

# **50 Years of Surgeon Generals' Reports on Smoking and Health**

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Department of Preventive Medicine  
Keck School of Medicine of USC**

**165<sup>th</sup> Meeting of the National Cancer Advisory Board (NCAB)  
Bethesda, February 27, 2014**

The Health Consequences  
of Smoking—50 Years of Progress

**50 years and only 20 minutes!!**



U.S. Department of Health and Human Services

2014

2014

SMOKING and HEALTH

REPORT OF THE ADVISORY COMMITTEE  
TO THE SURGEON GENERAL  
OF THE PUBLIC HEALTH SERVICE

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
Public Health Service

**BEFORE 1964**



# 1950: Key Case-Control Studies

- Morton Levin publishes a study linking smoking and lung cancer in *JAMA*
- Ernst L. Wynder and Evarts A. Graham publish study in *JAMA* in which 96.5% of lung cancer patients interviewed were smokers
- Richard Doll and Bradford Hill publish study in *BMJ* finding that heavy smokers are 50 times more likely to get lung cancer; follow-up in 1954

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## BRITISH MEDICAL JOURNAL

LONDON SATURDAY SEPTEMBER 30 1950

### SMOKING AND CARCINOMA OF THE LUNG

PRELIMINARY REPORT

BY RICHARD DOLL, M.D., M.R.C.P.

Member of the Statistical Research Unit of the Medical Research Council

AND

A. BRADFORD HILL, PH.D., D.Sc.

*Professor of Medical Statistics, London School of Hygiene and Tropical Medicine*

In England and Wales the present cancer of deaths attributed to causes one of the most striking changes in mortality recorded by the Registrar-General in the quarter of a century between 1910 and 1947, the annual number of deaths recorded was 287, or roughly fifteenfold. This increase, out of all proportion to the increase in the total population, is particularly marked in males 45 and over, and is especially marked in those aged 65 and over, and is particularly marked in those aged 75 and over. In the same ages approximately threefold increase in the number of deaths has occurred, too, in the U.S.A., Canada, and Australia, and in Turkey and Japan.

Many writers have studied these changes, and have concluded that the increase is due to a real increase in the incidence of cancer, and not to a mere increase in the number of deaths due to cancer. Some believe that the increase is wholly, or at least mainly, due to the increase in the number of deaths due to cancer. Others, however, have pointed out that the increase in the number of deaths due to cancer is not as rapid in country districts as in urban areas, and that the increase in the number of deaths due to cancer is not as rapid in those from teaching hospitals as in those from general hospitals. It is difficult to see how these differences which are in fact diagnostic of a real increase in the incidence of cancer, can be explained on the basis of a mere increase in the number of deaths due to cancer.

The large and continued increase in the number of deaths due to cancer in those from teaching hospitals, and the increase in the number of deaths due to cancer in those from general hospitals, are in fact diagnostic of a real increase in the incidence of cancer, and not to a mere increase in the number of deaths due to cancer.

## The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 143, No. 4

CHICAGO, ILLINOIS

May 27, 1950

### TOBACCO SMOKING AS A POSSIBLE ETIOLOGIC FACTOR IN BRONCHIOGENIC CARCINOMA

A Study of Six Hundred and Eighty-Four Private Cases

BY ERNST L. WYNDER

AND

EVARTS A. GRAHAM, M.D.

St. Louis

General Inference.—There is rather general agreement that the incidence of bronchogenic carcinoma has greatly increased in the last half-century. Statistical studies at the Charity Hospital of New Orleans (Graham and Delaney), the St. Louis City Hospital (Wynder), and the Veterans Administration Hospital of El Paso, Ill. (Avery)<sup>1,2</sup> have revealed that as these hospitals cancer of the lung is now the most frequent cancer in men.

Autopsy statistics throughout the world show a general increase in the incidence of bronchogenic carcinoma in relation to cancer in general. Krentz and Krenner,<sup>3</sup> in a careful statistical study of death certificates in England and Wales from 1928 to 1948, have presented uncontroverted evidence of a great increase in deaths from cancer of the lung. In this country studies compiled by the American Cancer Society show a similar trend during the past two decades.<sup>4</sup>

Tobacco as a Possible Cause of Inference.—The suggestion that smoking, and in particular cigarette smoking, may be important in the production of bronchogenic carcinoma has been made by many writers on the subject even though well controlled and large scale clinical studies are lacking. Adler<sup>5</sup> in 1912 was one of the first to think that tobacco might play some role in this regard. Tylecote,<sup>6</sup> Hoffman,<sup>7</sup> McNally,<sup>8</sup> Likitt,<sup>9</sup> Arlin and Wagner,<sup>10</sup> Ruffo<sup>11</sup> and Blair<sup>12</sup> were just

a few of the workers who thought that there was some evidence that tobacco was an important factor in the increase of cancer of the lungs. Miller<sup>13</sup> in 1939, from a careful but limited clinical statistical study, offered good evidence that heavy smoking is an important etiologic factor. In 1941 Wynder and Delaney<sup>14</sup> called attention to the similarity of the curves of increased rates of cigarettes in this country to the greater prevalence of primary cancer of the lung. They emphasized the possible etiologic relationship of cigarette smoking to this condition. In a recent paper Schlegel<sup>15</sup> concluded that there is strong circumstantial evidence that cigarette smoking is an etiologic factor in cancer of the respiratory tract and finds that his data are in agreement with the results of a preliminary report presented by Wynder and Graham at the National Cancer Conference in February 1949.<sup>16</sup>

Purpose of Study.—The purpose of the present study was to attempt to determine, so far as possible by clinical investigations, statistical methods and experimental studies, the importance of various exogenous factors that might play a role in the induction of bronchogenic carcinoma. In this regard we intended to learn the relative importance of previous diseases of the lungs, rural and urban distribution of patients, various occupations and hereditary background as well as smoking habits. By obtaining all this information, we hoped to determine whether any of these factors, either singly or in combination, have had an effect in increasing the incidence of bronchogenic carcinoma.

In the present paper the chief emphasis will be placed on our findings in regard to smoking.

METHOD OF STUDY

The results of this study are based on 684 cases of proved bronchogenic carcinoma. It should be emphasized that the results in this report have not been obtained from hospital records since we learned at the outset of our study that the routine records did not supply satisfactory answers to our questions. It was therefore decided to seek the desired information by special interviews. Six hundred and thirty-four patients reported as in this paper have been personally interviewed, and in 33 cases we obtained the information by reading a questionnaire.<sup>17</sup> In the remaining 17 cases information for the questionnaire was obtained from a person who had been intimately acquainted with the patient throughout his adult life.

From the Department of Surgery, Washington University School of Medicine and Barnes Hospital, St. Louis, Mo. (Ernst L. Wynder).  
 Received for publication, October 15, 1949.  
 (Other abstracts of this study are presented in subsequent publications.)  
 1. Wynder, E. L., and Graham, E. A. *Ann. Surg.* 134: 100 (1950).  
 2. Wynder, E. L., and Graham, E. A. *J. Nat. Cancer Inst.* 43: 100 (1949).  
 3. Krentz, S. W., and Krenner, E. L. *J. Nat. Cancer Inst.* 43: 100 (1949).  
 4. American Cancer Society. *Statistical Abstracts of the United States*.  
 5. Adler, E. *Ann. Surg.* 55: 100 (1912).  
 6. Tylecote, E. *Ann. Surg.* 55: 100 (1912).  
 7. Hoffman, E. L., and Hoffman, S. M. *J. Nat. Cancer Inst.* 43: 100 (1949).  
 8. McNally, E. *J. Nat. Cancer Inst.* 43: 100 (1949).  
 9. Likitt, E. *J. Nat. Cancer Inst.* 43: 100 (1949).  
 10. Arlin, J. W., and Wagner, J. *J. Nat. Cancer Inst.* 43: 100 (1949).  
 11. Ruffo, J. *J. Nat. Cancer Inst.* 43: 100 (1949).  
 12. Blair, J. *J. Nat. Cancer Inst.* 43: 100 (1949).  
 13. Miller, J. *J. Nat. Cancer Inst.* 43: 100 (1949).  
 14. Wynder, E. L., and Delaney, J. *J. Nat. Cancer Inst.* 43: 100 (1949).  
 15. Schlegel, J. *J. Nat. Cancer Inst.* 43: 100 (1949).  
 16. Wynder, E. L., and Graham, E. A. *J. Nat. Cancer Inst.* 43: 100 (1949).  
 17. Wynder, E. L., and Graham, E. A. *J. Nat. Cancer Inst.* 43: 100 (1949).



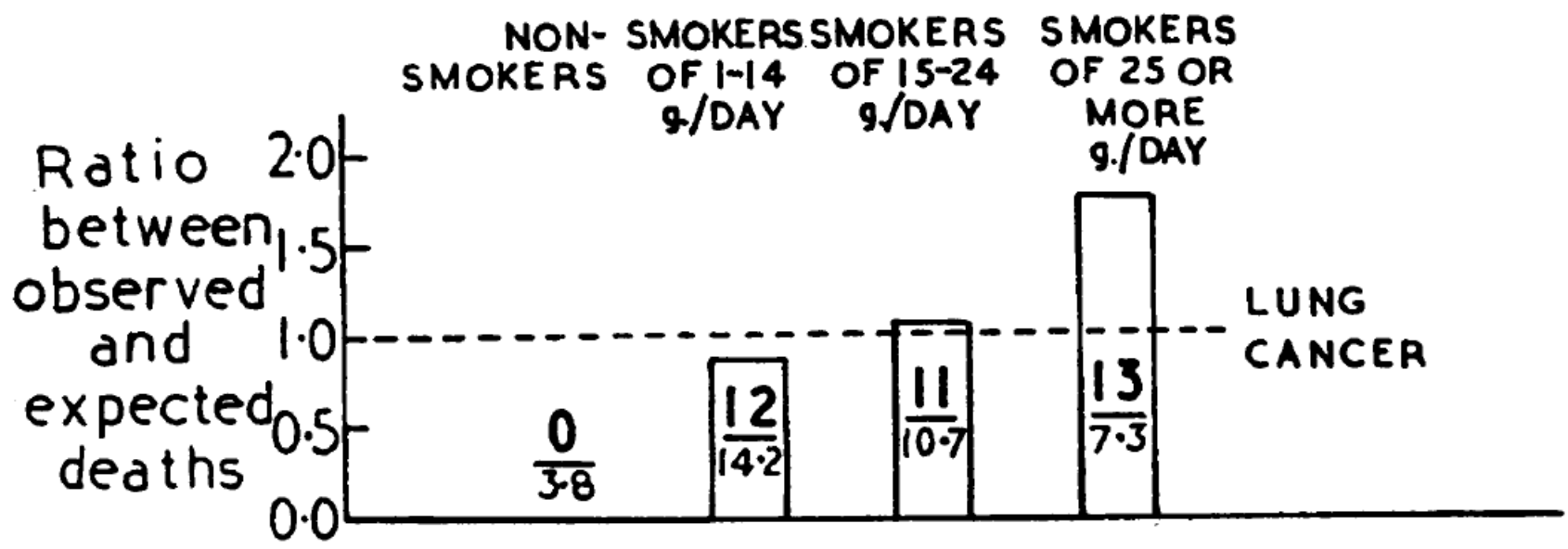
# 1953-1954: The Evidence Mounts

Experimental Proc  
ERNEST L. WYNDE

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## BRITISH MEDICAL JOURNAL

LONDON SATURDAY JUNE 26 1954



production of cancer of the larynx and esophagus. Although the studies are not so complete as those for cancer, the collected data are...  
 The increasing incidence of lung cancer and the available evidence invite us to undertake the experimental investigation. This investigation is directed in laboratory animals whether genetic factors in cigarette smoking...

age.  
 An analysis of information now available shows that the over-all death rate, the death rate from cancer, and the death rate from the coronary arteries, and the death rate...

among patients with other diseases. With one exception (the difference between the proportions of non-smokers found by McConnell, Gordon, and Jones) these differences are large enough to be important. While, therefore, the various authors have all shown...

replying to the questionnaire. The ex-smokers were asked similar questions but relating to the time at which they had last given up smoking.

The questionnaire was intentionally kept short and simple in the hope of encouraging a high proportion of replies. The inquiry must have failed. The subjects were invited to give any habits or history which they had prior to last giving up smoking. It was, of course, possible that changes in habit during adult life might well have influenced the most recent habits. Let us assume that...

Wynder et al. Cancer Research 1953;13:855-864  
 Hammond and Horn. JAMA 1954;155:1316-28  
 Doll and Hill. BMJ 1954;1(4877):1451-5

PREVIOUS INVESTIGATION... one finally selected for use was the four p...

# Industry Tactics

## A Frank Statement to Cigarette Smokers

### A Frank Statement to Cigarette Smokers

RECENT EVIDENCE on cigarette smoking has been given wide publicity in a story this afternoon in the Los Angeles Times which has been widely reprinted.

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 they are without medical interest, even though the measures should be interpreted as highly tentative.

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

Disappointed subscribers point out:

1. The medical records of most years indicate some possible source of lung cancer.
2. The time in experiment using the radiation required by what the times is.
3. The time in a year that cigarette smoking is one of the causes.
4. The statistics regarding the link cigarette smoking with the disease would apply only to the fact that the most serious aspect of cancer has, based on the studies of the available statistics is produced by numerous instances.

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.

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"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."

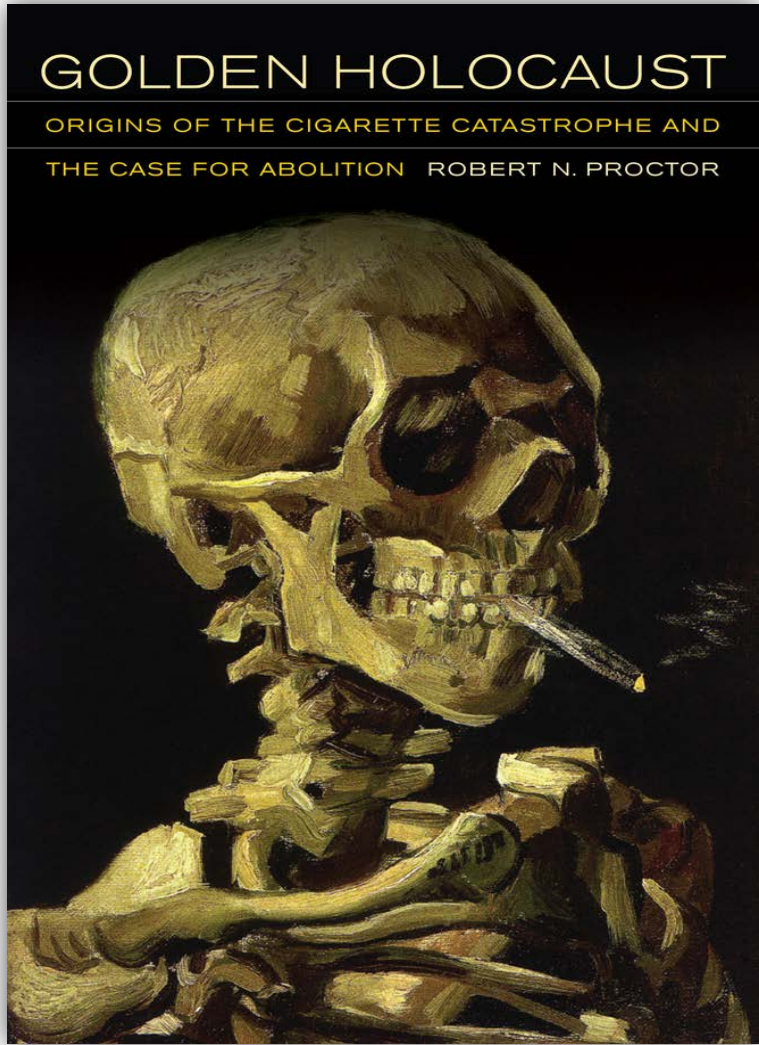
"We always have and always will cooperate closely with those whose task it is to safeguard the public health."

**TOBACCO INDUSTRY RESEARCH COMMITTEE**  
3000 EMPEROR STATE BUILDING, NEW YORK 1, N. Y.

**MEMBERS:**

DR. WALTER BRIDGES, JR., Director	DR. J. EDWARD SMITH, JR., Director	DR. J. EDWARD SMITH, JR., Director
DR. J. EDWARD SMITH, JR., Director	DR. J. EDWARD SMITH, JR., Director	DR. J. EDWARD SMITH, JR., Director
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TRIAL EXHIBIT  
14,024





# Burney's Two Statements

STATEMENT BY SURGEON GENERAL LEROY E. BURNEY  
**Excessive Cigarette Smoking**

The Public Health Service is, of course, concerned with broad factors which substantially affect the health of the American people. The Service also has a responsibility to bring health facts to the attention of the health professions and the public.

In June 1956, units of the Public Health Service joined with two private voluntary health organizations to establish a scientific Study Group to appraise the available data on smoking and health. We have now reviewed the report of this Study Group and other recent data, including the report of Dr. E. C. Hammond and Dr. Daniel Horn on June 5 to the American Medical Association in New York.

In the light of these studies, it is clear that there is an increasing and consistent body of evidence that excessive cigarette smoking is one of the causative factors in lung cancer.

The Study Group, appraising 18 independent studies, reported that lung cancer occurs much more frequently among cigarette smokers than among nonsmokers, and there is a direct relationship between the incidence of lung cancer and the amount smoked. This finding was reinforced by the more recent report by Dr. Hammond and Dr. Horn.

Many independent studies thus have confirmed beyond reasonable doubt that there is a high degree of statistical association between lung cancer and heavy and prolonged cigarette smoking.

Such evidence, of course, is largely epidemiological in nature. It should be noted, however, that many important public health advances in the past have been developed upon the basis of statistical or epidemiological information. The Study Group also reported that in laboratory studies on animals at least five independent investigators have produced malignancies by tobacco smoke condensates. It also reported that biological changes similar to those which take place in the genesis of cancer have been observed in the lungs of heavy smokers. Thus, some laboratory and biological data provide contributory evidence to support the concept that excessive smoking is one of the causative factors in the increasing incidence of lung cancer.

At the same time, it is clear that heavy and prolonged cigarette smoking is not the only cause of

lung cancer. Lung cancer occurs among non-smokers, and the incidence of lung cancer among various population groups does not always coincide with the amount of cigarette smoking.

The precise nature of the factors in heavy and prolonged cigarette smoking which can cause lung cancer is not known. The Public Health Service supports the recommendation of the Study Group that more research is needed to identify, isolate, and try to eliminate the factors in excessive cigarette smoking which can cause cancer.

The Service also supports the recommendation that more research is needed into the role of air pollution and other factors which may also be causes of lung cancer in man.

To help disseminate the facts, the Public Health Service is sending copies of this statement, the Study Group report, and the report of Dr. Hammond and Dr. Horn to State health officers and to the American Medical Association with the request that they consider distributing copies to local health officers, medical societies, and other health groups.

While there are naturally differences of opinion in interpreting the data on lung cancer and cigarette smoking, the Public Health Service feels the weight of the evidence is increasingly pointing in one direction: that excessive smoking is one of the causative factors in lung cancer.

The Service notes that the Study Group found that more study is needed to determine the meaning and significance of any statistical association between smoking and heart disease. The Study Group reported there is no convincing biological or clinical evidence to date to indicate that smoking per se is one of the causative factors in heart disease. Although the report by Dr. Hammond and Dr. Horn has since provided additional data on this subject, the Service feels that more statistical and biological data are needed to establish a definite position on this matter. July 12, 1957

*Copies of the report Smoking in Relation to Death Rates, by Dr. E. C. Hammond and Dr. Daniel Horn, and the Joint Report of the Study Group on Smoking and Health are available from the Division of Public Inquiries, Public Health Service.*

J. Am. Med. Assoc.  
 Vol. 171, No. 13  
 135/1829

SPECIAL ARTICLE

**SMOKING AND LUNG CANCER**  
 A STATEMENT OF THE PUBLIC HEALTH SERVICE  
 Leroy E. Burney, M.D., Washington, D. C.

The Public Health Service is deeply concerned with the increasing death rate from lung cancer in the United States and in other parts of the world. Cancer of the lung is increasing more rapidly and causing more deaths than any other form of cancer in the adult male population. In the United States, the death rate from lung cancer among white men (age-adjusted) was 3.8 per 100,000 population in 1930; by 1956, the rate had risen to 51.0,<sup>1</sup> and that year (fig. 1, table 1). A rising death rate of this magnitude arrests the attention of every physician, private practitioner and public health officer alike.

Many investigators have indicted cigarette smoking as responsible in large part for the increasing lung cancer death rate. Others have denied this, saying that increased volumes of automobile exhaust fumes and industrial vapors polluting the air are largely responsible for the causation of lung cancer.<sup>2</sup> The possibility that there are other factors yet unknown has also been suggested.

Two years ago I made the following statement: "... The Public Health Service feels the weight of the evidence is increasingly pointing in one direction: that excessive smoking is one of the causative factors in lung cancer."<sup>3</sup> Our belief then was based on reports that had been accumulating for more than 30 years. Since 1957, additional studies, some from our own staff, have contributed new information. I wish, in this paper, to review the data in those publications the Public Health Service has felt to be of particular value and to give our interpretation of the material presented.

**The Smoking Hypothesis**

In their classic study in 1928, Lombard and Doering<sup>4</sup> noted an association between heavy smoking and bronchial cancer. Later, examination of time trends in mortality showed that the death rate from lung cancer was rapidly increasing. This immediately raised the question of a possible association of smoking with bronchial malignancy. Many studies<sup>5</sup> in different countries showed a higher proportion of smokers in lung cancer groups than in control groups.

*Lombard and Snegreff*—The latest paper<sup>6</sup> in the Massachusetts studies on lung cancer and smoking deserves particular mention. The documenting of each case is unusually thorough, covering a wide range of factors. An extensive series of controls was subjected to the same scrutiny. In a series of patients known to have died of lung cancer, four variables showed significant correlation and associations: frequent or chronic respiratory conditions, heavy cigarette smoking, heavy consumption of alcohol, and outdoor work. Of these four variables, heavy cigarette smoking had by far the strongest relationship to lung cancer. "About four-fifths of the persons with lung cancer were heavy cigarette smokers (more than 9,125 packages), ... about one-third had frequent or chronic respiratory conditions, about one-fifth were engaged in outdoor occupations, and about one-seventh were users of alcohol in excessive amounts."

However, there was criticism of the retrospective (historical) method, on which this paper and the earlier ones were based, as being subject to unavoidable bias. The following three studies, recently published, were designed therefore with a prospective (continuing) approach. Doll and Hill<sup>7</sup> reported from England, Hammond and Horn<sup>8</sup> from the American Cancer Society, and Dorn<sup>9</sup> from the National Cancer Institute of the Public Health Service (fig. 2 and 3).

*Doll and Hill*—The Doll and Hill study<sup>7</sup> is a continuing analysis of 40,701 British physicians. Among male physicians 35 years of age and over, in the initial four and one-half years of observation, 1,714 deaths have occurred, including 84 from lung cancer. Deaths from lung cancer increased steadily with increasing amounts smoked; for non-smokers the age-adjusted death rate was 7 per 100,000 of this population; for light smokers, 47; for moderate smokers, 86; and for heavy smokers (more than 25 cigarettes daily), 166. Giving up smoking reduced the susceptibility of a smoker to subsequent development of lung cancer. The decrease was greatest in those who had given up the habit for a decade or more. Those who continued to smoke more than 25 cigarettes daily from the beginning of the study had a mortality from lung

Surgeon General, United States Public Health Service.

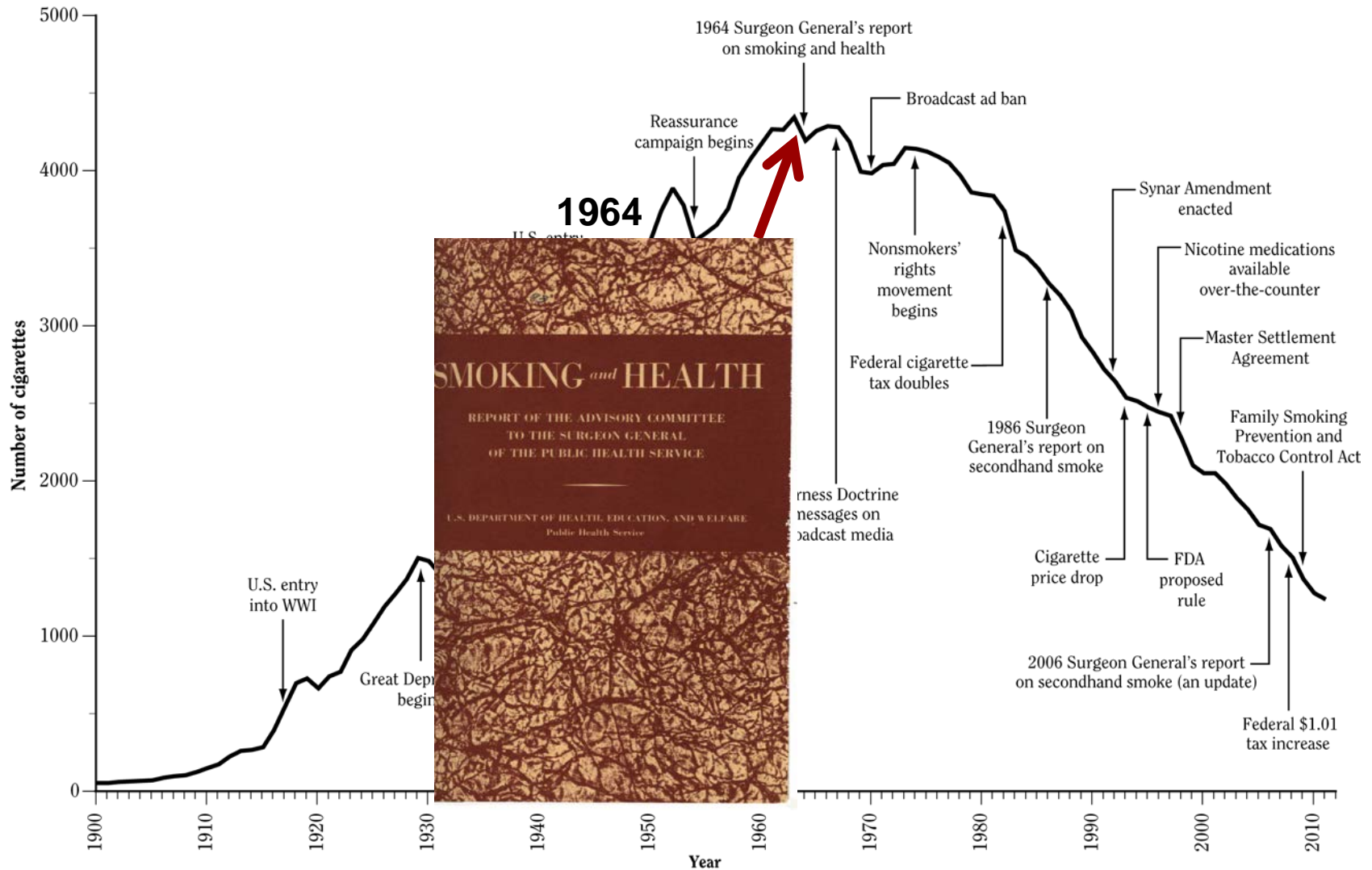
Source: Public Health Rep. 1957 September

Source: JAMA. 1959 November

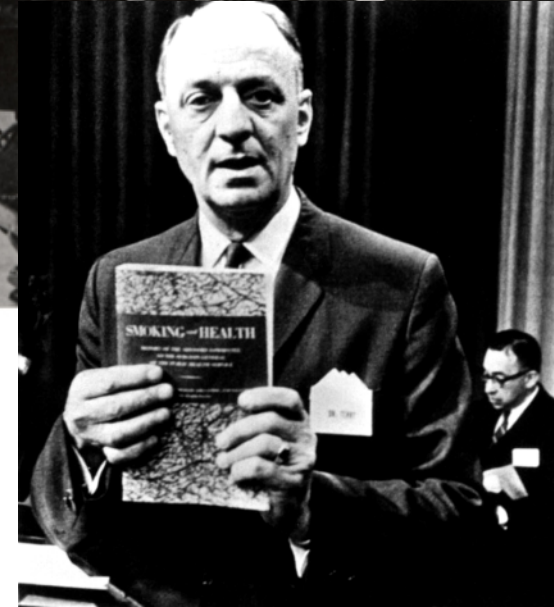
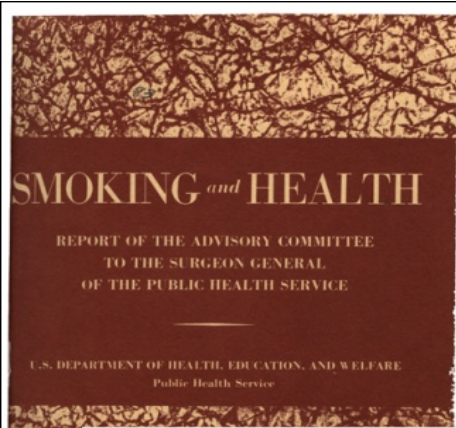


1964

# Adult per-capita cigarette consumption and major smoking and health events, US, 1900-2012



# 1964 Surgeon General's Report







### Surgeon General's Committee on Smoking and Health 1963

"Three of the members smoked cigarettes, and two others smoked pipes or cigars. Terry, himself a smoker, served as the nominal Chairman of the group, but it was agreed that he would not participate in any of its deliberations or conclusions."

ash trays

# Statement on Methods

- “A plan was adopted at the first meeting...”
- “...a major general requirement was that of making the information available...”
- “...made decisions or judgments at three levels...”: 1) validity of a publication or report; 2) validity of interpretations and conclusions of authors; and 3) conclusions of the committee.
- Criteria for causal inference

# Causal Criteria

Statistical methods cannot establish proof of a causal relationship in an association. The causal significance of an association is a matter of judgment which goes beyond any statement of statistical probability. To judge or evaluate the causal significance of the association between the attribute or agent and the disease, or effect upon health, a number of criteria must be utilized, no one of which is an all-sufficient basis for judgment. These criteria include:

- a) The consistency of the association
- b) The strength of the association
- c) The specificity of the association
- d) The temporal relationship of the association
- e) The coherence of the association



# Smoking and Mortality, 1964

TABLE 2.<sup>1</sup>—*Expected and observed deaths for smokers of cigarettes only and mortality ratios in seven prospective studies*

Underlying cause of death	Expected deaths	Observed deaths	Mortality ratio
Cancer of lung (162-3) <sup>2</sup> .....	170.3	1,833	10.8
Bronchitis and emphysema (502, 521.1).....	89.5	546	6.1
Cancer of larynx (161).....	14.0	75	5.4
Oral cancer (140-8).....	37.0	152	4.1
Cancer of esophagus (150).....	33.7	113	3.4
Stomach and duodenal ulcers (540, 541).....	105.1	294	2.8
Other circulatory diseases (451-68).....	254.0	649	2.6
Cirrhosis of liver (581).....	169.2	379	2.2
Cancer of bladder (181).....	111.6	216	1.9
Coronary artery disease (420).....	6,430.7	11,177	1.7
Other heart diseases (421-2, 430-4).....	526.0	868	1.7
Hypertensive heart (440-3).....	409.2	631	1.5
General arteriosclerosis (450).....	210.7	310	1.5
Cancer of kidney (180).....	79.0	120	1.5
All causes <sup>3</sup> .....	15,653.9	23,223	1.68

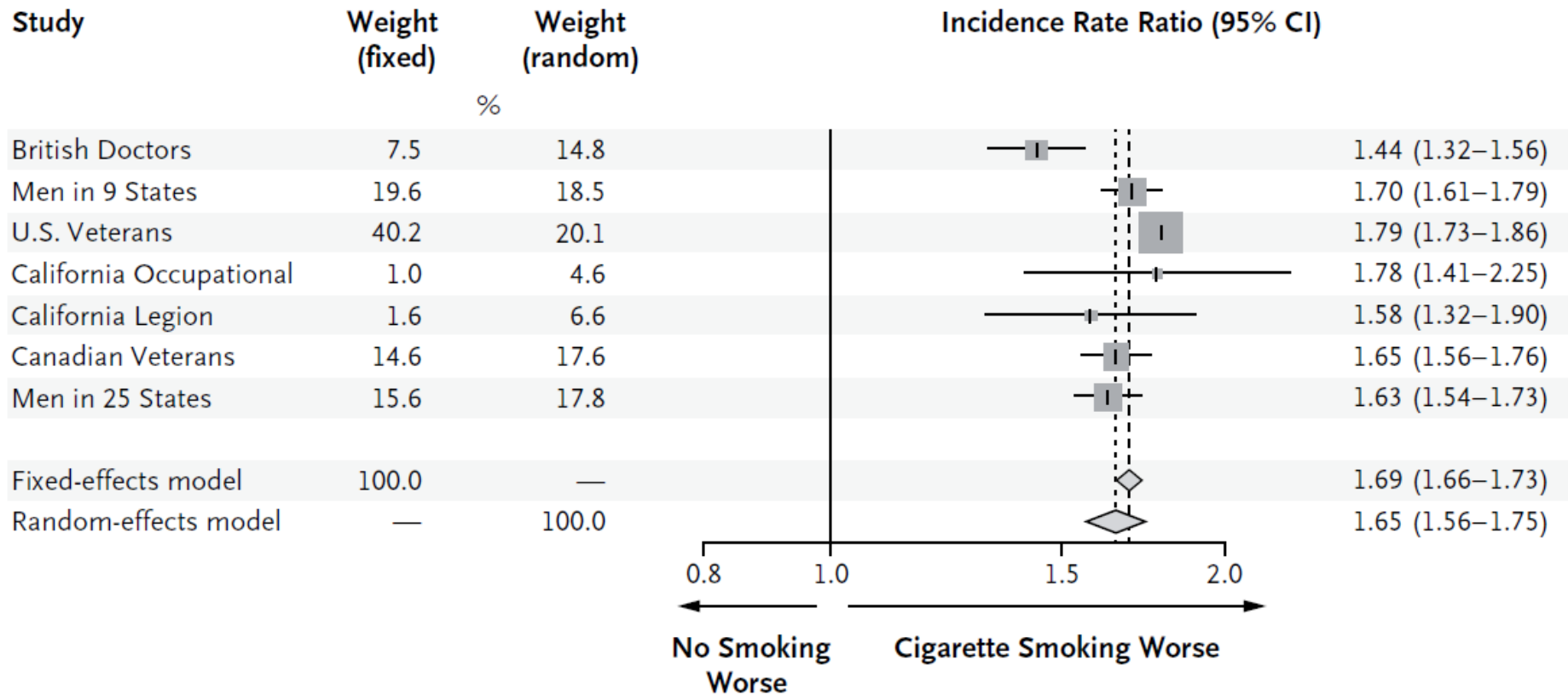
<sup>1</sup> Abridged from Table 26, Chapter 8, Mortality.

<sup>2</sup> International Statistical Classification numbers in parentheses.

<sup>3</sup> Includes all other causes of death as well as those listed above.

# Smoking and Mortality, reconstructed in 2014

## A Death from Any Cause



## The Committee's judgment in brief:

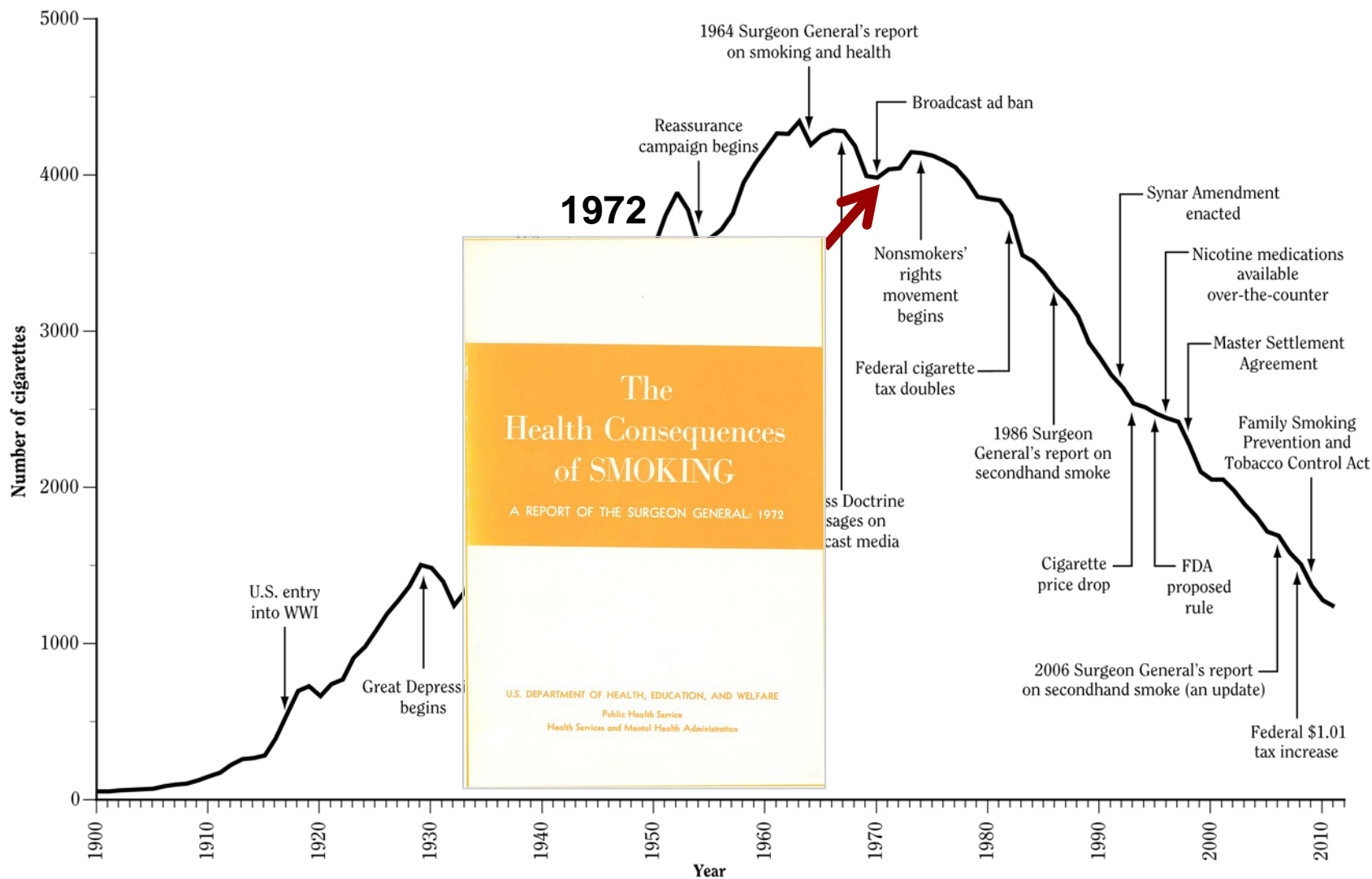
**Cigarette smoking is a health hazard of sufficient importance in the United States to warrant appropriate remedial action.**

- Cigarette 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.
- Cigarette smoking is the most important of the causes of **chronic bronchitis** in the United States, and increases the risk of dying from chronic bronchitis.
- Male cigarette smokers have a **higher death rate from coronary artery disease** than non-smoking males, but it is not clear that the association has causal significance.
- Cigarette smoking is associated with a 70 percent increase in the age-specific death rates of males, and to a lesser extent with increased death rates of females. The total number of excess deaths causally related to cigarette smoking in the U.S. population cannot be accurately estimated. In view of the continuing and mounting evidence from many sources, it is the judgment of the Committee that **cigarette smoking contributes substantially to mortality from certain specific diseases and to the overall death rate.**

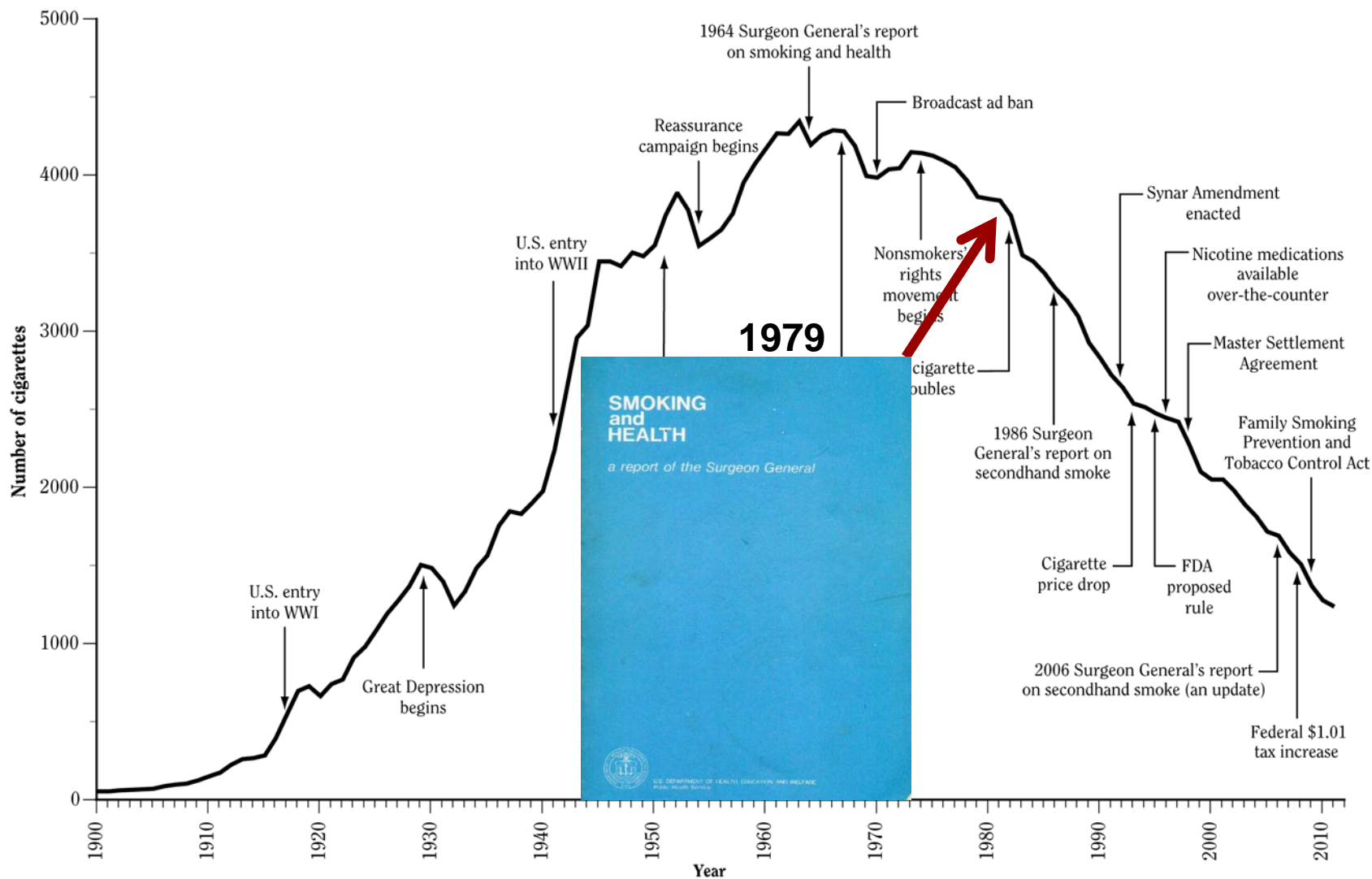
# KEY REPORTS SINCE 1964



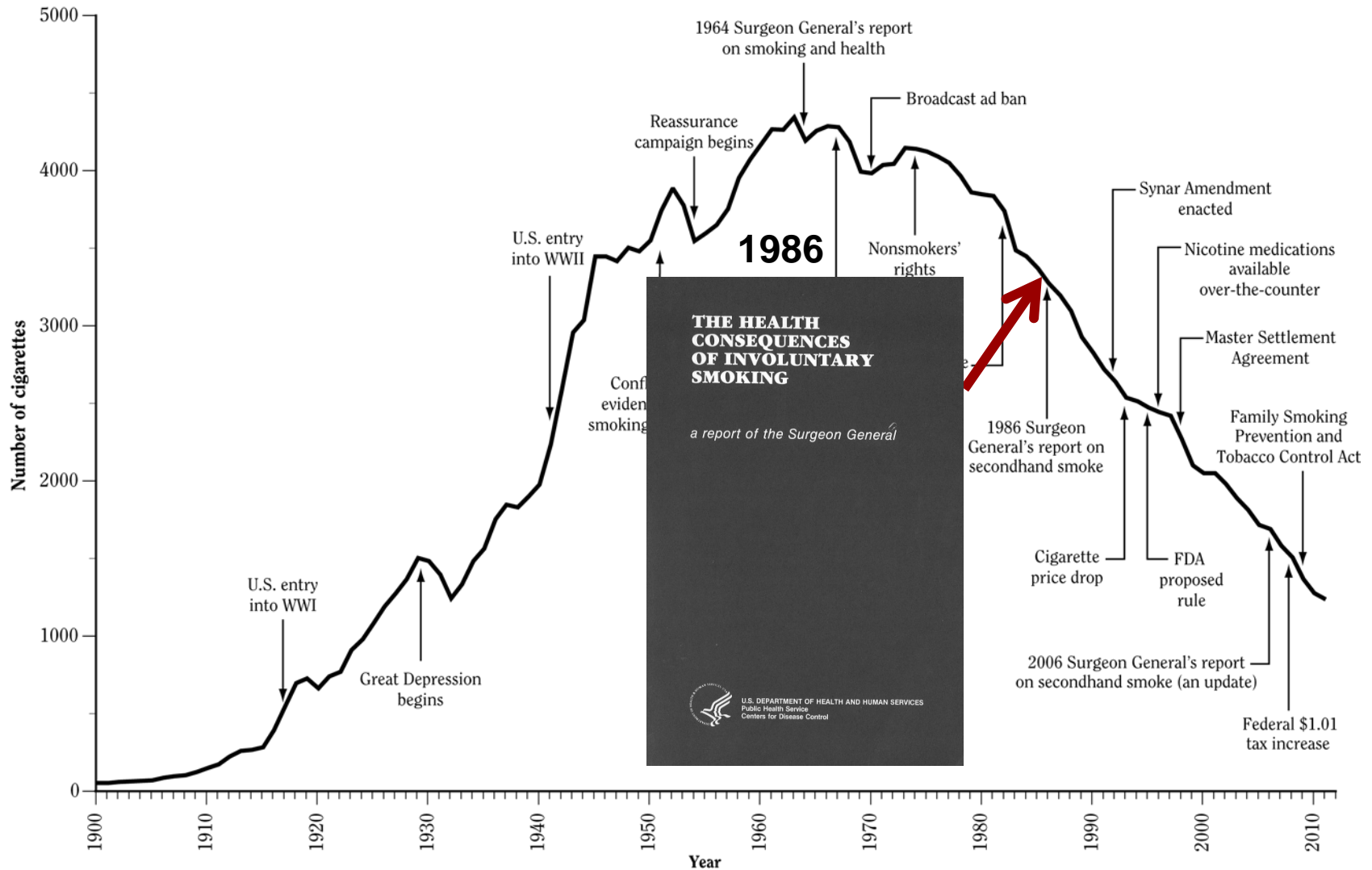
# Adult per-capita cigarette consumption and major smoking and health events, US, 1900-2012



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# Adult per-capita cigarette consumption and major smoking and health events, US, 1900-2012



# The House of Koop-1986

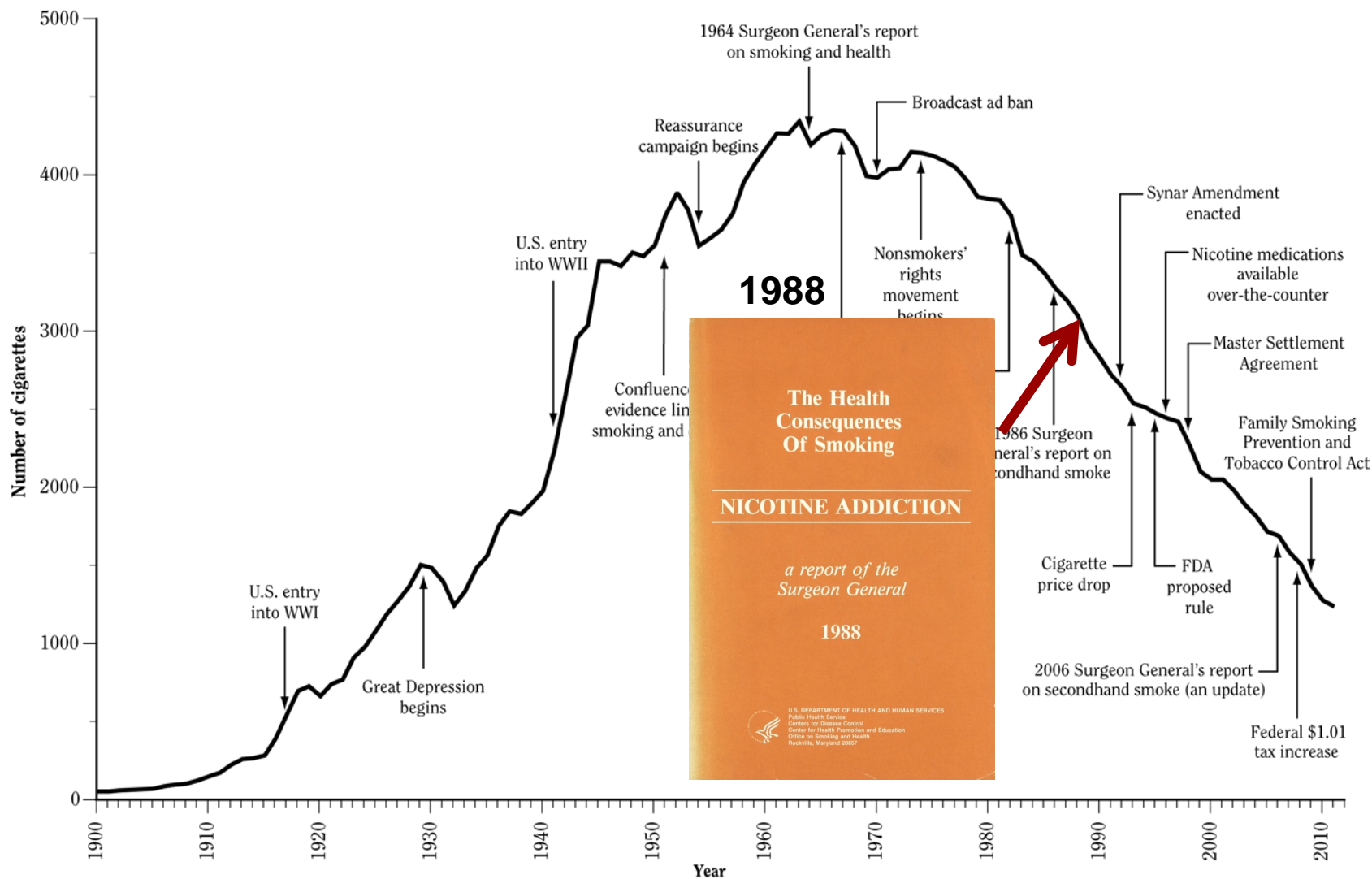


**Bill Lynn (OSH), Dave Burns (Senior Editor), and Don Shopland (OSH)–Part of the 1986 SG Report team – in front of Dr. Koop’s house on the NIH campus.**

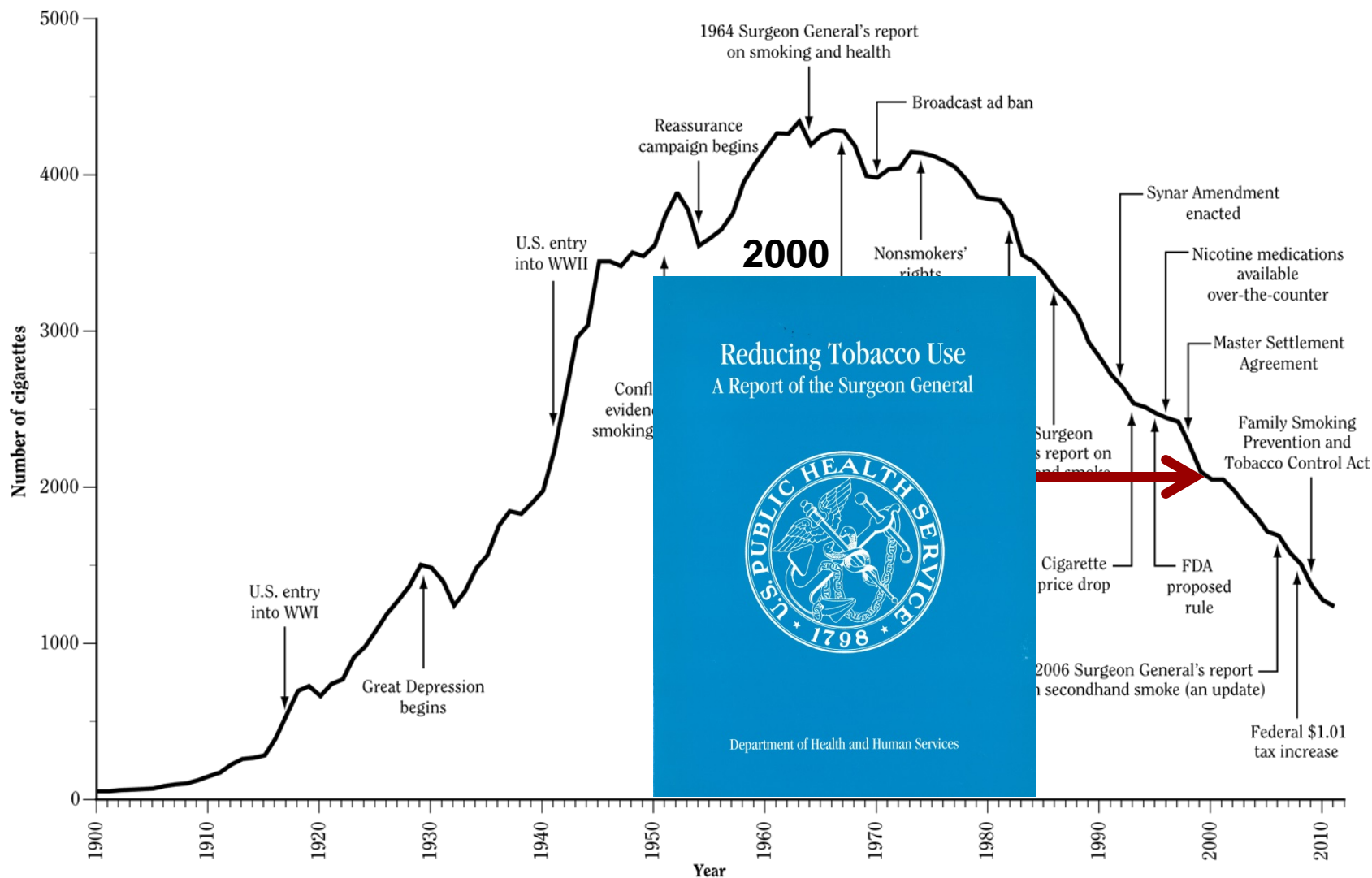
*Source: Jon Samet’s personal collection*



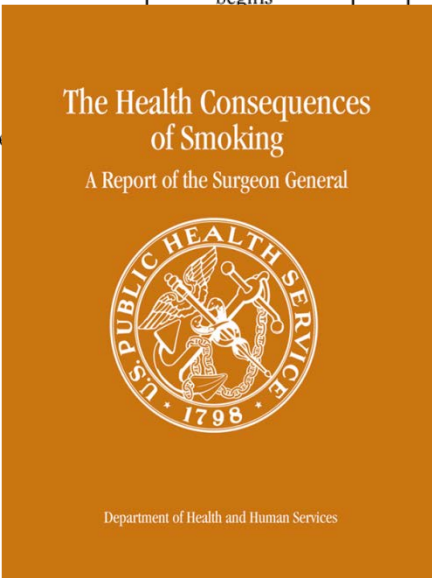
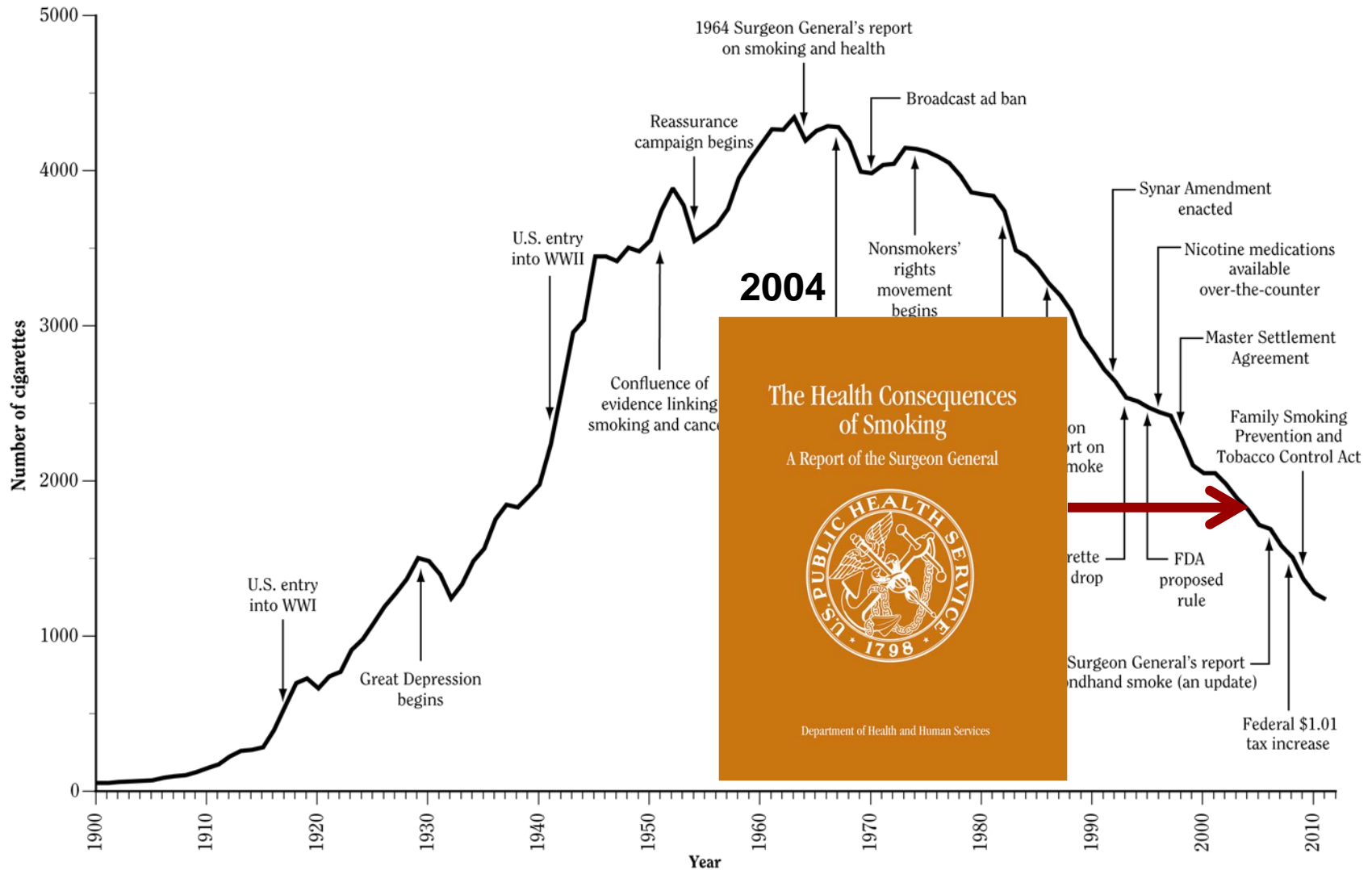
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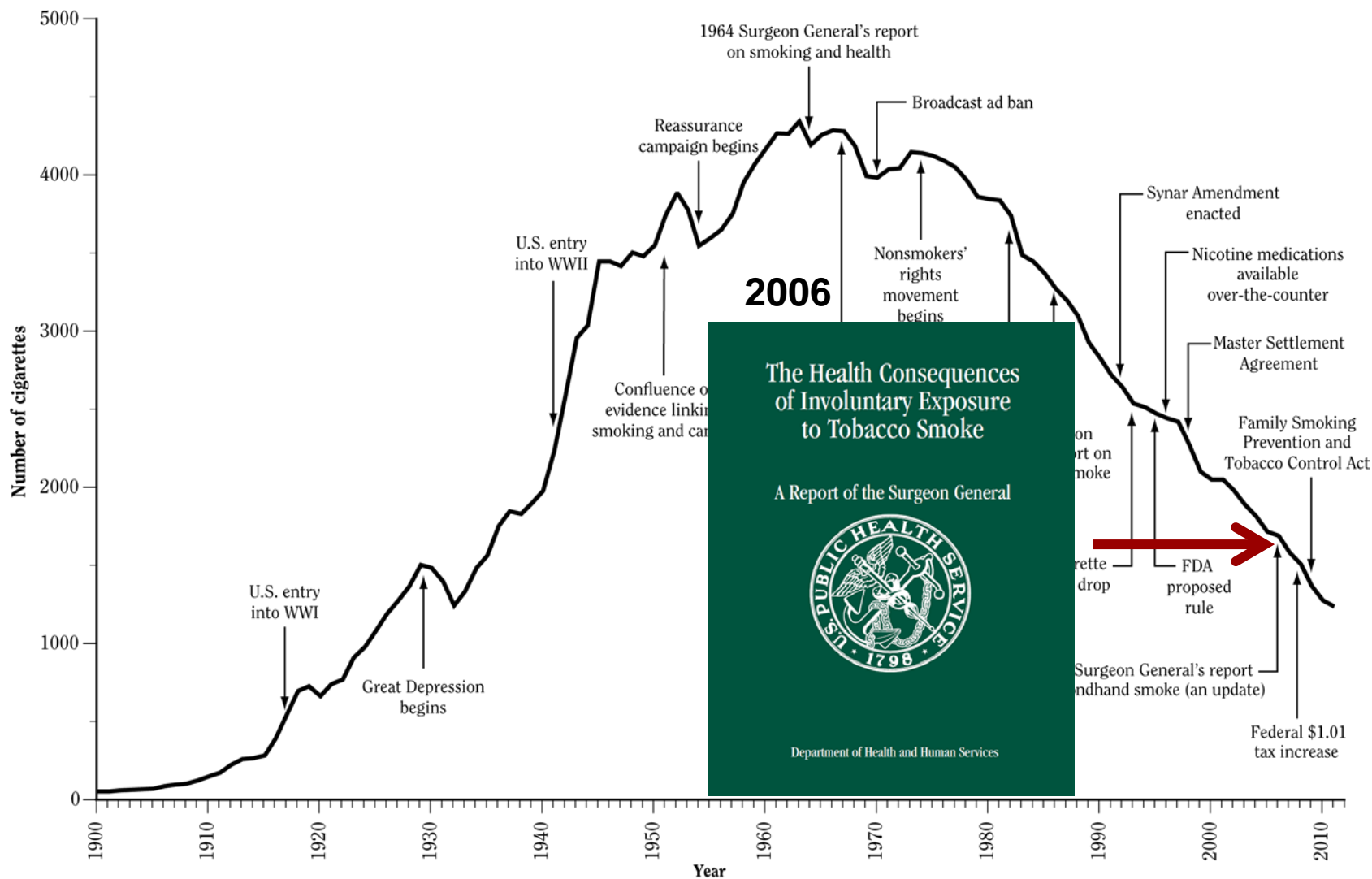


# The 2004 SGR: It Takes a Village....





# Adult per-capita cigarette consumption and major smoking and health events, US, 1900-2012



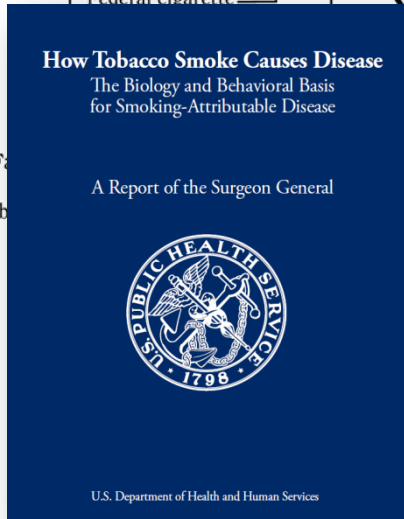
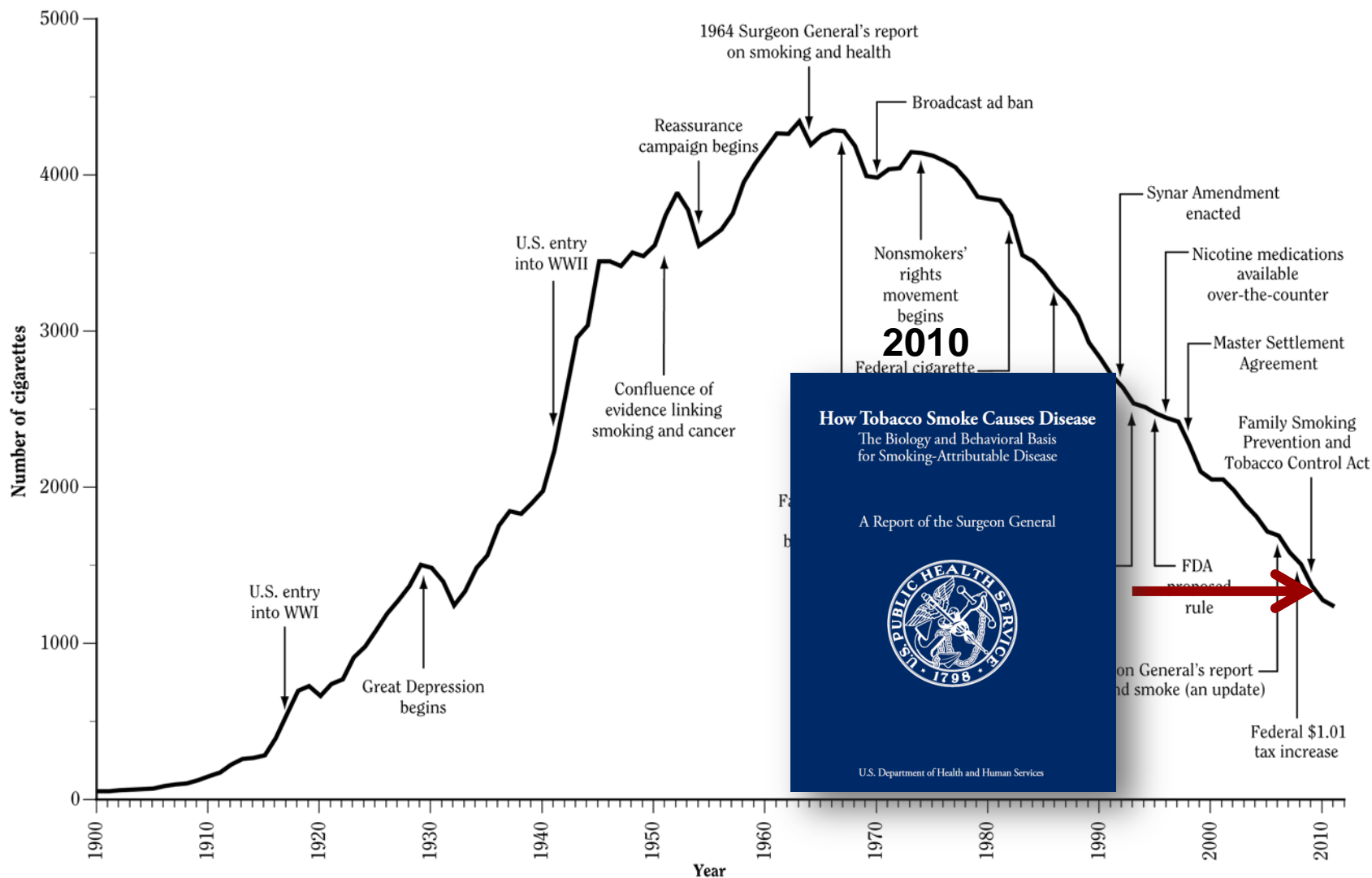
# The 2006 SGR: The Release, June 27, 2006



# Conclusions: 2006 Report

4. The scientific evidence indicates that there is no risk-free level of exposure to secondhand smoke
5. Many millions of Americans, both children and adults, are still exposed to secondhand smoke in their homes and workplaces, despite substantial progress in tobacco control
6. 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 exposure of nonsmokers to secondhand smoke)

# Adult per-capita cigarette consumption and major smoking and health events, US, 1900-2012





# SGR 2010: Major conclusions

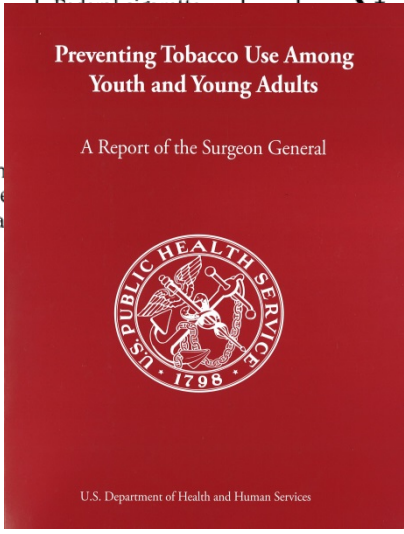
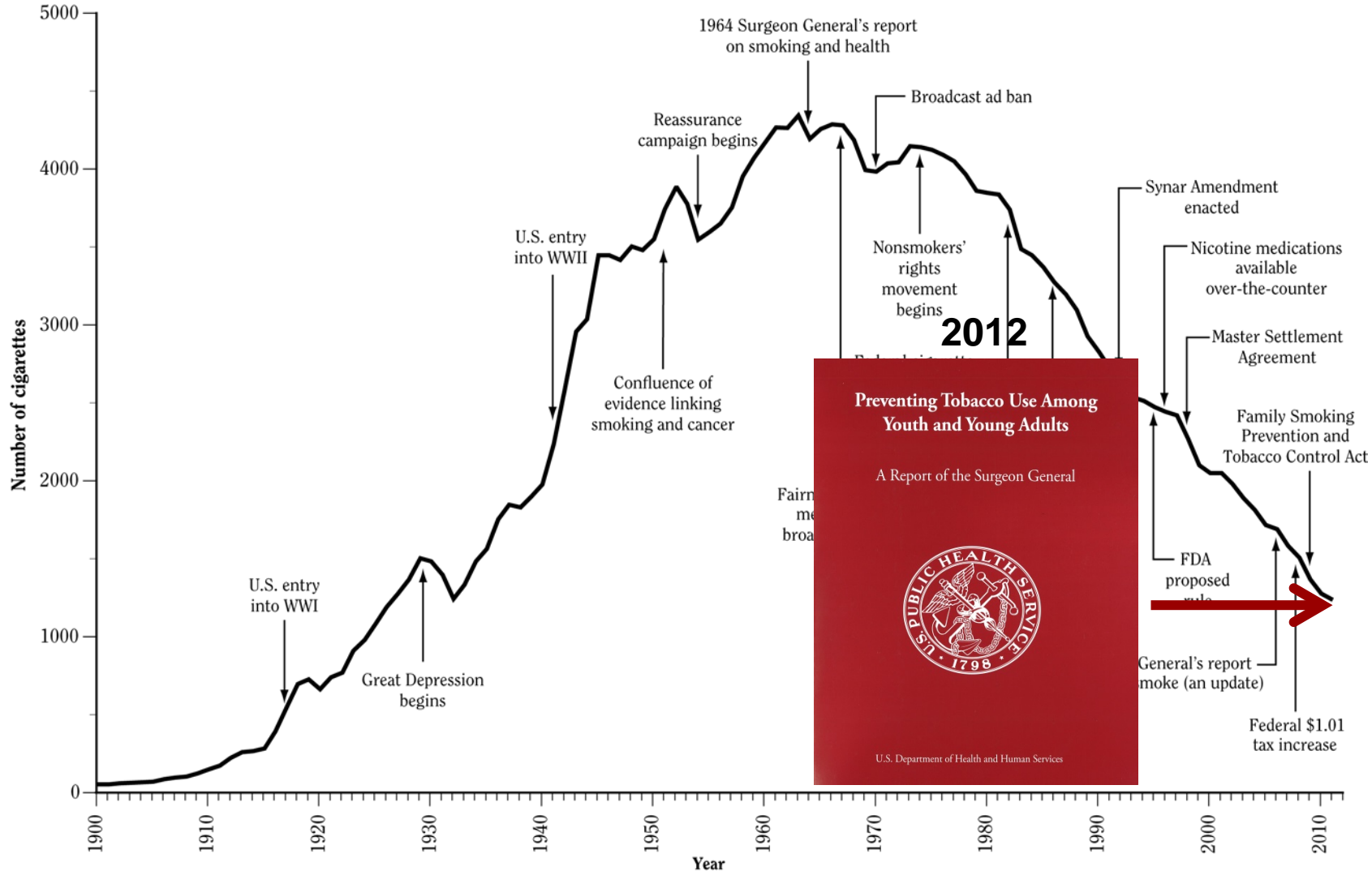
The scientific evidence supports the following major conclusions:

1. The evidence on the mechanisms by which smoking causes disease indicates that there is no risk-free level of exposure to tobacco smoke.
2. Inhaling the complex chemical mixture of combustion compounds in tobacco smoke causes adverse health outcomes, particularly cancer and cardiovascular and pulmonary diseases, through mechanisms that include DNA damage, inflammation, and oxidative stress.
3. Through multiple defined mechanisms, the risk and severity of many adverse health outcomes caused by smoking are directly related to the duration and level of exposure to tobacco smoke.
4. Sustained use and long-term exposures to tobacco smoke are due to the powerfully addicting effects of tobacco products, which are mediated by diverse actions of nicotine and perhaps other compounds, at multiple types of nicotinic receptors in the brain.
5. Low levels of exposure, including exposures to secondhand tobacco smoke, lead to a rapid and sharp increase in endothelial dysfunction and inflammation, which are implicated in acute cardiovascular events and thrombosis.
6. There is insufficient evidence that product modification strategies to lower emissions of specific toxicants in tobacco smoke reduce risk for the major adverse health outcomes.



2010 Surgeon General's Report  
Press Conference,  
December 9, 2011,  
National Press Club in  
Washington, DC

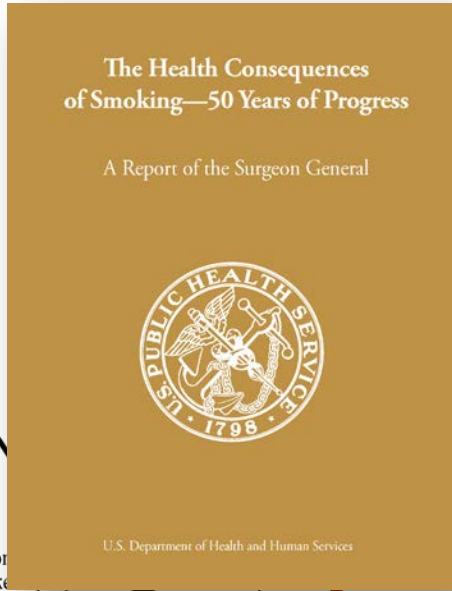
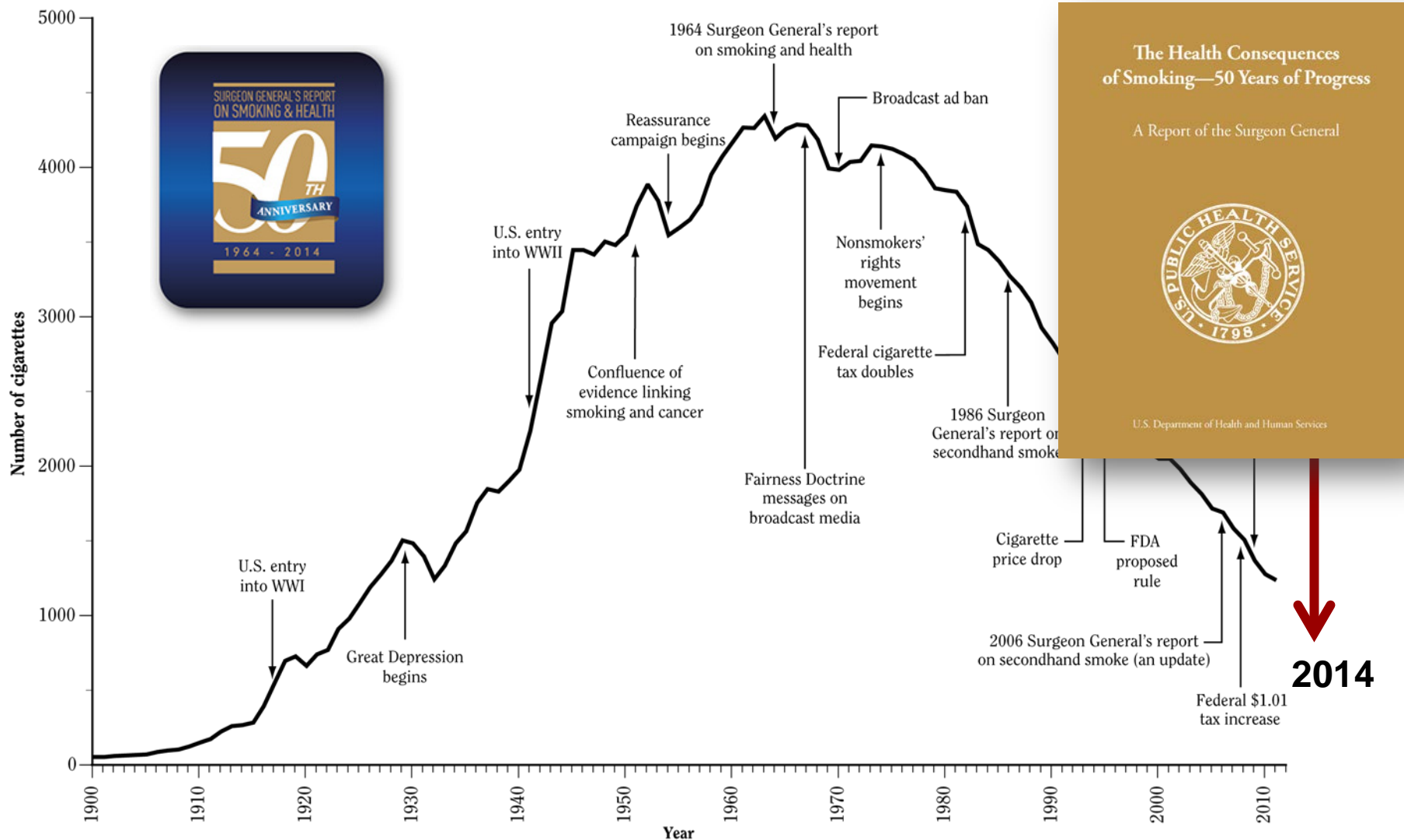
# Adult per-capita cigarette consumption and major smoking and health events, US, 1900-2012



2014



# Adult per-capita cigarette consumption and major smoking and health events, US, 1900-2012



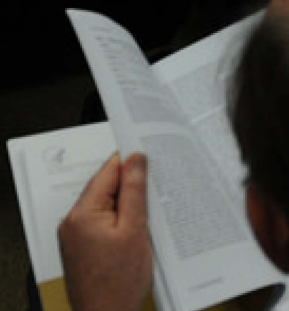
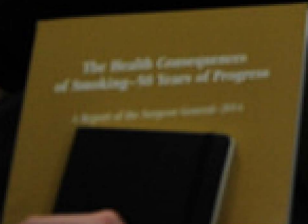
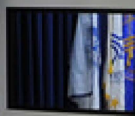
2014







The Health Consequences of Smoking - 50 Years of Progress



The Health  
Consequences  
of Smoking —  
50 Years







The Health Consequences of Smoking—50 Years of Progress  
A Report of the Surgeon General  
U.S. Department of Health and Human Services





## Major Conclusions from the Report

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1. The century-long epidemic of cigarette smoking has caused an enormous avoidable public health tragedy. Since the first Surgeon General's report in 1964 more than 20 million premature deaths can be attributed to cigarette smoking.
2. The tobacco industry has sustained a profitable business despite the risks to public health.
3. Since the first Surgeon General's report in 1964, all organizations and individuals have been urged to use tobacco products, and the use of tobacco products has increased rapidly.
4. Exposure to tobacco smoke during pregnancy and in infants and children causes a variety of health problems, including low birth weight, preterm delivery, and sudden infant death syndrome.
5. The disease risks from smoking by women have risen sharply over the last 50 years and are now equal to those for men for lung cancer, chronic obstructive pulmonary disease, and cardiovascular diseases.
6. In addition to causing multiple diseases, cigarette smoking has many other adverse effects on the body, such as causing inflammation and impairing immune function.
7. The tobacco industry has spent billions of dollars on advertising and promotion to increase tobacco use.
8. The tobacco industry has spent billions of dollars on research to develop new products that would circumvent the health risks of smoking.
9. The tobacco industry has spent billions of dollars on lobbying to influence public health policy.
10. For 50 years the Surgeon General's reports on smoking and health have provided a critical scientific foundation for public health action directed at reducing tobacco use and preventing tobacco-related disease and premature death.

### ***Conclusion #1:***

**The century-long epidemic of cigarette smoking has caused an enormous avoidable public health tragedy. Since the first Surgeon General's report in 1964 more than 20 million premature deaths can be attributed to cigarette smoking.**

## Major Conclusions from the Report

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1. The century-long epidemic of cigarette smoking has caused an enormous avoidable public health tragedy. Since the first Surgeon General's report in 1964 more than 20 million premature deaths can be attributed to cigarette smoking.
2. The tobacco epidemic was initiated and has been sustained by the aggressive strategies of the tobacco industry, which has deliberately misled the public on the risks of smoking cigarettes.
3. Since the first Surgeon General's report in 1964, the tobacco industry has continued to use aggressive marketing strategies, such as the use of tar and nicotine, to sustain the epidemic.
4. Exposure to tobacco smoke causes a wide range of respiratory and cardiovascular diseases, and to adverse effects on the health of infants and children.
5. The disease risks from smoking by women have risen sharply over the last 50 years and are now equal to those for men for lung cancer, chronic obstructive pulmonary disease, and cardiovascular diseases.
6. In addition to causing multiple diseases, cigarette smoking has many other adverse effects on the body, such as causing inflammation and impairing immune function.
10. For 50 years the Surgeon General's reports on smoking and health have provided a critical scientific foundation for public health action directed at reducing tobacco use and preventing tobacco-related disease and premature death.



## Major Conclusions from the Report

### ***Conclusions #3-6:***

**Since the 1964 Surgeon General's report, cigarette smoking has been causally linked to diseases of nearly all organs of the body, to diminished health status, and to harm to the fetus. Even 50 years after the first Surgeon General's report, research continues to newly identify diseases caused by smoking, including such common diseases as diabetes mellitus, rheumatoid arthritis, and colorectal cancer.**

**Exposure secondhand tobacco smoke has been causally linked to cancer, respiratory, and cardiovascular diseases, and to adverse effects on the health of infants and children.**

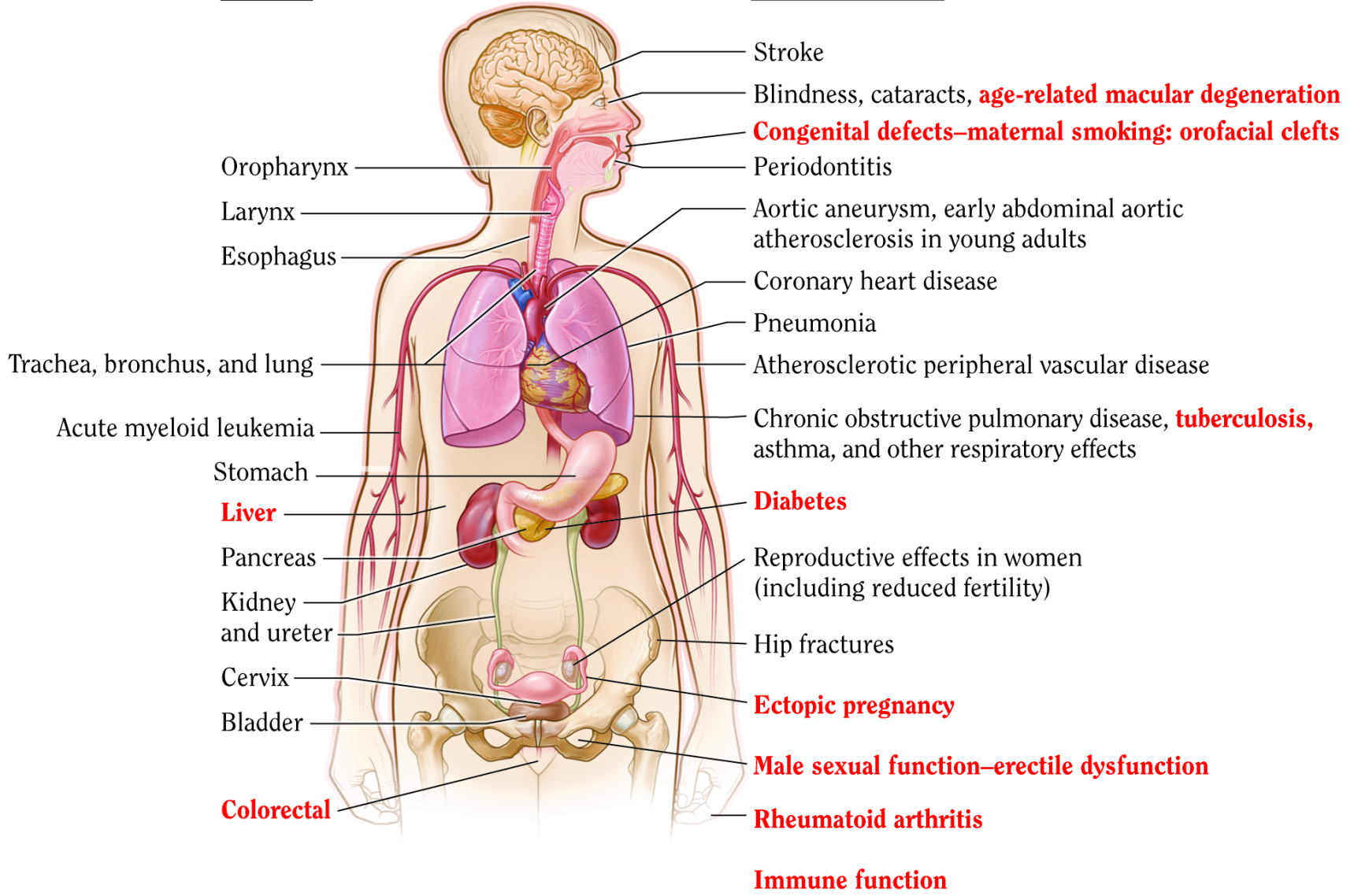
**The disease risks from smoking by women have risen sharply over the last 50 years and are now equal to those for men for lung cancer, chronic obstructive pulmonary disease, and cardiovascular diseases.**

**In addition to causing multiple diseases, cigarette smoking has many other adverse effects on the body, such as causing inflammation and impairing immune function.**

# Active Smoking

## Cancers

## Chronic Diseases

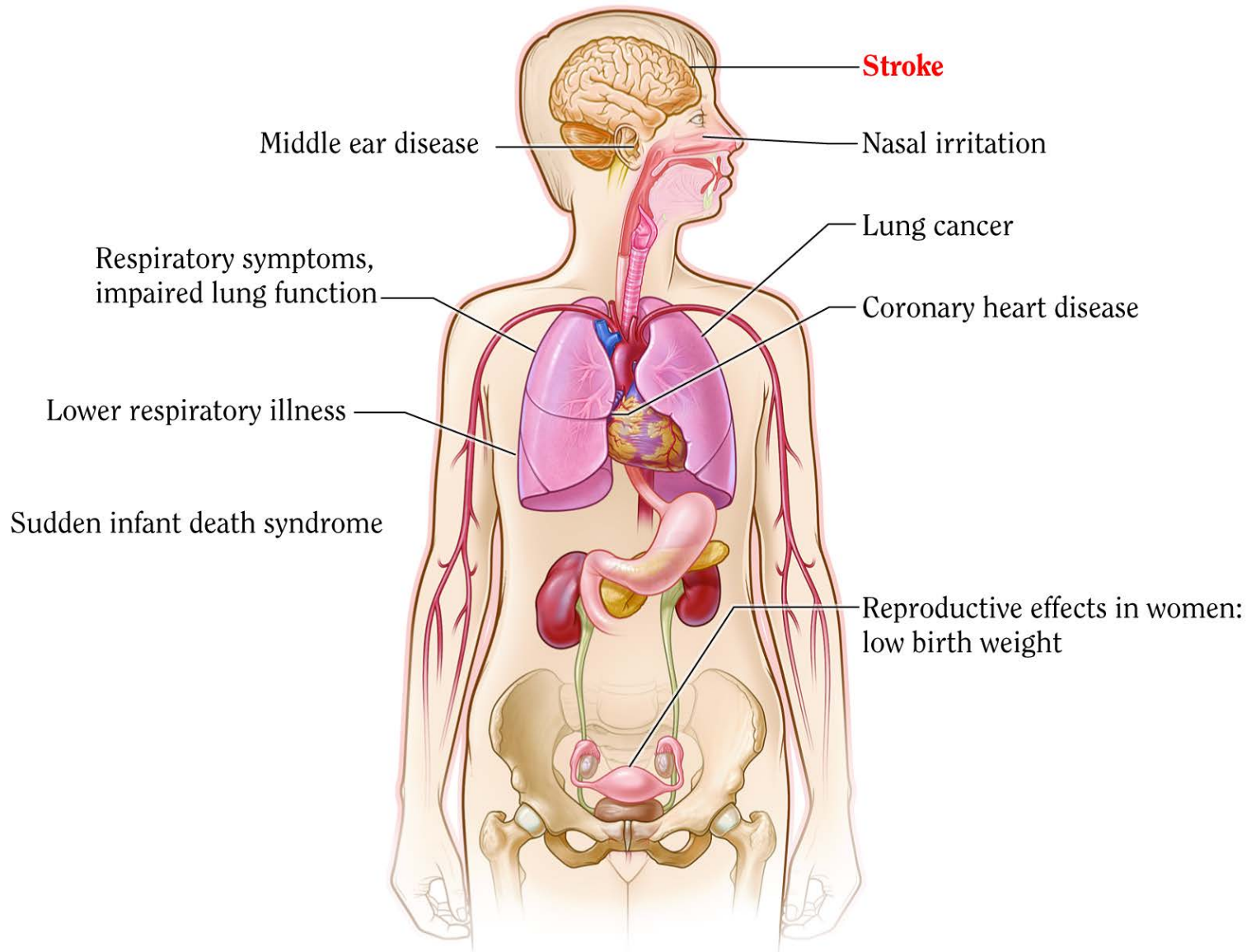


Overall diminished health

# Passive Smoking

## Children

## Adults



## Major Conclusions from the Report

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### ***Conclusions #7-9:***

**Although cigarette smoking has declined significantly since 1964, very large disparities in tobacco use remain across groups defined by race, ethnicity, educational level, and socioeconomic status and across regions of the country.**

**Since the 1964 Surgeon General's report, comprehensive tobacco control programs and policies have been proven effective for controlling tobacco use. Further gains can be made with the full, forceful, and sustained use of these measures.**

**The burden of death and disease from tobacco use in the United States is overwhelmingly caused by cigarettes and other combusted tobacco products; rapid elimination of their use will dramatically reduce this burden.**

pulmonary disease, and cardiovascular diseases.



# Chapter 15

## The Changing Landscape of Tobacco Control— Current Status and Future Directions

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**Introduction**    *845*

**The Tobacco Control Landscape: Over a Hundred Years and Counting**    *845*

**Modeling Plausible Futures: What Is Possible Using our Current Policy Tools?**    *847*

**Looking to the Future**    *851*

**Potential End Game Strategies**    *852*

**Additional Concepts that Complement National Tobacco Control Efforts**    *855*

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**Chapter Summary**    *857*

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**Implications for Ending the Tobacco Epidemic**    *859*

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# Chapter 15

## The Changing Landscape of Tobacco Control— Current Status and Future Directions

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### *Chapter Conclusions:*

1. Together, experience since 1964 and results from models exploring future scenarios of tobacco control indicate that the decline in tobacco use over coming decades will not be sufficiently rapid to meet targets. The goal of ending the tragic burden of avoidable disease and premature death will not be met quickly enough without additional action.
2. Evidence-based tobacco control interventions that are effective continue to be underutilized and implemented at far below funding levels recommended by the Centers for Disease Control and Prevention. Implementing tobacco control policies and programs as recommended by *Ending the Tobacco Epidemic: A Tobacco Control Strategic Plan* by the U.S. Department of Health and Human Services and the *Ending the Tobacco Problem: A Blueprint for the Nation* by the Institute of Medicine on a sustained basis at high intensity would accelerate the decline of tobacco use in youth and adults, and also accelerate progress toward the goal of ending the tobacco epidemic.
3. New “end game” strategies have been proposed with the goal of eliminating tobacco smoking. Some of these strategies may prove useful for the United States, particularly reduction of the nicotine content of tobacco products and greater restrictions on sales (including bans on entire categories of tobacco products).

# Chapter 16

## A Vision for Ending the Tobacco Epidemic: Toward a Society Free of Tobacco-caused Death and Disease

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Historical Perspective    *867*

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# Chapter 16

## A Vision for Ending the Tobacco Epidemic: Toward a Society Free of Tobacco-caused Death and Disease

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### *Key policy messages:*

- Counteracting industry marketing by sustaining high impact national media campaigns like the CDC's Tips from Former Smokers campaign and FDA's youth prevention campaigns at a high frequency level and exposure for 12 months a year for a decade or more;
- Raising the average excise cigarette taxes to prevent youth from starting smoking and encouraging smokers to quit;
- Fulfilling the opportunity of the Affordable Care Act to provide access to barrier-free proven tobacco use cessation treatment including counseling and medication to all smokers, especially those with significant mental and physical comorbidities;
- Expanding smoking cessation for all smokers in primary and specialty care settings by having health care providers and systems examine how they can establish a strong standard of care for these effective treatments;
- Effective implementation of FDA's authority for tobacco product regulation in order to reduce tobacco product addictiveness and harmfulness;
- Expanding tobacco control and prevention research efforts to increase understanding of the ever changing tobacco control landscape;
- Fully funding comprehensive statewide tobacco control programs at CDC recommended levels; and
- Extending comprehensive smokefree indoor protections to 100% of the U.S. population.



# Looking Ahead: Chapter 16

- Rapid reduction of combustible products
- Reduction of nicotine content in cigarettes
- Role of non-combustible products
  - Under Tobacco Control Act
  - Individual harm reduction vs. Population risk
- Using all strategies better and in concert

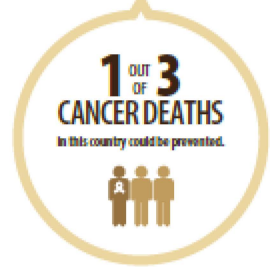
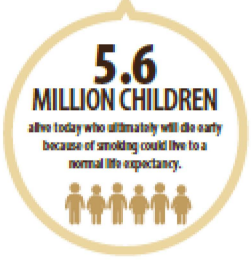
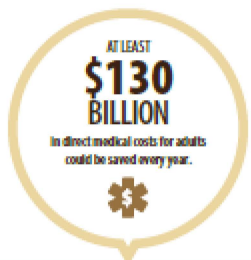
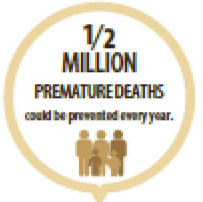
# LET'S MAKE THE NEXT GENERATION **TOBACCO-FREE**

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



# THE NEXT 50 YEARS

IF WE COULD HELP EVERY SMOKER TO QUIT SMOKING AND KEEP YOUNG PEOPLE FROM STARTING IN THE FIRST PLACE, THE RESULTS WOULD BE STAGGERING.



Despite all our progress, there is more work to be done. Every day 3,200 youth under 18 smoke their first cigarette, and another 2,100 youth and young adults who have been occasional smokers become daily smokers.

## Saving Millions of Lives

There are many ways to reduce smoking rates quickly and dramatically. Among the strategies proven to work are:

- Affordable smoking cessation treatments that are easily available to people who want to quit;
- Comprehensive smokefree and tobacco-free policies in public places that protect nonsmokers and make smoking the exception rather than the norm;
- Higher prices on cigarettes and other tobacco products that discourage young people from starting in the first place and that encourage adult smokers to quit;
- Continued mass media campaigns that inform people of the dangers of smoking and tell them about resources to help them quit; and
- State and community programs that help integrate tobacco control into medical, retail, education, and public health environments that reach groups of people who might not otherwise be exposed to tobacco control initiatives.



# The New York Times

THE NEW YORK TIMES NATIONAL FRIDAY, JANUARY 17, 2014

BY

A15

## List of Smoking-Related Illnesses Grows Significantly in U.S. Report

By SABRINA TAVERNISE

WASHINGTON — In a broad review of scientific literature, the nation's top doctor has concluded that cigarette smoking — long known to cause lung cancer and heart disease — also causes diabetes, colorectal and liver cancers, erectile dysfunction and ectopic pregnancy.

In a report to the nation to be released on Friday, the acting surgeon general, Dr. Boris D. Lushniak, significantly expanded the list of illnesses that cigarette smoking has been scientifically proved to cause.

The other health problems the report names are vision loss, tuberculosis, rheumatoid arthritis, impaired immune function and cleft palates in children of women who smoke.

Smoking has been known to be associated with these illnesses, but the report was the first time the federal government concluded that smoking causes them.

The finding does not mean that smoking causes all cases of the

health problems and diseases listed in the report, but that some of the cases would not have happened without smoking. The surgeon general has added to the list of smoking-related diseases before. Bladder cancer was added in 1990 and cervical cancer in 2004.

The report is not legally binding, but is broadly held as a standard for scientific evidence among researchers and policy makers.

Experts not involved in writing the report said the findings were a comprehensive summary of the most current scientific evidence, and while they might not be surprising to researchers, they were intended to inform the public as well as doctors and other medical professionals about the newest proven risks of smoking.

"I thought the science was very well done and up to date," said Dr. Robert Wallace, a professor of epidemiology and internal medicine at the University of Iowa, who helped review the re-

port.

The report comes 50 years after the pivotal 1964 surgeon general's report in which the government concluded for the first time that smoking caused lung cancer. That report was credited with starting to change public attitudes toward smoking, which has declined sharply. In 1965, about 43 percent of adults were smokers; in 2012, about 18 percent were.

But that decline has slowed in recent years, and the new report calls for stronger action in combating smoking. Smoking is the largest cause of premature death in the country, killing more than 400,000 people a year. The report notes that far more Americans have died prematurely from cigarette smoking than in all the wars ever fought by the United States.

The report concluded that the evidence was insufficient to say that smoking caused prostate cancer. The evidence was suggestive, but not definite, that smoking causes breast cancer.



JULIO CORTEZ/ASSOCIATED PRESS

The document also celebrates the public health success of smoking's decline since Dr. Luther Terry, the surgeon general in 1964, released his landmark finding. Smoking was deeply embedded in American culture at the time. Half of adult men were smokers, and a third of women. Even doctors smoked.

That report was so controversial that it was released on a Saturday when Congress was on recess to minimize the political repercussions, said Dr. Richard D. Hurt, a professor of medicine at the Mayo Clinic.

Dr. Judith Fradkin, a diabetes

scientist at the National Institutes of Health, who was not involved in the report, said the evidence that smoking increases the risk of Type 2 diabetes had been gathering for about 20 years.

While smoking causes most cases of lung cancer, it causes only a small fraction of liver and colorectal cancers. A current smoker is 25 times as likely to develop lung cancer as someone who has never smoked, but only about 1.5 times as likely to develop liver cancer.

"It's a fairly modest association, but because so many people smoke, it's still an important

Smoking is the largest cause of premature death in the United States.

cause of these cancers," said Neal Freedman, an epidemiologist at the National Cancer Institute.

He pointed out that the surgeon general last looked at the effect of smoking on liver cancer in 2004, and found the evidence only suggestive. Since then, 90 new studies have been published allowing the surgeon general to conclude smoking is a cause.

The report also finds that the risks of lung cancer are far higher today than in past decades, even though smokers today consume fewer cigarettes. In 1959, women who smoked were 2.7 times as likely as women who never smoked to develop lung cancer, and by 2010, the additional risk had jumped nearly tenfold. For men, the risk doubled over the same period. The report said changes in cigarettes' design, namely to the filter, contributed to the increased deadliness.

"It is stunning that the risk of a premature death from smoking is greater than it was 50 years ago," said Matthew Myers, head of the Campaign for Tobacco-Free Kids, an advocacy group.



## THE WALL STREET JOURNAL.

POLITICS AND POLICY

## Cigarettes Tied to More Deaths, Types of Illness

*U.S. Surgeon General Report Warns Smoking Is Linked to 10 More Conditions, Including Diabetes and Arthritis*

By MIKE ESTERL

Updated Jan. 17, 2014 12:01 a.m. ET

Cigarettes are deadlier and linked to more diseases than previously thought, according to a new report from the U.S. surgeon general being released 50 years after the government first warned that smoking kills.

In the report to be released Friday, the nation's top doctor warned that smoking is linked to the deaths of about 480,000 Americans annually. That's a substantial increase over the government's previous estimate of 443,000 deaths, despite the fact that fewer Americans are lighting up and those who do smoke are lighting up less often.



Cigarettes are deadlier and linked to more diseases than previously thought, according to a new report from the U.S. surgeon general being released 50 years after the government first warned that smoking kills. Mike Esterl reports. Photo: Getty Images.

Cigarettes are a causal factor in 10 diseases and conditions they hadn't previously been definitively linked to, including diabetes, colorectal cancer, arthritis and erectile dysfunction, the report said—bringing the total number to more than 30.

In 1964, a landmark surgeon general report pinpointed smoking as a cause of lung and laryngeal cancers as well as bronchitis. That report precipitated health warnings on cigarette packs, advertising bans and other regulations. Since then, such restrictions have contributed to a decline in U.S. smoking rates, though the pace has slowed in recent years. An estimated 18.1% of U.S. adults, or 42 million people, smoked in 2012, down from 42% in 1965.

Friday's report suggests the design and composition of today's cigarette is more dangerous than the 1950s equivalent because of the introduction of ventilated filters and rising levels of cancer-causing chemicals in recent decades. Cigarettes with ventilated filters were initially marketed as safer, though smokers tend to cover up the filters and inhale more deeply, pushing toxins farther into the lungs.

"I think they are more harmful today. We're certainly worried," Surgeon General Boris Lushniak said in an interview.

# TIME

## Health & Family

TOBACCO

## Surgeon General's Report on Tobacco Has a New Target: E-Cigarettes

They're popular, but public health agencies have yet to rule on whether they're a safe alternative to traditional cigarettes

By Alexandra Sifferlin @acsifferlin | Jan. 17, 2014 | 23 Comments

Fifty years after the first Surgeon General's report on tobacco in 1964, the latest report highlights improvements in American's smoking habits, as well as a potentially new hazard for Americans' health.

Smoking cigarettes kills about half a million Americans every year, and 16 million Americans are living with smoking-related health problems. These are costing the nation more than \$289 billion each year in medical care and related costs.

The report acknowledged a new way of smoking — with electronic cigarettes or e-cigarettes, which are tobacco products with lower nicotine levels. More young people are using these products; the number of middle school and high school students who use e-cigarettes doubled from 2011 to 2012.

**MORE:** [The Future of Smoking](#)

"We need to monitor patterns of use of an increasingly wide array of tobacco products across all of the diverse segments of our society, particularly because the tobacco industry continues to introduce and market new products that establish and maintain nicotine addiction," Dr. Thomas R. Frieden, the director of the CDC writes in the foreword of the report.



Getty Images/Flickr RF / Getty Images/Flickr RF

# dallasnews LIFE

## Surgeon general urges new resolve to end smoking as landmark report turns 50

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**Sheelah A. Feinberg** ♥ Become a fan  
Executive Director, NYC Coalition for a Smoke-Free City

HUFF  
POST

# The Surgeon General's Report: New Strategies to Reach Communities Who Continue to Smoke

Posted: 01/30/2014 6:14 pm EST | Updated: 01/30/2014 6:59 pm EST



This month, the U.S. Surgeon General's report on [The Health Consequences of Smoking](#) reminded us just how far we've come over the last 50 years in our efforts to control tobacco use and prevent our youth from smoking. Smoking rates are dramatically lower than in 1964 when the first Surgeon General's report about the dangers of smoking was released ([42 percent](#) compared to [18 percent](#) in 2012).

Tobacco control and prevention efforts have saved [eight million Americans](#) .

Despite these significant gains, our fight to reduce tobacco use is far from won, and the Surgeon General's report tells us just how much is at stake. Despite tremendous progress, cigarette smoking kills even more Americans than previously estimated (about [480,000](#) a year, up from 443,000) and causes more deadly cancers and chronic diseases than we thought 50 years ago. Because of changes in how they are made and what chemicals are added to them, cigarettes are even deadlier and more addictive now than when they were first introduced. The risk of developing the most common type of lung cancer has increased substantially since we first learned that smoking causes lung cancer.



The  
Economist

## The cigarette industry

# Running out of puff

**Big tobacco firms are maintaining their poise, but quietly wheezing**

Jan 25th 2014 | From the print edition

“CIGARETTE smoking is a health hazard of sufficient importance in the United States to warrant appropriate remedial action.” It was 50 years ago this month that America’s surgeon-general sounded that warning, marking the beginning of the end of cigarette manufacturing—and of smoking itself—as a respectable activity. Some 20m Americans have died from the habit since then. But advertising restrictions, smoking bans and stigma have had their effect: the proportion of American adults who smoke has dropped from 43% to 18%; smoking rates among teenagers are at a record low. In many other countries the trends are similar.

The current surgeon-general, Boris Lushniak, marked the half-century with a report on January 17th, declaring smoking even deadlier than previously thought. He added diabetes, colorectal cancer and other ailments to the list of ills it causes, and promised “end-game strategies” to stamp out cigarettes altogether.

Were that to happen America’s three big tobacco firms, Altria, Reynolds and Lorillard, could be snuffed out, too. Public-health officials plot the same fate for multinationals that supply other markets. The hit list includes Philip Morris International (PMI), which along with Altria makes Marlboro, the top-selling global brand; Japan Tobacco; and British American Tobacco and Imperial Tobacco of Britain.



# The Health Benefits of Never Smoking—100 Years of Knowledge

A Report of the Surgeon General



U.S. Department of Health and Human Services