tax Rates (Dollars Per Gallon) as of January 1, 2014



tax rates for beer. Tennessee has the highest beer tax in the country at $1.29 per gallon (one gallon equals roughly 10 beers). Looking at wine in Figure 14.9, Kentucky has the highest wine excise tax per gallon at $3.56. Figure 14.10 shows that Washington state has the highest tax on sprits at $35.22 per gallon. It is interesting to note the wide disparity in excise rates among these three alcohol types.

Across the board, the state excise tax on beer, wine, and spirits is much less than the societal and health costs associated with consuming the same products. In 2014, the CDC estimated that excessive drinking cost$223.5 billion in 2006, or about $1.90 per drink. In 2011, state revenues from alcohol taxes exceeded $6.2 billion. Similar to tobacco, alcohol consumption results in more societal

Figure 14.9 State Wine Excise Tax Rates (Dollars Per Gallon) as of January 1, 2014



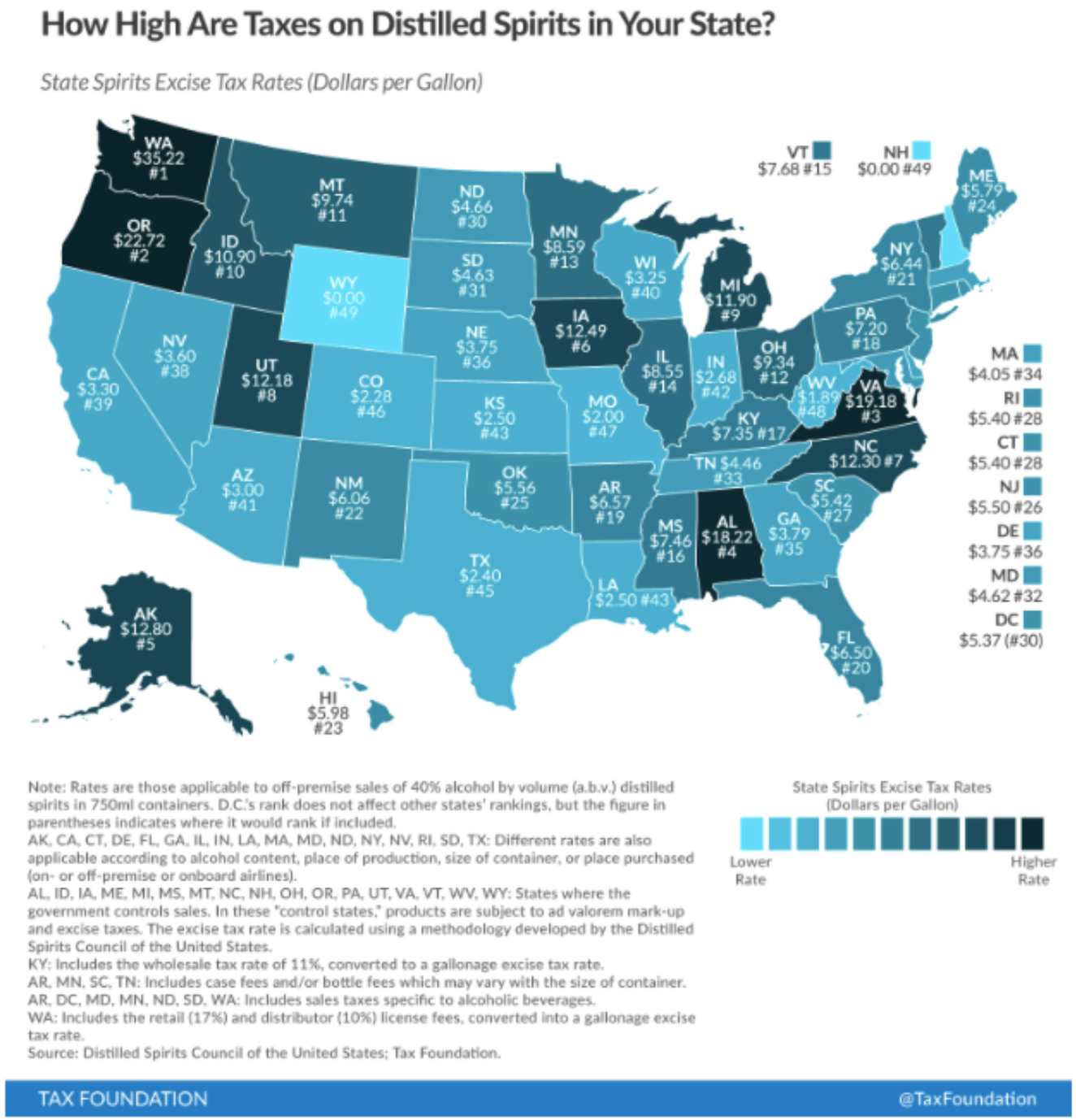
Note: Rates are those applicable to off-premise sales of 11% alcohol by volume (a.b.v.) non-carbonated wine in 750ml containers. States may apply different rates to other wines, such as sparkling wines.

Data as of January 1, 2014. Published February 12, 2014.

State-specific notes:
MS, NH, PA, UT, and WY: Control states, where the government controls all sales. Products can be subject to ad valorem mark-up and excise taxes.
AR, MN, and TN: Includes case fees and/or bottle fees which may vary with size of container.
AR, MD, MN, SD, and DC: Includes sales taxes specific to alcoholic beverages.
KY: Includes wholesale tax rate of 11 percent, converted into a gallonage excise tax rate.

Source: Distilled Spirits Council of the United States

Figure 14.10 State Spirits Excise Tax Rates (Dollars Per Gallon) as of January 1, 2015



and monetary costs than it provides in tax revenue.

Additionally, tax revenue for tobacco and alcohol is not necessarily used to prevent harm from smoking and alcohol-related accidents, illness or injury.

Studies show that higher alcohol prices or taxes were consistently related to fewer motor vehicle crashes and fatalities, less alcohol-impaired driving, lower mortality from liver cirrhosis, and lower mortality from all causes. Similar to tobacco, the importance of taxation on decreasing alcohol consumption cannot be overestimated. Understanding the sensitivity of alcohol consumption rates to price increases, we know that it is an extremely important public health strategy to reduce the adverse effects associated with overconsumption of alcohol.

Section 4 - Other Public Health Issues Learned from Tobacco

We have seen how the lessons learned from tobacco control can be applied to the prevention of obesity and alcohol overuse, but there are also other public health challenges that may benefit from the tobacco experience. For instance, many parallels can be drawn between tobacco and gun control. Like tobacco, the gun lobby is extremely powerful. The firearm industry successfully put a 17-year ban on gun research by the CDC, which has had the effect of limiting progress in gun control. Forty-four states have preempted cities from passing stricter gun control laws. The tobacco and firearm industries both use the Bill of Rights as a means of maintaining the status quo: for tobacco companies, the First Amendment is the touchstone protecting the freedom of speech, which they have interpreted to mean avoiding interference in their advertising practices; and for firearms, the Second Amendment assures the right to bear arms and is used as an argument for stricter gun control laws. Given these similarities between tobacco and gun control, there may well be opportunities to use liability lawsuits (similar to those used successfully against tobacco) to counteract the firearm industry's arguments for the constitutional right to bear arms.

Lessons from tobacco control may have relevance for other problems, too, such as tanning beds. As with tobacco, tanning beds are a product that can harm the user, even when used as directed. Moreover, a dose-response relationship is seen between tanning bed use and the risk of

melanoma. Users of tanning beds even show signs of addictiveness, including withdrawal symptoms. Like tobacco, the tanning bed industry uses front groups with deceptive names like the Vitamin D Council to portray tanning as attractive and socially preferable while simultaneously obfuscating the health concerns associated with the use of their product.

Some of the major tobacco control strategies, such as banning access, implementing taxes, and restricting advertising, are also being applied to tanning beds. Many countries (Australia, France, Germany, Canada, and the United Kingdom) as well as some states in the U.S. (New York, California, and Vermont) ban tanning in tanning beds for people under the age of 18. The U.S. government has passed a federal tanning tax of 10%, the effects of which as still being investigated. It is likely that tanning salons have absorbed the additional cost from taxation, without passing it on to their customers. The implementation of effective regulations to control tanning bed advertising and promotion is still in its infancy, although the FTC has prosecuted some companies for false advertising and misleading health claims.

Lastly, the tobacco control experience may be relevant for energy drinks. Currently unregulated, energy drinks contain high levels of caffeine, a drug that is addictive and can be dangerous. Energy drink makers are very effective at marketing their products to young people. Emergency room visits involving energy drinks doubled to nearly 21,000 between 2007 and 2011, with approximately 1,500 of these visits occurring among children ages 12 to 17. We end with a news clip from CBS This Morning, which discusses parallels between tobacco control strategies and efforts to regulate energy drinks.

Chapter 14 Discussion Questions:

1. Has self-regulation proven effective in the context of controlling unhealthy foods or alcohol promotion?
2. Will class action litigation be necessary to stop targeted unhealthy food promotion? If so, on what basis (age, SES, etc.)?

Figures and Tables

Figure 14.1: Cover of the 50th Anniversary Edition of the Surgeon General's Report on Smoking and Health, 2014

Source: Centers for Disease Control and Prevention. 2014 Surgeon General's Report: The Health Consequences of Smoking–50 Years of Progress.

Figure 14.2: The Process of Social Change

Source: Georgia State University School of Public Health, 2014

Movie 14.1: In 2011, Imperial Tobacco Company launched the "No Nanny State" campaign against plain packaging in Australia

Figure 14.3: Many Lessons From Tobacco Control Can Be Applied to the Obesity Epidemic

Source: The Meta Picture, 2013

Table 14.1: Children's Exposure to Food Advertising on TV, On Average

Source: Food for thought: Television food advertising to children in the United States.

Figure 14.4: Like Tobacco, Food Companies Use Celebrities, Sponsorship and Giveaways to Attract Youth

Figure 14.5: Food Items that Feature the Smart Choices Label

Figure 14.6: Examples of Foods Served in Schools Before and After the Hunger-Free Kids Act of 2010
Source: U.S. Department of Agriculture. (2013). Smart snacks in school.

Movie 14.2: Exposure to Alcohol and Marketing Starts Young

Movie 14.3: "Close Encounters," a Bud Light Commercial using Humor and Sex Appeal to Attract Young People

Figure 14.7: "Alcopops" Mask the Taste of Alcohol and Are Popular Among Youth

Table 14.2: Federal Alcohol Taxes Vary Depending on Alcohol Type and Percentage

Figure 14.8: State Beer Excise Tax Rates (Dollars Per Gallon) as of January 1, 2014
Source: Tax Foundation. (2014). Map: Beer Excise Tax Rates by State, 2014.

Figure 14.9: State Wine Excise Tax Rates (Dollars Per Gallon) as of January 1, 2014
Source: Tax Foundation. (2014). Map: Wine Excise Tax Rates by State, 2014.

Figure 14.10: State Sprits Excise Tax Rates (Dollars Per Gallon) as of January 1, 2015
Source: Tax Foundation. (2015). Map: State Spirits Excise Tax Rates by State, 2015.

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Chapter 15

Endgame

Chapter Objectives

1. Understand the relationship between smoking prevalence, population growth and absolute number of smokers.
2. Analyze endgame targets and strategies in place around the world.
3. Hypothesize how endgame strategies can further tobacco control.
4. Determine whether endgame strategies should be stated in terms of reduction in smoking or nicotine delivery.

Section 1 - Global Tobacco Consumption Projections

In setting targets for tobacco control, public health professionals are faced with the question of whether efforts should be focused on reducing prevalence—the proportion of smokers to nonsmokers—or reducing the absolute number of smokers. In the United States, smoking prevalence has been reduced by more than half over the past 50 years; however, the absolute number of smokers has decreased only slightly because of population growth (Figure 15.1).

In 1965, the adult population of the U.S. was 131 million, and smoking prevalence was 42.4%—which translates to 50 million adult smokers. By

Figure 15.1 Trends in Cigarette Smoking, Adults 18 and Older, U.S., 1965-2011

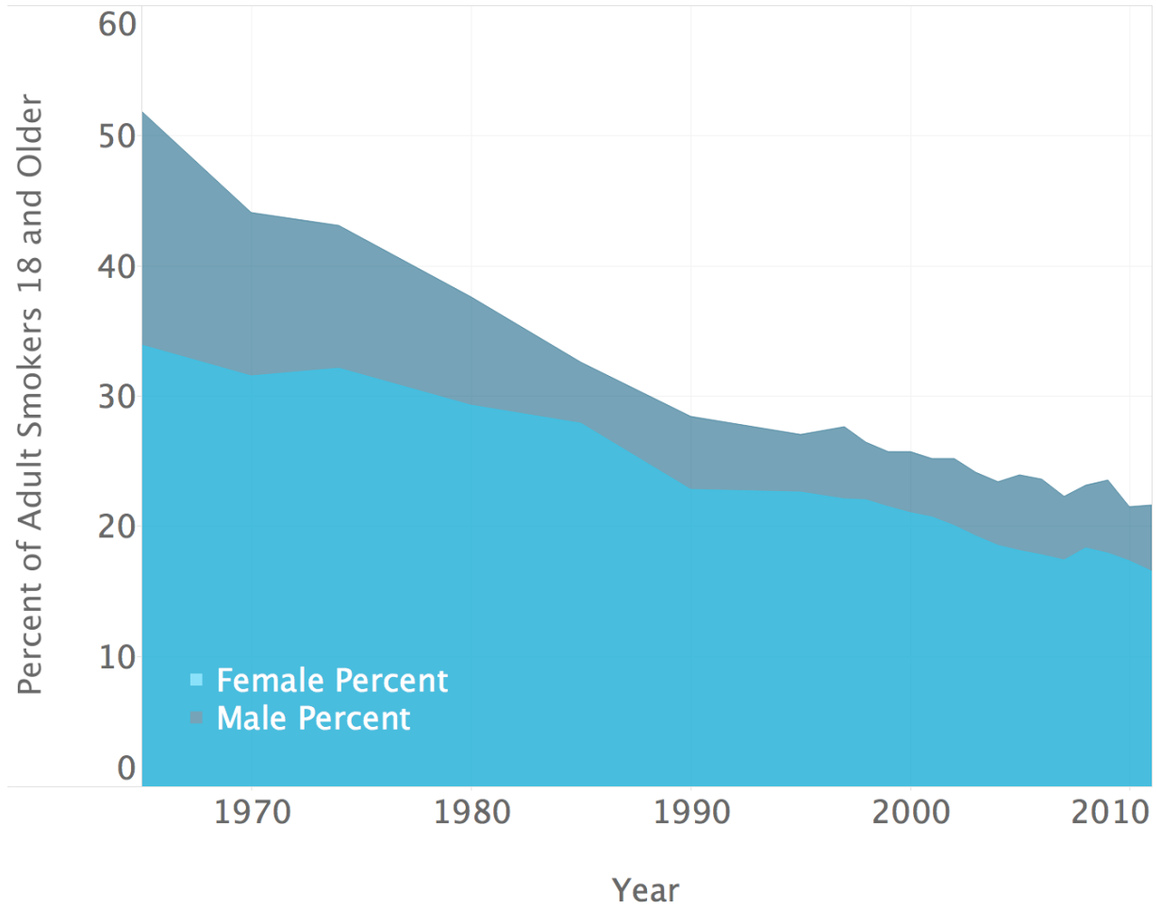
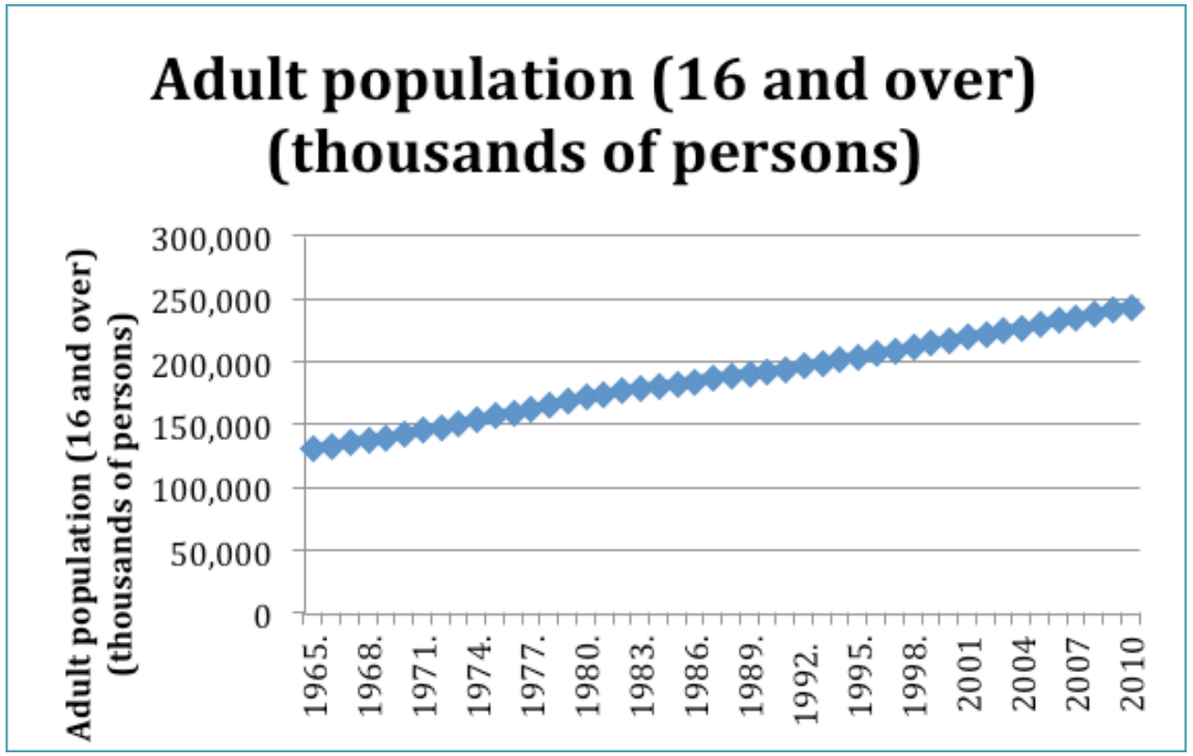


Figure 15.2 U.S. Adult Population Increasing Over Time



2012, adult smoking prevalence had dropped to 18.1%, but the adult population had grown to 240 million (Figure 15.2). Thus, although smoking prevalence has decreased substantially since 1965, tobacco companies are still serving over 40 million adult smokers in the U.S. It is therefore important to differentiate between tobacco control targets that are expressed in terms of prevalence or in terms of the number of smokers.

Preventing additional death from smoking requires understanding the current situation (the status quo) and setting specific goals (Figure 15.3). We know the harm caused by smoking, and we can project what future smoking rates will be if conditions remain the same. The trend in many high-income countries has been a decline in smoking rates. But in low- and middle-income countries, tobacco companies take advantage of lax marketing restrictions and rapid population growth to increase their business. If the

Key Takeaway

In the United States, smoking prevalence has been reduced by more than half over the past 50 years; however, the absolute number of smokers has decreased only slightly because of population growth.

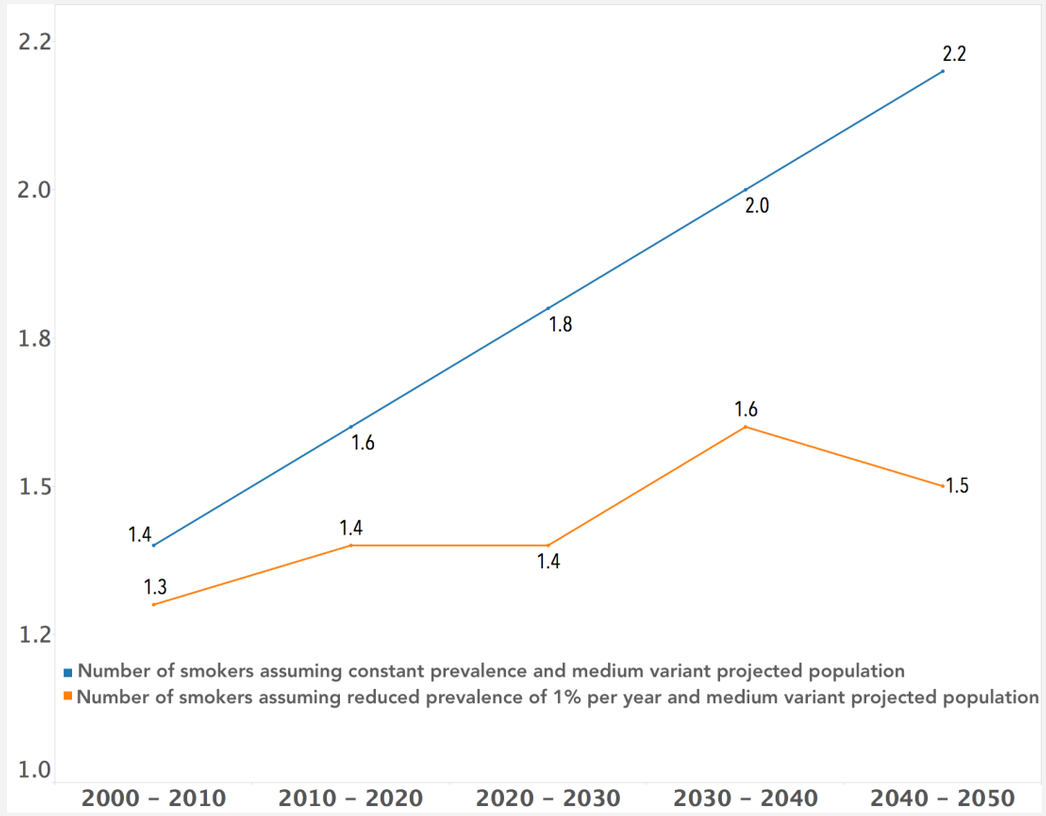
status quo is not changed in these countries, our goals of decreasing smoking initiation and increasing cessation globally cannot be attained.

In this chapter, we will discuss how countries around the world are setting creative endgame targets to decrease global tobacco consumption. But first, we turn to Dr. Kenneth Warner, who gives an important overview of the problems we currently face in tobacco control. Dr. Warner is the Avedis Donabedian Distinguished University Professor of Public Health at the University of Michigan. He served as the Senior Scientific Editor of the 25th anniversary Surgeon General's Report and is a leader in the quantitative estimation of smoking rates. In Movie 15.1, he shares his insights on the status quo for tobacco, the importance of decreasing smoking rates, and

Movie 15.1 Hear from the Experts: Ken Warner, PhD



Figure 15.3 Projections of Tobacco Prevalence Considering the Status Quo and Prevalence Reductions (Billions of Smokers)



specific endgame strategies that work.

Reducing tobacco use worldwide will save millions of lives. If present trends continue, we estimate 520 million cumulative deaths will be caused by tobacco by 2050. However, if adult consumption is halved by 2020, that number would be reduced to 340 million. The World Health Organization (WHO) has set an endgame target of 30% relative reduction in tobacco use by the year 2025. For instance, if a country has a current adult smoking prevalence of 30%, the goal is to reduce that figure by 30%, which would bring it down to 21% by 2025.

As we think about endgame targets, it is essential to consider which strategies and tactics will be the most effective in helping to achieve our goals. As we learned in Chapter 8, the WHO Framework Convention on Tobacco Control includes MPOWER measures that assist in country-level implementation of effective interventions to reduce the demand for tobacco. Researchers from the University of Michigan looked at the different policies included under MPOWER and measured their impact on rates of cessation and initiation. Table 15.1 shows their findings in terms of the relative risk of cessation and initiation after the implementation of each policy. For instance, we can see that the policy of protection, which refers mainly to implementing comprehensive clean indoor air laws, increases the rate of cessation by 11% (represented by a relative risk estimate of 1.11). The same policy reduces smoking initiation by 7.4%, as indicated by the relative risk estimate of 0.926. Likewise, we can see impacts from the other MPOWER strategies, which include cessation support, mass media and package warnings, enforcement of ad bans, and increased taxes.

Key Takeaway

The World Health Organization (WHO) has set an endgame target of 30% relative reduction in tobacco use by the year 2025.

Table 15.1 Effectiveness of MPOWER Policies on Initiation and Cessation Rates

Policy	Description	Effect of cessation (RR)	Effect of initiation (RR)
P (protect)	Clean air laws	1.11	0.926
O (offer help)	Cessation support	1.061	NA
W (warn)	Mass media and package warnings	1.23	0.8
E (enforce)	Enforce ad bans	1.03	0.94
R (raise)	Raise taxes	Price elasticity of prevalence = -0.20	Price elasticity = -0.7

Researchers from the American Cancer Society took the relative risk estimates from the above study and applied them to the six WHO regions. The results of their analysis are shown in Table 15.2, which projects smoking prevalence in each of the WHO regions for the years 2020 and 2030. With no additional policy interventions, the global smoking prevalence for adults is expected to decrease slightly from its current standing at 23.7% to 22.7% in 2020, and 22.0% in 2030. However, this small decrease in prevalence indicates that the absolute number of smokers in the world will have increased because the population will have grown. Applying the MPOWER interventions, global smoking prevalence is expected to decline to 15.0% in 2020, and 13.2% in 2030. We see similar patterns in each of the WHO regions. In the absence of policy directions, we expect slight decreases in prevalence for all regions except for Africa, where a large increase is anticipated due to the low current baseline of smokers and the heavy marketing by tobacco companies in the region.

Table 15.2 Projections of Smoking Prevalence by WHO Region

	2010	2020		2030	
	Current	No policy interventions	Policy interventions	No policy interventions	Policy interventions
AFRO	15.8%	19.4%	12.1%	21.9%	11.3%
AMRO	20.5%	18.0%	11.6%	16.7%	8.9%
EMRO	22.4%	22.9%	13.9%	23.7%	13.0%
EURO	31.2%	30.2%	17.1%	29.7%	15.1%
SEARO	20.1%	18.7%	13.3%	17.6%	11.7%
WPRO	28.5%	27.6%	19.2%	26.3%	17.0%
Whole world	23.7%	22.7%	15.0%	22.0%	13.2%

The International Conference on Public Health Priorities in the 21st Century was held in New Delhi, India in September 2013 (Figure 15.4). Titled "The Endgame for Tobacco," the conference called on governments, WHO, and United Nations agencies to advance the actions under the WHO Framework Convention on Tobacco Control to realize the vision of a world free from tobacco within this century. Dr. Margaret Chan, Director-General of WHO, delivered the keynote address at the conference. She stated:

> *Disease eradication is one clear opportunity for a definitive end to a health threat. A tobacco endgame is another. Both have tremendous appeal. They promise to improve the world in a permanent way, offering every future generation the perpetual gift of freedom from major diseases.*

Her speech alludes to the typical division of global health approaches to diseases and conditions into three categories. The first category is control, in which public health advocates try to lessen the problem caused by a specific organism or behavior—most relevant, of course, to tobacco control. The second category involves elimination, in which we try to eliminate the organism or behavior associated with a disease, and the third is eradication, the ultimate public health approach in which we try to eradicate a disease from the face of the earth. Dr. Chan equates a tobacco endgame with

Figure 15.4 Objectives of the Endgame for Tobacco Conference in New Delhi



disease eradication in terms of the impact it would have on the public health if successfully achieved.

While elimination or eradication of tobacco-caused diseases would be ideal, most people realize that the most likely outcome is control. Much effort is currently directed at trying to better understand what we can consider a realistic endgame for tobacco. A series of meetings have been convened with this goal in mind, one of which was a meeting led by Kenneth Warner in June 2012, with support from the Robert Wood Johnson Foundation and the American Legacy Foundation. The meeting was attended by forty top tobacco control advocates, who came to discuss endgame strategies. Such strategies included a policy that would require manufacturers to reduce nicotine content, as well as a "sinking lid" strategy for quotas on sales and imports of tobacco. A "tobacco free generation" policy was also proposed, which would prevent the sale of tobacco to those born after a given year. These and other proposals were also included in a series of articles discussing various endgame strategies released by the international peer-reviewed journal *Tobacco Control* in May 2013 (Figure 15.5).

"There is a newfound interest in discussing the idea of an endgame strategy. The fact that we can talk about it openly reflects a sea of change."
- Dr. Ken Warner

Figure 15.5 Cover of the *Tobacco Control* Edition Titled "The Tobacco Endgame," 2013



Reducing tobacco-related deaths requires bold endgame targets. Researchers are very much concerned with finding innovative ways to accelerate our progress in lessening the harm of tobacco. The absence of specific goals and targets has been a challenge for tobacco control, and we are faced with assembling existing strategies while also investigating new methods. Many of the major tobacco control strategies that have been proven effective are embodied in the WHO Framework Convention on Tobacco Control (WHO FCTC). Being the first global health treaty, the WHO FCTC is a landmark achievement in public health; however, the treaty did not include any specific targets for reducing tobacco use to a certain level within a specific amount of time. This lack of specificity made it more difficult to measure performance and accomplishments in a meaningful way. Therefore, as a means of

addressing this, and in an effort to set measurable targets for advancing non-communicable disease goals, WHO adopted a target of a 30% relative reduction in tobacco use prevalence in member countries by the year 2025. In the U.S., for example, where the current adult smoking prevalence is 18%, the goal is to reduce the smoking rate to about 12% by 2025.

Of the six WHO regions, the Western Pacific Region (WPRO) has the greatest number of smokers, the highest rates of male smoking prevalence, and the fastest increase in tobacco uptake by women and young people. In fact, one in three cigarettes consumed globally is smoked in the Western Pacific Region, which includes a total of 37 countries, including China, Japan, Malaysia, the Philippines, Australia, and New Zealand. Even before the WHO target of 30% relative reduction was set, WPRO put in place the very ambitious endgame target of 5% prevalence or less by 2025. In the past five years, significant progress has taken place in the countries that are part of the WPRO region; through measures such as tax increases, national smoke-free laws, plain packaging in Australia and pictorial health warnings on tobacco packaging in many of its member countries. As a result, smoking rates in the region have been dramatically reduced.

Setting an example of endgame targets at the national level, Ireland has proposed a new tobacco policy which aims to make the country tobacco free by 2025 (Figure 15.6). Dr. James Reilly, Ireland's Minister for Health, stated in

Figure 15.6 Today's Youth in Ireland May See a Smoke-Free Country



2013, "To make Ireland tobacco free in twelve years is an extraordinary challenge, but if we work together to denormalize smoking for young people we can do it." As part of the efforts to meet this goal, Ireland became the first country to make bars and pubs smoke-free, setting an important example that resulted in a global effort to make all indoor areas smoke-free.

Another leader in tobacco control is Australia, where endgame strategies include a number of aspirational targets by which the government aims to end the commercial sale of tobacco and reduce its use to near zero. One of the policies being considered is a birth year cutout to create a smoke-free generation, which would prohibit retailers from selling tobacco to anyone born after a specified year. Also under consideration is a smoker licensing program that would permit only persons with a license to purchase tobacco products. Additionally, Australia is looking at measures that would reduce the appeal of tobacco by prohibiting flavorings and additives, reducing nicotine, and eliminating vented filters (so-called "light" cigarettes). More generally, Australia aims to reduce the availability of tobacco products by raising the price of a pack of cigarettes to AU$20, or by ending the commercial sale of cigarettes altogether.

Singapore is also a leader in setting tobacco endgame targets, with a goal to deny access to tobacco for all citizens born after 2000. Approximately 70% of Singaporeans who were surveyed support the proposal, including many smokers. The country was also the first to ban tobacco advertising in 1971.

As a final example, New Zealand (Figure 15.7) has proposed a number of strategies to eradicate smoking by 2025, which include:

- Smoke-free cars
- Slashing supply
- Plain packs
- Smoke-free communities
- Cutting duty-free tobacco
- Tax hikes
- Mass media shock tactics
- Removing all flavor enhancers
- Booting out tobacco lobbyists
- Quitting support

As evidenced by the few examples included here, countries have adopted different approaches to tobacco control, some of them using the MPOWER strategies with their proven effectiveness and specific impact estimates, and others providing bold new approaches, the true effects of which are still largely unknown. The leading countries combine both proven strategies and innovative measures as they take on the challenge of changing the status quo and substantially lessening the projected burden of disease and death from tobacco use in the 21st century.

Figure 15.7 New Zealand Plans to be Smoke Free in 2025



To provide a contrast to the previous examples, which have set ambitious endgame strategies and targets for the future, we look at China, a country which needs such strategies but currently faces many challenges in trying to put them in place. As previously mentioned, China is unique in that the tobacco company in China, the China National Tobacco Corporation (CNTC), is a monopoly owned by the Chinese government. As a result, the Chinese government collects tax revenue from the sale of tobacco products (similar to other countries) but also profits from selling tobacco products in the way that private corporations do in other countries. Together, the taxes and profits from the sale of cigarettes in China provides approximately 7% of the entire Chinese government's revenue, making tobacco a major force in China—and one that regularly impedes the progress in tobacco control which is critically needed in the country. Over 50% of men and about 5% of women smoke in China, equating to over 300 million smokers. In addition to consuming one third of the world's cigarettes, China also grows one third of the world's tobacco. CNTC produced 1.7 trillion cigarettes in 2005, generating $30 billion in tobacco taxes and profit. The problem of tobacco in China is thus complicated by the government's ownership of the tobacco monopoly; endgame strategizing is rendered much more difficult because of the government's reliance on tobacco revenues.

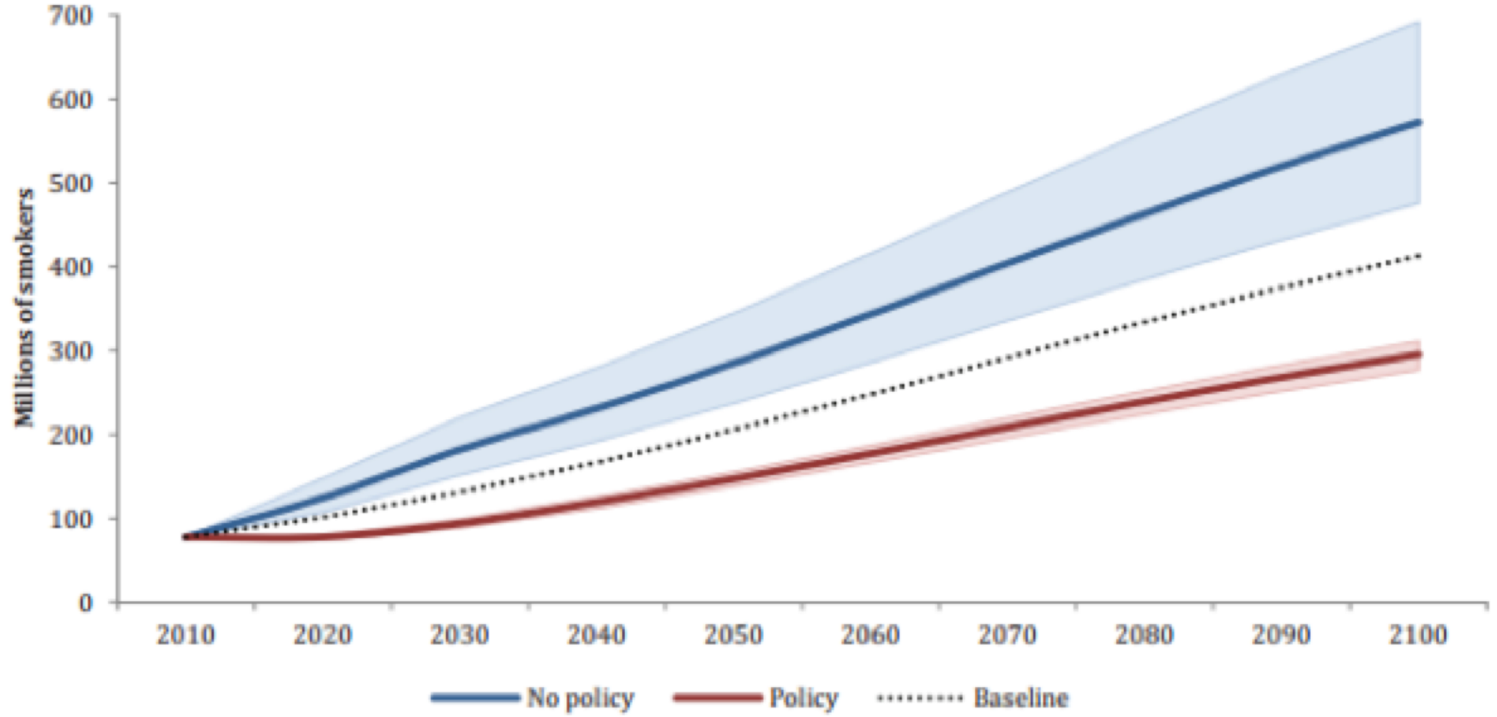
There is, however, reason for optimism in China. In 2005, China ratified the WHO FCTC, which will provide incentives for the Chinese government to implement tobacco control provisions. Since then, China has put a number of regulations in place that have helped to change social norms and create smoke-free indoor venues. For instance, all medical facilities and schools are now smoke-free. A national law now bans tobacco advertising in movies, television, radio, newspapers, and magazines; other types of promotion and sponsorship are also restricted. There are packaging and labeling requirements for tobacco; however, the current warning labels are text-only, use small type, feature

the same background color as the rest of the pack, and do not spell out the specific health harms of smoking. Considering the significance of tobacco use, as well as the extent of tobacco growing and manufacturing in China, it will be very interesting to track the country's progress in the coming years. China has the potential to use its one-party system to make a very significant change in tobacco use and improve the health of millions of citizens.

The WHO African Region (AFRO) is also unique, in ways very different from China. Africa had the lowest smoking prevalence of all the WHO Regions in 2010, at 15.8%. Unfortunately, this proportion is increasing as tobacco companies target the region with billboard advertisements and easily accessible products. From 2007-2011, 59.1% of youth (ages 13-15) in the African Region saw cigarette advertisements on billboards, and 68.9% bought cigarettes in a store and were not refused purchase because of their age. If no additional policies are implemented in Africa, the smoking prevalence is expected to increase to about 21.9% by 2030; in contrast, all other WHO regions expect a slight decrease in smoking prevalence if no new tobacco policies are implemented. There is a great potential to make Africa the only place on earth in which the tobacco epidemic is prevented from ever occurring, but much work is needed to put the necessary protections in place.

Figure 15.8 shows that there are currently less than one hundred million smokers in Africa, but the number is expected to grow as smoking prevalence and the population both increase in the course of this century. The graph compares forecast numbers with and without the implementation of MPOWER policies, and illustrates how vastly different the two scenarios can be for the African region. And there is much reason to be optimistic: though tobacco companies have tried to take advantage of the relatively weak regulations in many of the developing countries in Africa, several of these countries have successfully assembled strong citizens' movements against tobacco.

Figure 15.8 Projected Number of Adult Smokers in Africa, 2010-2100



In fact, Africa was one of the leaders in passing the WHO FCTC, a role which has helped the region to counterbalance the tobacco industry's efforts to recruit and maintain smokers.

Before we end our discussion on setting endgame targets, we turn our attention to the United States. Since the 1980s, the U.S. has focused on establishing health objectives for the nation, not only for smoking but for many other health risks and diseases as well. In a regularly updated process of goal-setting that has come to be known as the Healthy People objectives, the U.S. has set explicit health targets every ten years.

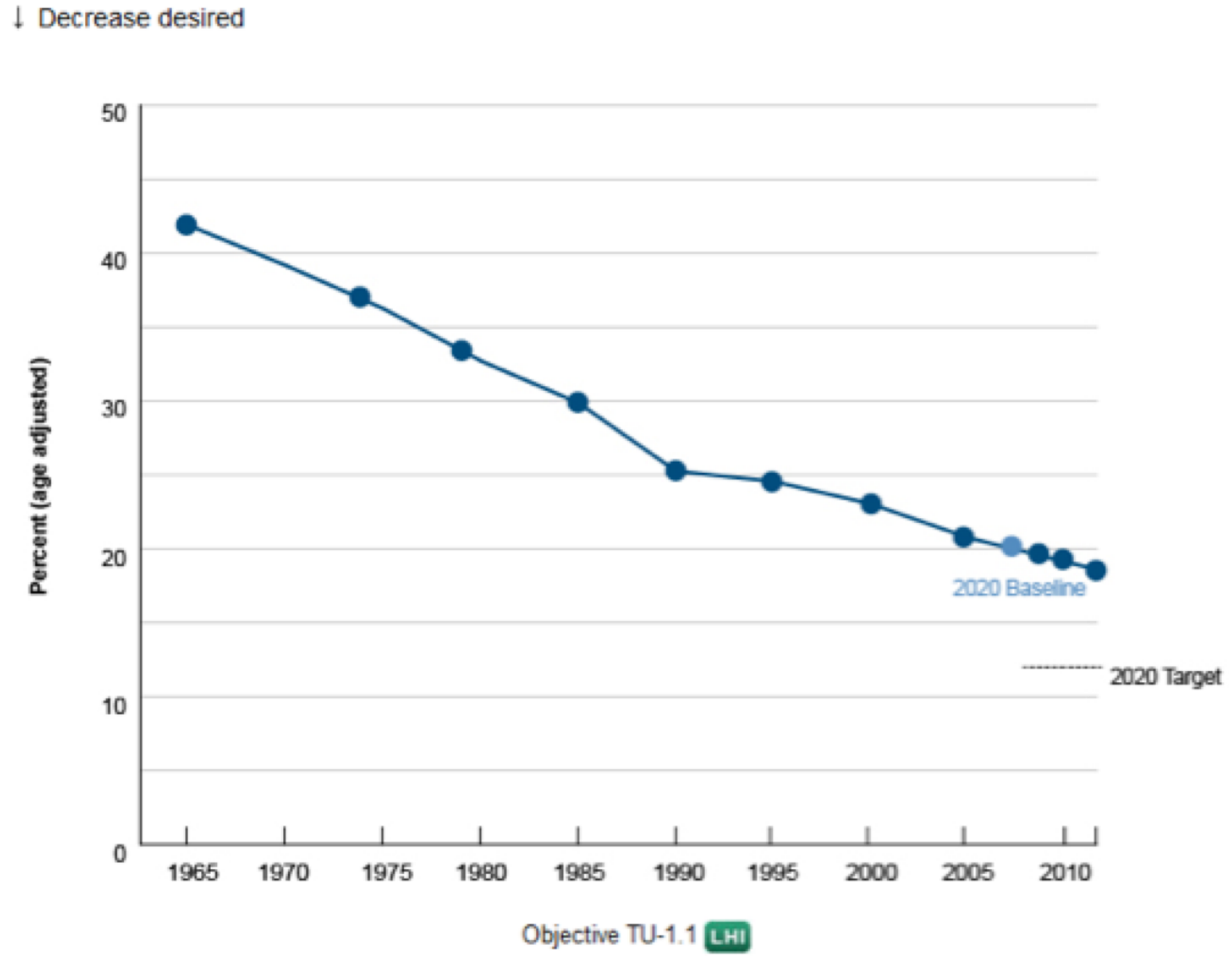
In 2012, the U.S. Department of Health and Human Services issued a strategic action plan titled Ending the Tobacco Epidemic, which charts a framework designed to achieve four central tobacco-related objectives from Healthy People 2020:

- Reduce tobacco use by adults and adolescents.
- Reduce the initiation of tobacco use among children, adolescents, and young adults.
- Increase smoking cessation by adult smokers.
- Reduce the proportion of nonsmokers exposed to secondhand smoke.

As we discussed in Chapter 2, the U.S. Healthy People 2020 Objectives include specific targets related to reducing tobacco use. For instance, the objective for adult smoking prevalence is 12% by the year 2020 (currently at approximately 18%). For adolescents, the objective is to reduce tobacco use prevalence to 21%. Healthy People 2020 also sets the goal of reducing initiation of tobacco product use among children to 5.7%. Additionally, it sets the following goals around smoking cessation:

- Increase smoking cessation attempts by adults to 80%.
- Increase smoking cessation during pregnancy to 30%.

Figure 15.9 Cigarette Smoking, Adults, 1965-2011



- Increase smoking cessation attempts by adolescent smokers to 64%.

Figure 15.9 illustrates the decline in adult smoking prevalence since 1965. Much progress has been made and indeed the decline of smoking in the U.S. is one of the major public health success stories from the twentieth century.

However, we are still far from our goal of 12% prevalence. The only way we can hope to achieve this target by the year 2020 is by aggressively accelerating our efforts to increase cessation rates and decrease initiation. Projections suggest that major disruptions to the status quo are needed as well as significant changes to the way we conduct tobacco control if we are to meet the Healthy People 2020 Objectives.

Section 3 - Important Issues for the Future

In this final section, we summarize some of the key messages we have covered in the course of this textbook and highlight topics of importance as we continue to think about the endgame for tobacco.

The health impact of tobacco use has been enormous, and in many cases the harm from tobacco use occurring today will not manifest immediately but in decades to come. Even if every smoker were to quit today, the harm from tobacco use will extend into the future. Tobacco caused 100 million deaths during the 20th century, and we know that if current trends continue, approximately one billion people will die in the 21st century from tobacco-caused diseases. Disruptive action is needed if we are to change the trajectory of tobacco use and tobacco-related harms in this century.

Even if prevalence decreases, the number of smokers will likely continue to increase in the foreseeable future as a result of population increases, particularly in low- and middle-income countries. There is great urgency for public health advocates to design and implement bold measures that will help current smokers to quit and decrease initiation among potential smokers, especially young people. In developing endgame strategies for tobacco, we now have to consider not just traditional tobacco products but also novel nicotine products that purport to reduce harm. Though novel nicotine products are likely safer than combustible cigarettes, more research is needed before we can truly understand their long-term impact. E-cigarettes will continue to have an important role in discussions about the tobacco endgame, but currently, it remains to be seen whether e-cigarettes will

prove to be a safe and effective solution for smokers who are attempting to quit, or just another means for the tobacco companies to create even more nicotine addicts. All we know for now is that in the future, tobacco control advocates will need to differentiate between endgame strategies that address the use of combustible cigarettes and those that focus on nicotine addiction.

As we have suggested throughout this course, creating appropriate regulations requires a thorough understanding of the behaviors not just of smokers but of the tobacco industry as well. We know that the tobacco industry has a long track record of deceiving the public and deliberately obfuscating and denying scientific evidence of the harms caused by their products. We must continue to expose the industry's behaviors, including its use of corporate social responsibility to rehabilitate its public image and its manipulation of trade agreements to undermine government laws against tobacco. We must be especially watchful over the tobacco companies' expansion into the e-cigarette market; as we have seen, all of the major tobacco companies have acquired their own e-cigarette brand, a fact which raises important questions about what role the tobacco companies should be allowed to have in the context of harm reduction.

Experience in tobacco control has shown the importance of legal and regulatory solutions to reducing tobacco use. We will need to determine whether, and to what extent, new and existing tobacco control policies apply to novel nicotine products. Ultimately, protecting the public health will mean regulating all tobacco and nicotine products in a manner commensurate with the harm that they cause. Lawmakers must ensure that these new products fulfill their potential to reduce harm, rather than creating yet another generation of individuals addicted to nicotine.

Being the world's leading preventable cause of death, tobacco needs to be further regulated. Evidence-based tobacco control methods exist and should be adopted and implemented worldwide if we are to make real and substantial progress toward a world in which people are free from addiction and free from the harms of tobacco use.

Chapter 15 Discussion Questions:

1. What can the United States learn from the countries leading the world in tobacco control endgame strategies?
2. What tobacco control methods should be implemented in Africa to stop the increase of prevalence in tobacco smokers? Would a proposal to tie aid funding to tobacco control measures pose any perceived ethnical or legal issues?

Figures and Tables

Figure 15.1: Trends in cigarette smoking, adults 18 and older, U.S., 1965-2011

Source: American Lung Association. (2011). Trends in Tobacco Use. Table 4: Percent of Adults Who Were Current Smokers By Sex, Race and Age, Selected Years, 1965-2009.

Figure 15.2: Adult Population (16 and Over) [thousands of persons]

Source: U.S. Government Printing Office. (2012). Econ. Rept. 2012 - Table B-34: Population by age group, 1939-2011.

Movie 15.1: Hear from the Experts: Ken Warner video

Figure 15.3: Projections of Tobacco Prevalence Considering the Status Quo and Prevalence Reductions

Source: Mackay, J. and Eriksen, M. (2002). The Tobacco Atlas (1st ed.). World Health Organization.

Table 15.1: Effectiveness of MPOWER Policies on Initiation and Cessation Rates

Source: Méndez, D., Alshanqeety, O., & Warner, K. E. (2012). The potential impact of smoking control policies on future global smoking trends. Tobacco Control, tobaccocontrol–2011–050147. doi:10.1136/tobaccocontrol-2011-050147.

Table 15.2: Projections of smoking prevalence by WHO region

Source: American Cancer Society. (2013). Tobacco Use In Africa: Tobacco Control Through Prevention.

Figure 15.4: Objectives of the Endgame for Tobacco Conference in New Delhi

Source: Endgame Conference. (2013). The endgame for tobacco.

Figure 15.5: Cover of the Tobacco Control edition titled "The Tobacco Endgame," 2013

Source: Tobacco Control. (2013). The Tobacco Endgame. Volume 22, Number supplement 1 - TOC. Photo Credit: Tyson Volkmann.

Figure 15.6: Today's Youth in Ireland May See a Smoke-Free Country

Figure 15.7: New Zealand Plans to be Smoke Free in 2025

Figure 15.8: Projected Number of Adult Smokers in Africa, 2010-2100

Source: Méndez, D., Alshanqeety, O., & Warner, K. E. (2012). The potential impact of smoking control policies on future global smoking trends. Tobacco Control, tobaccocontrol–2011–050147. doi:10.1136/tobaccocontrol-2011-050147

Source: American Cancer Society. (2013). Tobacco Use In Africa: Tobacco Control Through Prevention.

Figure 15.9: Cigarette smoking, adults, 1965 – 2011

Source: U.S. Department of Health and Human Services. (2013). Tobacco Use - Healthy People 2020.

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Addiction

Physiological or psychological dependence on a substance characterized by neurochemical changes, compulsive drug-seeking behaviors, dose tolerance, withdrawal symptoms, uncontrolled cravings, and self-destructive behaviors. Common addictive drugs include alcohol, stimulants, cocaine, heroin, and nicotine

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Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 1 - Causality is Established and Essential
Chapter 1 - Forced Smoking Harms and Kills
Chapter 1 - Forced Smoking Harms and Kills
Chapter 1 - Forced Smoking Harms and Kills

Advertising

Any commercial effort to promote tobacco consumption, including the display of trademarks, brand names, and manufacturer logos; marketing of tobacco products; sponsorship of sports and other social and cultural activities; and other methods.

Related Glossary Terms

Drag related terms here

Index Find Term

Chapter 2 - U.S. Adult Tobacco Use
Chapter 3 - U.S. Youth Tobacco Use
Chapter 3 - Global Youth Tobacco Use
Chapter 4 - Novel Nicotine Products and Harm Reduction: A Cloud of Controversy
Chapter 4 - Novel Nicotine Products and Harm Reduction: A Cloud of Controversy
Chapter 6 - The Tobacco Industry as an Opponent to Public Health
Chapter 6 - Tobacco Front Groups as a Diversionary Tactic
Chapter 6 - Tobacco Front Groups as a Diversionary Tactic
Chapter 7 - Tobacco Marketing
Chapter 7 - Marketing a Deadly Product—Why Advertise?
Chapter 7 - Marketing a Deadly Product—Why Advertise?
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Chapter 7 - Marketing Expenditures and Tactics
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Chapter 8 - Strong Evidence for the Effectiveness of Tobacco Control
Chapter 8 - Strong Evidence for the Effectiveness of Tobacco Control
Chapter 8 - The Varying Levels of Tobacco Control
Chapter 8 - The Varying Levels of Tobacco Control
Chapter 8 - The Varying Levels of Tobacco Control
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Chapter 9 - What are the Future Directions of Smoke-Free Air Laws?
Chapter 9 - What are the Future Directions of Smoke-Free Air Laws?
Chapter 9 - What are the Future Directions of Smoke-Free Air Laws?
Chapter 10 - As Price Goes Up, Consumption Goes Down
Chapter 11 - Why Use Marketing Restrictions to Curb Tobacco
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Brand Stretching

A marketing approach by tobacco companies in which cigarette brand names are attached to advertisements for non-tobacco products (such as clothing).

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Buproprion

An antidepressant pharmaceutical used as a smoking-cessation aid. Brand names include Wellbutrin and Zyban.

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Cancer

A type of disease in which abnormal cells divide uncontrollably. Cancer cells can invade nearby tissue and spread through the bloodstream and lymphatic system to other parts of the body. Tobacco consumption significantly increases the risk of developing many types of cancers, especially lung and oral cancers. Tobacco is also associated with cancers of the pharynx, larynx, esophagus, pancreas, kidney, bladder, and other organs

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Carcinogen

A substance that causes cancer. Tobacco contains many potent chemical carcinogens, including tobacco-specific nitrosamines (TSNs), polyaromatic hydrocarbons (PAHs), and volatile organic compounds (VOCs).

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Chronic Bronchitis

Inflammation of the bronchial mucus membrane over a long period of time, characterized by cough, hypersecretion of mucus, and expectoration of sputum; associated with increased vulnerability to bronchial infection.

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Chronic Obstructive Pulmonary Disease

A chronic lung disease, such as asthma or emphysema, in which breathing becomes slowed or forced. See also Chronic bronchitis.

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Clinical interventions

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Consumption

Total cigarette consumption is the number of cigarettes sold annually in a country, usually in millions of sticks. Total cigarette consumption is calculated by adding a country's cigarette production and imports and subtracting exports. *Per adult cigarette consumption* is calculated by dividing total cigarette consumption by the total population of those ages 15 years and older. Smuggling may account for inaccuracies in these estimates.

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Coronary Artery Disease

The narrowing or blockage of the coronary arteries (blood vessels that carry blood and oxygen to the heart) usually caused by atherosclerosis (a buildup of fatty material [cholesterol] and plaque inside the coronary arteries). Also known as coronary heart disease.

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Costs

Macroeconomic costs associated with tobacco use. *Direct costs*: Health costs related to diseases caused by tobacco, including health-service costs, such as hospital services, physician and outpatient services; prescription drugs; nursing home services; home health care and allied health care; and changed expenditures due to increased utilization of services. *Indirect costs:* Productivity costs caused by tobacco-related illness or premature death; loss of productivity and earnings. *Total costs:* The sum of direct and indirect tobacco-attributable costs to society.

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Cotinine

Nicotine's major metabolite, which has a significantly longer half-life than nicotine. Cotinine measurement is often used to estimate a smoker's tobacco/nicotine usage prior to quitting, and to confirm abstinence self-reports during follow-up. Also, cotinine is commonly used as an indicator of exposure to secondhand smoke among nonsmokers. Cotinine is commonly measured in blood serum, urine, and saliva.

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Counter-marketing

The use of commercial marketing tactics to reduce the prevalence of tobacco use.

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Dose-response relationship

a relationship in which the effect on an organism changes as a function of differing levels of exposure to a stressor (also known as exposure-response relationship)

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Dual use

the concurrent use of cigarettes plus another tobacco product

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E-Cigarette (Electronic Cigarette)

An electrical device that attempts to simulate the act of cigarette smoking by producing an inhaled mist bearing the physical sensation, appearance, and often the flavor and nicotine content of inhaled cigarette smoke.

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Electronic Nicotine Delivery Systems (ENDS)

Scientific term describing electronic cigarettes and other products that deliver nicotine without combustion.

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Emphysema

A pathological condition of the lungs marked by an abnormal increase in the size of the air spaces, resulting in labored breathing and an increased susceptibility to infection. It can be caused by irreversible expansion of the alveoli or by the destruction of alveolar walls. See Chronic obstructive pulmonary disease (COPD).

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Environmental Tobacco Smoke (ETS)

See Secondhand smoke (SHS).

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Excess Mortality

Absolute difference between two rates of mortality. The amount by which death rates for a given population group (e.g., smokers) exceeds that of another population group chosen as a reference or standard (e.g., nonsmokers).

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Framework Convention On Tobacco Control

The World Health Organization Framework Convention on Tobacco Control (WHO FCTC) is the first treaty negotiated under the auspices of the WHO. WHO FCTC establishes the international public health and legal template for national tobacco control activities.

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Global Tobacco Surveillance System (GTSS)

The World Health Organization (WHO) and the US Centers for Disease Control and Prevention (CDC) developed these surveys to track tobacco use using a common methodology and core questionnaire. The GTSS includes the Global Youth Tobacco Survey (GYTS), Global School Personnel Survey (GSPS), Global Health Professional Student Survey (GHPSS), and Global Adult Tobacco Survey (GATS).

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Harm Reduction

A public health philosophy that seeks to mitigate health hazards by replacing high-risk products with lower-risk products or activities. In tobacco control, harm reduction is proposed for smokers who do not want to stop smoking or are unable to do so despite many attempts. Harm reduction seeks to reduce the adverse health effects of smoking by removing harmful constituents or encouraging smokers to switch to alternative modes of tobacco consumption that are considered less harmful than smoking—e.g., smokeless tobacco. Some consider the approach controversial and believe the main focus should be on smoking cessation.

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Chapter 15 - Important Issues for the Future

Health Professionals

Dentists, health science practitioners, hospital staff, medical doctors, nurses, pharmacists, ancillary medical staff, and students in these disciplines.

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Health Warnings

Government-mandated medical statements or graphic images placed on tobacco products, packaging, or advertisements.

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Hill's Postulates

A set of criteria defining the minimal conditions needed to establish a causal relationship between two items

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Ingredient

Every component of the tobacco product that is smoked, chewed, or inhaled, including all genetically modified, blended, and introduced components, additives, flavorings, and other constituents, including paper, ink, adhesives, hardening agents, filters, and other materials used in the manufacturing process and present in the finished product in burned or unburned form.

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Marketing

A range of activities aimed at identifying, anticipating, and satisfying customer requirements profitably.

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MPOWER

To make the WHO Framework Convention on Tobacco Control (WHO FCTC) a reality, WHO introduced the *MPOWER* measures, intended to assist in country-level implementation of effective interventions to reduce the demand for tobacco. Measures are: Monitor tobacco use and prevention policies; Protect people from tobacco smoke; Offer help to quit tobacco use; Warn about the dangers of tobacco; Enforce bans on tobacco advertising, promotion, and sponsorship; and Raise taxes on tobacco.

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Nicotiana Tabacum

The tobacco plant. Its leaves contain high levels of the addictive chemical nicotine and many cancer-causing chemicals, especially polyaromatic hydrocarbons (PAHs). The leaves may be smoked (in cigarettes, cigars, and pipes), used orally (as dipping and chewing tobacco), or inhaled (as snuff).

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Nicotine

An addictive, poisonous alkaloid chemical found in tobacco that acts as a stimulant, increasing heart rate and use of oxygen by the heart. Also used as an insecticide. The lethal dose for an adult is about 50mg.

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Nicotine replacement therapy (NRT

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Nicotine replacement therapy (NRT)

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Nicotine Replacement Therapy (NRT)

A type of smoking cessation treatment that provides a low dose of nicotine to ease cravings experienced by addicted smokers. NRTs include devices such as transdermal patches, nicotine gum, nicotine nasal sprays, and inhalers.

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Novel Nicotine Products

Newly marketed products including items such as nicotine water, wafers, candy, and e-cigarettes. These products deliver nicotine to consumers in an innovative yet unregulated manner, and the side effects and potential benefits and dangers are largely unknown.

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Opportunity Cost

The cost associated with the lost opportunity of using resources in an alternative way. For example, the resources used for treating smoking related illnesses could be used to build schools.

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Passive Smoking

Inhaling cigarette, cigar, or pipe smoke produced by another individual. See also Secondhand smoke (SHS).

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Chapter 10 - As Price Goes Up, Consumption Goes Down

Polyaromatic Hydrocarbon (PAH)

A type of organic compound composed of several benzene rings. PAHs, many of which are carcinogenic, are produced during charbroiling of meat, incomplete combustion of fossil fuels, and the burning of tobacco. Tobacco smoke is the most common source of human exposure.

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Potential reduced exposure products (PREPs)

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Potential reduced exposure products, or PREPs

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Chapter 4 - Tobacco Companies Respond to Smoking's Harm

Prevalence

Smoking prevalence is the percentage of smokers in the total population. Prevalence of current smokers and prevalence of current daily smokers are two common point estimates of prevalence. Meanwhile, the prevalence of ever-smokers is a measure of lifetime prevalence. Commonly, estimates of prevalence are presented separately by groups of age, gender, and location (urban/ rural), although overall estimates also are informative. Adult smoking prevalence is usually defined as the percentage of smokers among those ages 15 years and older.

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Promotion

Includes special offers, gifts, price discounts, coupons, company websites, specialty item distribution, and telephone advertising used to facilitate the sale or placement of any tobacco product. Also includes allowances paid to retailers, wholesalers, full-time company employees, or any other persons involved in tobacco distribution.

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Relative Income Price (RIP) Of Cigarettes

A percentage of annual per capita income (measured by per capita GDP) required for purchase of 100 packs of cigarettes. The lower the RIP, the more affordable cigarettes are.

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Risk

The probability of incurring a particular event or circumstance (e.g., risk of disease measures the chances of an individual contracting a disease).

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Secondhand Smoke (SHS)

Smoke resulting from the combustion of tobacco products. SHS is composed of mainstream smoke (exhaled by smokers) and side-stream smoke (from the tip of the cigarette, cigar, or pipe). Secondhand smoke contains the same harmful chemicals that smokers inhale. Also known as environmental tobacco smoke (ETS).

Related Glossary Terms

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Chapter 9 - Smoke-Free Air Laws Work

Smoke-Free Area

Area where smoking or holding a lighted cigarette, cigar, or pipe is banned, and where it is expected that no evidence of SHS will be found, if measured.

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Smokeless Tobacco

Includes snuff and chewing tobacco; not a safe alternative to smoking. Smokeless tobacco is as addictive as smoking and can cause cancers of the gum, cheek, lip, mouth, tongue, and throat.

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Smoker

Someone who smokes any tobacco product either daily or occasionally.

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Smoking highway

The tissue in the body that becomes directly exposed to tars during the act of smoking, including the lips, cheeks, tongue, throat, and bronchial passages

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Stroke

A condition in which a blood vessel in the brain bursts or is clogged by a blood clot. This leads to an inadequate blood supply to the brain and to the death of brain cells, and usually results in temporary or permanent neurological deficits. Smoking significantly increases the risk of stroke.

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Sufficient Evidence

Term used by the US Surgeon General to indicate that current available evidence strongly supports the inference of a causal relationship between smoking and specific health outcomes.

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Suggestive Evidence

Term used by the US Surgeon General to indicate that current available evidence, although indicative, is not sufficient to infer a causal relationship between smoking and specific health outcomes.

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Tar

The raw anhydrous nicotine-free condensate of smoke.

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Tar And Nicotine Yield

The amount of tar and nicotine in one cigarette, as determined by a machine designed to measure the chemical content of cigarette smoke. Machine yields of cigarette tar and nicotine levels do not reflect the actual level of exposure experienced by smokers. See also Tobacco smoke condensate (TSC).

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Chapter 4 - Tobacco Companies Respond to Smoking’s Harm

Tobacco Control Organization

An organization with a goal of reducing tobacco consumption and/ or protecting nonsmokers from the effects of secondhand smoke, as well as monitoring compliance with legislation and reporting tobacco industry maneuvers.

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Tobacco Excise Tax

A tax levied specifically on tobacco products. There are two basic types of tobacco excise tax: *Specific tax*: set as a specific amount of money per unit (e.g., cigarette, pack, etc.) or per weight (e.g., gram) of tobacco. *Ad valorem tax*: set as a percentage markup on some determined value (tax base), usually the retail selling price or the wholesale (ex-factory) price of tobacco products. Excise taxes are often differentiated according to the type of tobacco product (e.g., filtered vs. nonfiltered cigarettes, pipe tobacco vs. cigars).

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Tobacco Industry Documents

Previously secret internal industry records that are now available in the public domain as a result of court rulings.

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Tobacco Product

Any product manufactured wholly or partly from tobacco that is ingested by smoking, inhalation, chewing, sniffing, or sucking.

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Tobacco Production

The volume of actual tobacco leaves harvested from the field, excluding harvesting and threshing losses and any part of the unharvested tobacco crop.

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Tobacco Smoke Condensate (TSC)

Sticky particles comprising thousands of chemicals created by burning tobacco.

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Tobacco Tax Avoidance

Legal methods of circumventing tobacco taxes. *Cross-border shopping* involves individual tobacco users residing in higher-tax jurisdictions purchasing tobacco products in nearby lower tax jurisdictions for their own consumption within the customs constraints. *Tourist shopping* is similar to cross-border shopping, but involves the purchase of tobacco products in more distant jurisdictions. *Duty-free shopping* involves the purchase of tax-free tobacco products purchased in airports, on airplanes, and in other travel-related venues. Most governments impose limits on how much an individual can purchase and bring home from duty free sources. *Industry reformulation and/or repositioning* refers to strategies of tobacco companies to reduce the tax imposed on their products—for example, by increasing the length of cigarettes when the taxes are based on quantity.

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Tobacco Tax Evasion

Illegal methods of circumventing tobacco taxes. *Small-scale smuggling* involves the purchase, by individuals or small groups, of tobacco products in low-tax jurisdictions in amounts that exceed the limits set by customs regulations, for smuggling or resale in high-tax jurisdictions. *Large-scale smuggling* involves the illegal transportation, distribution, and sale of large quantities of tobacco products that generally avoid all taxes. *Illicit manufacturing* refers to the production of tobacco products contrary to law. *Counterfeiting* involves the production and distribution of products bearing a trademark without the approval of the trademark owner.

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Tobacco Use

The consumption of tobacco products by burning, chewing, inhaling, or other forms of ingestion

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Tobacco-Attributable Mortality

The number of deaths attributable to tobacco use within a specific population.

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Tobacco-Specific Nitrosamine (TSN OR TSNA)

A group of toxic chemicals found only in tobacco products. The most carcinogenic include • N'-nitrosonornicotine (NNN) • (4-methylnitrosamino)-1-(3-pyridyl)- 1-butanone (NNK) • N-oxide, 4-(methylnitrosamino)-1- (3-pyridylN-oxide)-1-butanol (NNAL; a metabolic product of NNK).

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Tobacco-specific nitrosamines (TSNAs)

one of the most important groups of carcinogens in tobacco products

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Chapter 1 - Cigarettes are Instruments of Death

Varenicline

A smoking cessation aid that works by blocking nicotine receptors so nicotine is not needed for dopamine release. Brand name: Chantix in the US, Champix in Europe and Canada.

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Chapter 8 - Clinical vs. Population Approaches to Tobacco Control

Chapter 12 - Clinical or Individual-Level Cessation

Chapter 12 - Clinical or Individual-Level Cessation

Volatile Organic Compound (VOC)

An organic (carbon-containing) compound that evaporates at room temperature. VOCs contribute significantly to indoor air pollution and respiratory disease.

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