

Cederlof et al., 1977; Doll et al., 1980). It should be noted that these RR estimates are now outdated, because the longitudinal studies from which calculations were made involved persons who began smoking in the period between 1900 and 1950. The pattern of smoking among men in the United States was well established by the end of that period, but women did not begin smoking in large numbers until the 1950s and 1960s (Warner and Murt, 1982). As the removal of social barriers began to permit gender equality in this behavior, gender equality in smoking-related diseases, especially lung cancer, is now beginning to occur (American Cancer Society, 1986). Therefore, the RRs reported in the earlier studies underestimate the disease impact of smoking today, especially among women. There is a substantial lag period between smoking and the development of smoking-attributable mortality in a given population. In men, peak mortality due to smoking has occurred; in women, the peak mortality due to smoking has not yet occurred. Additional longitudinal observations will be necessary to update RRs for both genders as smoking behavior changes in the United States. RRs reported in the 1989 report of the Surgeon General changed substantially from those summarized by Rice.

The disease categories, their International Classification of Diseases (ICD-9) codes, and relative risk estimates used in SAMMEC are shown in Table 1. In addition to SAFs of deaths among adults aged 20 years and older, SAFs for four pediatric causes of death are calculated by SAMMEC. For the four pediatric diagnoses, the mortality attributed to maternal smoking during pregnancy for children aged ≤ 4 years were determined using RRs from McIntosh (McIntosh, 1984) and current smoking prevalence among women 20-64 years of age as a proxy for the percentage of pregnant women who smoke.

The disease-specific SAFs are calculated by using the appropriate RRs and the prevalence of current and former smoking in the population with the following equation:

$$SAF = \frac{[p_0 + p_1(RR_1) + p_2(RR_2)] - 1}{[p_0 + p_1(RR_1) + p_2(RR_2)]}$$

p_0 = percentage of never smokers, p_1 = percentage of current smokers, p_2 = percentage of former smokers, RR_1 = relative risk for current smokers (relative to never smokers), and RR_2 = relative risk for former smokers (relative to never smokers) (Walter, 1976). This formula is derived from the standard attributable risk (AR) formula (Lilienfeld and Lilienfeld, 1980): $AR = p(RR-1)/[p(RR-1)+1]$.

In addition to the number of deaths attributable to smoking, years of potential life lost (YPLL) are also calculated by SAMMEC. This measurement quantifies premature death due to smoking-caused disease in the population under study (CDC, 1986). For each smoking-related diagnosis, deaths (by gender and five-year age group) are multiplied by the number of years of remaining life, calculated from the midpoint of the five-year age category at death and ending at the cutoff point chosen (i.e., age 65 or life expectancy). The YPLL are then summed and multiplied by the SAF for that diagnosis, age category, and gender. YPLL may be measured to any age cutoff point. Usually, YPLL are measured to age 65 (the generally recognized age for retirement) or to life expectancy, which varies according to the population in question (by race, sex, region, etc.). The smoking-attributable mortality and

YPLL rates for the population under study may be calculated using census data and a numerical constant (for example, the number of deaths per 100,000 persons). These rates permit comparisons between populations if the characteristics of the populations are otherwise similar. The rates presented below are not age-adjusted.

Smoking-Attributable Economic Costs

A detailed discussion of the health economics of cigarette smoking is beyond the scope of this report. However, much has been written in the last two decades about the health care costs and indirect losses due to smoking-attributable disease (Luce and Schweitzer, 1978; Shultz, 1985; OTA, 1985; Rice, Hodgson et al., 1986; Warner, 1987; Schelling, 1987). Smoking is a dynamic, time-dependent process. Costs associated with illness and injury due to smoking may be immediate or deferred; there are both costs to the individual and costs to society in general. These latter costs may be direct, such as publicly funded health care and cigarette-caused fire losses, or indirect such as lost income and lost tax revenue due to premature death. The calculations of State-specific economic costs performed by SAMMEC closely follow on Rice, et al. (1986). Three components of this prevalence-based estimate are reported: direct health-care costs, indirect morbidity losses, and indirect mortality losses.

Direct Health-Care Costs Due to Smoking

SAMMEC calculates the following direct costs of medical care (personal health expenditures) to treat diseases related to smoking: hospitalization, physician services, services of other health practitioners, nursing home care, and drugs. Fire damage and burn care would be included if data were available.

These calculations are based on SAFs of personal health care expenditures estimated for the population under study. The SAFs were generated using the ratio of medical care utilization by ever smokers compared to utilization by never smokers. This ratio was developed based on self-reported data from the 1983 National Health Interview Survey. The utilization ratio was limited to illnesses in the major categories of smoking-related diseases (neoplastic, circulatory, and respiratory diseases). The formula used to calculate the SAF is from Walter (Walter, 1976).

Indirect Costs Due to Smoking

Indirect costs of smoking are the value of lost productivity, output, or forgone manpower resources when smoking-related illness and death cause lost time from work and from other productive activities. Not included are intangible costs such as pain and suffering, which are recognized by the legal system as worthy of recompense. The cost or value to society of all deaths attributed to smoking is the product of the number of deaths attributed to smoking and the expected values of an individual's future earnings, with sex and age taken into account. To convert this stream of costs into present worth, these costs are discounted (in the case of SAMMEC, at 6 percent).

To obtain indirect morbidity costs (that is, the costs associated with lost work, disability, and illness due to nonfatal smoking-related conditions), SAMMEC simply calculates the proportion of total costs which are indirect costs based on Rice's National calculations. This function assumes that the proportion of total smoking-attributable costs which are indirect morbidity costs

is the same for both the population under consideration and for the United States as a whole. Population-specific direct health-care costs and indirect mortality costs are calculated based on data entered into SAMMEC for the population under study. Using these two sets of data, the indirect morbidity costs are derived.

Other Cost Factors

Tobacco products (primarily cigarettes) caused 248,100 fires in the United States in 1985. These fires were responsible for 1,703 civilian deaths and 3,997 civilian injuries. Fire losses in the United States totaled \$422 million in direct property damage in 1985 (CPSC, 1987) and millions more in direct medical costs for expensive burn care and for indirect morbidity and mortality losses due to premature death and disability. These measurements of disease impact are not included in SAMMEC, but some States have calculated these data separately (Colorado Department of Health, 1986; Wasilak and Smith, in press; Personal Communication, G. Istre, Oklahoma Department of Health, June 10, 1988).

Data Used in 1985 SAMMEC Calculations

Mortality

Numbers of deaths by sex and five-year age category for each of the diagnoses listed in Table 1. were obtained from each State's department of vital statistics for 1985, with the exception of Puerto Rico (1983). Some States had incomplete data for the diagnosis of cardiac arrest (ICD-9 code 427.5); for these States, the smoking-attributable mortality (SAM) will be underestimated.

YPLL was calculated to both age 65 (years of productive life lost) and to life expectancy as estimated for the United States for both sexes and all races in 1980. Mortality and YPLL rates per 100,000 persons were calculated using totals for each category and the 1985 population of each State (U.S. Bureau of the Census, 1987). The YPLL rate to 65 years of age was calculated for the population less than 65 years of age in each State.

Smoking Prevalence

For most jurisdictions, the prevalence of current and former smokers for each State was obtained using questions included in the 1985 Current Population Survey of the United States. This survey collected information from 114,342 civilian, noninstitutionalized persons, aged 16 years and older. Approximately 55 percent of the total sample consists of self-respondents, while the remainder were proxy respondents (Marcus and Crane, 1986). For this study, the prevalence of smoking was calculated for men and women, aged 20 years and older, by State. These prevalence estimates were further divided into two age groups for use in SAMMEC: 20-64 years of age and 65 years of age and older. This stratification was necessary to adjust SAFs for the much

lower prevalence of smoking among persons 65 years of age and older; many of these older persons have quit smoking, and many smokers have died prematurely as a result of smoking. The prevalence rates for Puerto Rico were estimated using data from several different sources (Dietz, in press). The prevalence estimates used for each State are weighted according to Bureau of Census procedures by age, race, sex, and Hispanic/non-Hispanic categories. The final estimates are shown in Table 2. The estimates for Minnesota were from the Behavioral Risk Factor Surveillance System (Unpublished data, Minnesota Department of Health, 1986).

Personal Health Care Expenditures

Personal health care expenditure data were obtained from Health Care Financing Administration publications (Levit, 1985; Lazenby, 1986). First, State specific personal health care expenditures by cost center were identified for 1982. Cost centers included in SAMMEC are physician services, hospitalization, drugs and medical sundries, nursing home care, and other professional services. Not included are dental care, eyeglasses and appliances, and other personal health care. These expenditures were adjusted to 1985 levels by multiplying 1985 National Cost Center figures by an index for each cost center in each State. These indices were obtained by dividing the 1982 State-specific cost center figure by the 1982 National cost center figure. The 1982 index for each State's cost center was then multiplied by the 1985 National per capita figure for each cost center to obtain a 1985 State-specific per capita figure for each cost center. These figures were then multiplied by the State population (U.S. Bureau of the Census, 1986) to obtain a total figure for each cost center in each State for 1985. This calculation is summarized as follows:

$$\begin{array}{rclcl}
 1982 & & 1985 & & \\
 \text{State cost} & & \text{National cost} & & \\
 \text{center figure} & \times & \text{center figure} & \times & \text{1985} \\
 1982 & & 1985 & & \text{State} \\
 \text{National cost} & & \text{U.S. population} & & \text{population} \\
 \text{center figure} & & & & \\
 & & & & = \\
 & & & & \text{State-specific} \\
 & & & & \text{cost center} \\
 & & & & \text{figure}
 \end{array}$$

Economic data for Puerto Rico were obtained directly from the Division of Analysis and Cost-Accounting from the Puerto Rico Department of Health (Dietz, in press). Data for the District of Columbia were obtained using 1985 total per capita health care costs for Maryland, Virginia, and the District of Columbia, using the same technique as in individual States, multiplied by the population of the District of Columbia (Rivo et al., 1989). SAMMEC does not account for costs of program administration, research, and construction of medical facilities that are generated by tobacco abuse.

RESULTS

The smoking-attributable mortality by State is shown in Table 3. More than 316,000 deaths were caused by smoking in 1985 in the United States.* The average number of deaths per State was 6,099 (ranging from 271 in Alaska to 28,533 in California). The overall U.S. smoking-attributable mortality rate is 133.6 per 100,000, and the average State smoking-attributable mortality rate per 100,000 persons is 129.1 (ranging from 45.3 in Utah to 175.9 in Kentucky). States above the average were found predominantly east of the Rocky Mountains. Of all smoking-attributable deaths in the United States, 67 percent were men, 32 percent were women, and 1 percent were children less than 5 years of age.

Smoking-attributable YPLL before 65 years of age are shown in Table 4. Approximately 940,000 YPLL before 65 years of age occurred due to the smoking-attributable deaths in 1985. The average number of YPLL before 65 years of age per State was 18,140 (ranging from 1,828 in Wyoming to 79,491 in California). The overall rate for the United States was 397.9 years per 100,000 persons less than age 65 years; the average State YPLL rate was 391.1 per 100,000 (ranging from 205.8 in Utah to 678.3 in the District of Columbia). Table 5 shows the YPLL if measured to life expectancy for all races in the United States. Using this cutoff point, more than 3.6 million YPLL resulted from smoking-attributable deaths in 1985. The average State YPLL to life expectancy was 70,621 (ranging from 4,335 in North Dakota to 335,319 in New York). The overall U. S. rate is 1,549.3 per 100,000, and the average State YPLL rate is 1,488.8 (ranging from 643.2 in North Dakota to 2,167.3 in Kentucky).

The smoking-attributable economic costs for each State are shown in Table 6. The total societal economic impact of smoking in the U.S. for all 50 States was over \$52 billion. This sum represents \$23.7 billion (45.2 percent) in direct morbidity costs, \$10.2 billion (19.6 percent) in indirect morbidity costs, and \$18.5 billion (35.2 percent) in indirect mortality costs (adult and pediatric). The average State economic impact was \$1.007 billion (ranging from \$82.3 million in Alaska to \$5.812 billion in California). On a per capita basis, the economic impact was \$221 for the United States as a whole; the average State per capita impact was \$205 (ranging from \$54 per capita in Puerto Rico to \$284 per capita in Rhode Island).

DISCUSSION

These data on the impact of smoking in each State confirm the results of previous National studies: smoking causes large numbers of deaths and a very large dollar cost to society. The sums of the State figures are similar to the National figures mentioned in the Introduction to this section. In addition, the data suggest that because smoking prevalence is highest in

the eastern and southern United States, smoking-attributable disease impact is highest in these areas.

State estimates such as these serve to alert policy makers and the general public to the specific impact that smoking has in their respective States. SAMMEC software helps translate epidemiologic constructs and surveillance data into usable and understandable results. Many States have already published articles in newsletters, epidemiology bulletins, and State medical journals that cite SAMMEC calculations. Such disease impact estimates serve as an instrument of risk behavior change and health policy intervention at the State level (Shultz, 1988). In addition, several foreign Nations have used the SAMMEC software in assessing the impact of smoking on their populations. Political, conceptual, and ethical issues in the use of these estimates have been discussed elsewhere (Shultz, 1988; Warner, 1987; Schelling, 1987).

It must be emphasized that the figures produced by SAMMEC are estimates that vary according to the components of the calculations. For instance, each of the relative risks which contribute to the weighted average relative risks used in SAMMEC has a confidence interval. Therefore, the attributable fractions will vary according to these confidence intervals. In addition, there are confidence intervals around the prevalence rates used in SAMMEC, which are not reflected in the estimates of attributable fractions. Despite the limitations of the methodology, SAMMEC is a valid and easy-to-use tool for estimating the overall state-specific disease impact of smoking.

The estimates for mortality, YPLL, and economic impact produced by SAMMEC are conservative. Because the relative risk estimates were developed in the 1960s, the risks for women (and possibly for men) are likely to be underestimates of the risks in the 1980s. Additional data (published in 1989) from a large, longitudinal study by the American Cancer Society confirms this prediction. In addition, 1985 prevalence estimates were used although 1985 mortality resulted from higher smoking rates 10 to 40 years ago. Had the earlier prevalence figures been used in these calculations, smoking attributable estimates would have been higher. Therefore, the figures reported here are conservative estimates of mortality and YPLL due to smoking.

In these calculations, mortality is a unit of measurement, and therefore each of these deaths does not represent a named, individual person. Mortality in this context is a way of quantifying, on a population basis, the smoking-caused illness suffered by individuals. In the same context, the economic data provide another way of quantifying the effect that this particular behavior has on the stream of economic activity in our society. They do not describe a net cost effect nor do they indicate the potential savings if tobacco use were eliminated in the United States.

* The State estimates that provide the basis for this National total were derived using relative risk estimates for smoking-related diseases from studies conducted in the 1950's and 1960's. Since those State calculations were made, more current relative risk estimates have become available. These estimates were used in the 1989 Surgeon General's Report on Reducing the Health Consequences of Smoking: 25 Years of Progress to yield an estimate of 390,000 smoking-attributable deaths in the United States in 1985.

Persons who die prematurely may actually provide a slight savings to society in terms of social security outlays, Medicare expenses, and nursing home care (Warner 1987). In fact, most persons who die of smoking-related diseases do so after 65 years of age. Although smokers have a higher risk of illness at any given age, nonsmokers will live longer and therefore incur medical bills through chronic illness well into old age. Warner (1987) has pointed out that the shift in life expectancy resulting from a tobacco-free society would create an enormous economic burden on social security and retirement systems. This burden could be partially offset by the contributions that persons beyond retirement age bring to our society in terms of employment, investments, taxes paid, voluntarism, and general wisdom.

There are also economic "benefits" of the tobacco industry to society in terms of jobs, excise taxes, cultural promotion, etc. These are estimated by the Tobacco Institute to be as much as \$45 billion (Chase Econometrics, 1985). However, these "benefits" do not compensate for either the tangible or the intangible emotional and personal consequences of smoking-

attributable disease. In addition, money spent on tobacco would almost certainly be spent on other consumer goods if tobacco consumption were eliminated. Thus, the economic "loss" brought about by the loss of tobacco revenues and ancillary business revenues would be negligible (Warner, 1987).

Health professionals do not depend on economic arguments to preserve life and to prevent disease. Smoking causes more premature deaths than do all the following together: cocaine, heroin, alcohol, fire, automobile accidents, homicide, and suicide (Warner, 1987). The results presented here permit comparisons of the impact of smoking to the impact of other health risks identified by States, thus encouraging the appropriate assignment of scarce public health resources. Even as smoking prevalence declines in this country (CDC, 1987a), smoking-attributable illness will continue to cause an enormous disease burden well into the twentieth century (Brown and Kessler, 1987). Thus, efforts to prevent and treat tobacco use in each of the States must continue to be a high-priority public health effort.

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**TABLE 1
RELATIVE RISKS OF SMOKING-ASSOCIATED DISEASES
BY GENDER AND SMOKING STATUS***

ICD-9CM Code	Diagnoses	Relative Risk			
		Male		Female	
		Current Smoker	Former Smoker	Current Smoker	Former Smoker
Infectious Diseases					
010-102	Tuberculosis	2.56	1.95	1.00	1.00
Neoplasms					
140-149	Lip, oral cavity	6.62	2.28	3.25	1.74
150	Esophagus	4.80	1.65	4.90	1.87
151	Stomach	1.49	1.17	2.30	1.00
157	Pancreas	2.00	1.37	1.48	1.26
161	Larynx	7.33	8.84	3.25	1.74
162	Lung	10.02	4.47	3.67	1.29
180	Cervix uteri	NA	NA	3.00	1.40
188	Urinary bladder	2.30	1.60	1.89	1.94
189	Kidney	1.47	1.63	1.50	1.02
Cardiovascular Diseases					
401-405	Hypertension	1.39	1.21	1.43	1.40
410-414	IHD (ages 65)	1.88	1.38	1.67	1.17
410-414	IHD (ages 65)	1.49	1.20	1.28	1.27
427.5	Cardiac arrest	3.00	1.00	3.00	1.00
430-438	Stroke	1.32	1.00	1.45	1.28
440	Atherosclerosis	1.83	1.14	1.94	2.40
441	Aortic aneurysm	4.46	2.95	3.19	3.01
Respiratory Diseases					
480-487	Pneumonia/influenza	1.79	1.00	1.29	1.17
491-492	Bronchitis/emphysema	10.13	10.97	7.40	4.89
496	Airways obstruction	10.13	10.97	7.40	4.89
Digestive Diseases					
531-534	Ulcers	2.88	2.12	3.21	2.45
Pediatric Conditions					
765	Short gestation/low birth weight			1.76	
769	Respiratory distress syndrome			1.76	
770	Respiratory conditions of newborn			1.76	
798.0	Sudden infant death syndrome			1.50	

*Source: Rice et al., 1986
NA = Not Applicable

**TABLE 2
PREVALENCE (%) OF SMOKING BY STATE, AGE, AND SEX, UNITED STATES, 1985***

State	Age Groups (Years)					
	20-64		65+		20+	
	Males	Females	Males	Females	Males	Females
Alabama	42.7	25.5	15.8	12.2	38.8	23.0
Alaska	44.2	29.8	30.1	15.8	43.4	28.9
Arizona	36.4	27.5	23.4	13.8	34.7	25.3
Arkansas	41.8	30.7	15.2	4.9	37.4	25.2
California	31.4	24.4	15.3	12.4	29.4	22.4
Colorado	31.8	29.3	23.5	12.8	30.9	27.2
Connecticut	32.5	30.7	22.6	16.7	31.1	28.0
Delaware	37.6	32.0	22.5	14.3	35.5	29.1
District of Columbia	36.4	32.4	22.6	13.6	34.6	28.8
Florida	38.6	31.2	20.7	13.9	34.9	27.1
Georgia	41.3	29.0	25.8	13.6	39.5	26.4
Hawaii	34.2	27.2	13.1	11.3	30.5	24.3
Idaho	29.1	23.3	13.7	13.7	26.4	21.4
Illinois	33.9	29.3	19.4	10.9	31.9	26.1
Indiana	39.4	33.4	17.0	12.8	36.5	29.8
Iowa	35.3	25.3	21.2	14.6	32.8	23.0
Kansas	37.6	30.2	19.8	9.0	35.0	25.8
Kentucky	39.3	36.9	29.7	16.0	38.1	33.7
Louisiana	36.5	26.1	29.2	12.2	35.6	23.8
Maine	34.9	32.1	16.0	13.1	31.5	27.6
Maryland	33.8	30.5	19.4	16.0	31.7	28.2
Massachusetts	30.0	30.4	20.2	16.0	28.6	27.6
Michigan	37.3	37.2	20.0	15.9	35.0	33.6
Minnesota	37.3	31.7	14.0	11.6	33.7	27.5
Mississippi	39.0	27.2	30.6	10.9	38.0	24.1
Missouri	33.5	26.6	18.2	14.4	31.2	24.2
Montana	27.5	28.5	18.3	12.7	26.1	25.8
Nebraska	28.3	26.9	17.8	6.7	26.5	22.2
Nevada	40.5	37.6	22.8	15.6	38.6	35.3
New Hampshire	38.0	29.0	21.1	15.1	35.7	26.4
New Jersey	33.2	27.1	19.9	15.1	31.1	24.7
New Mexico	34.8	25.9	21.8	15.3	32.9	24.1
New York	34.3	29.3	16.5	10.7	31.8	25.9
North Carolina	42.4	27.4	26.1	10.4	40.2	24.3
North Dakota	30.7	28.0	16.5	7.9	28.6	24.6
Ohio	37.6	33.9	18.1	12.0	34.9	29.8
Oklahoma	38.5	31.8	21.2	23.9	36.2	30.2
Oregon	29.8	29.4	11.0	17.9	26.9	27.5
Pennsylvania	35.4	28.8	15.6	13.9	32.0	25.6
Puerto Rico	41.8	14.9	32.9	4.6	41.5	13.5
Rhode Island	39.0	37.8	19.5	11.0	36.3	32.5
South Carolina	35.2	24.3	29.5	7.6	34.4	21.3
South Dakota	33.6	29.7	15.9	10.7	30.5	26.4
Tennessee	40.3	29.5	17.4	7.8	37.1	25.2
Texas	37.6	28.8	25.1	12.5	36.2	26.2
Utah	20.4	12.2	10.5	2.7	19.2	10.7
Vermont	34.2	32.1	20.3	18.2	32.0	29.4
Virginia	37.7	31.4	38.2	13.9	37.8	28.8
Washington	33.6	29.7	12.1	14.6	29.9	26.9
West Virginia	41.8	34.1	22.9	10.1	38.4	26.7
Wisconsin	28.6	28.1	22.2	10.4	27.6	24.7
Wyoming	33.5	36.1	20.6	10.5	32.1	32.0

*Source: Current Population Survey, 1985, U.S. Bureau of the Census, except for Puerto Rico (Center for Health Promotion and Education, 1987) and Minnesota (Behavioral Risk Factor Surveillance System, 1986).

TABLE 3
SMOKING-ATTRIBUTABLE MORTALITY BY STATE
UNITED STATES, 1985

State	Men	Women	Pediatric	Total	Rate*
Alabama	3,672	1,457	45	5,174	129.5
Alaska	187	74	10	271	54.3
Arizona	2,688	1,125	31	3,844	122.6
Arkansas	2,771	1,046	28	3,845	163.7
California	18,524	9,773	236	28,533	109.5
Colorado	1,971	1,002	32	3,005	94.2
Connecticut	2,711	1,528	30	4,269	135.0
Delaware	573	261	15	849	137.6
District of Columbia	579	319	13	911	147.6
Florida	12,517	5,544	125	18,186	161.3
Georgia	5,342	2,117	80	7,539	127.7
Hawaii	549	205	12	766	77.0
Idaho	695	258	6	959	96.1
Illinois	10,530	5,138	178	15,846	137.8
Indiana	5,356	2,525	64	7,945	144.6
Iowa	2,816	1,183	18	4,017	139.5
Kansas	2,179	953	21	3,153	130.2
Kentucky	4,454	1,989	54	6,497	175.9
Louisiana	3,909	1,618	44	5,571	125.1
Maine	1,262	573	26	1,861	161.0
Maryland	3,478	1,727	61	5,266	121.3
Massachusetts	5,315	3,154	46	8,515	146.6
Michigan	8,152	4,163	138	12,453	137.3
Minnesota	3,372	1,624	43	5,039	120.3
Mississippi	2,447	753	33	3,233	124.7
Missouri	5,147	2,440	51	7,638	152.2
Montana	690	349	8	1,047	127.4
Nebraska	1,621	597	13	2,231	140.1
Nevada	963	496	15	1,474	158.5
New Hampshire	921	469	8	1,398	140.6
New Jersey	6,822	3,287	71	10,180	134.9
New Mexico	842	355	20	1,217	84.9
New York	17,191	9,429	260	26,880	151.6
North Carolina	5,884	2,345	68	8,297	134.9
North Dakota	554	200	6	760	144.5
Ohio	10,618	5,156	107	15,881	148.0
Oklahoma	3,223	1,468	40	4,731	144.1
Oregon	2,441	1,268	28	3,737	139.1
Pennsylvania	12,100	5,747	114	17,961	151.6
Puerto Rico**	1,791	628	51	2,470	75.4
Rhode Island	998	570	3	1,571	163.6
South Carolina	2,980	962	37	3,979	121.4
South Dakota	684	270	9	963	137.2
Tennessee	4,756	1,729	52	6,537	137.8
Texas	11,602	5,095	131	16,828	103.6
Utah	470	255	17	742	45.3
Vermont	489	246	5	740	138.3
Virginia	5,046	2,163	75	7,284	131.5
Washington	3,672	1,858	63	5,593	128.6
West Virginia	2,298	1,012	15	3,325	171.7
Wisconsin	3,954	1,642	40	5,636	118.1
Wyoming	329	158	10	497	98.4
TOTAL	214,135	100,303	2,706	317,144	133.6
Highest State	18,524	9,773	260	28,533	175.9
Lowest State	187	74	3	271	45.3
AVERAGE	4,118	1,929	52	6,099	129.1

*per 100,000 persons.

**based on 1983 data.

**TABLE 4
SMOKING-ATTRIBUTABLE YEARS OF POTENTIAL LIFE LOST TO AGE 65 BY STATE,
UNITED STATES, 1985**

State	Men	Women	Pediatric	Total	Rate*
Alabama	12,968	3,283	2,880	19,131	545.2
Alaska	1,134	229	668	2,031	421.4
Arizona	6,000	1,828	1,998	9,826	358.1
Arkansas	7,403	2,157	1,797	11,357	565.0
California	48,090	16,157	15,244	79,491	341.3
Colorado	5,011	1,622	2,095	8,728	300.6
Connecticut	6,984	2,420	1,962	11,366	413.6
Delaware	1,599	589	975	3,163	577.2
District of Columbia	2,532	799	854	4,185	678.3
Florida	27,911	9,090	8,029	45,030	485.7
Georgia	18,472	5,281	5,159	28,912	544.5
Hawaii	1,775	407	805	2,987	333.4
Idaho	1,485	400	367	2,252	253.3
Illinois	28,603	9,564	11,498	49,665	490.3
Indiana	14,328	4,637	4,098	23,063	475.7
Iowa	5,472	1,781	1,172	8,425	341.4
Kansas	4,869	1,507	1,386	7,762	370.1
Kentucky	12,817	4,451	3,514	20,782	639.4
Louisiana	11,839	3,752	2,830	18,421	459.3
Maine	2,606	909	1,689	5,207	519.1
Maryland	10,072	3,656	3,948	17,676	455.2
Massachusetts	13,022	4,677	2,954	20,653	410.8
Michigan	21,576	8,509	8,889	38,974	483.9
Minnesota	7,329	2,215	2,760	12,304	335.4
Mississippi	7,288	1,903	2,114	11,285	494.3
Missouri	12,003	4,106	3,301	19,410	448.2
Montana	1,656	587	525	2,768	382.3
Nebraska	2,816	911	868	4,595	333.9
Nevada	2,785	1,085	999	4,869	582.4
New Hampshire	2,282	750	517	3,549	404.7
New Jersey	20,165	5,969	4,589	30,723	466.4
New Mexico	1,952	686	1,318	3,956	305.7
New York	45,010	16,371	16,795	78,176	505.1
North Carolina	18,203	12,158	4,411	34,772	639.2
North Dakota	2,289	688	405	3,382	577.1
Ohio	28,240	14,050	6,888	49,178	521.2
Oklahoma	8,408	2,599	2,579	13,586	472.2
Oregon	4,960	1,877	1,781	8,618	369.2
Pennsylvania	30,023	9,262	7,373	46,658	459.6
Puerto Rico**	2,816	1,083	3,290	7,189	219.4
Rhode Island	2,495	776	223	3,494	425.6
South Carolina	9,864	2,534	2,417	14,815	504.8
South Dakota	1,328	343	574	2,245	371.7
Tennessee	14,825	4,301	3,334	22,460	539.0
Texas	35,911	12,656	8,440	57,007	387.8
Utah	1,996	306	1,069	3,371	205.8
Vermont	1,190	416	301	1,907	404.0
Virginia	15,165	4,713	4,815	24,693	498.5
Washington	8,252	2,910	4,077	15,239	396.4
West Virginia	5,716	1,841	974	8,531	508.4
Wisconsin	8,397	2,625	2,561	13,583	326.7
Wyoming	915	277	636	1,828	394.0
TOTAL	571,222	197,703	174,745	943,278	397.9
Highest State	48,090	16,371	16,795	79,491	678.3
Lowest State	915	229	223	1,828	205.8
AVERAGE	10,985	3,802	3,361	18,140	391.1

* per 100,000 persons less than 65 years of age
 ** based on 1983 data.

TABLE 5
SMOKING-ATTRIBUTABLE YEARS OF POTENTIAL
LIFE LOST TO LIFE EXPECTANCY BY STATE,
UNITED STATES, 1985

State	Men	Women	Pediatric	Total	Rate*
Alabama	33,205	8,506	3,245	44,956	1,125.0
Alaska	2,891	1,120	751	4,762	954.3
Arizona	28,511	13,687	2,244	44,442	1,417.2
Arkansas	30,467	12,763	2,035	45,265	1,927.0
California	201,519	112,287	17,609	331,415	1,272.0
Colorado	21,324	11,331	2,373	35,028	1,098.4
Connecticut	29,237	17,016	2,217	48,470	1,532.9
Delaware	6,587	3,357	1,112	11,056	1,791.9
District of Columbia	7,731	4,019	986	12,736	2,064.2
Florida	130,118	65,384	9,091	204,593	1,814.4
Georgia	64,981	26,104	5,858	96,943	1,642.3
Hawaii	6,504	5,130	920	12,554	1,261.7
Idaho	7,133	2,978	416	10,527	1,054.8
Illinois	119,349	61,066	13,020	193,435	1,682.6
Indiana	59,785	29,608	4,619	94,012	1,711.5
Iowa	27,299	12,408	1,330	41,037	1,424.9
Kansas	22,253	10,415	1,561	34,229	1,413.3
Kentucky	50,770	25,210	4,059	80,039	2,167.3
Louisiana	46,894	21,250	3,217	71,361	1,602.2
Maine	12,836	6,268	1,927	21,031	1,819.3
Maryland	23,629	10,382	4,480	38,491	886.5
Massachusetts	54,566	32,506	3,350	90,422	1,556.3
Michigan	89,875	50,660	10,056	150,591	1,659.9
Minnesota	33,913	16,448	3,115	53,476	1,276.9
Mississippi	28,188	10,060	2,386	40,634	1,567.1
Missouri	52,389	25,287	3,742	81,418	1,622.8
Montana	7,321	4,080	596	11,997	1,459.5
Nebraska	14,801	6,229	986	22,016	1,382.9
Nevada	11,272	6,725	1,128	19,125	2,056.5
New Hampshire	9,818	5,223	579	15,620	1,571.4
New Jersey	53,870	16,807	5,211	75,888	1,005.7
New Mexico	8,691	4,069	1,485	14,245	994.1
New York	198,238	117,683	19,398	335,319	1,890.6
North Carolina	70,452	37,347	5,006	112,805	1,834.5
North Dakota	3,076	846	413	4,335	643.2
Ohio	117,635	61,753	7,820	187,208	1,744.7
Oklahoma	34,963	17,127	2,909	54,999	1,675.8
Oregon	25,630	14,161	2,012	41,803	1,556.3
Pennsylvania	132,230	66,579	8,516	207,325	1,749.4
Puerto Rico**	12,854	6,895	3,880	23,629	721.1
Rhode Island	10,778	6,226	250	17,254	1,797.3
South Carolina	36,037	13,205	2,745	51,987	1,585.9
South Dakota	6,707	2,778	648	10,133	1,443.4
Tennessee	55,891	22,532	3,851	82,274	1,734.6
Texas	134,393	64,804	9,749	208,946	1,286.4
Utah	7,522	3,586	1,235	12,343	753.5
Vermont	5,268	2,830	340	8,438	1,577.2
Virginia	59,228	27,446	5,441	92,115	1,662.7
Washington	38,792	21,723	4,618	65,133	1,497.7
West Virginia	25,039	12,434	1,100	38,573	1,992.4
Wisconsin	38,950	17,982	2,884	59,816	1,253.0
Wyoming	3,547	1,788	721	6,056	1,199.2
TOTAL	2,314,957	1,158,108	199,240	3,672,305	1,549.3
Highest State	201,509	117,683	19,398	335,319	2,167.3
Lowest State	2,891	846	250	4,335	643.2
AVERAGE	44,518	22,271	3,832	70,621	1,488.8

*per 100,000 persons.

**based on 1983 data.

TABLE 6
SMOKING-ATTRIBUTABLE ECONOMIC COSTS
BY STATE, UNITED STATES, 1985
IN MILLIONS OF DOLLARS

State	Direct Morbidity	Indirect Morbidity	Indirect Mortality	Pediatric Indirect Mortality	Total	Per Capita Cost*
Alabama	349.6	174.4	367.5	10.1	901.6	226
Alaska	34.7	16.4	28.8	2.4	82.3	165
Arizona	294.9	109.8	195.6	7.1	607.5	194
Arkansas	196.0	101.1	222.7	6.3	526.1	224
California	2,932.4	1,059.8	1,766.7	53.2	5,812.1	223
Colorado	329.3	109.8	157.3	7.3	603.8	189
Connecticut	348.7	123.6	222.2	6.9	701.4	222
Delaware	69.5	27.5	51.3	3.4	151.7	246
District of Columbia	19.0	26.0	82.0	3.0	130.0	211
Florida	835.2	407.4	790.1	28.1	2,060.7	183
Georgia	537.9	257.7	534.4	18.0	1,347.9	228
Hawaii	88.1	32.1	50.5	2.8	173.5	174
Idaho	68.6	25.6	46.8	1.3	142.2	143
Illinois	1,325.7	514.8	934.6	40.2	2,815.4	245
Indiana	563.9	448.1	231.4	14.4	1,257.9	229
Iowa	192.7	45.6	177.3	4.1	419.6	146
Kansas	159.4	70.3	136.4	4.9	370.9	153
Kentucky	327.0	170.0	397.5	12.3	906.9	246
Louisiana	263.8	138.4	302.9	8.8	713.9	160
Maine	124.7	57.0	128.4	6.0	316.1	273
Maryland	446.6	185.3	360.9	13.8	1,006.5	232
Massachusetts	847.5	288.4	462.0	21.2	1,619.1	279
Michigan	1,103.9	275.8	699.6	31.2	2,110.4	233
Minnesota	483.1	154.3	230.0	9.7	877.0	209
Mississippi	210.2	98.8	210.1	7.4	526.6	203
Missouri	594.7	232.0	434.6	11.5	1,272.9	254
Montana	39.9	20.6	46.3	1.8	108.7	132
Nebraska	156.4	56.3	91.8	3.0	307.6	193
Nevada	121.1	47.6	91.4	3.5	263.6	283
New Hampshire	95.0	40.4	81.6	1.8	218.9	220
New Jersey	701.7	301.1	604.2	16.3	1,623.4	215
New Mexico	71.9	33.1	62.4	4.6	172.0	120
New York	1,865.1	907.3	1,780.9	58.5	4,611.8	260
North Carolina	491.6	267.5	606.6	15.4	1,381.1	225
North Dakota	93.7	36.6	29.8	1.0	161.1	239
Ohio	1,246.2	481.7	885.5	24.0	2,637.4	246
Oklahoma	339.6	259.3	135.5	9.1	743.5	227
Oregon	151.6	83.5	192.3	6.3	433.7	161
Pennsylvania	1,403.7	542.4	954.6	25.7	2,926.3	247
Puerto Rico**	38.8	33.0	95.2	11.5	178.5	54
Rhode Island	133.0	48.7	90.0	1.0	272.5	284
South Carolina	227.9	124.3	282.0	8.4	642.5	196
South Dakota	60.7	24.2	42.0	2.0	129.0	184
Tennessee	284.4	352.6	157.2	11.7	806.0	170
Texas	1,618.9	617.0	1,079.2	29.4	3,344.5	206
Utah	43.2	27.0	18.1	3.8	92.1	56
Vermont	52.0	19.8	38.5	1.1	111.2	208
Virginia	534.4	236.0	455.7	16.9	1,243.0	224
Washington	428.7	153.0	281.2	14.3	877.1	202
West Virginia	199.1	93.2	206.2	3.4	501.9	259
Wisconsin	469.5	266.7	266.7	9.0	1,011.8	212
Wyoming	38.9	15.1	27.3	4.6	85.8	170
TOTAL	23,653.9	10,237.9	17,823.8	623.3	52,338.9	221
Highest State	2,932.4	1,059.8	1,780.9	58.5	5,812.1	284
Lowest State	19.0	15.1	18.1	0.8	82.3	54
AVERAGE	454.9	196.9	342.8	12.0	1,006.5	205

*in dollars, based on 1985 resident population estimates, U.S. Bureau of the Census.
**based on 1983 data.

**ACTIVITIES OF THE
INTERAGENCY COMMITTEE
ON SMOKING AND HEALTH**

INTERAGENCY COMMITTEE ON SMOKING AND HEALTH

The Interagency Committee on Smoking and Health was established as part of the Comprehensive Smoking Education Act of 1984 (P.L. 98-474). This Committee advises the Secretary of Health and Human Services in a wide range of issues pertaining to smoking and health. Specifically, the Committee is charged with the coordination of research and education programs and maintenance of a liaison with appropriate Federal and non-Federal agencies relating to smoking and health. The Committee is chaired by the Surgeon General, Dr. C. Everett Koop, and comprises five non-Federal members who are scientists and physicians representing private entities involved in informing the public about the health effects of smoking and representatives from the Federal agencies listed below. The Executive Secretary of the Committee is John L. Bagrosky, Associate Director of the Office on Smoking and Health.

Federal Agencies

Department of Agriculture
Department of Defense
Department of Education
Department of Justice
Department of Labor
Environmental Protection Agency
Federal Trade Commission
General Services Administration
Veterans Administration
U.S. Public Health Service
Centers for Disease Control
Office of the Director
Office on Smoking and Health, Center for Chronic Disease Prevention and Health Promotion
Office of the Assistant Secretary for Health
Office of Disease Prevention and Health Promotion
Office of Minority Health
National Institutes of Health
National Cancer Institute
National Heart, Lung and Blood Institute
National Institute of Child Health and Human Development
Health Resources and Services Administration
Indian Health Service
Alcohol, Drug Abuse, and Mental Health Administration
National Institute on Drug Abuse

The Interagency Committee on Smoking and Health held its inaugural meeting on October 1, 1985. The meeting was an orientation session for the Committee members. Dr. Koop opened the meeting with an overview of the Committee's mandate and its responsibilities. Dr. John Holbrook, University of Utah School of Medicine, presented the medical and historical perspectives of the smoking issue; Mr. Matthew Myers, Coalition on Smoking and Health, gave a history of the Comprehensive Smoking Education Act of 1984; and Mr. Donald Shopland, Office on Smoking and Health, spoke on

smoking prevalence. The Committee voted that in future meetings it would examine in depth a single topic within the smoking issue.

The February 12, 1986 meeting was devoted to a review of the impact of advertising and promotion of tobacco products. Presentations included opening remarks by the chairperson, Dr. Koop; an overview of the promotion of tobacco products by Dr. Kenneth E. Warner, University of Michigan; Dr. Virginia Ernster, University of California, spoke on tobacco advertising over the years; Dr. Elizabeth Whelan, American Council on Science and Health, examined the coverage of the health hazards of smoking in magazines; and Dr. Paul Magnus, National Heart Foundation of Australia, spoke on cigarette advertising and its influence on the media's coverage of the issue. Dr. Ruth Roemer, University of California in Los Angeles, although unable to attend, submitted her paper on national legislative strategies to control cigarette advertising, promotion, and marketing.

The Committee met on June 4, 1986 to review the issue of free cigarette sampling and other related marketing techniques. After opening remarks by Dr. Koop, Dr. Edward Popper, Northeastern University, gave an overview of cigarette sampling and couponing; Mr. Donald Garner, Southern Illinois University School of Law, reviewed the legal and public policy aspects of tobacco sampling; Dr. Richard Daynard, Northeastern University and Mr. John Kirkwood, Chicago Lung Association, examined two community efforts to ban tobacco sampling. At the conclusion of the meeting, Dr. Koop, in his role as physician, Surgeon General, and Chairperson of the Committee, called on local organizations concerned with health and particularly the health of children to initiate immediate steps to control cigarette sampling in their communities.

Smoking and its impact on minority populations was the topic of discussion at the meeting on March 31, 1987. Dr. Alfred Marcus, Jonsson Comprehensive Cancer Center at the University of California in Los Angeles, spoke on the prevalence of smoking among minorities; Dr. Claudia Baquet, National Cancer Institute, presented statistical information on the incidence of smoking-related diseases in minorities; Dr. Emilio Carillo, Harvard School of Public Health, discussed effective interventions in minority communities; and Dr. Alan Blum, Baylor College of Medicine, explained various marketing and advertising campaigns and techniques targeted toward minority populations. At the conclusion of the meeting, Dr. Koop called for support of minority leadership in efforts to counteract the forces that are encouraging the uptake of smoking by minority youth and the continuation of smoking by minority adults.

The General Services Administration printed its new smoking regulations in the Federal Register on December 8, 1986. The

implementation of these regulations by Federal agencies was the topic of the October 15, 1987 meeting. Terence C. Golden, Administrator of the General Services Administration, discussed the new regulations, their development and implementation; Dr. Barbara Hulka, University of North Carolina in Chapel Hill, presented the health effects of exposure to environmental tobacco smoke; and Mr. John Pinney, John F. Kennedy School of Government at Harvard University and former Director of the Office on Smoking and Health, spoke on worksite smoking policies. Following the speakers' presentations, various Federal agency representatives summarized the policies within their individual departments and the enforcement of such policies.

The meeting held on February 18, 1988, entitled Tobacco and Health Internationally, discussed the health effects of tobacco use internationally and activities of transnational tobacco companies to expand Third World markets for tobacco products. Dr. Judith Longstaff Mackay, Hong Kong Council on Smoking and Health, discussed U.S. tobacco activities in Asia; Dr. Gregory Connolly, representing the American Public Health Association, presented information on the activities of transnational tobacco conglomerates; Dr. Ted T.L. Chen, National Department of Health in Taiwan and University of Massachusetts in Amherst, spoke on tobacco use and promotion in Taiwan; Mr. James Swomley, American Lung Association and International Union Against Tuberculosis and Lung Disease, discussed the positions of these organizations on international tobacco use and tobacco trade policies; and Mr. Michael Pertschuk, the Advocacy Institute, discussed health policy implications of international tobacco trade. Dr. Koop called on government agencies and private organizations to increase their activities on tobacco and health internationally. He added that health warnings should be required on all packages of cigarettes that are exported, in the language of the receiving country, and that countries should work together more effectively to coordinate an aggressive worldwide campaign to curb the use of tobacco.

The following abstracts summarize papers submitted or comments made to the Interagency Committee at each of the respective meetings.

October 1, 1985: Inaugural Meeting

Comments by:

Koop, C. Everett, M.D. Surgeon General, U.S. Public Health Service and Deputy Assistant Secretary for Health, Washington, D.C.

An estimated 340,000 Americans die prematurely each year because they smoke. Allowing for population growth, cigarette composition, and smoking patterns, as many as 10 million Americans may have died prematurely over the past 20 years because they smoked cigarettes.

The Interagency Committee on Smoking and Health should resolve to reduce those premature deaths to zero. The Committee remains committed to reducing the proportion of adults who smoke to below 25 percent by the year 1990. Increased awareness of smoking hazards through public information and education programs, including physician and public health officials support, is the only way to achieve this goal.

Shopland, Donald R., and Brown, Clarice,
Office on Smoking and Health, Rockville, Maryland.

"Changes in Cigarette Smoking Prevalence in the U.S., 1955-1983."

A significant decline in the percentage of current smokers among the male population occurred from 1964 to the most recent survey date, 1983, from an estimated 52.9 percent in 1964 to 35.2 percent in 1983. There has also been an increase in the percent of males who quit smoking and in the percent of males who never smoked on a regular basis.

There has been less of a change in the adult female population. Findings indicate that although there was an increase in the percent of former smokers among adult females between 1965 and 1970, there was a less significant change between 1970 and 1983 in either the percent of former smokers or persons who had ever smoked.

Patterns of smoking prevalence among adults reflect the changes in initiation and adoption of cigarette smoking among teenagers. The prevalence of cigarette smoking among high school seniors declined to its lowest point in 1984, the most recent survey date, with only 18.7 percent of all seniors surveyed indicating that they were daily smokers. Since 1977, there has also been a higher prevalence rate among teenage girls as compared to teenage boys.

Comments by:

Myers, Matthew, Coalition on Smoking Or Health, Washington, D.C.

"History of the Comprehensive Smoking Education Act"

The Comprehensive Smoking Education Act was first introduced in the fall of 1981; it became law in 1985. Public Law 98-474 is the most important smoking legislation enacted in the last 15 years. The Act has three primary provisions: 1) all cigarette advertisements and packages are to rotate the four new specific informative health warnings; 2) cigarette companies are to disclose to the Secretary of Health and Human Services (HHS) a complete list of all ingredients added to tobacco during the manufacture of cigarettes; and 3) the Secretary of HHS is to develop and implement a program to inform the public of the health hazards of smoking. This latter provision should include the coordination of all research and educational programs and activities related to smoking and health, and the creation and maintenance of a liaison between Federal agencies, State and local governments and the private sector.

Factors prompting the effort to legislate this bill included: 1) the Federal Trade Commission report that the current health warning was no longer effective; 2) the Surgeon General began a new series of reports on the Health Consequences of Smoking; 3) data from the Office on Smoking and Health and other Federal agencies showed that increasing trends in smoking were related to advertising and educational efforts; and 4) the major voluntary organizations created legislative and lobbying offices in Washington, D.C.

Comments by:

Holbrook, John H., University of Utah, Salt Lake City, Utah.

"Historical and Medical Perspectives on Smoking."

In the 1930s and 1940s reports began linking smoking with cancer, heart disease, and adverse effects on the unborn child. In the 1950s, isolated cases were associating smoking with excess morbidity and mortality primarily due to cancer, lung cancer, emphysema, bronchitis, and coronary heart disease.

The first Surgeon General's report in 1964 directly stated that smoking was causatively associated with lung cancer and bronchitis. Subsequent reports further detailed the health effects associated with smoking. The types of evidence cited in the reports include: epidemiologic, experimental, clinical, and pathologic evidence. Factors effecting the level of addiction and the adverse health effects depend upon: dose, genetic makeup, environmental exposures, and underlying medical disorders of each individual smoker. Major biomedical effects of smoking include: atherosclerosis (cardiovascular problems), cancer, chronic obstructive lung disease (emphysema and bronchitis), and the effects on the unborn fetus during pregnancy (low-birthweight).

February 12, 1986: Advertising and Promotion of Tobacco Products

Warner, Kenneth E., Department of Health Planning and Administration, School of Public Health, University of Michigan, Ann Arbor, Michigan.

"Promotion of Tobacco Products: An Overview of the Issues."

Cigarettes are the Nation's most heavily advertised consumer product. In 1984, the industry devoted over \$2 billion to promoting the product, more than \$8 for every man, woman, and child (smokers and nonsmokers). In 1980, cigarette ads accounted for just under 15 percent of product advertising in newspapers, 10 percent in magazines, and almost a third of all outdoor advertising. Over one half of all revenues from newspaper supplements represented cigarette advertising and nearly one in every two billboards carried an advertisement for cigarettes. Increasingly, the tobacco companies are relying on sponsorship of sports and cultural events, free or subsidized distribution of product samples, and "social issue" advertising campaigns to promote the image of their product. Massive cigarette advertising reduces media coverage of the health effects of smoking, which in turn, contributes to a greater prevalence of smoking and smoking-related disease.

The problem of cigarette promotion can be addressed several different ways: imposing a complete ban on all promotion of tobacco products; eliminating the seductive imagery of cigarette advertising; reducing misleading advertising by requiring the tobacco industry to disclose that there is no controversy on the hazards of smoking; and mounting boycotts of publications that accept cigarette advertising, cancelling subscriptions to those that do and informing them as to the reason.

Ernster, Virginia L., Department of Epidemiology and International Health, School of Medicine, University of California, San Francisco, California.

"Tobacco Advertising Over the Years: Types, Themes, Voluntary Codes and Related Legislation."

Over the last half century there has been an increase in cigarette advertising and promotions targeted toward women; the emergence of a number of cigarette brands designed exclusively for females is one indication of the targeting of women as cigarette consumers. Approximately \$2 billion is currently being spent by the tobacco industry to advertise and promote cigarettes in the U.S.

In addition, smokeless tobacco advertising and promotions are on the rise. Underwriting sporting events has been a major form of promoting smokeless tobacco. Advertisements have suggested that smokeless tobacco is an acceptable alternative to cigarette smoking.

Until 1960, attempts to regulate cigarette advertising were concerned primarily with the false health benefits claimed for specific brands. Since 1960, the concern has been with ensuring that the scientific facts about cigarettes be included in advertisements.

More needs to be learned about audiences targeted for tobacco advertising, promotional efforts, and the effects of advertising on usage patterns by various groups. Continued monitoring of advertisements for themes and validity of claims is necessary for the ongoing formulation of public policy on tobacco advertising.

Whelan, Elizabeth M., and White, Lawrence, American Council on Science and Health, New York, New York.

"How Well Do American Magazines Cover the Health Hazards of Smoking?"

In January 1986, the American Council on Science and Health commissioned a study of magazine coverage of health hazards of smoking. A select group of 20 mass circulation magazines were surveyed. The study tabulated all articles published in the last five years on selected health hazards and health promotion topics, then determined how many of those mentioned smoking. The study ranked how highly smoking was emphasized as a risk factor in selected articles dealing with specific diseases. The tabulations were then associated with acceptance of cigarette advertising by each publication.

From the survey, several conclusions were made. Magazines that accept cigarette ads are less likely to report on hazards of smoking. Researchers hypothesize that this is less the result of direct tobacco industry pressure than of self-censorship, based on editors' fear of losing advertising revenues. Banning cigarette advertising may result in better coverage of the health hazards of smoking; however, the tobacco industry is firmly ensconced in the American economy; inasmuch as two major tobacco companies own two large food conglomerates. It may be that the government must therefore assume more responsibility in educating the public on the

health hazards of smoking. Such campaigns could easily and fairly be financed by an increase in the cigarette excise tax.

Magnus, Paul, The National Heart Foundation of Australia, Canberra City, Australia.

"Aspects of the Tobacco-Media Story and Cigarette Advertising."

Early U.S. media coverage of the cigarette smoking and health issues was limited. Most women's magazines still shun the smoking and health story, due to the powerful influence of the activities and advertising of the tobacco industry. There has been significant undercoverage of the smoking issue from the first major scientific discoveries in the late 1930s and early 1950s, due to the cigarette manufacturers' economic influence on advertising revenues.

There is little evidence that massive cigarette advertising revenue may have influenced newspaper coverage of smoking and health issues. However, for women's magazines the evidence is convincing, and supported by accounts from health writers. Women's magazines seem to censor themselves on the issue, free from direct intervention from the tobacco industry.

A primary function of the print media is to inform the public. With over 40 years' growing scientific evidence available on smoking and health, the cumulative evidence filtering through the media has inevitably been large. But it has been so attenuated and small compared with what should have been, that the American public remains demonstrably underinformed. Cigarette advertising revenue impedes free speech and the dissemination of health information and thus contributes to smoking rates and subsequent unnecessary deaths.

Roemer, Ruth, School of Public Health, University of California, Los Angeles, California.

"National Legislative Strategies to Control Cigarette Advertising, Promotion, and Marketing."

Banning cigarette advertising and promotion, increasing the tax and price of cigarettes, and strengthening smoking education are the three most important legislative strategies the United States can adopt to control smoking.

Worldwide legislative activities are described; evaluating these strategies is, however, difficult because of the many factors involved in tobacco use. Various countries have adopted total bans, strong partial bans, and moderate or minor bans on cigarette advertising. The United States, having already adopted a minor ban, may choose between total or strong partial bans: a total ban is recommended, as conveying a stronger message and as more enforceable. First amendment considerations may, however, require adoption of a partial ban.

Many countries have found tax and price increases effective, and academic work shows that price elasticity affects the

demand for cigarettes. Tax increases are objected to on the grounds that they are regressive; however, the advantages of having to give up smoking, particularly for the young, who are often only temporarily poor, outweigh any unfair financial losses. Either the Federal excise tax or State taxes might be raised: raising the Federal tax would be more effective, enforceable, and revenue-neutral. Researchers have demonstrated that anti-smoking education is a necessary companion to anti-smoking legislation: further funding of anti-smoking education programs should be legislated. An advertising ban will also aid education programs by releasing the media from self-imposed censorship on smoking that is motivated by fear of losing advertising revenue.

An important publication is now in preparation that will encourage members of Congress to take the measures recommended here. It will show deaths, days of hospitalization, and medical care costs associated with the smoking diseases in each state.

June 4, 1986: Free Cigarette Sampling

Daynard, Richard A., President of Group Against Smoking Pollution (GASP) of Massachusetts, and Professor at Northeastern University School of Law, Boston, Massachusetts.

"Case Study of Successful Community Efforts to Ban Cigarette Sampling."

Whether cigarette sampling is done directly (e.g. handouts), or indirectly (e.g. print media or couponing and mail distribution), tobacco companies use carefully planned strategies and target specific populations. Often, samples fall into the hands of underage youth and are viewed by many as a public nuisance. Successful efforts to ban the distribution of free cigarette samples are described and recommendations are made to encourage additional bans. Suggestions considered crucial to a successful ban on sampling include identifying one group to lead the legislative efforts and rallying community and political support. This should be complemented with a credible legal resource that can provide on-the-spot legal expertise.

Comments by:

Kirkwood, John L., Executive Director of the Chicago Lung Association, Chicago, Illinois.

Tobacco promotions and advertisements encourage youth to begin smoking, contrary to the industry's claim that the focus of their advertising is to encourage smokers to switch brands. Therefore, the Committee is urged to support a ban on all tobacco promotions and advertisements. If this is not feasible, restrictions should be enforced on advertising directed toward youth. All role models should be removed from advertisements and 25 percent of media fees should be donated to counter-advertising groups. In addition, distribution of free cigarette samples and sponsorship of events should be banned.

Popper, Edward T., College of Business Administration, Northeastern University, Boston, Massachusetts.

"Sampling and Couponing Promotional Activity in the Domestic Cigarette Market."

Since 1963, advertising expenditures for tobacco products have remained relatively flat while promotional expenditures amounted to 52.1 percent of tobacco advertising budgets in 1983. This shift is a direct result of restrictions imposed to eliminate the tobacco industry's use of broadcast advertising and the limited market response to print media. Tobacco companies currently rely on sampling and couponing to stimulate new usage of their products. To more accurately reflect these changes in advertising and promotional expenditures, the Federal Trade Commission data collection system should be modified. Also, more research should be conducted to study the effect of promotional strategies on the consumer.

Garner, Donald W., Southern Illinois University School of Law, Carbondale, Illinois.

"Tobacco Sampling, Public Policy and the Law."

Product liability laws that hold sellers of dangerous products liable for civil damages have never been enforced against cigarette manufacturers. The tobacco industry would have the public believe that tobacco promotions and advertising are protected under the First Amendment's freedom of speech clause, the Cigarette Labeling and Advertising Act, and the Smokeless Tobacco Education Act. This, however, is not the case. States possess the constitutional authority to protect the public from the tobacco industry and the negative effects of smoking. Even if cigarette and snuff advertising and sampling were accorded "commercial speech" protection, complete or limited prohibition is well within the constitutional power of the state. From 1970 to 1983, the cigarette companies increased their sampling expenditures from \$12 million to \$126 million; a 10-fold increase. Future anti-sampling legislation should be shaped by two sampling realities: 1) the state has an obligation to protect children as well as adults and 2) limited sampling is almost impossible to enforce when a law permits sampling to adults.

March 31, 1987: Smoking and Minority Populations

Comments by:

Blum, Alan, Department of Family Medicine, Baylor College of Medicine, Houston, Texas.

"Trends in Marketing and Cigarette Advertising Towards Black and Hispanic Populations."

Although overall cigarette consumption has declined (about one percent per year since 1980) America still has one of the highest smoking rates in the world. An increasing percentage of smokers is in the minority populations. Trends in advertising and marketing have been shifting towards minority populations; tailoring marketing strategies towards Spanish-speaking consumers while incorporating the idiosyncrasies of both the language and country in brand awareness.

There is a saturation of black-oriented publications and billboards with cigarette advertising campaigns. Between 25-40 percent of all eight sheet advertising in predominantly black areas is for cigarettes. There is a shift; however, focusing on sampling, couponing and the sponsorship of sports and entertainment events (i.e., concerts, dance companies, and soccer tournaments).

Although necessary, counter-advertising campaigns are difficult to develop, especially with the fear of losing tobacco industry revenue. There has been a lack of involvement from ethnic civil organizations (i.e., NAACP, National Urban League), to support government and voluntary health agency efforts to prevent and end smoking, primarily due to large amounts of tobacco industry contributions.

Carrillo, Emilio J., American Institutes for Research, Harvard School of Public Health, Cambridge, Massachusetts.

"A Rationale for Effective Smoking Prevention and Cessation Interventions in Minority Communities."

In order to be successful, smoking prevention and cessation activities aimed at minority communities must consider the characteristics of those communities. Although U.S. minority communities are heterogeneous, they have common elements, which when identified, assist in the development of targeted smoking prevention and cessation activities.

Some basic commonalities among minority populations are as follows. Socio-economic: Minority communities generally have lower median incomes, lower educational levels and reside in more urban and inner city locations that expose these groups to greater environmental hazards than the general non-minority population. Social-cultural: Minority communities generally place a strong emphasis on both the nuclear and extended family, and have a shared sense of kinship and close community ties (socio-economic conditions have resulted in geographical clustering of minority communities); possess key central reference points: churches, community agencies, barbershops, laundromats, and the general store; place importance on local community advocates, such as unpaid and unaffiliated community leaders; and maintain linguistic and cultural affinities. Socio-demographic: Minority populations are young in age and have a higher birthrate ratio than their non-minority counterparts.

Recommended strategies for intervention are: encouraging group work in smoking cessation efforts; stressing the benefits to the community and family in better health habits; stressing the short-term disadvantages of smoking; providing short-term products of group efforts; and use of appropriate vehicles to carry the anti-smoking message. An accurate analysis of the targeted audience is paramount i.e., identifying the level of development, level of literacy, prevalent language, key community activities, and popular media types. The specific characteristics and culture of adolescents in each community should be addressed, as well as the life changes they are undergoing such as, migration and transition from school to work. Smoking and pregnancy risks must be strongly associated.

Marcus, Alfred C., and Crane, Lori A.,
Jonsson Comprehensive Cancer Center, University of
California, Los Angeles, California.

**"Current Estimates of Adult Cigarette Smoking by
Race/Ethnicity."**

An analysis of data obtained from the 1985 National Health Interview Survey (NHIS) indicates the overall smoking rate among blacks is noticeably higher than it is for whites and Hispanics, with whites ranking second and Hispanics third. Although black males continue to smoke at a higher rate, which is estimated at nearly 40 percent, Hispanic males are smoking at virtually the same rate as white males. Among females, blacks are again ranked first, with whites ranked a close second, and Hispanics third.

There is a decline in cigarette smoking by white, black, and Hispanic males. Although females also showed a decline in smoking during the same period (1978-1985), the absolute decline was typically about half that of males. Whites are much more likely to be heavy smokers than black and Hispanic smokers. There is also a recent decline in the percentage of white and black females who have never smoked.

Much more could be done to encourage physicians to perform brief behavioral counseling with their smoking patients. Previous research has shown that physician advice to quit smoking can increase the quit rate from five percent per year to a quit rate approaching 10 percent. The U.S. Public Health Service as a whole, and especially the Office on Smoking and Health and the Office of the U.S. Surgeon General, might also intensify their efforts to promote physician-based smoking cessation programs as public health policy in the United States.

Baquet, Claudia R., Minority Field Program, Special Populations Studies Program, Division of Cancer Prevention and Control, National Cancer Institute, Bethesda, Maryland.

**"The Association of Tobacco to Cancer and Other Health
Conditions in Minority Populations."**

More than 80 percent of the excess mortality observed among blacks and other minority populations is attributed to six causes of death: cancer, cardiovascular diseases and stroke, chemical dependency, diabetes, homicide and accidents, and infant mortality. For blacks (males and females) excess deaths from these major causes accounted for approximately 47 percent of the total annual deaths among those age 45 years or younger during 1979 through 1981, and for almost 43 percent of the deaths among those age 70 years or younger.

Cigarette smoking has been identified as a major cause for cancer (30 percent of all cancer deaths), coronary heart disease, peripheral vascular diseases, and low birthweight/infant mortality. In addition, the risk of certain cancers is greatly increased when tobacco use is combined with other exposures, such as asbestos in the workplace or excessive alcohol consumption. The adverse health effects of involuntary smoking on nonsmokers has also been documented.

It is apparent that tobacco use (cigarettes and smokeless) contributes significantly to the excess incidence, morbidity and mortality experienced by U.S. minority groups. In addition to a distinct cancer experience, minorities also have other tobacco-related conditions at rates that differ from the general population, i.e., cardiovascular and respiratory diseases, low birthweight and infant mortality.

Findings from an analysis of (NHIS) data suggest that Hispanic rates for tobacco-related disease may increase in the future and that special attention to cessation and preventive efforts aimed at this group is needed. To be successful, efforts to reduce and prevent tobacco-related morbidity and mortality in minority communities must be based on representative and accurate population-specific data, as well as culturally relevant interventions.

October 15, 1987: GSA Regulations

Hulka, Barbara S., Department of Epidemiology
University of North Carolina, Chapel Hill, North
Carolina.

**"Health Effects of Exposure to Environmental Tobacco
Smoke."**

The predominant source of environmental tobacco smoke (ETS) is sidestream smoke (SS) emitted from the smoldering end of cigarettes. While SS is known to contain toxic and carcinogenic compounds, SS is diluted and its physicochemical characteristics are altered in the formation of ETS.

The most consistent findings on adverse health effects of ETS are on the respiratory tracts of young children. There is a dose-response relationship between risk of respiratory problems and number of smokers in the home and/or number of cigarettes smoked.

Studies from many countries indicate that the risk of lung cancer to nonsmoking spouses of smokers is approximately 30 percent greater than the risk for nonsmoking spouses of nonsmokers. A positive association between number of cigarettes smoked per day and the relative risk has been reported.

The question as to whether chronic exposure to ETS enhances the risk of morbidity or mortality from cardiovascular diseases has yet to receive adequate study.

Comments by:

Golden, Terence C., Administrator, General Services Administration, Washington, D.C.

The General Services Administration's (GSA) regulations for smoking in Federal office buildings were developed in the interest of the health and safety of the Federal worker. In addition, the regulations were developed with the full cooperation and support of the entire Federal community, so therefore, they were not regulations of the GSA, but for the GSA. The regulations were part of the goals and objectives of the GSA

for improving the quality of the working environment of the Federal employee; air quality was the beginning. Various problems came into play; however, as the buildings were old, and heating, air-conditioning, ventilation, and overall air circulation were poor.

The response to the regulations has been positive as the regulations take into consideration the needs of the non-smokers to a smokefree environment and the needs of the smokers to have space available for smoking cigarettes.

Comments by:

Pinney, John M., Executive Director, Institute for the Study of Smoking Behavior and Policy, John F. Kennedy School of Government, Harvard University, Cambridge, Massachusetts.

Over the past ten years the U.S. has made great progress in establishing an awareness of the issues of cigarette smoking, especially in Federal office buildings. The medical and scientific evidence supporting the fact that cigarette smoking has adverse effects on a person's health has been paramount in swaying the public and providing a vehicle of awareness for the health effects associated with cigarette smoking. This awareness also comes from a variety of issues: 1) findings that environmental tobacco smoke is a cause of disease in healthy nonsmokers, 2) nonsmokers' vocalization of the problem, and 3) the fact that the issue of smoking in the workplace is a health and safety issue and not one of a person's personal rights.

The public's response to the information on smoking has been dramatic; more states and communities are passing ordinances restricting smoking in public places and are establishing worksite smoking policies. The efforts of the General Services Administration and the Department of Defense have assisted in bringing about a greater awareness of the smoking and health issue and have changed public attitudes toward cigarette smoking.

February 18, 1988: Tobacco and Health Internationally

Comments by:

Mackay, Judith L., Executive Director, Hong Kong Council on Smoking and Health, Hong Kong.

In Asia, the American and British tobacco companies are promoting tobacco in ways long banned in the United States. Political pressure is being brought to bear on Asian governments to allow the promotion of American tobacco products. The threat of trade sanctions has now become a pattern in Asia.

American tobacco is being sold in Asia by different standards than those that apply to its sale in the U.S., i.e., without any health warnings on the packets. In addition, the tar content of cigarettes sold in Asian countries is higher than in the United States. A recommendation of the Sixth World Conference on Smoking and Health in November 1987 was that, as a

minimum, no promotion should be allowed in developing countries that is illegal in the country of origin.

While tobacco markets are decreasing in Western countries, transnational tobacco companies are turning East; smoking is increasing in developing countries at a rate of two percent per annum. The World Health Organization (WHO) report predicts that smoking-related diseases will appear in developing countries before communicable diseases and malnutrition have been controlled, and thus the gap between rich and poor countries will widen further.

China is the biggest producer and the biggest consumer of tobacco in the world. The large international companies are setting up joint ventures with the Chinese. They have also started sponsorship of athletic and sporting events in China.

In 1987, the Hong Kong government became the first Asian government, and only the second worldwide, to ban the importation, manufacture, and sale of smokeless tobacco. In an effort to eliminate the ban, the U.S. tobacco firms mobilized various U.S. government and industry representatives. The Hong Kong government's official reply was that this was an internal health matter; therefore, importation from any country was banned and the local manufacture would become illegal. Governments in developing countries are vulnerable on the tobacco issue, particularly when they become doubly bound to foreign interests.

Comments by:

Connolly, Gregory N., Representing the American Public Health Association, Washington, D.C.

"Transnational Tobacco Trade."

The United States has had great success relative to the decline in the prevalence of smoking. However, this success translates to marketing tobacco to young people in developing nations. There are seven transnational tobacco companies, of which four are based in the U.S. Excluding state monopolies and companies in Socialist nations, they produce approximately 80 percent of the world's cigarettes. There has been a 73 percent increase since 1968 in smoking prevalence throughout the world. The World Health Organization (WHO) estimates that last year, one billion persons throughout the world smoked five trillion cigarettes, and 2 1/2 million smoking-attributable deaths occurred.

Since the early 1970s, sharp increases in smoking rates, followed in turn by increases in smoking-attributable death and disease, occurred in Brazil and other Latin American countries. The multinationals now see the state-owned monopolies in the Far East as significant barriers to their penetration of Asia. When the multinationals penetrate, they transform how tobacco is presented, how it's advertised, and how it's promoted. The result is the creation of new demand, particularly among females who are targeted.

In mid-1985, high trade deficits with Japan gave new leverage to cigarette companies to merge their interest with the U.S. Trade Office to reduce the U.S. trade imbalance in the Far

East. The Office of the U.S. Trade Representative initiated a trade investigation against Japan for failure to allow free access to the cigarette market by the multinational companies.

Japan still allows cigarette advertising on television. In April 1987, there were over 2,000 Western style advertisements on television, and it ranked number two of all TV advertising. Although the female smoking rate is low in Japan, there has been heavy advertising for products like Virginia Slims and the Japan Tobacco, Inc. brand called Misty, an upscale French cigarette. They are promoting this product to the nonsmoking female; for the adolescent market, there is a new brand called the Dean cigarette, modeled after the American adolescent hero, James Dean.

It could be argued that the sale of tobacco in the Far East will aid the tobacco farmer in the U.S. Historically, when the multinationals went into Latin America and Africa, and greatly expanded tobacco production in Brazil, Zimbabwe, and Malawi, the U.S. tobacco farmer lost dominance in the world market. By 1980, 20 percent of the tobacco in American cigarettes was being re-exported to the U.S. from efforts by the multinationals.

Comments by:

Chen, Ted T.L., National Department of Health, Taiwan, University of Massachusetts, Amherst, Massachusetts.

"U.S. Tobacco Trade with Taiwan."

Several factors have contributed to the current state of American tobacco trade to Taiwan: the decline of the U.S. smoking population, the high trade deficit, a large smoking population in Taiwan, the monopoly of tobacco sale by the national government in Taiwan, and Section 301 of the 1974 Congressional Trade Act.

The sale of tobacco in Taiwan is pushed hard by the U.S. government. In 1985, the U.S. Trade Representative negotiated with the Taiwan government for tobacco trade with Section 301 of the Congressional Trade Act. In January 1987, American tobacco agents began the sale of American tobaccos in Taiwan.

Cigarette smoking is an adult male dominant behavior in Taiwan. The data show that the cigarette smoking rate in Taiwan is very high among men, over 50 percent, but very low among women, below 7 percent. The smoking rate among youth has been low, especially among teenage girls. Some of the primary strategies that the foreign tobacco agents have used to sell tobacco in Taiwan is to target the sale of tobacco to youth and women. Youth smoking is prohibited at home and at school, and is relatively low. Women smoking is not condoned anywhere, and is very rare. This virtue of cultural practice unfortunately has been looked upon by American tobacco agents as an opportunity for exploitation.

According to Tung's 1987 study, teenage smoking in Taiwan may be on the rise. Over 80 percent of the youth smoking cigarettes indicated a preference for smoking foreign

cigarettes. Moreover, the director of the National Bureau of Tobacco and Wine Monopoly indicated that the volume of foreign tobacco imports to Taiwan between January 1 to October 31, 1987, is about 22 times more than the total import of the year 1986.

The case of marketing of American tobacco in Taiwan has both domestic and international significance and implication. The case study shows that American cigarette companies, with the help of the U.S. government, have found a new frontier in Taiwan.

Comments by:

Swomley, James W., International Union Against Tuberculosis and Lung Disease, New York, New York.

"The Activities of the World Health Organization Regarding Transnational Tobacco Trade."

There is a growing awareness worldwide about the tobacco problem. Not only is the tobacco industry killing Americans at home, more than 300,000 each year, but it is killing 2.5 million people worldwide each year. The United States tobacco industry is sharing with the tobacco industry in England, and the tobacco industry in the rest of the world in the rising mortality total worldwide.

The International Union Against Tuberculosis and Lung Disease held a regional meeting in the Sudan where 60 percent of the tobacco is imported. Resources in the Sudan, whether its own agricultural effort or hard currency, are going for tobacco. The government is indicating an interest in doing something about the problem.

A resolution, passed by the Board of Directors of the American Lung Association, addresses the worldwide issue: "Whereas smoking causes an estimated 2.5 million deaths each year worldwide, and whereas the use of tobacco products is increasing in Third World countries, and whereas U.S. government is using trade policy, including trade sanctions, to actively encourage the export of American tobacco products; now therefore, be it resolved that the American Lung Association calls upon the U.S. government to accept its international responsibility to protect and promote health throughout the world by applying the Surgeon General's goal of a smoke-free society to its international activity. Be it further resolved that import restrictive measures and/or higher tariffs developed by our trading partners, not be considered actionable under U.S. trade laws, nor be criticized as protectionistic measures. Furthermore, be it resolved that trade in tobacco products no longer be considered as an item for trade negotiations."

Comments by:

Pertschuk, Michael, American Cancer Society-National Board of Directors, Advocacy Institute, Washington, D.C.

"U.S.-Based Transnational Tobacco Trade and Advertising: The Implications of International Health Policy."

The U.S. government's involvement in the export of advertising practices that would violate U.S. laws designed to

protect American youth should be examined. The aggressive pursuit of Third World tobacco cultivation by the transnational companies themselves has harmed American tobacco farmers far more than protectionist policies.

The health of U.S. citizens is directly affected by the tobacco industry's Third World strategies. It is becoming increasingly

evident that, desperate over the shrinking domestic markets, the tobacco companies have adopted the very same strategies for promoting smoking among women, minorities, the impoverished, and the undereducated in the United States, as they have in the countries of Asia, Europe, and in Latin America.

LEGISLATION
