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Perspectives in Disease Prevention and Health Promotion

Smokeless Tobacco Use in the United States — Behavioral Risk Factor Surveillance System, 1986

Between 1970 and 1985, national consumption of smokeless tobacco products (snuff and chewing tobacco) increased markedly in the United States (*1*). Several regional surveys have reported that 7% to 36% of the nation's children and teenagers are using these products (*2-5*). The National Institute on Drug Abuse's National Household Survey showed that, in 1985, the prevalence of use among men and women ≥21 years of age was 19% and 3%, respectively. Results also indicated that the prevalence of use was generally lower in the Northeast and higher in the South than in other regions (*6*).

To establish state-specific prevalences of smokeless tobacco use, the 1986 Behavioral Risk Factor Surveillance System (BRFSS) included questions on current and former use (*7*). Twenty-five states and the District of Columbia collected data by monthly telephone interviews using random-digit dialing techniques. The results were weighted to account for the age, race, and sex distribution of adults ≥18 years of age in each state and for each respondent's probability of selection.

State-specific prevalences of ever use and current use of smokeless tobacco are shown in Table 1. The rates of ever use varied over fourfold among states—from 4.9% in Rhode Island to 23.2% in West Virginia. However, among current users of smokeless tobacco the prevalence varied more than twentyfold—from a low of 0.4% in Massachusetts and New York to a high of 10.2% in West Virginia (median = 3.3%). Most current smokeless tobacco users surveyed were regular rather than merely occasional users.

Smokeless tobacco use was higher among men than among women. For men, prevalence rates of current use ranged from 0.7% in New York and Rhode Island to 21.4% in West Virginia (median = 6.5%). States with male prevalence rates above the median were primarily in the southeastern or northcentral regions (Figure 1). In 19 of the 26 states, more than one-fourth of the male respondents had tried smokeless tobacco. Among women, smokeless tobacco use was much less common, with prevalences ranging from zero in Massachusetts, North Dakota, and the District of Columbia to 4.2% in Georgia (median = 0.3%).

Smokeless Tobacco — Continued

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Editorial Note: Although smoking prevalence among adults has declined in the United States (*8*), the prevalence of smokeless tobacco use among adults has varied

TABLE 1. Smokeless tobacco use in 25 states and the District of Columbia — United States, 1986 Behavioral Risk Factor Surveillance System

State	Sample Size	Ever Use (%)			Current Use (%)		
		Total	Men	Women	Total	Men	Women
Alabama	559	(19.4)	(32.9)	(7.2)	(9.8)	(17.2)	(3.2)
Arizona	1,178	(14.4)	(27.4)	(2.1)	(2.3)	(4.6)	(0.1)
California	1,579	(13.4)	(26.2)	(1.9)	(1.3)	(2.5)	(0.1)
District of Columbia	1,145	(8.3)	(12.7)	(4.7)	(1.2)	(2.7)	(0.0)
Florida	1,162	(14.7)	(27.3)	(3.4)	(2.7)	(4.8)	(0.8)
Georgia	1,140	(17.0)	(28.0)	(7.1)	(7.5)	(11.2)	(4.2)
Hawaii	1,551	(9.2)	(16.8)	(1.8)	(1.1)	(2.0)	(0.2)
Idaho	1,185	(20.0)	(38.3)	(2.4)	(3.2)	(6.5)	(0.3)
Illinois	1,142	(14.0)	(25.2)	(4.1)	(4.1)	(8.2)	(0.5)
Indiana	1,182	(16.3)	(31.8)	(2.4)	(3.2)	(6.5)	(0.3)
Kentucky	1,216	(17.2)	(33.0)	(2.8)	(5.8)	(10.8)	(1.2)
Massachusetts	1,105	(8.0)	(15.3)	(1.5)	(0.4)	(0.8)	(0.0)
Minnesota	3,023	(16.5)	(31.5)	(2.7)	(3.0)	(5.8)	(0.4)
Missouri	873	(19.1)	(38.6)	(1.8)	(4.5)	(9.4)	(0.2)
Montana	1,176	(22.3)	(42.0)	(3.2)	(8.8)	(17.1)	(0.7)
New Mexico	1,139	(12.5)	(22.0)	(3.5)	(3.3)	(6.6)	(0.2)
New York	1,135	(7.4)	(14.3)	(1.6)	(0.4)	(0.7)	(0.2)
North Carolina	1,622	(21.1)	(34.2)	(9.1)	(7.0)	(10.9)	(3.4)
North Dakota	1,182	(20.0)	(37.2)	(2.6)	(6.0)	(12.0)	(0.0)
Ohio	1,158	(13.7)	(26.6)	(2.8)	(3.4)	(6.9)	(0.5)
Rhode Island	1,535	(4.9)	(9.2)	(1.2)	(0.5)	(0.7)	(0.3)
South Carolina	1,793	(10.4)	(16.7)	(4.7)	(3.6)	(5.1)	(2.3)
Tennessee	1,779	(18.0)	(32.7)	(4.7)	(6.1)	(10.7)	(1.9)
Utah	1,188	(14.6)	(29.1)	(0.9)	(2.5)	(5.0)	(0.1)
West Virginia	1,380	(23.2)	(47.6)	(1.7)	(10.2)	(21.4)	(0.3)
Wisconsin	1,268	(19.7)	(38.3)	(2.4)	(2.9)	(5.9)	(0.1)
Median		**(15.5)**	**(28.6)**	**(2.7)**	**(3.3)**	**(6.5)**	**(0.3)**

Smokeless Tobacco — Continued

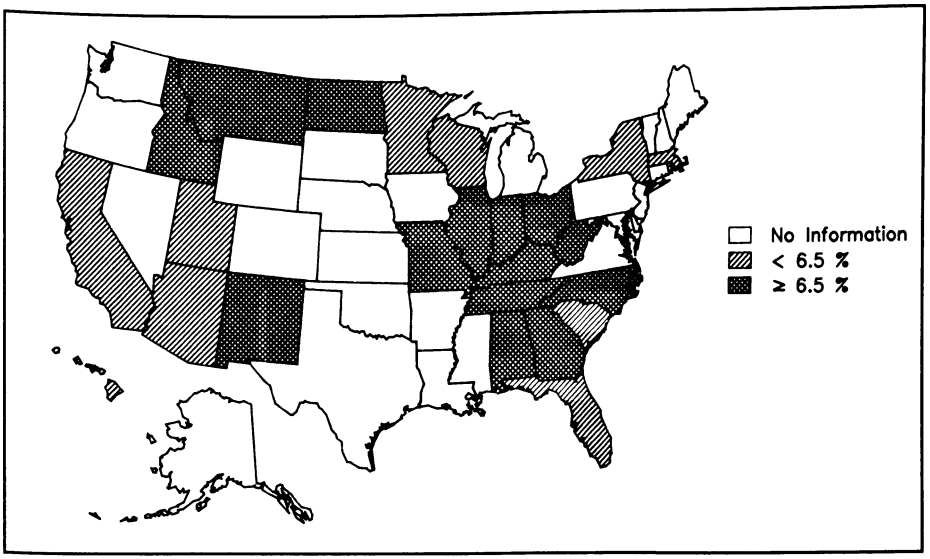
only slightly. In 1970, the National Clearinghouse on Smoking and Health reported that 25% of adult men had tried smokeless tobacco and that 6% were current users (unpublished data). In the BRFSS, which surveys adults ≥18 years of age, the median state prevalence for men who had ever used smokeless tobacco was 28.6%, and the median state prevalence for current use among men was 6.5%. Other national surveys, which have studied the prevalence of smokeless tobacco use among younger persons, have shown much higher rates among boys aged 12-17 (range: 10% in the Northeast to 27% in the South [*6*]).

Long-term smokeless tobacco use may be associated with an increased risk of oral cancer and with peridontal disease (*9*). Since smokeless tobacco contains nicotine, it may also help promote tobacco addiction among young users. In addition, the increase in policies that restrict smoking in workplaces and other public places may cause smokers to turn to smokeless tobacco products as a source of nicotine.

A 1986 Federal law (*10*) required that smokeless tobacco products and advertisements carry warning labels about the health hazards of their use. The law also banned smokeless tobacco advertising from television and radio. Congress also added a small federal excise tax to smokeless tobacco products. Increased state efforts, as well as media and health education programs, have focused on the dangers of smokeless tobacco use, especially for youth. Of note, in 1986 the sales of moist snuff by the largest manufacturer of these products declined by 3.7% (*11*). Prior to 1986, sales had increased steadily from 295 million cans in 1978 to 481 million cans in 1985.

In a recent report to Congress, the Secretary of Health and Human Services made additional recommendations to state and local jurisdictions. These recommendations were 1) to establish a minimum age of at least 18 years for the purchase of smokeless tobacco products, 2) to incorporate curricula against smokeless tobacco use into health education programs in the public schools, and 3) to ban distribution of free smokeless tobacco samples (*12*).

FIGURE 1. Percentage of men who currently use smokeless tobacco — Behavioral Risk Factor Surveillance System, 1986



Smokeless Tobacco – Continued

The more serious adverse health outcomes of smokeless tobacco use may be delayed for many years (*13*). However, potential nicotine addiction and dental disease are adequate reasons to prevent the use of smokeless tobacco, especially among the young. Additional surveillance of this health-risk behavior will continue to be important.

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Epidemiologic Notes and Reports

Investigation of a Cluster of Appendicitis Cases – Texas

Although appendectomy for acute appendicitis is the most commonly performed emergency abdominal surgery in the United States (*1*), epidemiologic investigations to determine risk factors for and causes of this condition are limited. A 1984 investigation of a cluster of cases of appendicitis in Texas illustrates how the epidemiologic approach may be used to address this problem.

In April 1984, the Texas Department of Health learned of an apparent cluster of appendicitis cases in a town of 8,000 inhabitants. In the resulting investigation, 13 patients with histologically confirmed appendicitis during the period February-April 1984 were identified. During the same time period in the previous year, there had been two cases. Eleven of the 13 patients with appendicitis (85%) were males; in 1983, three of seven patients (43%) were males. The median age of patients in 1984 was 13 years, compared with 20 years in 1983. Eight of the 13 patients experienced their first episode of severe abdominal pain during a 15-day period in February (Poisson distribution, $p < 0.01$).

Appendicitis — Continued

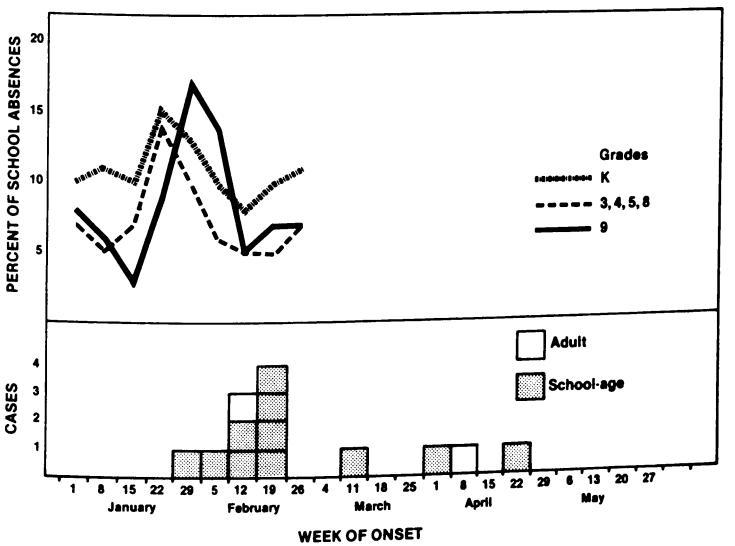
Initially, five physicians examined the various patients and diagnosed their illnesses. A surgeon from a neighboring community performed 12 of the 13 appendectomies. Seven patients (54%) had fecaliths, and four (31%) had perforated appendices at the time of surgery. *Salmonella* was isolated from one patient's appendix. Cultures for *Campylobacter* and *Yersinia* and viral studies were not performed.

Eleven of the patients attended the town's five schools. The absentee rate for their respective grades peaked during a 1-week period in late January (Figure 1). The school nurse reported that both acute upper respiratory tract and gastrointestinal illnesses occurred simultaneously in January and February. The cluster of appendicitis occurred 2 to 3 weeks after the majority of illnesses in the schools.

A case-control study was conducted for the school-aged patients. Two controls per patient were chosen at random from each patient's grade roster. Ninety-one percent of the patients, and 77% of the controls were absent at least 1 day between January 15 and February 12, 1984. Similar percentages of patients and controls had experienced antecedent symptoms of upper respiratory tract illness (36% compared with 27%), while 36% of patients and only 9% of controls reported antecedent symptoms of gastrointestinal illness.

A survey including questions on exposure to 41 food items was conducted. Statistical associations were detected between appendicitis and some food exposures. However, studies demonstrating a specific causal role for these foods have not been conducted.

FIGURE 1. School absences and reported cases of appendicitis, by week of onset — Texas, 1984



Appendicitis — Continued

Abstracted with permission from: Martin DL, Gustafson TL. A cluster of true appendicitis cases. Am J Surg 1985;150:554-7. Reported by: D Martin, C Alexander, MD, State Epidemiologist, Texas Dept of Health. Enteric Diseases Br, Div of Bacterial Diseases, Center for Infectious Diseases, CDC.

Editorial Note: Symptoms that mimic appendicitis can be caused by several enteric pathogens, including *Yersinia enterocolitica* (*2*), *Yersinia pseudotuberculosis* (*3*), and *Campylobacter jejuni* (*4*). Although specific cultures were not performed to exclude these agents in the Texas cluster, the absence of mesenteric adenitis and concurrent gastroenteritis suggests that these agents were not the cause of the cluster. The criteria for the pathologic diagnosis of early appendicitis are somewhat subjective (*5*), and the particular criteria used were not specified in this report. However, the high perforation rate combined with the pathologic diagnoses strongly suggest that the cases in this cluster were true appendicitis.

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TABLE I. Summary — cases specified notifiable diseases, United States

Disease	22nd Week Ending			Cumulative, 22nd Week Ending		
	June 6, 1987	May 31, 1986	Median 1982-1986	June 6, 1987	May 31, 1986	Median 1982-1986
Acquired Immunodeficiency Syndrome (AIDS)	438	241	N	7,446	5,289	N
Aseptic meningitis	136	105	84	1,995	1,880	1,713
Encephalitis: Primary (arthropod-borne & unspec)	19	16	15	338	329	380
Post-infectious	4	3	2	36	48	47
Gonorrhea: Civilian	14,136	17,186	13,867	331,997	350,375	350,375
Military	269	248	270	6,945	6,665	9,147
Hepatitis: Type A	456	309	325	10,398	9,259	9,259
Type B	497	444	465	10,636	10,682	10,344
Non A, Non B	53	62	N	1,286	1,474	N
Unspecified	45	69	90	1,361	2,060	2,276
Legionellosis	13	15	N	317	245	N
Leprosy	4	5	4	88	117	111
Malaria	10	15	21	301	322	320
Measles: Total*	102	202	58	2,096	3,239	1,332
Indigenous	98	166	N	1,834	3,075	N
Imported	4	36	N	262	159	N
Meningococcal infections: Total	41	41	46	1,498	1,351	1,460
Civilian	41	41	46	1,497	1,349	1,445
Military	-	-	-	1	2	6
Mumps	276	171	66	8,342	1,883	1,840
Pertussis	22	32	30	710	1,095	752
Rubella (German measles)	1	11	22	170	249	353
Syphilis (Primary & Secondary): Civilian	741	555	460	14,066	10,830	11,809
Military	2	3	3	74	89	145
Toxic Shock syndrome	3	5	N	125	154	N
Tuberculosis	454	375	370	8,409	8,478	8,669
Tularemia	4	5	5	47	31	55
Typhoid Fever	4	5	5	119	107	135
Typhus fever, tick-borne (RMSF)	28	18	40	90	109	132
Rabies, animal	89	118	118	2,144	2,398	2,398

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1987		Cum. 1987
Anthrax	-	Leptospirosis	8
Botulism: Foodborne	3	Plague	2
Infant (Utah 1)	20	Poliomyelitis, Paralytic	-
Other	-	Psittacosis (Fl. 2, Co. 1, Ut. 1, Wa. 1, Or. 2)	41
Brucellosis (Fla. 1, Okla. 2)	44	Rabies, human	-
Cholera	-	Tetanus (Okla. 1)	13
Congenital rubella syndrome	3	Trichinosis (Ohio 1)	25
Congenital syphilis, ages < 1 year	-	Typhus fever, flea-borne (endemic, murine)	10
Diphtheria	1		

*There were no cases of internationally imported measles reported for this week.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending June 6, 1987 and May 31, 1986 (22nd Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis(Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1987	1987	Cum. 1987	Cum. 1987	Cum. 1987	Cum. 1986	1987	1987	1987	1987	1987	Cum. 1987
UNITED STATES	7,446	136	338	36	331,997	350,375	456	497	53	45	13	88
NEW ENGLAND	307	3	16	2	10,890	7,471	13	38	4	4	1	8
Maine	11	-	1	-	325	399	1	1	1	1	-	-
N.H.	8	-	-	-	186	203	-	2	-	-	-	2
Vt.	4	-	2	-	85	108	-	1	-	-	-	-
Mass.	179	2	9	1	4,007	3,398	9	27	2	3	1	5
R.I.	27	-	3	1	862	755	3	2	1	-	-	-
Conn.	78	1	1	-	5,425	2,608	-	5	-	-	-	1
MID. ATLANTIC	2,304	9	42	3	52,886	58,218	28	59	3	7	1	5
Upstate N.Y.	300	4	15	2	6,821	6,946	15	10	1	-	-	-
N.Y. City	1,321	5	4	-	28,158	33,647	5	34	-	7	1	5
N.J.	501	-	4	-	6,764	7,516	8	15	2	-	-	-
Pa.	182	-	19	1	11,143	10,109	-	-	-	-	-	-
E.N. CENTRAL	483	9	87	3	47,592	47,027	23	29	5	4	5	2
Ohio	71	3	36	3	10,372	10,894	3	6	-	2	4	1
Ind.	42	-	5	-	4,019	4,911	8	8	3	-	-	-
Ill.	251	-	10	-	14,444	11,895	-	-	-	-	-	-
Mich.	82	6	30	-	14,831	14,208	12	15	2	2	1	-
Wis.	37	-	6	-	3,926	5,119	-	-	-	-	-	1
W.N. CENTRAL	168	4	15	-	13,392	15,161	24	23	3	1	-	-
Minn.	46	1	9	-	2,097	2,168	3	1	2	-	-	-
Iowa	13	-	1	-	1,296	1,542	10	7	-	-	-	-
Mo.	76	2	-	-	6,797	7,809	2	12	1	1	-	-
N. Dak.	1	-	-	-	127	136	-	-	-	-	-	-
S. Dak.	1	-	-	-	260	311	-	-	-	-	-	-
Nebr.	10	-	3	-	806	1,050	1	1	-	-	-	-
Kans.	21	1	2	-	2,009	2,145	8	2	-	-	-	-
S. ATLANTIC	1,280	30	46	13	86,936	89,694	27	104	7	2	3	5
Del.	9	-	1	1	1,274	1,419	-	1	-	-	-	-
Md.	152	3	7	3	10,209	10,324	4	17	1	1	-	2
D.C.	174	-	-	-	5,961	6,901	1	2	-	-	-	-
Va.	90	2	18	1	6,455	7,295	-	9	-	-	-	-
W. Va.	7	-	5	-	686	985	-	1	-	-	-	-
N.C.	53	6	8	-	13,287	14,510	6	12	-	-	-	-
S.C.	32	1	-	-	7,104	7,725	-	13	1	-	1	1
Ga.	197	3	-	-	14,956	15,862	-	17	1	-	1	-
Fla.	566	15	7	8	27,004	24,673	16	32	4	1	1	2
E.S. CENTRAL	82	5	18	4	24,469	28,834	6	17	-	-	-	-
Ky.	19	1	9	1	2,497	3,356	2	1	-	-	-	-
Tenn.	4	-	3	-	8,476	11,320	3	7	-	-	-	-
Ala.	51	2	6	-	7,856	8,124	1	7	-	-	-	-
Miss.	8	2	-	3	5,640	6,034	-	2	-	-	-	-
W.S. CENTRAL	739	12	35	2	37,874	43,322	42	39	5	7	-	4
Ark.	20	-	-	1	3,784	3,853	-	-	-	-	-	-
La.	100	2	5	-	6,929	7,729	3	4	1	-	-	-
Okla.	36	3	11	1	4,152	5,065	-	8	2	-	-	-
Tex.	583	7	19	-	23,009	26,675	39	27	2	7	-	4
MOUNTAIN	191	5	11	1	8,833	10,480	69	32	4	4	3	-
Mont.	2	1	-	-	205	289	2	1	-	-	-	-
Idaho	3	-	-	-	314	346	11	9	1	-	-	-
Wyo.	2	-	-	-	172	246	-	1	-	-	-	-
Colo.	90	1	1	-	1,837	2,781	18	2	-	1	2	-
N. Mex.	15	-	1	-	941	1,076	7	3	-	-	-	-
Ariz.	41	3	8	1	3,142	3,428	26	11	1	3	-	-
Utah	12	-	-	-	278	454	3	2	2	-	1	-
Nev.	26	-	1	-	1,944	1,860	2	3	-	-	-	-
PACIFIC	1,892	59	68	8	49,125	50,168	224	156	22	16	-	64
Wash.	99	2	6	1	3,333	3,913	37	18	2	3	-	2
Oreg.	49	-	-	-	1,853	2,007	19	11	-	1	-	-
Calif.	1,699	56	59	7	42,765	42,417	164	125	20	12	-	51
Alaska	6	1	2	-	770	1,255	4	2	-	-	-	-
Hawaii	39	-	1	-	404	576	-	-	-	-	-	11
Guam	-	-	-	-	77	52	-	-	-	-	-	-
P.R.	62	1	-	1	952	969	-	4	-	-	-	5
V.I.	-	-	-	-	96	93	-	-	-	-	-	-
Pac. Trust Terr.	-	-	-	-	186	135	-	-	-	-	-	38
Amer. Samoa	-	-	-	-	38	14	-	-	-	-	-	-

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending June 6, 1987 and May 31, 1986 (22nd Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1987	1987	Cum. 1987	1987	Cum. 1987	Cum. 1986	Cum. 1987	1987	Cum. 1987	1987	Cum. 1987	Cum. 1986	1987	Cum. 1987	Cum. 1986
UNITED STATES	301	98	1,834	4	262	3,239	1,498	276	8,342	22	710	1,095	1	170	249
NEW ENGLAND	22	8	68	2	123	27	138	2	20	-	18	61	-	1	5
Maine	-	-	3	-	-	-	7	-	-	-	1	2	-	1	-
N.H.	1	8	49	-	102	-	13	2	8	-	2	24	-	-	1
Vt.	-	-	2	2§	14	-	8	-	2	-	3	3	-	-	1
Mass.	9	-	1	-	4	23	70	-	1	-	4	16	-	-	-
R.I.	4	-	-	-	1	2	11	-	2	-	-	1	-	-	2
Conn.	8	-	13	-	2	2	29	-	7	-	8	15	-	-	1
MID. ATLANTIC	28	28	381	-	40	1,104	179	3	131	9	105	98	-	7	27
Upstate N.Y.	11	4	15	-	8	32	65	1	57	6	80	66	-	5	19
N.Y. City	3	24	340	-	12	214	14	-	-	-	-	3	-	1	5
N.J.	8	-	6	-	3	842	34	-	35	-	5	7	-	1	3
Pa.	6	-	20	-	17	16	66	2	39	3	20	22	-	-	-
E.N. CENTRAL	11	1	170	-	16	642	186	136	4,798	1	82	179	-	19	31
Ohio	5	-	1	-	4	8	69	-	63	-	26	68	-	-	-
Ind.	2	-	-	-	-	-	20	12	635	-	1	19	-	-	-
Ill.	1	1	82	-	12	385	28	19	2,235	-	5	22	-	18	27
Mich.	3	-	23	-	-	8	57	104	695	1	26	20	-	1	3
Wis.	-	-	64	-	-	237	12	1	1,170	-	24	50	-	-	1
W.N. CENTRAL	10	6	119	2	15	173	68	53	1,104	-	38	58	-	1	8
Minn.	5	3	10	2§	13	33	23	34	649	-	8	24	-	-	-
Iowa	2	-	-	-	-	18	3	18	326	-	6	9	-	1	-
Mo.	3	3	109	-	1	13	19	1	16	-	13	4	-	-	1
N. Dak.	-	-	-	-	-	14	1	-	6	-	1	2	-	-	1
S. Dak.	-	-	-	-	-	-	1	-	64	-	2	7	-	-	-
Nebr.	-	-	-	-	-	1	2	-	2	-	-	2	-	-	-
Kans.	-	-	-	-	1	94	19	-	41	-	8	10	-	-	6
S. ATLANTIC	52	7	51	-	5	390	254	6	176	5	154	444	-	11	2
Del.	1	6	6	-	-	1	4	-	-	-	-	212	-	1	-
Md.	11	-	-	-	-	27	23	4	17	3	6	89	-	2	-
D.C.	6	-	-	-	1	-	5	-	-	-	-	-	-	-	-
Va.	11	-	-	-	-	34	41	-	51	-	34	15	-	1	-
W. Va.	-	-	-	-	-	2	-	2	25	-	32	5	-	-	-
N.C.	7	-	1	-	1	2	33	-	4	2	61	18	-	-	-
S.C.	3	-	-	-	-	301	27	-	11	-	-	7	-	-	-
Ga.	2	-	-	-	-	8	50	-	36	-	17	70	-	1	-
Fla.	11	1	44	-	3	15	71	-	32	-	4	28	-	6	2
E.S. CENTRAL	4	-	2	-	-	3	66	27	1,101	1	11	19	-	2	1
Ky.	1	-	-	-	-	-	12	-	202	-	1	1	-	2	1
Tenn.	1	-	-	-	-	1	23	13	868	1	3	5	-	-	-
Ala.	-	-	-	-	-	-	25	14	31	-	5	13	-	-	-
Miss.	2	-	2	-	-	2	6	-	-	-	2	-	-	-	-
W.S. CENTRAL	20	6	176	-	2	417	103	35	661	-	43	30	-	5	49
Ark.	1	-	-	-	-	283	10	-	278	-	2	2	-	2	-
La.	-	-	-	-	-	-	10	4	190	-	10	4	-	-	-
Okla.	3	1	1	-	1	11	16	N	N	-	31	24	-	3	49
Tex.	16	5	175	-	1	123	67	31	193	-	-	-	-	-	-
MOUNTAIN	10	27	362	-	14	221	52	2	150	2	63	101	1	16	5
Mont.	-	23	97	-	1	7	-	-	4	-	3	5	-	-	-
Idaho	1	-	-	-	-	-	4	-	3	-	18	26	-	1	-
Wyo.	-	-	-	-	2	-	-	-	-	-	2	1	-	1	-
Colo.	1	-	5	-	-	6	16	-	23	-	17	25	-	-	-
N. Mex.	-	4	257	-	9	25	3	N	N	1	4	9	-	4	1
Ariz.	6	-	3	-	1	183	20	2	112	1	18	24	-	10	1
Utah	-	-	-	-	-	-	6	-	6	-	1	11	1	-	3
Nev.	2	-	-	-	1	-	3	-	2	-	-	-	-	108	121
PACIFIC	144	15	505	-	47	262	452	12	201	4	196	105	-	-	3
Wash.	8	-	1	-	-	62	56	-	28	1	28	41	-	1	-
Oreg.	4	-	2	-	33	3	20	N	N	-	14	8	-	75	116
Calif.	129	15	502	-	10	177	367	12	156	3	81	53	-	-	-
Alaska	3	-	-	-	-	-	4	-	5	-	2	1	-	32	2
Hawaii	-	-	-	-	4	20	5	-	12	-	71	2	-	1	2
Guam	-	-	2	-	-	3	3	-	4	-	-	-	-	2	58
P.R.	1	-	404	-	-	18	2	-	5	-	12	5	-	-	-
V.I.	-	-	-	-	-	-	-	-	8	-	-	-	-	1	-
Pac. Trust Terr.	-	-	1	-	-	-	1	-	4	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	-	1	-	-	3	-	-	-	-		

*For measles only, imported cases includes both out-of-state and international importations.
N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending June 6, 1987 and May 31, 1986 (22nd Week)

Reporting Area	Syphilis (Civilian) (Primary& Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1987	Cum. 1986	1987	Cum. 1987	Cum. 1986	Cum. 1987	Cum. 1987	Cum. 1987	Cum. 1987
UNITED STATES	14,066	10,830	3	8,409	8,478	47	119	90	2,144
NEW ENGLAND	221	209	-	271	283	-	9	1	2
Maine	1	13	-	15	25	-	-	-	1
N.H.	2	7	-	5	10	-	-	-	-
Vt.	1	6	-	6	9	-	-	-	-
Mass.	108	104	-	143	135	-	7	1	-
R.I.	6	13	-	24	19	-	1	-	1
Conn.	103	66	-	78	85	-	1	-	-
MID. ATLANTIC	2,586	1,507	1	1,491	1,709	-	12	2	161
Upstate N.Y.	91	77	1	237	253	-	5	1	12
N.Y. City	1,841	853	-	720	828	-	-	-	-
N.J.	275	291	-	263	328	-	7	-	5
Pa.	379	286	-	271	300	-	-	1	144
E.N. CENTRAL	410	436	-	989	1,028	1	17	10	68
Ohio	48	60	-	192	180	1	6	10	-
Ind.	27	50	-	101	119	-	4	-	10
Ill.	233	231	-	379	466	-	4	-	25
Mich.	76	71	-	278	212	-	2	-	10
Wis.	26	24	-	39	51	-	1	-	23
W.N. CENTRAL	60	109	1	248	247	12	7	4	485
Minn.	6	18	-	62	58	-	2	-	116
Iowa	11	5	-	10	21	3	2	-	140
Mo.	27	58	-	139	127	8	3	1	21
N. Dak.	-	2	-	1	4	-	-	-	61
S. Dak.	5	1	-	9	10	-	-	-	107
Nebr.	7	10	-	11	4	-	-	-	13
Kans.	4	15	1	16	23	1	-	3	27
S. ATLANTIC	4,735	3,203	-	1,731	1,637	3	11	30	584
Del.	39	20	-	15	19	1	-	-	-
Md.	247	193	-	148	126	-	2	10	208
D.C.	148	144	-	57	53	-	-	-	24
Va.	113	181	-	171	149	1	1	-	181
W. Va.	5	8	-	50	47	-	1	2	24
N.C.	263	211	-	174	203	1	1	6	2
S.C.	319	287	-	153	188	-	-	8	28
Ga.	670	637	-	271	252	-	-	3	85
Fla.	2,931	1,522	-	692	600	-	6	1	32
E.S. CENTRAL	828	721	-	680	752	3	1	11	172
Ky.	6	31	-	188	191	1	-	-	84
Tenn.	360	261	-	163	209	1	1	8	51
Ala.	204	238	-	229	250	-	-	1	37
Miss.	258	191	-	100	102	1	-	2	-
W.S. CENTRAL	1,788	2,225	-	948	1,035	15	7	28	311
Ark.	88	109	-	104	128	5	1	1	70
La.	309	371	-	104	186	2	-	-	6
Okla.	76	65	-	94	97	8	2	26	12
Tex.	1,315	1,680	-	646	624	-	4	1	223
MOUNTAIN	305	282	1	185	192	8	4	3	167
Mont.	7	3	-	8	8	1	-	2	86
Idaho	3	5	-	16	5	1	-	-	-
Wyo.	1	-	-	-	-	-	-	1	41
Colo.	44	78	-	-	15	1	-	-	-
N. Mex.	30	33	-	37	40	1	4	-	1
Ariz.	146	116	-	108	92	3	-	-	35
Utah	10	4	1	6	17	1	-	-	1
Nev.	64	43	-	10	15	-	-	-	3
PACIFIC	3,133	2,138	-	1,866	1,595	5	51	1	194
Wash.	31	52	-	104	91	2	3	-	-
Oreg.	112	43	-	52	58	2	-	-	-
Calif.	2,982	2,025	-	1,602	1,339	-	46	1	192
Alaska	2	-	-	27	27	1	-	-	2
Hawaii	6	18	-	81	80	-	2	-	-
Guam	2	1	-	4	30	-	-	-	-
P.R.	428	347	-	117	124	-	-	-	31
V.I.	3	-	-	1	1	-	-	-	-
Pac. Trust Terr.	83	137	-	74	17	-	9	-	-
Amer. Samoa	2	-	-	-	3	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending June 6, 1987 (22nd Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	668	444	132	52	20	20	62
Boston, Mass.	186	113	41	17	6	9	25
Bridgeport, Conn.	48	34	10	1	2	1	5
Cambridge, Mass.	32	26	3	3	-	-	7
Fall River, Mass.	28	25	2	1	-	-	-
Hartford, Conn.	66	38	16	6	4	2	-
Lowell, Mass.	31	25	4	2	-	-	2
Lynn, Mass.	14	12	1	-	1	-	1
New Bedford, Mass.	21	13	7	1	-	-	-
New Haven, Conn.	29	14	7	5	3	-	3
Providence, R.I.	62	37	16	7	-	2	5
Somerville, Mass.	10	6	3	1	-	-	-
Springfield, Mass.	48	36	6	4	2	-	5
Waterbury, Conn.	31	26	4	1	-	-	5
Worcester, Mass.	62	39	12	3	2	6	4
MID. ATLANTIC	2,839	1,905	518	271	77	68	124
Albany, N.Y.	61	38	10	7	1	5	3
Allentown, Pa.	14	12	2	-	-	-	-
Buffalo, N.Y.	112	82	22	4	1	3	10
Camden, N.J.	38	20	9	6	-	3	1
Elizabeth, N.J.	19	16	3	-	-	-	1
Erie, Pa.†	43	28	10	1	1	3	6
Jersey City, N.J.	58	41	9	6	-	2	2
N.Y. City, N.Y.	1,497	993	270	166	41	27	55
Newark, N.J.	108	47	23	25	8	5	3
Paterson, N.J.	32	17	8	5	1	1	1
Philadelphia, Pa.	390	267	78	23	12	10	15
Pittsburgh, Pa.†	62	41	17	2	1	1	3
Reading, Pa.	31	28	1	1	-	1	4
Rochester, N.Y.	142	105	18	10	5	4	5
Schenectady, N.Y.	25	21	3	1	-	-	-
Scranton, Pa.†	32	25	5	2	-	-	1
Syracuse, N.Y.	79	56	14	4	3	2	4
Trenton, N.J.	33	19	7	4	2	1	1
Utica, N.Y.	26	21	4	-	1	-	4
Yonkers, N.Y.	37	28	5	4	-	-	5
E.N. CENTRAL	2,317	1,515	517	163	55	67	79
Akron, Ohio	58	40	11	2	2	3	-
Canton, Ohio	38	30	6	1	1	-	5
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	126	85	29	9	2	1	4
Cleveland, Ohio	159	92	42	12	2	11	2
Columbus, Ohio	129	78	29	13	6	3	5
Dayton, Ohio	121	77	30	6	5	3	1
Detroit, Mich.	283	166	70	28	11	8	8
Evansville, Ind.	26	20	5	-	1	-	-
Fort Wayne, Ind.	54	37	12	2	2	1	2
Gary, Ind.	15	6	8	1	-	-	-
Grand Rapids, Mich.	68	53	11	2	1	1	11
Indianapolis, Ind.	175	105	44	14	7	5	-
Madison, Wis.§	37	29	5	1	2	-	3
Milwaukee, Wis.	138	103	22	9	2	2	3
Peoria, Ill.	58	41	10	6	1	-	4
Rockford, Ill.	36	24	9	3	-	-	3
South Bend, Ind.	37	29	6	1	-	1	3
Toledo, Ohio	124	88	26	5	-	5	8
Youngstown, Ohio	71	50	17	3	-	1	1
W.N. CENTRAL	759	532	144	42	20	21	53
Des Moines, Iowa	47	26	14	4	2	1	4
Duluth, Minn.	34	25	6	3	-	-	-
Kansas City, Kans.	47	27	9	5	5	1	2
Kansas City, Mo.	102	68	26	3	2	3	5
Lincoln, Nebr.	22	16	5	1	-	-	2
Minneapolis, Minn.	140	96	27	10	3	4	13
Omaha, Nebr.	87	65	16	3	3	-	8
St. Louis, Mo.	144	99	32	6	1	6	12
St. Paul, Minn.	72	62	4	1	-	5	2
Wichita, Kans.	64	48	5	6	4	1	5

ReportingArea	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-84	25-44	1-24	<1	Total
S. ATLANTIC	1,406	850	333	136	41	44	61
Atlanta, Ga.	167	92	45	23	6	1	2
Baltimore, Md.	284	155	73	33	9	14	11
Charlotte, N.C.§	90	57	20	8	2	3	3
Jacksonville, Fla.	113	71	30	9	3	-	10
Miami, Fla.	95	52	24	11	2	6	-
Norfolk, Va.	74	37	25	3	2	7	4
Richmond, Va.	69	36	20	9	2	2	4
Savannah, Ga.	31	20	8	1	-	2	4
St. Petersburg, Fla.	92	74	15	1	1	1	6
Tampa, Fla.	72	45	14	6	3	2	5
Washington, D.C.	293	192	55	30	10	6	10
Wilmington, Del.	26	19	4	2	1	-	2
E.S. CENTRAL	753	487	174	45	22	25	52
Birmingham, Ala.	104	64	22	4	3	11	3
Chattanooga, Tenn.	52	44	6	1	-	1	7
Knoxville, Tenn.	69	42	21	3	2	1	10
Louisville, Ky.	86	52	24	5	3	2	3
Memphis, Tenn.	194	118	55	10	8	3	22
Mobile, Ala.	100	68	15	7	3	7	4
Montgomery, Ala.	25	19	3	2	1	-	-
Nashville, Tenn.	123	80	28	13	2	-	3
W.S. CENTRAL	1,346	792	300	125	70	59	49
Austin, Tex.	56	33	12	5	6	-	8
Baton Rouge, La.	63	33	20	2	3	5	2
Corpus Christi, Tex.	31	18	7	3	-	3	-
Dallas, Tex.	203	104	47	26	16	10	3
El Paso, Tex.	68	43	13	6	4	2	5
Fort Worth, Tex	108	74	16	10	5	3	2
Houston, Tex.§	308	176	74	34	13	11	7
Little Rock, Ark.	63	27	23	5	1	7	2
New Orleans, La.	147	85	35	18	6	3	-
San Antonio, Tex.	173	107	35	8	13	10	10
Shreveport, La.	40	30	4	4	2	-	1
Tulsa, Okla.	86	62	14	4	1	5	9
MOUNTAIN	663	402	146	54	31	30	28
Albuquerque, N. Mex.	77	45	16	13	2	1	2
Colo. Springs, Colo.	38	26	5	5	1	1	6
Denver, Colo.	119	73	29	7	5	5	5
Las Vegas, Nev.	87	53	23	9	2	-	5
Ogden, Utah	15	11	1	-	1	2	1
Phoenix, Ariz.	132	74	31	7	11	9	2
Pueblo, Colo.	28	20	6	2	-	-	3
Salt Lake City, Utah	55	29	14	3	4	5	2
Tucson, Ariz.	112	71	21	8	5	7	2
PACIFIC	1,823	1,182	359	165	58	51	85
Berkeley, Calif.	16	10	3	2	1	-	1
Fresno, Calif.	83	55	18	2	4	4	10
Glendale, Calif.	10	5	3	1	1	-	-
Honolulu, Hawaii	59	47	8	2	1	1	5
Long Beach, Calif.	69	41	11	6	2	9	-
Los Angeles Calif.	410	270	67	43	17	6	14
Oakland, Calif.	64	41	16	4	2	1	4
Pasadena, Calif.	35	27	4	2	1	1	3
Portland, Oreg.	144	99	29	13	1	2	7
Sacramento, Calif.	140	96	29	11	2	2	9
San Diego, Calif.	152	91	36	15	3	6	5
San Francisco, Calif.	167	97	37	27	4	2	-
San Jose, Calif.	182	111	46	14	6	5	10
Seattle, Wash.	181	115	34	16	7	9	7
Spokane, Wash.	52	37	7	4	3	1	6
Tacoma, Wash.	59	40	11	3	3	2	4
TOTAL	12,574††	8,109	2,623	1,053	394	385	593

*Mortality data in this table are voluntarily reported from 121 cities in the United states, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

**Pneumonia and influenza.

†Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

§Data not available. Figures are estimates based on average of past 4 weeks.

Appendicitis — Continued

Appendicitis has long been presumed to be related to mechanical obstruction of the appendix (*6*). However, appendiceal obstruction can be difficult to demonstrate (*7*), and increasing evidence points to external causes. Since appendicitis appears to be rare in industrially undeveloped countries, Burkitt advanced the hypothesis that diets high in fiber protect against appendicitis (*8*). In two case-control studies, controls had slightly higher fiber intake than patients, although the possible protective effect of a high-fiber diet is not consistent with long-term trends in the United Kingdom (*9-11*).

In a recent case-control study, siblings (but not parents) of children with appendicitis were 10 times more likely than siblings of control children to have had appendicitis themselves. This difference suggests that illness may have been attributable to a common environmental risk factor (*12*). The cluster reported here supports the hypothesis that environmental factors may contribute to appendicitis. The etiology may be related to exposures to specific foods, infectious agents, or toxins, alone or in combination with general dietary factors (*13*). It is also possible that the associations reported in this cluster occurred by chance because of the large number of comparisons in the study. However, they provide useful and testable hypotheses, and the potential roles of antecedent illness and certain foods should be examined further.

Clusters of appendicitis offer a unique opportunity to identify possible risk factors and to search for precipitating infectious agents. In the event of such clusters, clinicians should perform cultures for pathogens causing the pseudoappendiceal syndrome and should confirm the diagnosis using explicit pathologic case definitions. State health departments are encouraged to report such clusters to the Enteric Diseases Branch, Center for Infectious Diseases, CDC, which could advise or assist in investigations.

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Progress in Chronic Disease Prevention

Indian Health Service Facilities Become Smoke-Free

Tobacco, originally a Western Hemisphere plant, was used for ceremonies by many American Indians, especially those on the Northern Plains, before the Europeans arrived (*1*). Its current use by American Indians and Alaskan Natives varies greatly. American Indians from the Southwest smoke very little tobacco, whereas those from the Northern Plains and Alaskan Natives have substantially higher smoking rates than the general U.S. population (Table 1). The mortality rates due to smoking-related diseases in the areas served by the Indian Health Service (IHS) correlate with the differences in smoking prevalence (Table 2).

The IHS, which is a component of the Health Resources and Services Administration of the Public Health Service (PHS), has comprehensive responsibilities for the health care of approximately 937,000 American Indians and Alaskan Natives. Facilities include 45 hospitals with a total of 1,989 beds, 65 health centers, and many field clinics throughout the United States. American Indian/Alaskan Native groups also administer six hospitals and numerous clinics through a federally funded tribal program under Public Law 93-638.

TABLE 1. Results of various surveys on the prevalence of cigarette smoking among adult American Indians and Alaskan Natives — United States

Population	Year Reported	Prevalence of Smoking (%)	
		Total	Heavy*
American Indians and Alaskan Natives			
Northern Plains			
Sioux† (*2*)	1984	(42)	NA§
Cheyenne River Sioux¶	1986	(59)	NA§
Urban Indians (*3*)	1984	(70)	(32)
Southwest			
Southwestern Indians (*4*)	1968	(21)	(4)
Navajos (*5*)	1979	(13)	(1)
Papagos¶	1983	(28)	(4)
Non-Southwestern Indians (*4*)	1968	(50)	(26)
Alaskan Natives (*6*)	1983	(56)	(24)
General Population (*7*)			
Men	1985	(31)	(21) **
Women	1985	(28)	(15) **

*Heavy smoking is defined as ≥20 cigarettes/day.
†Study included only pregnant women.
§NA = not available.
¶Indian Health Service, unpublished data collected during household surveys of American Indians/Alaskan Natives ≥18 years of age. Sample sizes were 159 (Papago) and 400 (Cheyenne River Sioux).
**Prevalence for "heavy" smoking, as defined here, is previously unpublished National Center for Health Statistics data.

Indian Health — Continued

To reduce the health hazards of involuntary (passive) smoking and to encourage nonsmoking behavior among American Indians and Alaskan Natives, the IHS has established smoke-free environments in its facilities (*8-10*). These efforts began on February 19, 1985, with a meeting between IHS representatives and the Surgeon General of the United States to discuss plans for a "Smoke-Free IHS".

To be considered smoke-free, an IHS facility must have no designated smoking rooms for staff, patients, or visitors. In late 1983, the PHS Indian Hospital on the Hopi Reservation at Keams Canyon, Arizona, became the first to reach this goal (*9*). Now, virtually all IHS facilities have become smoke-free. In addition, this initiative led to a smoke-free policy in the American Indian schools on the Navajo Reservation at Zuni, New Mexico.

The IHS has taken steps to evaluate the impact of its policy on smoking behavior. For example, results of a survey conducted in the Rapid City PHS Indian Hospital in December 1985 suggest that daily cigarette consumption decreased after implementation of a smoke-free policy.

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TABLE 2. Age-adjusted mortality rates* for American Indians and Alaskan Natives, by cause of death — United States

Population	Cause of Mortality†						
	All Causes	Cardio-vascular Disease	Cancer (All Sites)	Lung Cancer	All Respiratory Disease	COPD§	Fires
American Indians/ Alaskan Natives¶							
Northern Plains							
Aberdeen	1,180.7	351.7	147.8	35.3	71.2	18.3	8.8
Bemidji	973.8	413.8	154.4	47.7	59.1	15.6	18.9
Billings	1,228.2	339.1	150.1	45.9	87.8	31.8	14.9
Southwest							
Albuquerque	722.6	117.9	93.3	6.6	37.3	3.4	0.0
Navajo	629.5	103.3	70.0	3.9	42.8	6.4	2.7
Phoenix	829.0	207.9	74.8	12.4	60.3	7.5	6.6
Tucson	939.7	188.0	97.5	3.3	51.8	7.7	3.3
Alaskan Natives	889.7	206.3	155.5	34.3	71.7	14.8	9.9
All Areas	695.1	192.3	92.9	19.9	42.2	9.7	5.6
General Population**	555.8	238.3	132.5	35.9	32.2	16.2	2.0

*Annual age-adjusted rates per 100,000 population, by underlying cause of death. (Source: National Center for Health Statistics)

†Column headings reflect the following International Classification of Diseases, 9th revision, mortality categories: cardiovascular disease (codes 390-448), cancer—all sites (140-208), lung cancer (162), all respiratory disease (460-519), chronic obstructive pulmonary disease (490-496), and fires (940-949).

§COPD = Chronic obstructive pulmonary disease.

¶1981-1983 data.

**1982 data.

Indian Health – Continued

Editorial Note: Of all behavioral risk factors that adversely affect health, tobacco use is the leading cause of premature mortality (*11*). The adverse health consequences of involuntary smoking are also well documented and support the need for smoke-free working environments (*12*). Furthermore, it is logical for health facilities to take the lead both in making nonsmoking the social norm and in reducing opportunities for smoking cigarettes (*11*). However, although smoking restrictions are generally more common in hospitals than in other worksites, survey data indicate that smoking is still widely permitted in patient-care areas. Relatively few hospitals are entirely smoke-free (*12*). IHS's experience demonstrates that 100% smoke-free health facilities are achievable, and other health facilities are encouraged to set similar standards*.

In addition to protecting nonsmokers from exposure to environmental tobacco smoke, smoking restrictions may also encourage smokers to quit or reduce their smoking. Studies utilizing control groups and based on consumption data collected before and after policy implementation suggest that worksite smoking policies are followed by a decrease in smokers' cigarette consumption at work (*12*).

By eliminating smoking in all of its health facilities, IHS has launched a strong initiative to reduce the burden of morbidity and mortality resulting from tobacco use among American Indians and Alaskan Natives. On May 5, 1987, following the IHS initiative, the Department of Health and Human Services (DHHS) announced a new policy to establish a smoke-free environment in all DHHS buildings. This policy will affect approximately 120,000 DHHS employees nationwide.

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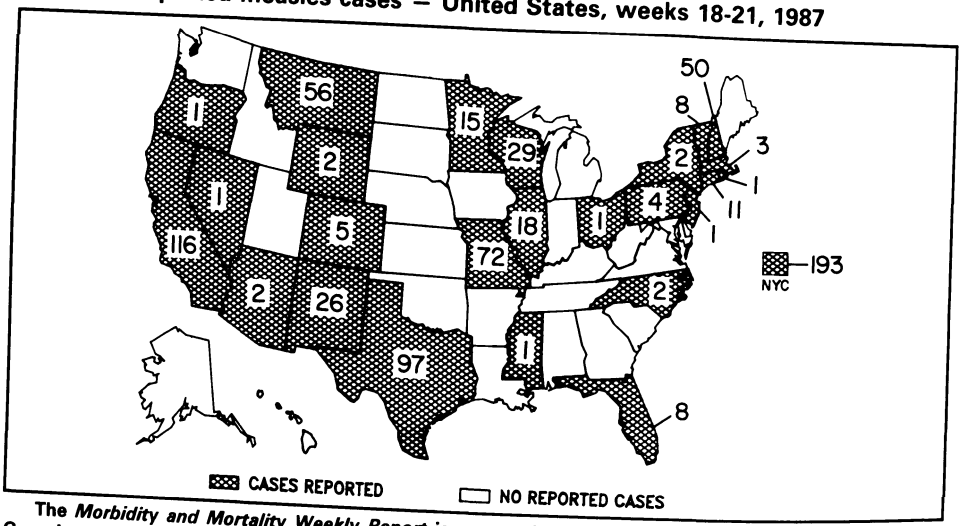
*The University of Minnesota has published a guide for establishing smoke-free health care facilities (*13*).

FIGURE I. Reported measles cases — United States, weeks 18-21, 1987



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The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.

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