

# Health-Related Behaviors

# 7

Some voluntary behaviors, such as smoking, drinking alcohol, and driving recklessly contribute substantially to the deaths and disabilities that result from chronic diseases and injuries (200). Other behaviors—such as using medical screening tests, getting immunizations, using automobile seatbelts, and eating a healthy diet—can prevent premature death and disability. Encouraging healthy lifestyles has become a focus for public health in developed countries, where targets are being used to monitor the success of health education and promotion programs.<sup>1</sup> This chapter presents information on health-related behaviors and selected preventive health practices in the United States and other countries.

## SMOKING AND ALCOHOL CONSUMPTION

It is difficult to accurately measure behaviors that may be considered socially undesirable. National estimates of smoking rates and alcohol consumption are available from surveys,<sup>2</sup> but these can be unreliable if heavy smokers or drinkers either don't participate in the surveys or underreport their smoking or drinking. Large discrepancies between the amount of smoking

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<sup>1</sup> The WHO European Year 2000 target states that “there should be significant increases in positive health behavior, such as balanced **nutrition**, non-smoking, appropriate physical activity, and good stress management” and that “.. there should **be** significant decreases in health-damaging behavior, such as overuse of alcohol and pharmaceutical products; use of illicit drugs and dangerous chemical substances; and dangerous driving and violent **social** behavior” (256).

<sup>2</sup> Other methods of measuring the consequences of alcohol consumption or smoking include analyses of alcohol- or smoking-related mortality (e.g., liver cirrhosis, respiratory cancer); admissions to general and/or psychiatric hospitals and to alcohol treatment clinics; convictions for drunkenness or driving under the influence of alcohol; and the number of **traffic** accidents associated with alcohol use (270,271).

and drinking self-reported on surveys and the amount of alcohol and cigarettes accounted for on sales records provide indirect evidence of under-reporting (270,271).

## Smoking

Cigarette smokers die at twice the rates of nonsmokers throughout middle age, and nearly one in five deaths in developed countries can be attributed to the effects of smoking (140). In the United States, more than one-fourth of deaths from cancer, nearly one-fifth of deaths from cardiovascular disease, and one-half of deaths from respiratory disease were attributable to smoking in 1990 (for a total of approximately 419,000 deaths) (194,212a).

Comparable information on smoking in 12 European countries is available from a 1987-88 study, "Europeans and Cancer Prevention."<sup>3</sup> In Europe, smoking prevalence varied for males from 40 percent (Ireland, Portugal, and the United Kingdom) to 62 percent (Greece), and for females from 11 percent (Portugal) to 44 percent (Denmark) (table 7-1).

A much smaller proportion of U.S. males (30 percent) than European males (45 percent) smoked in the late 1980s, but the gap was less significant between female smokers in the United States (26 percent) and Europe (29 percent) (table 7-1) (28,228). The European and U.S. numbers are not strictly comparable, because the European definition included pipe and cigar smokers and

the U.S. definition referred only to cigarettes (28,221). Almost all (94 percent) European smokers smoke cigarettes, however, so the comparison is roughly accurate.<sup>4</sup> In light of these differences, the World Health Organization (WHO) has recommended that countries use a uniform set of smoking questions on their surveys (44).

In Europe and the United States, in general, more males than females smoke. But among those aged 24 or younger, the rate for females is higher in the United States, United Kingdom, the Netherlands, and Denmark (table 7-1).

According to comparable surveys from the United States and Canada in 1985 and 1990,<sup>5</sup> smoking prevalence was higher in Canada than in the United States (30 versus 26 percent in 1990) (table 7-2) (162). Higher rates for Canada were most pronounced among women, especially those aged 18 to 24 (162). In 1990, a greater proportion of deaths in Canada (22 percent) than in the United States (19 percent) were attributable to smoking.<sup>6</sup>

Since the mid-1960s, smoking by males has declined in the United States and selected European countries (table 7-3). The proportion of female smokers has increased in some countries where the rates used to be low (e.g., Belgium, France) and declined in places where the rates used to be high (e.g., United States, United Kingdom). As a result, by the late 1980s, nearly one-third of the women in the comparison countries smoked.

<sup>3</sup> A standardized questionnaire on **cancer** and its **prevention** was used as part of two **surveys** conducted in 1987 and 1988. For each **survey**, face-to-face **interviews** were conducted within the homes of a representative sample of residents aged 15 and older within 12 countries. Smoking data were aggregated from the two studies, which included more than 20,000 subjects in total. Survey respondents were asked to select which of the following applied to them: "smoke cigarettes (including roll-your-own)," "smoke cigars or a pipe," "used **to smoke but you have stopped**," or "you have never smoked." Smokers were **identified** as those reporting currently smoking cigarettes, cigars, or a pipe (28).

<sup>4</sup> **If pipe and cigar smokers were removed from the European prevalence numbers, the gap between U.S. and European males would close slightly, but the difference between U.S. and European females would likely remain the same, because most cigar and pipe smokers are males,**

<sup>5</sup> In 1985 and 1990, the United **States** conducted the National Health **Interview Survey Health** Promotion and Disease Prevention Supplements, and Canada conducted **Health** Promotion Surveys (162).

<sup>6</sup> Estimates of mortality attributable to smoking in the United States and Canada were made by **OTA** using the Smoking-Attributable Mortality, Morbidity, and Economic Costs computer program (**SAMMEC** 2.1) developed by the U.S. Centers for Disease Control and Prevention's **Office** on Smoking and Health (194).

**Table-7-1-Smoking Prevalence by Age, Selected European Countries(1987-88)a and the United States (1988)**

	Males					Females						
	All Ages	15-24	25-39	40-45	55+	All Ages	15-24	25-59	40-54	55+		
<b>European Community</b>	<b>45%</b>	<b>39%</b>	<b>53%</b>	<b>51%</b>	<b>36%</b>	<b>29%</b>	<b>31%</b>	<b>41%</b>	28%	<b>18%</b>		
Belgium	49	49	55	56	41	30	39	49	29	19		
Denmark	46	37	53	51	44	44	44	47	48	37		
France	46	55	58	46	32	31	48	40	25	11		
Germany <sup>b</sup>	45	34	61	51	39	31	30	45	33	18		
Greece	62	62	72	69	45	27	38	46	20	9		
Ireland	40	35	41	39	40	31	28	33	32	27		
Italy	42	32	49	4a	34	27	25	43	26	17		
Netherlands	47	38	51	57	49	40	46	51	39	25		
Portugal	40	52	60	42	30	11	24	23	8	2		
Spain	48	52	62	56	34	24	44	47	11	6		
United Kingdom	40	30	48	45	37	30	33	33	41	21		
<b>United States</b>	<b>All ages</b>	<b>18-24</b>	<b>25-34</b>	<b>35-44</b>	<b>45-64</b>	<b>65+</b>	<b>All ages</b>	<b>18-24</b>	<b>25-34</b>	<b>35-44</b>	<b>45-64</b>	<b>65+</b>
	30	26	36	37	31	18	26	26	31	28	28	13

aFor European countries, smoking prevalence came from two surveys conducted in 1987 and 1988 by the Commission of the European Communities (surveys were conducted in 12 countries of the European Economic Community). Data from Luxembourg were not shown but are included in the total for Europe. These data refer to current smoking of cigarettes, cigars or pipes. U.S. smoking data came from the 1988 U.S. Health Interview Survey. The data refer to current cigarette smokers (i.e., individuals who have smoked at least 100 cigarettes and who now smoke; includes occasional smoking).

bBased on data from the former Federal Republic of Germany.

SOURCES: Commission of the European Communities, *Europeans and Cancer Prevention: A Study of Attitudes and Behaviour of the Public* (Brussels, Belgium: Commission of the European Communities, June 1988); U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Center for Health Statistics, *Health, United States 1991* (Hyattsville, MD: U.S. Department of Health and Human Services, May 1992).

Table 7-2--Cigarette Smoking by Adults (Age 18 and Older),<sup>a</sup> by Age, Sex, and Education, United States and Canada, 1985 and 1990

	Current smokers (as a percent of population)			
	United States		Canada	
	1985	1990	1985	1990
<b>Total<sup>b</sup></b>	<b>30</b>	<b>26</b>	<b>35</b>	<b>30</b>
Men	33	28	36	32
Women	28	23	33	29
<b>Age group</b>				
<b>18-24</b>				
Men	28	27	38	31
Women	30	23	41	31
<b>25-44</b>				
Men	38	33	40	36
Women	32	27	37	34
<b>45-64</b>				
Men	33	29	36	30
Women	30	25	30	26
<b>65+</b>				
Men	20	15	20	18
Women	14	11	18	14
<b>Educational level</b>				
High school not completed	35	32	39	36
High school completed	34	30	39	34
College or university	23	18	28	23

<sup>a</sup>The definition of a current smoker varied only slightly between the 1990 Canadian Health Promotion survey and the 1990 U.S. National Health Interview Survey of Health Promotion and Disease Prevention. In the Canadian survey, a current smoker is anyone who currently smokes, whereas in the U.S. survey, a current smoker is one who has smoked at least 100 cigarettes in his or her lifetime and smokes now. The effect of this definitional difference should be minimal and would be most likely to reduce the rate for young people who have begun smoking but who have not yet smoked 100 cigarettes.

<sup>b</sup>Data for Canada includes persons 17 years of age. These persons are included in all totals well as the age category 18 to 24 years for men and women.

SOURCE: C.A. Schoenborn, "Health Status and Practices in Canada and the United States, 1985 and 1990," Canada's Health Promotion Survey 1990: *Technical Report*, T. Stephens and D.F. Graham (eds.) (Ottawa, Ontario: Health and Welfare Canada, 1993).

## Alcohol Consumption

At least 3 percent of all deaths in the United States can be attributed to alcohol-related causes (202). Excess and chronic consumption of alcohol can lead to liver disease (e.g., cirrhosis), gastrointestinal cancers, and cardiovascular disorders. Alcohol also contributes heavily to deaths and disabilities related to injuries. As many as one-half of all automobile crash fatalities are alcohol-related. Furthermore, fetal exposure to alcohol is a leading cause of mental retardation (202).

International comparisons of alcohol use are difficult to make, because no standard criteria have been used to assess alcohol use in population-based surveys (270,271). The information about alcohol consumption contained in population-based surveys may include average occurrences of drinking, amount of consumption, and frequency of intoxication. Drinking patterns, which vary among the residents of different countries, are important to distinguish, because the health consequences of different patterns are likely to vary. In wine-producing countries, for example,

**Table 7-3--Smoking Prevalence, United States and Selected European Countries, Mid-1960s and Late 1980s<sup>a</sup>**

	Males		Females	
	mid-1960s	late 1980s	mid-1960s	late 1980s
<b>United States</b>	52%	31%	34%	27%
Belgium	80	49	15	30
France	66	46	15	31
Germany <sup>b</sup>	70	45	16	31
Italy	50	41	27	27
Netherlands	82	47	32	40
United Kingdom	67	40	38	30

<sup>a</sup>European statistics are for those 21 and older in 1963 and 1987-88. United States statistics are for those 18 and older in 1965 and 1987.

<sup>b</sup>Based on data from the former Federal Republic of Germany.

SOURCES: Commission of the European Communities, *Europeans and Cancer Prevention: A Study of Attitudes and Behavior of the Public* (Brussels, Belgium: Commission of the European Communities, March/April and June 1988); U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Center for Health Statistics, *Health United States: 1988*, DHHS Pub. No. (PHS) 88-1232 (Hyattsville, MD: U.S. Department of Health and Human Services, March 1988).

consumption tends to be regular whereas in other countries consumption is more episodic. With long-term moderate drinking, the risks of some chronic diseases actually decline, but heavy binge drinking is often associated with injury and violence.

Uniform data on alcohol consumption are available from 12 European countries.<sup>7</sup> In these 12 countries, the prevalence of frequent<sup>8</sup> drinking ranges from a low of 11 percent of males and 2 percent of females in Ireland, to a high of 56 percent of males and 30 percent of females in Italy (table 7-4). For the European Community as a whole frequent drinking is reported more than

twice as often for males (38 percent) as for females (16 percent) and infrequent alcohol consumption is reported twice as often for females (55 percent) as for males (27 percent).

Information on alcohol consumption in the United States is not directly comparable to the European data because different consumption categories are used.<sup>9</sup> Within the United States, “heavier” drinking is reported more frequently by males (13 percent) than by females (3 percent). Levels of alcohol abstinence in the United States are similar to levels of infrequent consumption in Europe. In 1988, almost one-third (32 percent) of

<sup>7</sup> The Commission on the European Communities included alcohol consumption in a survey on cancer-related topics conducted in 12 countries in 1988. An identical questionnaire was used to conduct 11,729 face-to-face interviews among representative sample of respondents aged 15 years or older (27a).

<sup>8</sup> In the survey by the Commission on the European Communities, frequent consumption of alcohol was defined as drinking wine or beer daily and or spirits at least 3 or 4 days a week (28).

<sup>9</sup> The National Health Interview Survey alcohol consumption categories are “abstain” which is consumption of less than .01 ounces of alcohol per day; “light,” which is consumption of between .01 and .21 ounces of alcohol per day; “moderate,” which is consumption of between .22 and .99 ounces of alcohol per day; and “heavier,” which is consumption of 1.00 or more ounces of alcohol per day. One ounce of alcohol is equal to approximately 2 average size drinks of beer, wine, or liquor (162,232).

Table 7-4--Alcohol Consumption, Selected European Countries<sup>a</sup> and the United States,<sup>b</sup> 1988

	Males			Females				
	Infrequent	Average	Frequent	Infrequent	Average	Frequent		
European Community	27%	35%	36%	55%	29%	16%		
Belgium	33	33	34	52	33	15		
Denmark	24	56	20	50	42	8		
France	24	29	47	51	29	20		
Germany <sup>c</sup>	24	50	26	54	40	6		
Greece	27	36	37	64	25	11		
Ireland	41	48	11	72	16	2		
Italy	25	19	56	51	19	30		
Luxemburg	29	40	31	60	28	12		
Netherlands	31	41	28	59	26	15		
Portugal	22	21	57	53	25	22		
Spain	30	23	47	56	23	21		
United Kingdom	33	47	20	60	30	10		
	Abstain	L i g h t	Heavier	Abstain	L i g h t	Heavier		
United States	32	30	25	13	53	30	14	3

<sup>a</sup>The European Community data derived from a 1988 survey conducted by the Commission of the European Communities in 12 countries. Infrequent alcohol consumption was defined as consumption of wine, beer, or spirits less often than once per week. Frequent alcohol consumption was defined as consumption of wine or beer daily and/or spirits at least 3 or 4 days per week. Average consumption was defined as consumption falling between infrequent and frequent as defined above.

<sup>b</sup>The U.S. data derived from the National Health Interview Survey. Alcohol consumption status is defined in ounces (oz.) of absolute alcohol (ethanol) consumed per day as follows: abstain-less than .01 oz.; light-.01 to .21 oz.; moderate-.22 to .99 oz.; and heavier-1.01 or more oz.

<sup>c</sup>Based on data from the former Federal Republic of Germany.

SOURCES: Commission of the European Communities, *Europeans and Cancer Prevention: A Study of Attitudes and Behaviour of the Public* (Brussels, Belgium: Commission of the European Communities, June 1988); U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Center for Health Statistics, *Health United States: 1988*, DHHS Pub. No. (PHS) 88-1232 (Hyattsville, MD: U.S. Department of Health and Human Services, March 1988).

U.S. males and more than one-half (53 percent) of females were abstainers (table 7-4).

Comparable data on alcohol consumption are available from 1985 and 1990 population-based surveys in the United States and Canada (162).<sup>10</sup> Both countries define a current drinker as someone who has had at least one drink of alcohol in the year preceding the survey, and define heavy

alcohol consumption as two or more drinks per day on average (162).<sup>11</sup> In both years, a greater proportion of Canadian than U.S. residents reported drinking (in 1990, 81 versus 61 percent) (table 7-5). The overall prevalence of heavy drinking is similar in Canada (7 percent) and the United States (6 percent).<sup>12</sup>

<sup>10</sup>In 1985 and 1990, the United States conducted the National Health Interview Survey Health Promotion and Disease Prevention Supplements, and Canada conducted Health Promotion Surveys (162).

<sup>11</sup>The calculation of heavy drinking varies slightly on the two surveys, with average consumption based on a 7-day recall period in Canada and 14-day recall period in the United States (162).

<sup>12</sup>The prevalence of heavy drinking among drinkers in the United States and Canada was the same (9 percent) in 1990, but the overall prevalence of heavy drinking was slightly higher in Canada than in the United States, because the prevalence of drinking was higher in Canada (table 7-5).

**Table 7-5--Current Alcohol Consumption by Adults (Age 18 and Older), by Age, Sex, and Education, United States and Canada, 1985 and 1990**

	Current drinkers <sup>a</sup>				Current drinkers who drink heavily			
	United States		Canada		United States		Canada	
	1985	1990	1985	1990	1985	1990	1985	1990
<b>Total<sup>c</sup></b>	<b>65%</b>	<b>61%</b>	<b>82%</b>	<b>81%</b>	<b>12%</b>	<b>9%</b>	<b>14%</b>	<b>9%</b>
Men	76	72	87	86	17	14	23	16
Women	56	51	78	77	5	4	6	3
<b>Age group</b>								
<b>18-24</b>								
Men	79	71	93	92	18	14	24	21
Women	91	86	64	56	5	3	9	d-
<b>25-44</b>								
Men	83	79	92	90	16	13	23	15
Women	63	59	86	83	4	3	4	2*
<b>45-64</b>								
Men	72	68	80	84	18	15	23	14
Women	53	48	73	73	7	4	7	4*
<b>65+</b>								
Men	58	55	73	66	18	16	16	12*
Women	34	31	52	58	8	6	d-	d-
<b>Education level</b>								
High school not completed	47	42	71	72	15	13	13	11
High school completed	66	60	86	85	12	10	16	10
College or university	77	71	90	88	11	8	14	8

aA current drinker is defined as a person who had at least one drink of any alcoholic beverage in the 12 months preceding the survey.

bHeavy drinking is defined as two or more drinks per day, on average, over the overall period (7-day recall in Canada; 14-day recall in the United States)."

cData for Canada includes persons 17 years of age. These persons are included in all totals as well as in the age category 18 to 24 years for both men and women.

dData suppressed because of high sampling variability.

eModerate sampling variability; read with caution.

SOURCE: C.A. Schoenborn, "Health Status and Practices in Canada and the United States, 1985 and 1990," Canada's Health Promotion Survey 1990: *Technical Report*, T. Stephens and D.F. Graham (eds.) (Ottawa Ontario: Health and Welfare Canada, 1993).

## PREVENTIVE HEALTH PRACTICES

Death and disability associated with breast and cervical cancer and hypertension can be reduced by early detection and treatment. In the United States women have about a 10 percent risk of developing breast cancer and a 1 percent risk of developing cervical cancer at some point during their lives (164a). The use of the Pap test may reduce the rates of mortality from uterine cervical cancer by as much as 75 percent, however, and the use of breast examination and mammography can reduce mortality from breast cancer by 30 percent for women aged 50 and older (200). Other personal practices, such as use of seatbelts and household smoke alarms can reduce the rates of death and disability associated with automobile crashes and household fires. For example, up to one-half of the fatalities related to automobile crashes in the United States could be prevented if everyone used lap-shoulder belts (148).

### Comparisons of the United States and Canada

Information on preventive health practices in Canada and the United States is available from comparable population surveys conducted in 1985 and 1990 (162).<sup>13</sup>

#### BLOOD-PRESSURE CHECKS

In 1990, a similar proportion of the residents of the United States (75 percent) and Canada (78 percent) had had their blood pressure checked within the past year (table 7-6). For those aged 45 or older, who are at greater risk of heart disease, the rates differed. Men aged 45 to 64, for example, were more likely to have had their blood pressure checked recently in Canada (80 percent) than in the United States (74 percent) (162).

#### PAP TESTS

In 1985, Pap tests were used at similar rates in the United States (78 percent) and Canada (76 percent). Between 1985 and 1990, the use of Pap tests declined in Canada and increased in the United States, so that by 1990 there was a clear difference in usage in the United States (81 percent) and Canada (72 percent) (table 7-7). Among women aged 65 and older, many fewer women in Canada (44 percent) than in the United States (63 percent) had had a Pap test within the past 3 years (162).

#### BREAST SELF-EXAMINATION

In 1985, a greater proportion of women in Canada (41 percent) than in the United States (32 percent) reported performing a monthly breast self-examination (BSE) (table 7-7). By 1990, however, monthly BSE rates had increased in the United States (38 percent) and fallen in Canada (27 percent) so that more U.S. than Canadian women were engaged in this preventive health practice (162).

#### SEATBELT USE

In 1985, regular use of seatbelts by residents of the United States (36 percent) was less than half that reported in Canada (79 percent) (table 7-8). Between 1985 and 1990, regular use of seatbelts increased in the United States from 36 to 67 percent, but such use remained substantially higher in Canada (91 percent in 1990) (162).

#### OWNERSHIP OF SMOKE DETECTORS

Residents of the United States were less likely than Canadian residents to have a home smoke detector in 1985 (63 versus 77 percent) and 1990 (79 versus 85 percent) (table 7-8) (162).

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<sup>13</sup>In 1985 and 1990, the United States conducted the National Health Interview Surveys of Health Promotion and Disease Prevention, and Canada conducted the Health Promotion Surveys (162).

**Table 7-6--Trends In Adults Having Recent Blood-Pressure Checks, by Age, Sex, and Education, United States and Canada, 1985 and 1990**

	Had blood pressure checked in year preceding survey			
	United States		Canada	
	1985	1990	1985	1990
<b>Total*</b>	74%	75%	76 <sup>11</sup>	78%
<b>Men</b>	68	69	69	71
<b>Women</b>	79	80	83	85
<b>Age group</b>				
<b>18-24</b>				
<b>Men</b>	62	62	51	57
<b>Women</b>	79	82	78	79
<b>25-44</b>				
<b>Men</b>	63	64	68	67
<b>Women</b>	76	78	81	84
<b>45-64</b>				
<b>Men</b>	73	74	77	80
<b>Women</b>	78	80	85	87
<b>65+</b>				
<b>Men</b>	82	84	86	89
<b>Women</b>	86	85	92	92
<b>Education level</b>				
<b>High school not completed</b>	74	75	78	79
<b>High school completed</b>	73	74	77	76
<b>College or university</b>	75	76	74	79

\*Data for Canada include persons 17 years of age. These persons are included in all totals as well as the 18 to 24 age category for both men and women.

SOURCE: C.A. Schoenborn, "Health Status and Practices in Canada and the United States, 1985 and 1990," *Canada's Health Promotion Survey 1990: Technical Report*, T. Stephens and D.F. Graham (eds.) (Ottawa, Ontario: Health and Welfare Canada, 1993).

#### EXCESS BODY WEIGHT<sup>14</sup>

The proportion of men and women considered overweight increased in both Canada and the United States between 1985 and 1990 (figure 7-1) (162). In 1990, similar proportions of men in the United States (26 percent) and Canada (27 percent) were overweight, but substantially more women were overweight in the United States (26 percent) than in Canada (18 percent) .15

#### REGULAR PHYSICAL ACTIVITY

Between 1985 and 1990, the proportion of residents who engaged in regular physical activity declined somewhat in Canada (from 53 to 47 percent) but increased slightly in the United States (from 40 to 41 percent). Even so, relatively fewer U.S. than Canadian residents reported participation in regular physical activity in 1990 (table 7-9) (162). The elderly in Canada are much

<sup>14</sup> Being overweight can seriously affect health and longevity. Evidence suggests that the causes of overweight are multifactorial and reflect inherited, environmental, cultural, socioeconomic, and psychological conditions (123).

<sup>15</sup> Body-mass index (BMI) (weight in kilograms divided by the square of height in meters) is used to define overweight. The definition of overweight used in the United States is somewhat more restrictive (BMI of 27.8 for men and 27.3 for women) than in Canada (BMI of 27 for both sexes) (162).

**Table 7-7-Trends in Women Having Had Pap Tests Within 3 Years of the Survey and Monthly Breast Self-Examination,<sup>b</sup> by Age and Education, United States and Canada, 1985 and 1990**

	Had Pap smear within 3 years of survey				Perform BSE monthly			
	United States		Canada		United States		Canada	
	1985	1990	1985	1990	1985	1990	1985	1990
<b>Total<sup>a</sup></b>	<b>78%</b>	<b>81%</b>	<b>76%</b>	<b>72%</b>	<b>32%</b>	<b>38%</b>	<b>41%</b>	<b>27%</b>
<b>Age group</b>								
18-24	78	80	75	66	24	28	38	16
25-44	90	90	88	83	34	39	40	26
45-64	76	78	73	72	37	42	46	36
65+	57	63	51	44	29	36	37	28
<b>Education level</b>								
High school not completed	68	70	68	62	29	33	38	28
High school completed	79	81	78	75	32	39	40	28
College or university	85	87	83	79	34	39	44	26

<sup>a</sup>The Canadian Pap test question changed between 1985 and 1990, with the addition of a screeneing question about ever having had a Pap smear and asking recently only of those who reported ever having had one. The 1985 question simply asked respondents when they had their last Pap test, with "never" being a response option. The U.S. questions did not change between 1985 and 1990 and were more similar to the 1985 Canadian question, in that they asked when the respondent had her last Pap bet, to which she could respond with an interval or "never."

<sup>b</sup>The context of the Canadian questions on BSE changed between the 1985 and 1990 surveys. The 1985 survey explained an introductory question regarding whether the woman had ever been shown how to examine her own breasts. All women, regardless of the answer to the question, were then asked about their current BSE practices. The 1990 survey just asked a direct question on frequency of performing BSE, without any introductory statement. The question's wording also changed from a more descriptive "know how to examine your own breasts" in 1985 to "perform breast self-examination" in 1990. The U.S. questions remained identical in context and content between the two survey years, asking women if they knew how to examine their own breast for lumps and, for those who know how, asking how many times a year they did so.

<sup>c</sup>Data for Canada include women 17 years of age. These women are included in the total and in the age category 18 to 24 years.

**SOURCE:** C.A. Schoenborn, "Health Status and Practices in Canada and the United States, 1985 and 1990," Canada's *Health Promotion Survey 1990: Technical Report*. R.T. Stephens and D.F. Graham (eds.) (Ottawa, Ontario: Health and Welfare Canada, 1993).

**Table 7-8-Trends in Adults' Regular Use of Seatbelts<sup>a</sup> and Ownership of Smoke Detectors,<sup>b</sup> by Age, Sex, and Education, United States and Canada, 1985 and 1990**

	Percent of population who <sup>usually</sup> wear seatbelts				Percent of Population who own smoke detectors			
	United States		Canada		United States		Canada	
	1985	1990	1985	1990	1985	1990	1985	1990
<b>Total<sup>c</sup></b>	36%	<b>67%</b>	<b>79%</b>	<b>91%</b>	<b>63%</b>	<b>79%</b>	<b>77%</b>	<b>85%</b>
Men	34	<b>62</b>	<b>75</b>	<b>87</b>	63	<b>79</b>	<b>78</b>	84
Women	38	71	<b>83</b>	<b>95</b>	63	<b>78</b>	<b>77</b>	85
<b>Age group</b>								
<b>18-24</b>								
Men	<b>27</b>	54	<b>67</b>	<b>82</b>	59	75	78	<b>86</b>
women	<b>32</b>	65	<b>76</b>	<b>91</b>	58	75	73	<b>83</b>
<b>25-44</b>								
Men	36	63	<b>76</b>	<b>87</b>	66	<b>81</b>	<b>81</b>	<b>87</b>
Women	<b>41</b>	73	<b>83</b>	<b>95</b>	68	<b>82</b>	<b>81</b>	<b>87</b>
<b>45-64</b>								
Men	35	64	<b>75</b>	88	63	77	<b>76</b>	84
Women	<b>37</b>	72	<b>84</b>	96	<b>62</b>	78	<b>75</b>	<b>87</b>
<b>65+</b>								
Men	33	<b>67</b>	<b>85</b>	<b>90</b>	59	78	<b>70</b>	75
Women	<b>35</b>	<b>72</b>	<b>88</b>	<b>95</b>	60	<b>73</b>	<b>74</b>	<b>80</b>
<b>Education level</b>								
High school not completed	25	56	75	88	51	67	72	84
High school completed	31	<b>62</b>	<b>78</b>	<b>91</b>	<b>64</b>	<b>78</b>	<b>81</b>	<b>87</b>
College or university	48	77	<b>83</b>	<b>93</b>	71	<b>85</b>	<b>80</b>	<b>88</b>

<sup>a</sup>The Canadian and U.S. questions regarding use of seatbelts remained unchanged between 1985 and 1990. There were some minor differences between the two surveys in terms of response categories, but they should not affect results presented here.

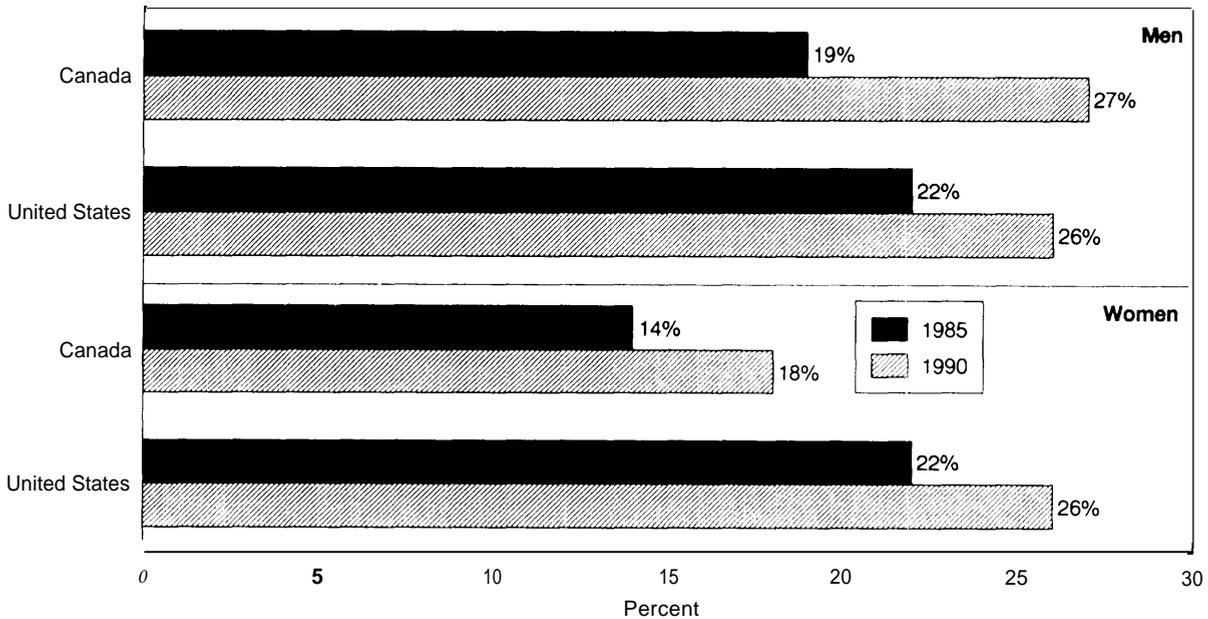
<sup>b</sup>In contrast to the 1985 Canadian question on smoke detection, which asked about having any smoke detectors in the home, the 1990 question asked about **working smoke detectors**.

The 1985 and 1990 U.S. questions asked first about ownership of any smoke detectors and subsequently about their working status. In order to be comparable with 1985 Canadian results, previously published 1985 U.S. data presented ownership of any smoke detector, regardless of working status. The data presented in this table include 1985 and 1990 U.S. and Canadian data on working smoke detectors only.

<sup>c</sup>data for Canada includes persons 17 years of age. These persons are included in all totals as well as the age category 18 to 24 for both men and women<sup>d</sup>

SOURCE: C.A. Schoenborn, "Health Status and Practices in Canada and the United States, 1985 and 1990," *Canada's Health Promotion Survey 1990: Technical Report*, T. Stephens and D.F. Graham (eds.) (Ottawa, Ontario: Health and Welfare Canada 1993).

Figure 7-1—Trends in Overweight Proportion of Adult Population (Age 18 and Older), Canada and United States, 1985 and 1990



SOURCE: C.A. Schoenborn, "Health Status and Practices in Canada and the United States, 1985 and 1990," *Canada's Health Promotion Survey 1990: Technical Report* T. Stephens and D.F. Graham (eds.) (Ottawa, Ontario: Health and Welfare Canada, 1993).

more likely to be engaged in physical activity than their contemporaries in the United States (162).

## Comparisons Between Europe and the United States

### PAP TESTS

Women's use of Pap tests appears to be much higher in the United States than in Europe. In 1987, 88 percent of U.S. women reported ever having had a Pap test and 75 percent reported having had one within the preceding 3 years

(200).<sup>16</sup> By contrast, only 48 percent of women surveyed in 12 European countries had ever had a Pap test (table 7-10).<sup>17</sup> The lowest European use was in Portugal (6 percent) and Greece (30 percent), and the highest was in France (70 percent) and the United Kingdom (67 percent). Pap tests appear to be done less frequently in Europe than is recommended. In France and the United Kingdom, for example, where the proportion of women using the test is relatively high, a significant proportion of them have the test

<sup>16</sup> The U.S. Task Force on preventive Services recommends regular Pap testing for all women starting at the onset of sexual activity, with repeat tests every 1 to 3 years, at the physician's discretion. Pap tests may be discontinued at age 65, if previous test results have been consistently normal (238). Recommendations vary somewhat in Europe. In Great Britain, for example, Pap tests are recommended every 3 years for all women beginning at age 20 and for younger women if sexually active. In Denmark, women up to the age of 70 are invited to be screened, but those between the ages of 23 and 59 are targeted, and Pap tests every 3 years are recommended (192).

<sup>17</sup> Women's use of Pap tests and mammography was assessed in 1988. A standardized questionnaire related to cancer and its prevention was used as part of the survey. A total of 11,729 face-to-face interviews were conducted in the homes of a representative sample of residents aged 15 and older in 11 countries (27a).

<sup>18</sup> In France, 55 percent of women reported having Pap tests performed every year or every 2 to 3 years. In the United Kingdom, only 32 percent of women reported having the test repeated within years (table 7-10).

**Table 7-9--Trends in Adult Participation in Regular Physical Activity, by Age, Sex, and Education, United States and Canada, 1985 and 1990**

	Regularly active <sup>a</sup>			
	United States		Canada	
	1985	1990	1985	1990
<b>Total<sup>b</sup></b>	400/0	41%	53%	47%
<b>Men</b>	43	44	55	49
<b>Women</b>	38	38	52	46
<b>Age group</b>				
<b>18-24</b>				
<b>Men</b>	62	61	64	70
<b>Women</b>	47	45	60	54
<b>25-44</b>				
Men	46	46	55	44
Women	42	41	51	42
<b>45-64</b>				
<b>Men</b>	30	36	46	41
<b>Women</b>	32	35	51	48
<b>65+</b>				
<b>Men</b>	32	37	59	55
<b>Women</b>	28	29	47	43
<b>Education level</b>				
<b>High school not completed</b>	24	26	45	44
<b>High school completed</b>	38	37	55	49
<b>College or university</b>	53	52	59	49

<sup>a</sup>Canada: reported vigorous physical activity of at least 15 minutes' duration three or more times weekly; United States: answered "yes" to "Do you exercise or play sports regularly?"

<sup>b</sup>Data for Canada includes persons 17 years of age. These persons are included in all totals as well as the age categories 18 to 24 years for both men and women.

SOURCE: C.A. Schoenborn, "Health Status and Practices In Canada and the United States, 1985 and 1990," *Canada's Health Promotion Survey 1990: Technical Report*, T. Stephens and D.G. Graham (eds.) (Ottawa, Ontario: Health and Welfare Canada, 1993).

performed less often than once every 3 years (table 7-10).<sup>18</sup>

### MAMMOGRAPHY

Women aged 50 and older are somewhat more likely to get mammograms in the United States than in Europe. One-quarter of U.S. women in that age group reported in 1987 that they had had mammograms within the preceding 2 years (200),<sup>19</sup> whereas 17 percent of their European contempo-

raries surveyed in 1988 had ever had a mammogram (table 7-11). Higher rates of ever having had a mammogram were reported in Germany (35 percent), and lower rates were reported in the United Kingdom (9 percent) and Ireland (6 percent).

### CHILDHOOD VACCINATION

**Vaccinating** children for diphtheria, pertussis, and tetanus (DPT), as well as measles and polio,

<sup>19</sup> The recommended age of onset and frequency of mammography is in dispute within the United States and internationally (165), but within the United States there is somewhat of a consensus concerning women aged 50 and older: For those women, the American Cancer Institute and the U.S. National Cancer Institute recommend annual mammograms; the U.S. Preventive Task Force recommends mammography every 1 to 2 years concluding at approximately the age of 75, unless pathology has been detected (200,238). Mammography is recommended every 3 years for women aged 50 to 64 in the United Kingdom (165).

Table 7-10-Awareness, Use, and Frequency of Women's Cervical Smear Test in Selected European Countries, 1988

	Know about it	Have had one	Frequency of use				
			Every year	Every 2 or 3 years	Every 4 or 5 years	Less often	Never
European Community	80%	48%	17%	12%	5%	14%	52%
country							
Belgium	75	43	22	10	2	9	57
Denmark	92	62	21	15	4	22	38
Germany <sup>a</sup>	89	47	29	10	4	4	53
Greece	82	30	10	7	3	10	70
France	89	70	40	15	4	11	30
Ireland	90	45	2	16	10	17	55
Italy	81	40	16	8	3	13	60
Luxemburg	87	63	47	8	2	6	37
Netherlands	89	55	8	20	8	19	45
Portugal	40	6	2	1	0	2	94
Spain	37	12	6	1	1	4	88
United Kingdom	93	67	5	27	15	20	33
Age							
15-24	72	25	13	6	1	5	75
25-39	87	63	30	18	6	9	37
40-54	83	59	20	18	9	12	41
55 and over	77	41	10	6	5	17	59

<sup>a</sup>Based on data from the former Federal Republic of Germany.

SOURCE: Commission of European Communities, Europeans and cancer prevention: A Study of the Attitudes and Behaviours of the Public (Brussels, Belgium: Commission of European Communities, June 1988).

Table 7-1 I—Mammography Use by Women Aged 50 and Older in Selected European Countries, 1988<sup>a</sup>

	Number of women used as basis for percentages	Every year	Every 2 or 3 years	Less often	Never had one
European Community	2,215	3%	3%	11?40	83%
Belgium	179	6	4	11	79
Denmark	167	3	2	17	78
Germany <sup>b</sup>	175	7	10	18	65
Greece	201	NA	1	8	91
France	156	5	1	22	72
Ireland	165	NA	2	5	94
Italy	186	4	3		
Luxemburg	43	(9)	(7)	(23)	(61)
Netherlands	136	1	1	15	83
Portugal	216	NA	1	8	91
Spain	226	2	2	6	90
United Kingdom	266	NA	2	7	91

KEY: NA = not available

<sup>a</sup>The results for each country must be interpreted cautiously, because the number of women aged 50 and older in the sample is relatively small.  
<sup>b</sup>Based on data from the former Federal Republic of Germany.

SOURCE: Commission of European Communities, *Europeans and Cancer Prevention: A Study of Attitudes and Behaviours of the Public* (Brussels, Belgium: Commission of European Communities, June 1988).

is widely recognized as a simple, effective, and inexpensive way to safeguard their health (247). Immunization rates for these conditions among preschool-age children are substantially higher in most European countries than in the United States (table 7-12).<sup>20</sup> European immunization rates for DPT, for example, are much higher than U.S. rates (97 percent in France and the Netherlands versus 65 percent in the United States).

Making international comparisons of the prevalence of infectious diseases is difficult, because of marked differences in reporting practices (248). Available evidence indicates that the United States does not have greater rates of infectious disease or the deaths attributed to them than do selected European countries (table 7-13), which is not surprising because U.S. immunization levels are sufficient to prevent many large outbreaks of disease. But even a relatively small number of outbreaks can result in many cases. For

example, a U.S. resurgence of measles during 1989-90 resulted from seven large outbreaks among unvaccinated, preschool children in urban areas (4). Insofar as a country's level of childhood immunization is an indicator of overall participation in well-child care, the United States appears to lag behind most of Europe. Many other developed countries provide universal insurance coverage and actively promote preventive health care for children (191).

## SUMMARY

Smoking cigarettes and drinking heavily are known to have both immediate and long-term adverse effects on health. As many as 20 percent of the deaths in developed countries can be attributed to smoking alone. Available evidence suggests that relatively fewer U.S. residents are smoking than are residents of either Canada or

<sup>20</sup> U.S. immunization rates are available for 1 to 4 year olds. In Europe, rates are presented for children underage 3 (table 7-12). By school age, U.S. rates improve, because State laws mandate immunization of school children (247).

**Table 7-12--Completed Immunization Rates for Preschool Children, the United States and Selected European Countries, Most Recent Available Year**

Country	Year	DTP <sup>a,b</sup>	Measles <sup>c</sup>	Polio <sup>a,d</sup>
United States	1985	64.9%	60.8%	55.3%
White		68.7	63.6	58.9
All other		48.7	48.8	40.1
Belgium <sup>e</sup>	1987	95.0	90.0	99.0
Denmark	1987	94.0 <sup>f</sup>	82.0	100.0
England and Wales	1987	87.0 <sup>g</sup>	76.0	87.0
France <sup>e</sup>	1986	97.0	55.0	97.0
Germany <sup>h</sup>	1987	95.0	50.0	95.0
Netherlands	1987	96.9	92.8	96.9
Norway	1987	80.0	87.0	80.0
Spain	1986	88.0	83.0	80.0
Switzerland (Different cantons)	1986	90-98	60-70	95-98

KEY: DTP= Diphtheria, tetanus, pertussis.

aThree doses or more.

bU.S. rates for children 1 to 4 years of age; European figures are for children under 3.

cU.S. rates are for children 1 to 4 years of age; European figures are for children under 2.

dU.S. rates are for children 1 to 4 years of age; European figures are for children 1 to 3 years of age.

<sup>e</sup>Estimated.

<sup>f</sup>Rate is for combined diphtheria, tetanus, and polio immunizations. Pertussis (coverage--89.0%) and oral polio vaccines are given at separate visits; sequential immunization against polio by both injectable and oral vaccines is recommended.

<sup>g</sup>Rate is for diphtheria and tetanus; rate for pertussis immunization is 73 percent.

<sup>h</sup>Based on data from the former Federal Republic of Germany.

SOURCE: B.C. Williams and CA. Miller, *Preventive Health Care for Young Children: Findings From a 10-Country Study and Directions for United States Policy* (Arlington, VA: National Center for Clinical Infant Programs, 1991).

selected Western European countries. In the mid- to late-1980s, the proportion of men smoking was 30 percent in the United States and 36 percent in Canada, and ranged from 40 to 62 percent in Europe. Current smoking-related deaths can be traced to smoking patterns that existed a decade or more ago. In the mid-1960s, males were less likely and females were more likely to smoke in the United States than in Western European.

Relatively more Canadian than U.S. residents drink alcohol, but the prevalence of heavy drinking is similar in Canada and the United States. People appear to abstain from alcohol or to drink infrequently at about the same rates in the United States and Europe.

Certain preventive health services (i.e., mammography, Pap test) tend to be used more in the

United States than in Europe, and U.S. women are more likely than Canadian women to participate in cervical cancer screening and engage in monthly breast self-examination. U.S. residents are less likely than Canadians, however, to have their blood pressure checked, to use seatbelts regularly, and to have smoke detectors for their homes. U.S. residents are more likely than Canadians to be overweight and less likely to engage in regular exercise, especially if they are elderly.

Childhood immunization is substantially more widespread in Europe than in the United States, which may reflect higher use of well-child care associated with universal health insurance coverage and the promotion of preventive health services for children.

**Table 7-13--Reported Pertussis and Measles Morbidity, United States and Selected European Countries, 1980-86**

Country	1980	1981	1982	1983	1984	1985	1988	Total deaths per million population
								1980-86a
<b>Pertussis cases reported per 100,000 population</b>								
United States	0.76	0.54	0.82	1.05	0.96	1.50	1.74	0.18
Denmark	9.70	8.52	2.60	3.68	6.59	3.58	2.22	0.59
England and Wales	4.66	4.33	14.30	4.35	1.29	4.88	7.98	0.76
France	0.02	0.01	0.03	0.02	0.01	NA	NA	0.49
Ireland	1.61	2.90	3.08	4.93	8.67	10.42	NA	2.86
Netherlands	0.02	0.04	0.06	0.13	0.37	1.05	1.48	0.07
Norway	4.90	4.92	5.13	6.53	3.32	2.95	1.89	0.00
Spain	NA	NA	14.08	9.26	9.37	15.73	14.50	0.3 <sup>b</sup>
Switzerland	0.02	0.01	0.00	0.02	0.08	0.10	0.15	0.16
<b>Measles cases reported per 100,000 population</b>								
United States	5.96	1.36	0.74	0.64	1.10	1.18	2.61	0.11
Denmark	55.14	69.61	30.59	65.00	41.45	25.79	45.87	1.76
England and Wales	30.05	12.46	21.30	23.15	13.59	20.99	18.02	2.03
France	0.23	0.21	0.15	0.16	0.18	NA	NA	2.82
Ireland	3.25	3.12	5.45	17.62	16.22	27.97	NA	6.86
Netherlands	0.13	0.05	0.07	0.31	0.08	0.02	0.06	0.14
Norway	3.24	11.19	26.67	14.97	42.21	3.16	2.93	0.98
Spain	38.71	38.86	4203	7.90	10.15	20.95	57.16 <sup>c</sup>	2.34 <sup>b</sup>

KEY: NA = not available.

<sup>a</sup>The total number of reported deaths from 1980-88 divided by the mean annual population during this interval.

<sup>b</sup>1980-85 totals.

<sup>c</sup>1985 population used as denominator.

SOURCE: B.C. Williams and C.A. Miller, *Preventive Health Care for Young Children: Findings From a 10-country Study and Directions for United States Policy* (Arlington, VA: National Center for Clinical Infant Programs, 1991).