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Effectiveness in Disease and Injury Prevention

Accessibility of Cigarettes to Youths Aged 12–17 Years — United States, 1989

Rates of tobacco-related diseases are higher for persons who initiate smoking at younger ages than for those who begin at older ages (*1*). Restricted access to tobacco products may delay or prevent the decision by adolescents to initiate tobacco use (*1,2*). This report summarizes findings from the Teenage Attitudes and Practices Survey (TAPS) regarding minors' access to cigarettes during 1989.

TAPS obtained data from a national household sample of adolescents aged 12–18 years regarding knowledge, attitudes, and practices associated with tobacco use (*3*). Data were collected using computer-assisted telephone interviewing (CATI) during September–December 1989 and, for those who could not be reached by telephone, through a mailed questionnaire. Only CATI respondents were asked about their access to cigarettes. The data for this report were obtained from 9135 CATI respondents and weighted to provide national estimates. Confidence intervals (CIs) were calculated using the Software for Survey Data Analysis (SUDAAN) (*4*).

Because most states have established a minimum age of 18 years for the purchase of cigarettes (*5*), only the 7773 respondents aged ≤17 years were included in this study. Respondents who were current smokers (i.e., those who had smoked cigarettes on one or more of the 30 days preceding the survey) were asked, "Do you usually buy your own cigarettes?" Those who answered "yes" were asked the frequency (i.e., often, sometimes, rarely, or never) with which they bought cigarettes from a vending machine, large store (e.g., supermarket), or small store (e.g., convenience store or gas station). If the response to the question "Have you ever smoked a cigarette?" was "no," respondents were asked, "Do you think it would be easy or hard for you to get cigarettes if you wanted some?"

Among the estimated 2.6 million current U.S. smokers aged 12–17 years in 1989, approximately 1.5 million (57.5%) usually bought their own cigarettes (Table 1). Smokers aged 16–17 years were more likely to have bought their own cigarettes (66.6%) than were smokers aged 12–15 years (45.3%). Those who had smoked during

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the week preceding the survey were also more likely to have bought their own cigarettes (72.7%) than were those who had smoked sometime that month but not as recently as that week (27.1%).

Among youths aged 12–17 years who usually bought their own cigarettes, an estimated 1.3 million (84.5%) often or sometimes purchased their cigarettes from a small store, approximately 730,000 (49.5%) purchased cigarettes often or sometimes from a large store, and about 210,000 (14.5%) purchased cigarettes often or sometimes from a vending machine (Table 2). Of the estimated 13.9 million youths aged 12–17 years who had not smoked a cigarette, an estimated 8.7 million (62.4%), including 52.7% aged 12–15 years and 88.3% aged 16–17 years, believed it would be easy for them to obtain cigarettes.

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TABLE 1. Number and percentage of smokers* aged 12–17 years† who usually bought their own cigarettes, by selected characteristics — United States, Teenage Attitudes and Practices Survey, 1989§

Characteristic	No.	(%)	(95% CI¶)
Age (yrs)			
12–15	439	(45.3)	(± 4.9)
16–17	559	(66.6)	(± 4.1)
Sex			
Male	521	(59.6)	(± 4.5)
Female	477	(55.3)	(± 4.8)
Race**			
White	914	(58.7)	(± 3.3)
Black	64	(43.5)	(±11.5)
Hispanic origin††			
Hispanic	68	(41.6)	(±12.8)
Non-Hispanic	924	(58.9)	(± 3.3)
Region			
Northeast	218	(58.6)	(± 6.8)
Midwest	275	(55.0)	(± 5.5)
South	305	(61.4)	(± 5.9)
West	200	(53.6)	(± 7.6)
Frequency of smoking			
During preceding week	668	(72.7)	(± 3.5)
Not during preceding week	328	(27.1)	(± 5.8)
Total	**998**	**(57.5)**	**(± 3.2)**

*Youths who reported smoking a cigarette during the 30 days preceding the survey.
†As of November 1, 1989.
§Estimates based on weighted data.
¶Confidence interval.
**Excludes other races.
††Excludes unknown Hispanic origin.

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Editorial Note: After substantial declines in the 1970s, the prevalence of cigarette smoking among U.S. high school seniors has been stable since 1981 (*1*; L.D. Johnston, J.G. Bachman, P.M. O'Malley, University of Michigan, unpublished data, 1991). The findings in this report are consistent with results of local investigations documenting the widespread direct purchase of cigarettes by teenagers (*6,7*). Despite laws in 48 states and the District of Columbia prohibiting the sale of tobacco products to minors (CDC, unpublished data, June 1992), underaged youth have been successful in 70%–100% of attempts to purchase tobacco (*7*). Small stores and gas stations are the major source of cigarettes for underaged buyers; vending machines play a lesser role probably because of higher purchase prices and easy access to over-the-counter sales.

Educational interventions directed at vendors to decrease retail tobacco sales to minors have resulted in slight and temporary reductions (*6,7*). The greatest decrease in tobacco sales to underaged buyers has been documented in communities that have active surveillance of retailers and substantial penalties for noncompliance (*7,8*). In locations where tobacco sales to underaged persons have been curtailed, the prevalence of smoking by teenagers has decreased, particularly among the youngest age groups (*8*). Active and vigorous enforcement of minors' access laws in these communities has augmented health education and awareness programs aimed at students and parents (*8*).

In response to a 1990 report indicating limited effective enforcement of existing state laws prohibiting tobacco sales to minors (*9*), the Secretary of Health and Human

TABLE 2. Number and percentage of smokers* aged 12–17 years† who usually bought their own cigarettes and who often/sometimes purchased cigarettes from a vending machine, large store, or small store, by selected characteristics — United States, Teenage Attitudes and Practices Survey, 1989§

Characteristic	No.	Vending machine %	Vending machine (95% CI¶)	Large store %	Large store (95% CI)	Small store %	Small store (95% CI)
Age (yrs)							
12–15	196	19.9	(±5.6)	41.2	(± 7.5)	79.3	(±5.9)
16–17	369	11.8	(±3.3)	53.7	(± 5.6)	87.2	(±3.5)
Sex							
Male	305	17.8	(±4.4)	50.4	(± 5.7)	81.6	(±4.6)
Female	260	10.8	(±3.7)	48.4	(± 6.6)	87.9	(±3.7)
Region							
Northeast	127	15.0	(±7.4)	50.1	(± 9.6)	83.6	(±6.1)
Midwest	150	19.9	(±5.3)	50.7	(± 9.5)	88.9	(±5.1)
South	183	12.5	(±4.9)	49.6	(± 7.3)	84.7	(±5.2)
West	105	10.6	(±6.0)	46.8	(± 9.9)	79.7	(±8.3)
Frequency of smoking							
During preceding week	481	14.9	(±3.3)	52.6	(± 4.7)	85.4	(±3.2)
Not during preceding week	84	12.6	(±6.7)	32.6	(±10.8)	79.7	(±8.5)
Total	**565**	**14.5**	**(±2.9)**	**49.5**	**(± 4.4)**	**84.5**	**(±3.0)**

*Youths who reported smoking a cigarette during the 30 days preceding the survey.
†As of November 1, 1989.
§Estimates based on weighted data.
¶Confidence interval.

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Services (HHS) proposed to all states a "Model Sale of Tobacco Products to Minors Control Act" containing six major provisions. The proposed legislation includes 1) instituting 19 years as the minimum age for legal tobacco sales; 2) creating a tobacco sales licensing system similar to that used for alcoholic beverages; 3) establishing a graduated schedule of penalties for illegal sales, with separate penalties for failure to post a sign regarding legal age of purchase; 4) placing primary responsibility for enforcement with a designated state agency, with participation and input from local law enforcement and public health officials; 5) using civil penalties and local courts to assess fines; and 6) banning vending machines (*10*). The HHS proposal also contains provisions to minimize the economic and administrative burdens on retail outlets.

One of the national health objectives for the year 2000 sets a nationwide goal to enact and enforce state laws prohibiting the sale and distribution of tobacco products to youth aged <19 years (objective 3.13) (*2*). This national health objective and the findings from TAPS underscore the need for state and local public health agencies to consider mechanisms such as the model tobacco control act to deter minors from initiating and sustaining tobacco use. A commitment to active surveillance and enforcement of tobacco retail restrictions is essential to reduce the prevalence of smoking among teenagers and its detrimental impact on the health of teenagers and adults.

References

1. CDC. Reducing the health consequences of smoking: 25 years of progress—a report of the Surgeon General. Rockville, Maryland: US Department of Health and Human Services, Public Health Service, 1989; DHHS publication no. (CDC)89-8411.
2. Public Health Service. Healthy people 2000: national health promotion and disease prevention objectives—full report, with commentary. Washington, DC: US Department of Health and Human Services, Public Health Service, 1991; DHHS publication no. (PHS)91-50212.
3. Allen K, Moss A, Botman S, Winn D, Giovino G, Pierce J. Teenage attitudes and practices survey "TAPS": methodology and response rates [Abstract]. In: Program and abstracts of the 119th annual meeting of the American Public Health Association. Washington, DC: American Public Health Association, 1991.
4. Shah BV. Software for Survey Data Analysis (SUDAAN) version 5.30 [software documentation]. Research Triangle Park, North Carolina: Research Triangle Institute, 1989.
5. CDC. State laws restricting minors' access to tobacco. MMWR 1990;39:349–53.
6. Altman DG, Rasenick-Douss L, Foster V, Tye J. Sustained effects of an educational program to reduce sales of cigarettes to minors. Am J Public Health 1991;81:891–3.
7. Feighery E, Altman DG, Shaffer G. The effects of combining education and enforcement to reduce tobacco sales to minors. JAMA 1991;266:3168–71.
8. Jason LA, Ji PY, Anes MD, Birkhead SH. Active enforcement of cigarette control laws in the prevention of cigarette sales to minors. JAMA 1991;266:3159–61.
9. Office of Evaluation and Inspections. Youth access to cigarettes. New York: US Department of Health and Human Services, Office of Inspector General, 1990; publication no. OEI-02-90-02310.
10. Public Health Service. Model Sale of Tobacco Products to Minors Control Act. Washington, DC: US Department of Health and Human Services, Public Health Service, 1990.

Epidemiologic Notes and Reports

Scalping Incidents Involving Hay Balers — New York

In August 1991, the Agricultural Health Nurse Program (AHNP) of New York received a report of a woman who was scalped (i.e., traumatic avulsing of the scalp) when her hair became entangled in a hay baler. Subsequent investigations by the AHNP identified three similar incidents. One was identified through a rehabilitation service and one by a machinery dealer; one of these women identified the third person. In all four cases, the injuries resulted from entanglements with rotating secondary drivelines, shielded from above by three-sided guards, on hay-baling equipment. This report summarizes the four incidents and discusses strategies for prevention of similar incidents related to operation of farm machinery.

Index case. In July 1991, a 47-year-old woman was baling hay on a windy day. She stopped and dismounted the tractor but left the tractor throttle on idle and did not disengage the power take-off (PTO) shaft that transmitted power to the baler. She then walked to the rear of the baler, past a secondary driveline shaft that powered a bale thrower attached to the rear of the baler. This secondary driveline, which was about 4 feet off the ground, was shielded by an inverted U-shaped guard (i.e., a tunnel guard) that left the bottom of the driveline unguarded. While at the rear of the baler, the operator's hair (which she reported was tied back in a bandanna and tucked inside her shirt), became entangled in this driveline. The rotating force of the driveline shaft avulsed her entire scalp, from the back of the neck to the facial brow line. These injuries required extensive skin grafting and left her permanently disfigured. She had no memory of her specific activities when the entanglement occurred.

Case 2. In July 1990, a 30-year-old woman was baling hay with a recently purchased, used baler. She reportedly reduced the engine speed of the tractor powering the baler and dismounted the stopped tractor to adjust the tension levers on the baler. While she was bending over the rear of the baler, her hair, tied in a long ponytail, became entangled in the secondary driveline running to the bale thrower. All of her hair was pulled from her scalp. The secondary driveline was shielded with a tunnel guard.

Case 3. In July 1981, a 42-year-old woman operating a baler leaned against the rear of the baler to evaluate a problem with the machinery. Her shoulder-length hair became entangled in the bale thrower secondary driveline, which was shielded with a tunnel guard. Her right ear and the right side of her scalp were avulsed.

Case 4. In June 1976, a 42-year-old woman who was baling hay walked by the rear of the baler. Her hair, which was reportedly tied in a bun, became entangled in a secondary driveline, and her entire scalp was avulsed. In addition, she received serious facial injuries, which required extensive reconstructive surgery. As in the three other cases, the secondary driveline powered the bale thrower at the rear of the baler and was shielded by a tunnel guard.

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Editorial Note: Based on data from CDC's National Institute for Occupational Safety and Health (NIOSH) National Traumatic Occupational Fatality surveillance system, during 1980–1988, an annual average of 16 U.S. workers aged ≥16 years were killed by entanglement in PTOs or similar rotating drivelines on agricultural machinery (*1*).

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In addition, nationwide during 1982–1986, an estimated 148 hospital emergency room admissions occurred annually for work-related, nonfatal injuries involving PTOs (*2*).

The scalping injuries described in this report represent only one form of entanglement, which can also result in amputations, other severe injuries, or death. These four incidents involved a secondary driveline on hay balers manufactured in the early 1970s. The bale throwers are no longer manufactured, but an unknown number remain in use.

The secondary drivelines associated with these incidents were shielded on top; however, the inverted U-shape design did not completely enclose the secondary driveline. In addition, the secondary driveline is approximately 4 feet above the ground, limiting visualization of the exposed bottom, but high enough to render a person vulnerable to entanglement if the PTO is engaged. This type of guard may provide the operator with an unintended false sense of protection and may contribute to the type of incidents described. Since the mid-1970s, the original manufacturer and subsequent corporate owners of the company have provided a plastic tube retrofit guard that, when properly installed, should reduce the hazard from these driveline systems (*3*). Bale-thrower models manufactured by a subsequent corporate owner in the early 1980s have the driveline completely enclosed by a metal shield. Nonetheless, as demonstrated by the two most recent incidents in this report, bale throwers not equipped with either improved guard system remain in use. In addition, farm machinery produced by other manufacturers may have similar configurations and may pose similar hazards to operators.

The operator's manual for these balers recommends shutting down machinery by disengaging the PTO as a safety practice; this is a general recommendation for the adjustment of any farm machinery (*4–6*). Warning labels on the baler recommend that operators disengage the PTO before making any adjustment to the machine. However, some operators may incorrectly believe that keeping the PTO engaged facilitates machinery adjustment. The presence of shields on the machinery may foster the belief that the operator is adequately protected when standing near or adjusting running equipment. Other factors such as wind speed and direction, height of the driveline, and workers' hair length may contribute to the risk for entanglement.

Approaches to reducing this type of hazardous exposure have been addressed in the Occupational Safety and Health Administration (OSHA) standard for agriculture (*7*) and by voluntary standards maintained by the American Society of Agricultural Engineers (*8*). However, the bale throwers in the incidents described in this report were manufactured before the OSHA standard took effect. In addition, because all four events occurred on family farming operations with no full-time employees, the OSHA standard does not apply (*7*).

The use of improved shielding on drive shafts and other moving parts during recent years has reduced the risk for entanglement injury to farm machinery operators (*9*). However, since farm machinery may remain in service for 40 years or more, many farmers may be using equipment that is not adequately shielded. Operators should always follow the manufacturer's safety recommendations for machinery operation. Furthermore, machinery should not be modified to bypass or remove any of the safety guards or other safety equipment installed by the manufacturer or an authorized farm implement dealer. Farm operators and machinery operators should periodically examine machinery to determine whether unguarded

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areas on the machine pose a hazard and contact an authorized equipment dealer to determine if any of their machinery requires a retrofit shield or other safety modification recommended by the manufacturer.

The AHNP of New York, which investigated the incidents reported here, is funded by the Occupational Health Nurses in Agricultural Communities project that supports community-based surveillance and intervention efforts in 10 states*. This project is a component of the NIOSH Agriculture Health and Safety Initiative directed at farmers, farm families, and farm workers nationwide.

NIOSH continues to assess the possible hazards associated with agricultural equipment of any type and manufacture. All incidents reported in this article involved bale throwers manufactured by New Holland† before the company was acquired by Sperry Corporation (Sperry-New Holland), which redesigned the shields. A subsequent corporation, Ford-New Holland, did not manufacture these bale throwers. The models involved included 54A, 54B, 58 and 62 (*3*). NIOSH requests additional information concerning injuries associated with the specific balers reported here as well as about other entanglement injuries associated with inverted U-shaped guards on other farm equipment. Additional information and questions can be directed to Division of Safety Research, NIOSH, CDC, Mailstop 115, 944 Chestnut Ridge Road, Morgantown, WV 26505; telephone (304) 291-4710.

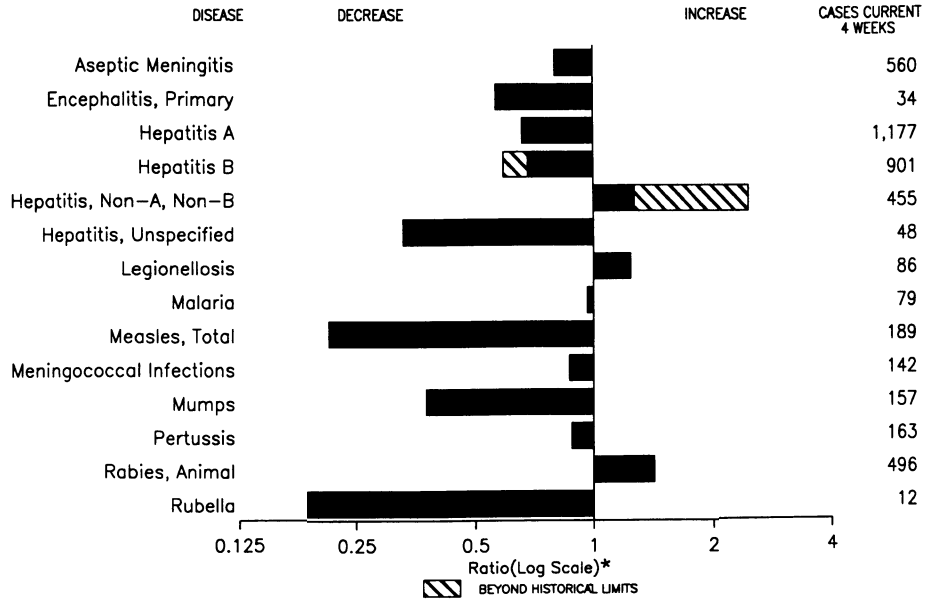
References

1. NIOSH. National Traumatic Occupational Fatality database [machine-readable data tape], 1980–1988. Morgantown, West Virginia: US Department of Health and Human Services, Public Health Service, CDC, 1992.
2. Consumer Products Safety Commission. National Electronic Injury Surveillance System data files, 1982–1986. Washington, DC: Consumer Products Safety Commission, 1992.
3. Muth WM Jr. Service Bulletin Number SSD-560. New Holland, Pennsylvania: Sperry-New Holland Corporation, 1983.
4. Occupational Safety and Health Administration. Typical minimal lockout or tagout system procedures. Washington, DC: US Department of Labor, 1990:424–7. (29 CFR § 1910.147).
5. American National Standards Institute. For personal protection: lockout/tagout of energy sources—minimum safety requirements. New York: American National Standards Institute, 1982; publication no. ANSI Z244.1-1982.
6. Silletto TA, Hull DO. Safe operation of agricultural equipment. St. Paul, Minnesota: Hober Publications, 1988:63.
7. Occupational Safety and Health Administration. Safety for agricultural equipment. Washington, DC: US Department of Labor, Occupational Safety and Health Administration, 1987: 23–8. (29 CFR § 1928.57).
8. American Society of Agricultural Engineers. ASAE standard: ASAE S318.3: safety for agricultural equipment, [Section 8]. In: Agricultural engineers yearbook, 1973. St. Joseph, Michigan: American Society of Agricultural Engineers, 1973;264.
9. American Society of Agricultural Engineers. ASAE standard: ASAE S493: guarding for agricultural equipment, [Section 3]. St. Joseph, Michigan: American Society of Agricultural Engineers, 1988:266.

*California, Georgia, Iowa, Kentucky, Maine, Minnesota, New York, North Carolina, North Dakota, and Ohio.

†Use of trade names and commercial sources is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending July 4, 1992, with historical data — United States



*Ratio of current 4-week total to the mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending July 4, 1992 (27th Week)

	Cum. 1992		Cum. 1992
AIDS*	23,872	Measles: imported	77
Anthrax	-	indigenous	1,168
Botulism: Foodborne	8	Plague	2
Infant	26	Poliomyelitis, Paralytic†	-
Other	1	Psittacosis	49
Brucellosis	32	Rabies, human	-
Cholera	36	Syphilis, primary & secondary	17,525
Congenital rubella syndrome	7	Syphilis, congenital, age < 1 year§	697
Diphtheria	3	Tetanus	8
Encephalitis, post-infectious	67	Toxic shock syndrome	131
Gonorrhea	245,881	Trichinosis	16
Haemophilus influenzae (invasive disease)	809	Tuberculosis	10,672
Hansen Disease	69	Tularemia	60
Leptospirosis	16	Typhoid fever	157
Lyme Disease	2,238	Typhus fever, tickborne (RMSF)	136

*Updated monthly; last update July 4, 1992.
†Two cases of suspected poliomyelitis have been reported in 1992; six of the nine suspected cases with onset in 1991 were confirmed and 5 of the 8 suspected cases with onset in 1990 were confirmed, and all were vaccine associated.
§Updates for first quarter 1992.

TABLE II. Cases of selected notifiable diseases, United States, weeks ending July 4, 1992, and July 6, 1991 (27th Week)

Reporting Area	AIDS*	Aseptic Meningitis	Encephalitis		Gonorrhea		Hepatitis (Viral), by type				Legionellosis	Lyme Disease
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1991	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992
UNITED STATES	23,872	2,824	255	67	245,881	299,963	10,028	8,019	3,839	352	644	2,238
NEW ENGLAND	755	135	16	-	5,189	7,447	306	298	33	18	36	302
Maine	27	14	-	-	40	85	29	17	4	-	1	-
N.H.	25	5	2	-	12	154	25	20	11	1	3	11
Vt.	11	6	2	-	14	26	4	8	4	-	2	2
Mass.	431	54	9	-	1,941	3,139	147	223	11	17	20	47
R.I.	61	56	3	-	393	605	68	17	3	-	10	56
Conn.	200	-	-	-	2,789	3,438	33	13	-	-	-	186
MID. ATLANTIC	6,001	309	15	7	25,483	36,997	756	1,022	187	13	195	1,471
Upstate N.Y.	736	144	-	-	5,041	6,297	189	248	118	6	81	973
N.Y. City	3,309	59	4	1	8,400	14,658	263	172	3	-	3	1
N.J.	1,214	-	-	-	3,646	5,972	122	245	48	-	23	149
Pa.	742	106	11	6	8,396	10,070	182	357	18	7	88	348
E.N. CENTRAL	2,192	377	68	12	46,468	54,926	1,430	1,197	651	20	140	54
Ohio	414	106	23	1	14,511	16,550	234	128	56	4	65	23
Ind.	222	57	8	-	4,298	5,471	421	418	317	5	16	18
Ill.	979	70	17	6	14,886	16,404	250	109	31	4	8	3
Mich.	457	137	19	5	10,947	12,701	73	321	213	7	34	10
Wis.	120	7	1	-	1,826	3,800	452	221	34	-	17	-
W.N. CENTRAL	675	142	16	4	10,582	14,443	1,119	306	143	19	38	70
Minn.	120	13	1	-	1,472	1,417	351	34	12	2	2	9
Iowa	50	21	-	2	830	986	20	19	4	2	10	8
Mo.	347	54	8	-	5,464	9,084	337	202	110	14	13	44
N. Dak.	1	1	1	-	33	29	66	1	3	1	1	1
S. Dak.	6	5	-	1	90	172	169	4	-	-	-	-
Nebr.	29	10	2	1	8	906	88	13	5	-	11	2
Kans.	122	38	4	-	2,685	1,849	88	33	9	-	1	6
S. ATLANTIC	5,678	561	49	32	78,584	89,589	625	1,345	532	52	99	144
Del.	64	20	5	-	836	1,297	22	133	101	1	16	70
Md.	669	71	10	-	7,491	9,381	122	208	20	5	16	24
D.C.	417	12	1	-	3,666	5,135	11	45	233	-	7	-
Va.	322	89	11	8	9,178	8,886	54	93	20	18	10	29
W. Va.	29	5	3	-	468	595	4	29	1	12	-	2
N.C.	370	67	15	-	12,689	17,238	49	216	49	-	16	6
S.C.	166	6	-	-	5,728	6,601	14	30	-	-	16	-
Ga.	759	67	2	-	24,569	22,248	83	165	48	-	5	2
Fla.	2,882	224	2	24	13,959	18,208	266	426	60	16	13	11
E.S. CENTRAL	739	169	10	-	24,164	28,324	154	697	1,177	1	29	37
Ky.	105	59	7	-	2,545	2,984	40	43	1	-	15	11
Tenn.	227	48	1	-	7,425	10,321	70	580	1,167	-	10	22
Ala.	272	46	1	-	8,253	7,925	28	72	8	1	4	4
Miss.	135	16	1	-	5,941	7,094	16	2	1	-	-	-
W.S. CENTRAL	2,174	355	23	4	27,667	35,421	948	1,013	63	82	11	54
Ark.	112	4	7	-	4,091	3,765	50	40	5	3	-	8
La.	390	24	2	1	7,317	8,180	73	75	23	2	1	2
Okla.	147	-	1	2	2,658	3,396	109	102	22	3	5	13
Tex.	1,525	327	13	1	13,601	20,080	716	796	13	74	5	31
MOUNTAIN	686	93	11	4	5,531	6,348	1,467	373	151	33	48	3
Mont.	12	-	1	1	56	58	46	22	29	-	8	-
Idaho	15	14	-	-	61	76	32	50	3	-	3	1
Wyo.	2	-	-	-	32	53	3	2	5	-	1	1
Colo.	236	28	6	1	1,832	1,852	422	57	52	17	10	-
N. Mex.	58	8	3	1	468	591	143	102	15	7	2	-
Ariz.	203	26	1	-	2,109	2,361	613	75	16	4	13	-
Utah	54	1	-	1	141	167	168	9	19	5	2	1
Nev.	106	16	-	-	832	1,190	40	56	12	-	9	-
PACIFIC	4,972	683	47	4	22,213	26,468	3,223	1,768	902	114	48	103
Wash.	255	-	-	-	1,879	2,337	353	163	70	6	5	2
Oreg.	146	-	-	-	812	1,065	183	156	43	7	-	-
Calif.	4,484	632	44	3	18,893	22,343	2,528	1,433	641	95	42	101
Alaska	8	3	3	-	378	384	28	8	2	1	-	-
Hawaii	79	48	-	1	251	339	131	8	146	5	1	-
Guam	-	2	-	-	45	-	5	1	-	6	-	1
P.R.	876	85	1	-	91	338	19	228	61	16	1	-
V.I.	2	-	-	-	55	251	2	5	-	-	-	-
Amer. Samoa	-	-	-	-	21	24	-	1	-	-	-	-
C.N.M.I.	-	-	-	-	25	27	-	-	-	-	-	-

N: Not notifiable U: Unavailable C.N.M.I.: Commonwealth of the Northern Mariana Islands
*Updated monthly; last update July 4, 1992.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending July 4, 1992, and July 6, 1991 (27th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1992	1992	Cum. 1992	1992	Cum. 1992	Cum. 1991	Cum. 1992	1992	Cum. 1992	1992	Cum. 1992	Cum. 1991	1992	Cum. 1992	Cum. 1991
UNITED STATES	409	52	1,168	-	77	7,522	1,268	31	1,560	47	773	1,134	3	112	1014
NEW ENGLAND	22	1	45	-	7	57	76	-	10	1	74	173	-	6	2
Maine	-	-	-	-	-	-	7	-	-	-	3	44	-	1	-
N.H.	3	1	15	-	-	-	5	-	2	-	20	12	-	-	1
Vt.	-	-	-	-	-	5	2	-	-	-	1	3	-	-	-
Mass.	10	-	11	-	3	27	29	-	2	1	36	98	-	-	1
R.I.	4	-	19	-	-	2	-	-	-	-	-	-	-	4	-
Conn.	5	-	-	-	4	23	33	-	6	-	14	16	-	1	-
MID. ATLANTIC	111	-	163	-	9	4,307	143	-	106	-	76	115	-	15	559
Upstate N.Y.	18	-	76	-	3	369	71	-	46	-	23	64	-	11	535
N.Y. City	60	-	38	-	5	1,500	12	-	18	-	11	14	-	-	2
N.J.	18	-	44	-	1	1,003	17	-	11	-	14	9	-	3	1
Pa.	15	-	5	-	-	1,435	43	-	31	-	28	28	-	1	21
E.N. CENTRAL	25	-	24	-	9	74	194	10	209	3	59	217	-	7	164
Ohio	4	-	2	-	3	1	52	10	82	3	29	65	-	-	147
Ind.	8	-	20	-	-	1	29	-	7	-	12	44	-	-	1
Ill.	5	-	1	-	4	24	52	-	57	-	6	46	-	7	4
Mich.	7	U	1	U	1	39	46	U	55	U	3	23	U	-	11
Wis.	1	-	-	-	1	9	15	-	8	-	9	39	-	-	1
W.N. CENTRAL	25	-	5	-	4	39	60	3	53	7	59	77	-	4	15
Minn.	13	-	4	-	3	10	7	2	17	5	22	28	-	-	6
Iowa	2	-	-	-	1	15	7	-	9	2	3	8	-	-	5
Mo.	7	-	-	-	-	-	18	1	19	-	19	27	-	-	4
N. Dak.	-	U	-	U	-	-	-	U	2	U	8	1	U	-	-
S. Dak.	1	-	-	-	-	-	1	-	-	-	4	2	-	-	-
Nebr.	-	-	-	-	-	1	13	-	4	-	2	5	-	-	-
Kans.	2	-	1	-	-	13	14	-	2	-	1	6	-	4	-
S. ATLANTIC	77	-	113	-	10	418	232	5	600	1	67	98	2	13	6
Del.	4	-	3	-	-	21	2	-	4	-	-	-	-	-	-
Md.	22	-	9	-	7	165	26	-	55	1	15	15	-	7	1
D.C.	6	-	-	-	-	-	-	2	5	-	-	-	-	1	1
Va.	17	-	8	-	3	25	35	-	33	-	4	11	-	-	-
W. Va.	-	-	-	-	-	-	14	-	22	-	2	6	-	-	-
N.C.	6	-	25	-	-	32	47	-	124	-	13	18	-	-	1
S.C.	-	-	29	-	-	12	18	-	46	-	9	9	2	2	-
Ga.	3	-	-	-	-	14	34	-	56	-	8	22	-	-	-
Fla.	19	-	39	-	-	149	56	3	255	-	16	17	-	3	3
E.S. CENTRAL	13	-	437	-	18	2	88	-	39	1	16	31	-	1	100
Ky.	1	-	435	-	1	1	27	-	-	-	-	-	-	-	-
Tenn.	8	-	-	-	-	1	28	-	13	-	5	14	-	1	100
Ala.	4	-	-	-	-	-	27	-	7	1	9	16	-	-	-
Miss.	-	-	2	-	17	-	6	-	19	-	2	1	-	-	-
W.S. CENTRAL	13	50	291	-	-	127	96	3	272	7	29	29	-	-	5
Ark.	-	-	-	-	-	5	8	-	6	-	9	3	-	-	1
La.	1	-	-	-	-	-	20	-	15	-	-	9	-	-	-
Okla.	3	-	11	-	-	-	12	-	15	7	20	11	-	-	-
Tex.	9	50	280	-	-	122	56	3	236	-	-	6	-	-	4
MOUNTAIN	11	1	3	-	6	843	64	4	89	13	147	124	1	5	4
Mont.	-	-	-	-	-	-	12	-	2	-	1	-	-	-	-
Idaho	-	-	-	-	-	301	8	1	3	-	17	20	-	1	-
Wyo.	-	-	1	-	-	-	2	-	-	-	-	3	-	-	-
Colo.	5	1	2	-	6	5	11	1	12	2	24	66	-	-	1
N. Mex.	1	-	-	-	-	94	5	N	N	3	33	11	-	-	1
Ariz.	4	-	-	-	-	312	14	-	49	8	56	8	-	2	-
Utah	-	-	-	-	-	115	4	-	16	-	15	14	-	1	-
Nev.	1	-	-	-	-	16	8	2	7	-	1	2	1	1	2
PACIFIC	112	-	87	-	14	1,655	315	6	182	14	246	270	-	61	159
Wash.	7	-	-	-	10	4	41	-	8	3	61	67	-	6	-
Oreg.	10	-	4	-	1	59	45	N	N	-	14	37	-	2	2
Calif.	89	-	45	-	-	1,575	218	6	162	11	160	121	-	36	151
Alaska	1	-	8	-	1	1	6	-	1	-	-	11	-	-	-
Hawaii	5	-	30	-	2	16	5	-	11	-	11	34	-	17	6
Guam	1	-	10	-	-	-	-	-	7	-	-	-	-	1	-
P.R.	-	-	244	-	-	81	3	-	1	-	8	25	-	-	1
V.I.	-	-	-	-	-	2	-	1	16	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	24	-	-	-	-	6	-	-	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	-	U	1	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending July 4, 1992, and July 6, 1991 (27th Week)

Reporting Area	Syphilis (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1992	Cum. 1991	Cum. 1992	Cum. 1992	Cum. 1991	Cum. 1992	Cum. 1992	Cum. 1992	Cum. 1992
UNITED STATES	17,525	22,241	131	10,672	11,174	60	157	136	4,084
NEW ENGLAND	301	586	10	223	309	-	18	5	384
Maine	-	-	-	49	27	-	-	-	-
N.H.	-	12	6	-	-	-	1	-	1
Vt.	1	1	-	3	3	-	-	-	16
Mass.	157	276	3	74	152	-	11	3	3
R.I.	18	33	1	24	33	-	-	1	-
Conn.	125	264	-	73	94	-	6	1	364
MID. ATLANTIC	2,581	3,972	17	2,479	2,611	-	45	6	1,162
Upstate N.Y.	171	358	7	162	271	-	6	1	638
N.Y. City	1,372	1,901	-	1,547	1,577	-	20	3	-
N.J.	342	704	-	453	430	-	12	-	372
Pa.	696	1,009	10	317	333	-	7	2	152
E.N. CENTRAL	2,502	2,520	37	1,099	1,108	1	14	12	72
Ohio	404	338	12	165	165	-	3	8	6
Ind.	148	76	8	89	90	-	-	2	8
Ill.	1,112	1,188	5	551	576	1	10	-	11
Mich.	529	650	12	248	223	-	1	1	8
Wis.	309	268	-	46	54	-	-	1	39
W.N. CENTRAL	560	371	21	205	282	22	1	9	691
Minn.	41	42	4	62	56	-	-	-	102
Iowa	24	33	4	20	37	-	-	-	118
Mo.	412	250	3	66	119	17	1	8	7
N. Dak.	1	1	1	2	6	-	-	-	88
S. Dak.	-	1	-	15	23	4	-	-	60
Nebr.	1	9	3	13	11	1	-	-	6
Kans.	81	35	6	27	30	-	-	1	310
S. ATLANTIC	4,940	6,533	13	2,020	2,058	3	12	30	919
Del.	103	84	3	19	16	-	-	3	122
Md.	369	536	1	142	201	1	2	1	272
D.C.	236	405	-	67	109	-	1	1	10
Va.	365	515	1	136	173	2	-	1	157
W. Va.	7	17	1	37	40	-	1	1	22
N.C.	1,242	996	3	259	256	-	-	16	2
S.C.	662	810	1	217	218	-	1	2	73
Ga.	1,022	1,587	1	458	402	-	-	3	191
Fla.	934	1,583	2	685	643	-	7	2	70
E.S. CENTRAL	2,290	2,378	1	724	742	6	3	26	70
Ky.	75	41	-	194	171	1	-	2	38
Tenn.	628	810	1	161	203	5	-	23	-
Ala.	899	879	-	224	205	-	-	1	32
Miss.	688	648	-	145	163	-	3	-	-
W.S. CENTRAL	3,203	4,104	1	1,100	1,293	13	6	42	435
Ark.	426	339	-	92	97	7	-	6	19
La.	1,325	1,288	-	87	104	-	-	-	-
Okla.	133	99	-	70	85	6	-	36	213
Tex.	1,319	2,378	1	851	1,007	-	6	-	203
MOUNTAIN	201	306	10	267	312	15	2	5	84
Mont.	3	2	-	-	3	8	-	2	11
Idaho	1	3	1	13	4	-	1	1	-
Wyo.	1	3	-	-	3	2	-	-	24
Colo.	24	51	4	29	33	2	1	-	5
N. Mex.	24	19	1	39	39	3	-	1	5
Ariz.	102	197	2	112	166	-	-	-	36
Utah	5	4	2	43	25	-	-	1	1
Nev.	41	27	-	31	39	-	-	-	2
PACIFIC	947	1,471	21	2,555	2,459	-	56	1	267
Wash.	49	99	-	160	154	-	4	-	-
Oreg.	25	42	-	60	51	-	-	-	-
Calif.	867	1,323	21	2,185	2,108	-	49	1	255
Alaska	2	3	-	30	40	-	-	-	12
Hawaii	4	4	-	120	106	-	3	-	-
Guam	2	-	-	34	-	-	3	-	-
P.R.	169	252	-	120	99	-	1	-	30
V.I.	32	66	-	3	2	-	-	-	-
Amer. Samoa	-	-	-	-	2	-	1	-	-
C.N.M.I.	4	-	-	12	6	-	1	-	-

TABLE III. Deaths in 121 U.S. cities,* week ending July 4, 1992 (27th Week)

Reporting Area	All Causes, By Age (Years)						P&I†	Reporting Area	All Causes, By Age (Years)						P&I†
	All Ages	≥65	45-64	25-44	1-24	<1	Total		All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	523	375	90	43	3	12	35	S. ATLANTIC	1,054	632	216	120	47	38	45
Boston, Mass.	136	83	32	13	1	7	17	Atlanta, Ga.	113	65	24	19	5	-	6
Bridgeport, Conn.	41	32	8	1	-	-	2	Baltimore, Md.	60	23	14	17	5	1	3
Cambridge, Mass.	30	20	7	3	-	-	1	Charlotte, N.C.	74	50	11	8	1	4	2
Fall River, Mass.	26	24	1	1	-	-	-	Jacksonville, Fla.	86	54	21	7	2	2	4
Hartford, Conn.	44	29	10	5	-	-	1	Miami, Fla.	96	52	26	8	8	2	-
Lowell, Mass.	28	24	4	-	-	-	3	Norfolk, Va.	39	21	9	4	2	3	1
Lynn, Mass.	8	7	-	1	-	-	-	Richmond, Va.	66	41	14	5	3	3	2
New Bedford, Mass.	27	21	3	3	-	-	-	Savannah, Ga.	69	44	8	8	4	5	10
New Haven, Conn.	36	23	8	3	1	1	6	St. Petersburg, Fla.	68	47	12	3	1	5	1
Providence, R.I.	39	32	4	3	-	-	-	Tampa, Fla.	149	98	32	12	4	2	11
Somerville, Mass.	7	5	1	1	-	-	-	Washington, D.C.	219	126	43	28	12	10	5
Springfield, Mass.	43	30	7	4	1	1	-	Wilmington, Del.	15	11	2	1	-	1	-
Waterbury, Conn.	13	12	-	1	-	-	1	E.S. CENTRAL	596	391	114	58	22	11	40
Worcester, Mass.	45	33	5	4	-	3	4	Birmingham, Ala.	147	96	24	18	4	5	3
MID. ATLANTIC	2,483	1,625	468	280	56	54	94	Chattanooga, Tenn.	53	43	8	1	1	-	2
Albany, N.Y.	39	26	7	4	-	2	2	Knoxville, Tenn.	63	43	9	7	4	-	7
Allentown, Pa.	21	16	2	2	1	-	-	Louisville, Ky.	U	U	U	U	U	U	U
Buffalo, N.Y.	100	77	11	6	3	3	3	Memphis, Tenn.	155	99	32	19	3	2	21
Camden, N.J.	21	12	5	3	-	1	1	Mobile, Ala.	45	32	7	2	4	-	-
Elizabeth, N.J.	17	15	1	1	-	-	-	Montgomery, Ala.	28	21	3	2	1	1	-
Erie, Pa.§	35	29	5	-	1	-	-	Nashville, Tenn.	105	57	31	9	5	3	7
Jersey City, N.J.	47	28	11	6	-	2	1	W.S. CENTRAL	1,279	770	241	154	64	49	69
New York City, N.Y.	1,350	838	264	187	35	26	41	Austin, Tex.	55	35	7	10	2	1	2
Newark, N.J.	36	19	5	6	3	3	2	Baton Rouge, La.	27	23	1	2	-	1	1
Paterson, N.J.	25	19	2	4	-	-	-	Corpus Christi, Tex.	36	22	9	3	1	1	3
Philadelphia, Pa.	395	247	97	31	9	11	19	Dallas, Tex.	222	136	54	23	5	4	4
Pittsburgh, Pa.§	45	29	10	2	2	2	4	El Paso, Tex.	75	47	15	8	4	1	2
Reading, Pa.	18	13	1	3	-	1	2	Ft. Worth, Tex.	78	52	12	9	4	1	3
Rochester, N.Y.	125	97	17	10	-	1	9	Houston, Tex.	358	183	56	65	26	28	38
Schenectady, N.Y.	20	18	2	-	-	-	-	Little Rock, Ark.	51	34	9	2	3	3	6
Scranton, Pa.§	23	18	4	1	-	-	2	New Orleans, La.	103	59	24	10	7	3	-
Syracuse, N.Y.	106	79	16	7	2	2	4	San Antonio, Tex.	182	117	34	16	8	6	8
Trenton, N.J.	39	26	7	6	-	-	4	Shreveport, La.	32	21	8	2	1	-	-
Utica, N.Y.	21	19	1	1	-	-	-	Tulsa, Okla.	60	41	12	4	3	-	2
Yonkers, N.Y.	U	U	U	U	U	U	U	MOUNTAIN	652	424	121	59	20	26	43
E.N. CENTRAL	1,829	1,122	348	187	117	55	89	Albuquerque, N.M.	79	45	16	12	3	1	4
Akron, Ohio	60	42	12	4	1	1	-	Colo. Springs, Colo.	36	22	7	5	1	1	3
Canton, Ohio	31	22	4	2	2	1	2	Denver, Colo.	77	49	14	8	4	2	10
Chicago, Ill.	429	170	99	88	66	6	14	Las Vegas, Nev.	85	58	19	6	1	1	3
Cincinnati, Ohio	130	81	25	14	7	3	9	Ogden, Utah	10	6	3	-	1	-	-
Cleveland, Ohio	104	63	20	9	6	6	1	Phoenix, Ariz.	123	74	27	9	4	9	10
Columbus, Ohio	155	111	26	8	4	6	12	Pueblo, Colo.	22	19	3	-	-	-	2
[illegible]	[illegible]	56	15	3	4	1	8	Salt Lake City, Utah	107	65	20	9	2	11	4
[illegible]	[illegible]	99	41	17	11	11	8	Tucson, Ariz.	113	86	12	10	4	1	7
[illegible]	[illegible]	23	5	3	-	2	2	PACIFIC	1,466	947	252	171	45	46	91
[illegible]	[illegible]	37	4	1	1	-	2	Berkeley, Calif.	20	18	-	2	-	-	1
[illegible]	[illegible]	6	3	1	-	-	1	Fresno, Calif.	55	34	7	7	2	5	1
[illegible]	[illegible]	31	15	5	1	2	1	Glendale, Calif.	12	11	1	-	-	-	3
[illegible]	[illegible]	161	40	16	6	7	13	Honolulu, Hawaii	45	31	6	6	-	2	1
[illegible]	[illegible]	27	8	3	3	2	1	Long Beach, Calif.	52	34	10	7	1	-	3
[illegible]	[illegible]	U	U	U	U	U	U	Los Angeles, Calif.	293	173	53	42	19	2	16
[illegible]	[illegible]	23	7	2	-	-	1	Pasadena, Calif.	24	14	3	2	2	3	-
South Bend, Ind.	37	33	-	3	1	3	5	Portland, Oreg.	154	110	25	11	2	6	9
[illegible]	[illegible]	34	1	1	1	-	3	Sacramento, Calif.	136	83	30	13	6	4	13
Toledo, Ohio	86	62	17	2	1	4	3	San Diego, Calif.	80	57	9	9	3	1	8
Youngstown, Ohio	54	41	6	5	2	-	3	San Francisco, Calif.	129	65	26	30	3	5	6
W.N. CENTRAL	572	410	91	45	17	9	18	San Jose, Calif.	188	120	36	20	3	9	20
Des Moines, Iowa	U	U	U	U	U	U	U	Santa Cruz, Calif.	35	28	5	2	-	-	3
[illegible]	[illegible]	12	8	2	-	-	1	Seattle, Wash.	120	79	22	11	2	6	1
[illegible]	[illegible]	15	4	2	-	-	1	Spokane, Wash.	59	42	10	4	1	2	4
[illegible]	[illegible]	76	16	7	3	1	3	Tacoma, Wash.	64	48	9	5	1	1	2
[illegible]	[illegible]	17	6	1	2	-	2	TOTAL	10,454¶	6,696	1,941	1,117	391	300	524
[illegible]	[illegible]	101	18	12	3	2	4								
[illegible]	[illegible]	57	7	3	2	2	4								
[illegible]	[illegible]	69	15	12	6	3	-								
[illegible]	[illegible]	35	13	3	1	-	2								
[illegible]	[illegible]	28	4	3	-	1	1								

[illegible] 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.

Current Trends

Spina Bifida Incidence at Birth — United States, 1983–1990

Spina bifida, a birth defect of the spinal column that can cause varying degrees of paralysis, is a major contributor to serious developmental disabilities in the United States. To determine the incidence and descriptive epidemiology of spina bifida, CDC analyzed reports from 16 states with population-based birth defects surveillance systems (Table 1). This report summarizes findings from this analysis for 1983–1990.

Of the 16 state-based birth defects surveillance systems, 13 systems are statewide in coverage (exceptions: Arkansas, California, and Georgia). All but one (Georgia [*1*]) of the state-based birth defects surveillance systems are operated by the state health department or by a state university. These 16 states account for approximately 23.5% of the total U.S. population.

All live-born and stillborn infants with spina bifida* were included in the analysis; however, in three states data were not available on cases involving stillborn infants. Nine state surveillance systems (Colorado, Illinois, Maryland, Missouri, Nebraska, New Jersey, New York, North Carolina, and Virginia) identified cases from reports submitted by physicians and staffs of hospitals, clinics, or other health-care facilities; seven states (Arizona, Arkansas, California, Georgia, Hawaii, Iowa, and Washington) used trained surveillance staff to identify cases by systematic review of medical and other records from hospitals, clinics, and other health-care facilities. Spina bifida incidence rates were determined for each state during the surveillance period; however, the specific surveillance periods during 1983–1990 varied by state (Table 1). The states were grouped into the four U.S. census regions: Northeast, North Central, South, and West.

From 1983 through 1990, the spina bifida incidence rate for these 16 states was 4.6 cases per 10,000 births; during this period, the annual rate declined from a peak of 5.9 cases per 10,000 births in 1984 to 3.2 cases per 10,000 births in 1990 (Figure 1). Although rates were similar by region, state-specific rates varied substantially (range: 3.0 [Washington] to 7.8 [Arkansas]). Rates also varied among racial/ethnic groups (Table 1) and were lowest for Asians/Pacific Islanders (2.3) and highest for Hispanics (6.0). The rate for Hispanics declined substantially from 1983 to 1990, and the rate for blacks was stable after 1984 (Figure 1). In 1990, spina bifida rates for whites, blacks, and Hispanics were nearly identical.

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*Defined as *International Classification of Diseases, Ninth Revision*, code 741.

TABLE 1. Incidence of spina bifida and from state-based birth defects systems, by race/ethnicity — 16 states, 1983–1990

Program	Years covered		White		Black				Asian		Total†	
			Cases	Rate	Cases	Rate			Cases	Rate	Cases	Rate
Northeast												
New Jersey	1985–1990	688,991	179	4.1	38	3.0	40	4.6	3	1.7	**295**	**4.3**
New York	1983–1990	2,160,230	550	4.2	182	4.3	211	6.1	—	—	**983**	**4.6**
Total		**2,849,221**	**729**	**4.2**	**220**	**4.0**	**251**	**5.8**	**3**	**1.7**	**1,278**	**4.5**
North Central												
Illinois	1988–1989	374,955	79	2.8	19	2.3	—	—	—	—	**118**	**3.1**
Iowa	1983–1990	319,714	159	5.2	2	2.2	—	—	0	0.0	**166**	**5.2**
Missouri	1983–1986	303,647	147	5.8	8	1.8	—	—	2	7.8	**157**	**5.2**
Nebraska	1983–1990	198,601	95	5.3	6	5.9	3	5.9	—	—	**104**	**5.2**
Total		**1,196,917**	**480**	**4.7**	**35**	**2.4**	**3**	**5.9**	**2**	**3.7**	**545**	**4.6**
South												
Arkansas	1983–1989	107,184	64	8.1	17	6.1	—	—	—	—	**84**	**7.8**
Georgia	1983–1990	269,472	106	6.5	50	4.9	—	—	2	3.5	**163**	**6.0**
Maryland	1984–1990	437,645	119	4.0	45	3.5	—	—	—	—	**172**	**3.9**
North Carolina	1984–1988	456,631	190	5.8	46	3.6	—	—	3	7.4	**243**	**5.3**
Virginia	1987–1989	264,593	78	4.0	21	3.3	—	—	0	0.0	**99**	**3.7**
Total		**1,535,525**	**557**	**5.3**	**179**	**4.0**	—	—	**5**	**3.0**	**761**	**5.0**
West												
Arizona	1986–1988	189,686	43	4.0	5	6.5	32	6.0	0	0.0	**91**	**4.8**
California	1983–1988	1,029,765	245	4.4	21	2.7	171	6.8	26	2.2	**486**	**4.7**
Colorado	1989–1990	106,188	36	4.5	0	0.0	9	5.1	0	0.0	**53**	**5.0**
Hawaii§	1989–1990	39,773	6	6.3	0	0.0	—	—	7	2.5	**13**	**3.3**
Washington	1987–1990	297,305	77	3.0	1	0.7	3	1.4	5	3.1	**88**	**3.0**
Total		**1,662,717**	**407**	**4.0**	**27**	**2.6**	**215**	**6.3**	**38**	**2.2**	**731**	**4.4**
Total 16 states		**7,244,380**	**2,173**	**4.5**	**461**	**3.7**	**469**	**6.0**	**48**	**2.3**	**3,315**	**4.6**

*Rate per 10,000 live births.
†Includes persons from all racial/ethnic groups for whom data are available, as well as persons for whom race is unknown.
§Hawaii rates are estimated from the proportion of births by race in 1988. For 1989 and 1990, data are available only for total state births and spina bifida cases by race.

Spina Bifida — Continued

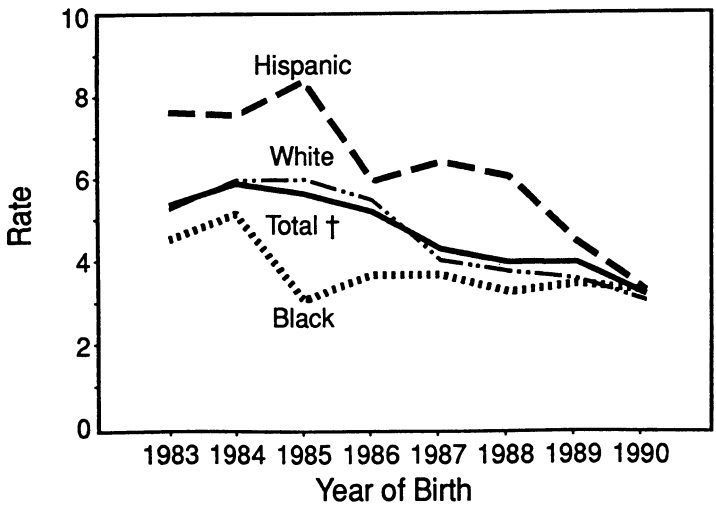
Washington Dept of Health. Birth Defects and Genetic Diseases Br, Div of Birth Defects and Developmental Disabilities, National Center for Environmental Health and Injury Control, CDC.

Editorial Note: The public health impact of spina bifida in the United States is substantial: each year, approximately 1500 infants are born with spina bifida (*2*), and the annual medical and surgical costs (based on 1985 dollars) for persons with spina bifida exceed $200 million (*2*). The findings in this report are the first to describe the use of multiple state systems for characterizing the birth incidence of a major preventable birth defect for these reporting states.

Public health and health-care providers require accurate determinations of spina bifida rates to evaluate the effectiveness of programs to reduce the incidence of this problem in the United States. Until recently, the only source of ongoing information about the national birth incidence of spina bifida was CDC's national Birth Defects Monitoring Program (BDMP), a hospital-based surveillance system that obtains information about birth defects in newborns from discharge abstracts in participating hospitals (*1*). The state-based birth defects surveillance systems described in this report are an additional source of information on the incidence of birth defects. Data from the state systems are population-based rather than hospital-based and provide more information on spina bifida cases in individual states than does the BDMP. Even though the findings in this report were computed for only 16 states, the combined state rate (4.6 per 10,000 live births) for 1983–1990 was nearly identical to the mean BDMP rate for 1983–1990 (4.4).

Potential explanations for the decline in spina bifida incidence rates, indicated by state surveillance, may be related to improved nutrition or other environmental factors (*3*). Prenatal diagnosis of affected pregnancies during the 1980s may have had an impact, but the relative impact on the decline is unknown. Differences in rates

FIGURE 1. Spina bifida rates,* by race/ethnicity and year of birth — United States, 1983–1990



*Per 10,000 births.

†Includes persons from all racial/ethnic groups for whom data are available, as well as persons for whom race is unknown.

Spina Bifida — Continued

among racial/ethnic groups may be related to differences in genetic susceptibility to spina bifida, cultural dietary practices, or differences in other unidentified risk factors.

Findings from a recently published randomized controlled trial demonstrated that periconceptional supplementation with 4.0 mg of folic acid daily would prevent 70% of the recurrence of neural tube defects (NTDs) among women who had a prior NTD-affected pregnancy (*4*). In August 1991, CDC published interim recommendations for folic acid supplementation for women who have had an infant or fetus with spina bifida, anencephaly, or encephalocele (*5*).

State-based surveillance systems provide important information regarding the incidence of birth defects in individual states and may be used by states to estimate the number of seriously malformed infants that will be born each year and to plan for the provision of health services for these infants. CDC will collaborate with state and local health agencies in using these surveillance data to refine further epidemiologic characteristics of spina bifida. Further efforts to prevent spina bifida and other NTDs should also focus on pregnancies of women who have not had previous NTD-affected pregnancies.

On July 27, 1992, CDC will convene a meeting in Atlanta to consider a proposal that all women in the United States who are capable of becoming pregnant should consume 0.4 mg of folic acid per day to prevent spina bifida and other neural tube defects. Additional information about this meeting is available from the Chief, Birth Defects and Genetic Diseases Branch, Division of Birth Defects and Developmental Disabilities, National Center for Environmental Health and Injury Control, CDC, Mailstop F-45, 1600 Clifton Road, NE, Atlanta, GA 30333; telephone (404) 488-7160.

References

1. Edmonds LD, Layde PM, James LM, Flynt JW, Erickson JD, Oakley GP Jr. Congenital malformations surveillance: two American systems. Int J Epidemiol 1981;10:247–52.
2. CDC. Economic burden of spina bifida—United States, 1980–1990. MMWR 1989;38:264–7.
3. Yen IH, Khoury MJ, Erickson JD, et al. The changing epidemiology of neural tube defects, United States, 1968–1989. Am J Dis Child (in press).
4. MRC Vitamin Study Research Group. Prevention of neural tube defects: results of the Medical Research Council Vitamin Study. Lancet 1991;338:131–7.
5. CDC. Use of folic acid for prevention of spina bifida and other neural tube defects—1983–1991. MMWR 1991;40:513–6.

Notices to Readers

Recommendations Regarding Penicillin-Resistant Pneumococcal Disease — Spain

Because infections caused by drug-resistant strains of *Streptococcus pneumoniae* are common in Spain (*1,2*), CDC has received numerous inquiries about vaccination of travelers to the 1992 Summer Olympics in Barcelona and the 1992 World's Fair in Seville. Pneumococcal vaccination is recommended for all persons with risk factors for serious pneumococcal infection (*3*). However, CDC does not recommend vaccination of all travelers to Spain because the incidence of invasive pneumococcal disease among persons without risk factors is low (*4,5*). Vaccination does not appear to prevent nasopharyngeal carriage of vaccine-type strains (*6,7*), and there is no evidence that drug-resistant strains are more virulent than susceptible strains.

Notices to Readers — Continued

In recent years, most pneumococcal infections occurring in Spain have been caused by strains resistant to at least one commonly used antimicrobial agent including penicillin, chloramphenicol, trimethoprim/sulfamethoxazole, or erythromycin. Rates of high-level penicillin resistance (i.e., minimal inhibitory concentration ≥2 μg/mL) increased from 0% of strains isolated in 1979 to 13%–15% of strains isolated in 1989–90 (*1,2*). The level of resistance to other β-lactam agents generally parallels the level of resistance to penicillin (*8*). In contrast, only one (<0.02%) of more than 5000 pneumococcal isolates submitted to CDC from the United States during 1979–1987 had a high level of penicillin resistance (*9*).

Pneumococcal polysaccharide vaccine should be administered to travelers with risk factors for serious pneumococcal infection, including those who have undergone splenectomy, those with chronic medical conditions (e.g., cardiovascular disease, pulmonary disease, diabetes mellitus, and chronic renal failure) or on immunosuppressive therapy, persons infected with human immunodeficiency virus, and all persons aged ≥65 years (*3*). Physicians should be aware of the possibility of infections with drug-resistant strains of *S. pneumoniae* in travelers returning from Spain.

References

1. Liñares J, Pallares R, Alonso T, et al. Trends in antimicrobial resistance of clinical isolates of *Streptococcus pneumoniae* in Bellvitge Hospital, Barcelona, Spain (1979–1990). Clin Infect Dis 1992;15:99–105.
2. Fenoll A, Bourgon M, Muñóz R, Vicioso D, Casal J. Serotype distribution and antimicrobial resistance of *Streptococcus pneumoniae* isolates causing systemic infections in Spain, 1979–1989. Rev Infect Dis 1991;13:56–60.
3. ACIP. Recommendations of the Immunization Practices Advisory Committee: Pneumococcal polysaccharide vaccine. MMWR 1989;38:64–8,73–6.
4. Breiman RF, Spika JS, Navarro VJ, Darden PM, Darby CP. Pneumococcal bacteremia in Charleston County, South Carolina. Arch Intern Med 1990;150:1401–5.
5. Istre GR, Tarpay M, Anderson M, Pryor A, Welch D, Pneumococcus Study Group. Invasive disease due to *Streptococcus pneumoniae* in an area with a high rate of relative penicillin resistance. J Infect Dis 1987;156:732–5.
6. Herva E, Luotonen J, Timonen M, Sibakov M, Karma P, Mäkelä PH. The effect of polyvalent pneumococcal polysaccharide vaccine on nasopharyngeal and nasal carriage of *Streptococcus pneumoniae*. Scand J Infect Dis 1980;12:97–100.
7. Douglas RM, Hansman D, Miles HB, Paton JC. Pneumococcal carriage and type-specific antibody: failure of a 14-valent vaccine to reduce carriage in healthy children. Am J Dis Child 1986;140:1183–5.
8. Jacobs MR. Treatment and diagnosis of infections caused by drug-resistant *Streptococcus pneumoniae*. Clin Infect Dis 1992;15:119–27.
9. Spika JS, Facklam RR, Plikaytis BD, Oxtoby MJ. Antimicrobial resistance of *Streptococcus pneumoniae* in the United States, 1979–1987: the Pneumococcal Surveillance Working Group. J Infect Dis 1991;163:1273–8.

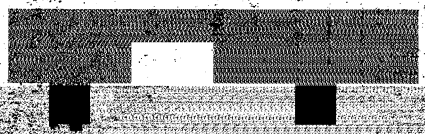
Surveillance for Occupationally Acquired Human Immunodeficiency Virus Infection

To help determine the number of persons infected with human immunodeficiency virus (HIV) resulting from occupational exposure and to characterize the incidents resulting in transmission, CDC has initiated a nationwide surveillance system for HIV-infected persons who may have acquired their infection through occupational exposures. This information will be used to assist efforts to develop and evaluate additional recommendations to prevent these types of exposures.

Notices to Readers — Continued

Health-care providers are encouraged to report cases to CDC through HIV/acquired immunodeficiency syndrome (AIDS) case surveillance systems at the state/local health department. To protect confidentiality of reported workers, no names or other identifying information are sent to CDC. Questions regarding this surveillance system should be directed to the Division of HIV/AIDS, National Center for Infectious Diseases, CDC, Mailstop E-49, 1600 Clifton Road, NE, Atlanta, GA 30333; telephone (404) 639-2076.

Reports of information collected in this system, as well as AIDS case surveillance, will be included in CDC's quarterly *HIV/AIDS Surveillance Report* beginning in July 1992.



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