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Farm Worker Illness Following Exposure to Carbofuran and Other Pesticides — Fresno County, California, 1998

In California, suspected pesticide-related illnesses and suspected work-related illnesses and injuries are reportable conditions. On July 31, 1998, the Occupational Health Branch of the California Department of Health Services (CDHS)* received a report from the California Department of Pesticide Regulation (CDPR) of a pesticide exposure incident in Fresno County involving 34 farm workers. CDHS investigated this incident by reviewing medical records of the 34 workers and interviewing 29. The findings indicated that the workers became ill after early reentry into a cotton field that had been sprayed with a cholinesterase-inhibiting carbamate pesticide.

On July 31 at 4 a.m., a cotton field was sprayed aerially with a solution containing as active ingredients 0.26% carbofuran (n-methyl carbamate), 0.05% abamectin (macrolytic lactone), and 0.05% mepiquat chloride (growth regulator). Although carbofuran, when used on cotton, has a restricted entry interval (REI)† of 48 hours and requires both posting of treated fields and oral notification of workers, neither warning was provided. At 6 a.m., the 34 workers (age range: 13–64 years; median: 31 years) entered the field to complete weeding begun the previous day. After weeding for approximately 4 hours, the workers were transported to a second field 2½ miles away that had been sprayed 2 days earlier with a solution containing cyfluthrin (synthetic pyrethroid), diclofol (organochlorine), and mepiquat chloride. The REI for these pesticides is 12 hours. Within approximately ½ hour of entering the second field, the workers began feeling ill and stopped working.

Symptoms most commonly reported by the 34 farm workers were nausea (97%), headache (94%), eye irritation (85%), muscle weakness (82%), tearing (68%), vomiting (79%), and salivation (56%); the most commonly observed signs were bradycardia (21%), diaphoresis (15%), and miosis (pupillary constriction) (12%) (Table 1).

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*CDHS participates in two CDC-funded pesticide illness prevention projects that use case reports generated by these mandatory reporting requirements: the Sentinel Event Notification System for Occupational Risks and Community Partners for Health Farming.

†REI are established by the U.S. Environmental Protection Agency for pesticides used on agricultural crops to which workers have substantial contact with treated surfaces during hand labor. No worker without prescribed protective clothing should enter a treated area to perform a hand labor task until the REI expires. The length of the REI depends on the specific pesticide but generally can be no less than 12 hours.

Pesticide Exposure — Continued

TABLE 1. Symptoms and signs of pesticide intoxication among 34 farm workers — Fresno County, California, July 1998

Symptom/Sign	No.*	(%)
SYMPTOMS		
Respiratory	12	(35)
Runny nose	10	(29)
Odor detected	5	(15)
Shortness of breath	1	(3)
Pleuritic chest pain	1	(3)
Gastrointestinal	33	(97)
Nausea	33	(97)
Vomiting	27	(79)
Abdominal pain/ Cramping	15	(44)
Diarrhea	4	(12)
Genitourinary	6	(18)
Urgency/Incontinence	6	(18)
Nervous system	34	(100)
Headache	32	(94)
Dizziness	29	(85)
Muscle weakness	28	(82)
Salivation	19	(56)
Muscle shaking	11	(32)
Sweating	3	(9)
Confusion	1	(3)
Anxiety	1	(3)
Loss of balance	1	(3)

Symptom/Sign	No.*	(%)
Skin	13	(38)
Itching	8	(24)
Irritation	6	(18)
Eye	29	(85)
Irritation	29	(85)
Tearing	23	(68)
Blurred vision	5	(15)
SIGNS		
Cardiovascular	7	(21)
Bradycardia (HR[†] <60)	7	(21)
Tachycardia (HR >100)	1	(3)
Irregular rhythm	1	(3)
Gastointestinal	6	(18)
Vomiting	6	(18)
Nervous system	6	(18)
Diaphoresis	5	(15)
Muscle weakness	1	(3)
Eye	4	(12)
Miosis	4	(12)
Respiratory	3	(9)
Tachypnea (RR[§] >20)	3	(9)

*Because more than one symptom or sign may have been reported for any person, the sum of specific symptoms and signs may not total the number reported for the organ system as a whole.
†Heart rate.
§Respiratory rate.

Thirty (88%) workers were transported immediately to a medical clinic; the other four went home, showered, and sought medical care 3–17 days later. All workers evaluated at the clinic were decontaminated by clothing removal and showering and were sent to six area hospitals. Twenty-nine were evaluated and released the same day. One worker was hospitalized overnight for new-onset atrial fibrillation. All workers received hospital treatment for symptoms, and most (28 [82%]) lost at least 1 day of work.

Plasma and red blood cell (RBC) cholinesterase samples obtained from 29 workers on the day of the incident were within laboratory normal values (no workers had baseline levels available). However, these specimens were not placed on ice when obtained and were tested by an outside laboratory after several hours' delay. In comparison, RBC (but not plasma) cholinesterase levels were lower than laboratory normal values in 10 workers who had second cholinesterase tests drawn at two local hospitals (3 hours after the original specimens were obtained); these samples were placed on ice and analyzed in hospital laboratories within 1 hour of collection. Urinary metabolites of carbofuran were detected by CDPR in 18 (58%) of 31 samples obtained up to 11 days following the exposure.

Pesticide Exposure — Continued

Foliage samples obtained in the first field by CDPR on July 31 showed carbofuran levels up to 0.77 μg/cm^2; these levels were consistent with application of pesticide early that morning. Information about pesticide levels to be expected on leaf samples at 48 hours was not available. Other pesticide residues found on leaves in the first field were abamectin (up to 0.009 μg/cm^2) and dicofol (up to 0.58 μg/cm^2). Workers' clothing contained carbofuran residue (up to 91 mg per clothing item) and abamectin residue (up to 6000 μg per clothing item). CDHS is continuing follow-up on these workers to assess the subacute and chronic effects associated with carbofuran overexposure.

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Editorial Note: Pesticide exposure can cause serious acute illness among farm workers. In the incident described in this report, workers entered a field well before the end of a label-specified REI and incurred pesticide exposure that resulted in moderately severe illness (as defined by the American Association of Poison Control Centers [*1*]). The incident demonstrates that 1) posted and oral warnings based on the REI are necessary to prevent illness among workers performing hand labor in fields recently treated with pesticides and 2) failure to adhere to an REI can result in substantial morbidity among exposed workers. Because this incident demonstrates that sole reliance on these control measures may be inadequate, the substitution of safer, less toxic alternative pesticides should be adopted when feasible.

Prompt, appropriate medical attention, including decontamination by clothing removal and showering, probably prevented more acute illness in this incident. However, some exposed workers went home before decontamination, increasing the potential for secondary contamination of children and other family members. Secondary contamination can be reduced by developing in advance appropriate procedures for decontaminating clothing, homes, and vehicles (*2*). Illnesses among family members exposed to the workers were not reported.

Although the incident involved exposure to several pesticides, the agent with the greatest acute systemic toxicity is the broad-spectrum insecticide/nematocide carbofuran. Carbofuran exposure was the probable cause of illness based on biologic evidence (foliage and clothing samples and urine metabolites), signs and symptoms of cholinergic excess (voluntary and involuntary muscle movement, exocrine gland overactivity, and central nervous system effects), and laboratory evidence of cholinesterase depression. Although atrial fibrillation has been reported with other cholinesterase-inhibiting pesticides (*3*), this is the first report following carbofuran exposure. In 1995, 248,000 lbs of cholinesterase-inhibiting carbamate pesticide were used in California, primarily on alfafa, rice, table and wine grapes, and cotton (*4*). During 1995, carbamate pesticides composed 1.8%, by weight, of all pesticides used and alone caused 30 (1.9%) of pesticide-related illnesses reported to CDPR.

Clinical diagnosis of carbamate toxicity is based primarily on known or suspected history of carbamate use and presence of cholinergic symptoms and signs (*5*). Isolated cases may be less recognizable, resulting in delays in diagnosis and treatment. Because cholinesterase inhibition by carbamates is rapidly reversible, cholinesterase testing may be unreliable in diagnosing carbamate poisoning. The incident described

Pesticide Exposure — Continued

in this report also illustrates the importance of limiting the time between cholinesterase collection and analysis, placing specimens on ice, and using the most appropriate analytic techniques to conduct cholinesterase assays (*6*). Measurement of urinary metabolites may be useful to confirm suspected carbamate-related illness, but because this assay is highly chemical-specific and is performed only by certain reference laboratories, it is not a practical tool for most clinicians. Treatment of carbamate poisoning includes decontamination, supportive care, and the use of atropine in severe exposures.

Some of the symptoms reported by these workers are consistent with effects reported for other pesticides involved in this incident. However, the residues for these pesticides were either not assayed or found to be low, and unlike the cholinesterase-inhibiting pesticides, methods to assess the biologic effects of other pesticides are not readily available to clinicians. Several of these pesticides have been associated with adverse effects in animals, but reliable data for humans are lacking. The toxicity related to combined exposures to pesticides remains unresolved and requires further research.

References

1. Litovitz TL, Smilkstein M, Felberg L, Klein-Schwartz W, Berlin R, Morgan JL. 1996 annual report of the American Association of Poison Control Centers Toxic Exposure Surveillance System. Am J Emerg Med 1997;15:447–500.
2. Agency for Toxic Substances and Disease Registry. Managing hazardous materials incidents. Vol. I–II. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service, CDC, 1992.
3. O'Malley MA. Systemic illnesses associated with exposure to Mevinphos in California, 1982–1989. Sacramento, California: California Department of Pesticide Regulation, California Environmental Protection Agency, 1992.
4. California Department of Pesticide Regulation. Pesticide use report, 1995. Sacramento, California: California Department of Pesticide Regulation, California Environmental Protection Agency, 1996.
5. World Health Organization. Carbamate pesticides: a general introduction. Environmental Health Criteria 64. Geneva, Switzerland: World Health Organization, 1986:90.
6. Wilson BW, Sanborn JR, O'Malley MA, Henderson JD, Billitti JR. Monitoring the pesticide exposed worker. Occup Med: State of the Art Reviews 1997;12:347–63.

Screening for Colorectal Cancer — United States, 1997

Colorectal cancer is the second leading cause of cancer-related deaths in the United States (*1*). During 1999, approximately 129,400 new cases of colorectal cancer will be diagnosed, and 56,600 persons will die from the disease (*1*). In 1996, the U.S. Preventive Services Task Force (USPSTF) recommended the use of specific screening tests (i.e., annual fecal-occult blood testing [FOBT] and/or periodic flexible sigmoidoscopy for persons aged ≥50 years) to reduce colorectal cancer-related mortality (*2*). In 1997, the American Cancer Society and an interdisciplinary task force developed guidelines that recommend one test or a combination of several tests for colorectal cancer screening (*3,4*). To estimate the proportion of the U.S. population that received colorectal cancer screening tests, CDC analyzed data from the 1997 Behavioral Risk Factor Surveillance System (BRFSS) on the use of a home-administered blood stool test, or

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FOBT, and sigmoidoscopy/proctoscopy. This report summarizes the results of this analysis, which documents low rates of use of colorectal cancer screening tests.

In 1997, all 50 states, the District of Columbia, and Puerto Rico participated in the BRFSS, a population-based, random-digit–dialed telephone survey of the noninstitutionalized, U.S. population aged ≥18 years. A total of 52,754 persons aged ≥50 years were asked whether they had ever had a blood stool test (FOBT) using a home kit and whether they had ever had a sigmoidoscopy or proctoscopy, and when the last test had been performed. Responses coded as "Don't know/Not sure" or "Refused" were excluded from the analyses (approximately 3%). Data were weighted to the age, sex, and racial/ethnic distribution of each state's adult population using 1990 census or intercensal estimates. Proportions, standard errors, and 95% confidence intervals were calculated using SAS and SUDAAN. Data were aggregated across states. Aggregated and state-level data are presented for the proportion of respondents aged ≥50 years who reported receiving FOBT or sigmoidoscopy/proctoscopy.

Overall, 39.7% of respondents reported ever having had FOBT, and 41.7% reported ever having had sigmoidoscopy/proctoscopy. For this report, all results refer to tests received during the recommended time period (e.g., during the preceding year for FOBT and during the preceding 5 years for sigmoidoscopy/proctoscopy).

A total of 19.8% of respondents reported having had FOBT during the preceding year, and 30.4% reported having had a sigmoidoscopy/proctoscopy during the preceding 5 years (Table 1). The proportion of all respondents who reported having had either test or both tests within the recommended time interval was 40.9% and 9.5%, respectively. Men were more likely than women to report having had a sigmoidoscopy/proctoscopy (35.1% and 26.7%, respectively), and women were more likely than men to report having had FOBT (20.9% and 18.3%, respectively). The proportion of American Indians/Alaskan Natives and Asians/Pacific Islanders who reported having had FOBT was less than that of whites and blacks (Table 1). Respondents identifying themselves as of Hispanic origin were less likely to report having had either test than respondents identifying themselves as non-Hispanic. The proportion of respondents who reported having had either test increased with each age group until age 70–79 years, then decreased among persons aged ≥80 years.

For both screening modalities, the proportion of respondents who reported having had a test increased with increasing education and income level (Table 1). The proportion of respondents who reported having had a test was greater for those with health-care coverage than for those without coverage. For persons without health-care coverage, 8.2% and 16.3% of respondents reported having had FOBT and sigmoidoscopy/proctoscopy, respectively, and 20.6% and 31.4% of those with health-care coverage reported having had the tests.

By state, the proportion of respondents who reported having had FOBT during the preceding year ranged from 9.2% (Mississippi) to 28.4% (Maine) (Table 2). The proportion of respondents who reported having had sigmoidoscopy/proctoscopy during the preceding 5 years ranged from 15.5% (Oklahoma) to 41.5% (District of Columbia).

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Editorial Note: Although screening can reduce mortality from colorectal cancer (*2–4*), the findings in this report indicate low use of sigmoidoscopy/proctoscopy and FOBT,

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TABLE 1. Percentage of respondents aged ≥50 years who reported having had colorectal cancer screening tests within recommended time intervals, by selected characteristics — United States, Behavioral Risk Factor Surveillance System, 1997

	Fecal occult blood test during preceding year			Sigmoidoscopy/proctoscopy during preceding 5 years		
Characteristic	**No.***	**(%)**	**(95% CI†)**	**No.**	**(%)**	**(95% CI)**
Sex						
Men	3,432	(18.3)	(±0.8)	6,639	(35.1)	(±1.0)
Women	6,400	(20.9)	(±0.7)	8,039	(26.7)	(±0.8)
Race						
White	8,755	(20.1)	(±0.6)	13,068	(30.9)	(±0.7)
Black	681	(20.4)	(±2.1)	1,020	(29.8)	(±2.2)
Asian/Pacific Islander	158	(11.5)	(±3.7)	224	(25.9)	(±7.1)
American Indian/Alaskan Native	75	(12.1)	(±4.3)	139	(24.4)	(±6.7)
Ethnicity						
Hispanic	378	(12.7)	(±1.9)	574	(25.5)	(±2.9)
Non-Hispanic	9,420	(20.3)	(+0.6)	14,043	(30.8)	(±0.6)
Age group (yrs)						
50–59	2,815	(15.5)	(±0.8)	4,106	(23.6)	(±1.0)
60–69	3,201	(21.8)	(±1.0)	4,667	(33.2)	(±1.2)
70–79	2,843	(23.7)	(±1.2)	4,383	(37.0)	(±1.3)
≥80	973	(20.1)	(±1.7)	1,522	(31.6)	(±2.0)
Education						
Less than high school	1,691	(16.2)	(±1.1)	2,743	(27.5)	(±1.4)
High school graduate	3,285	(19.3)	(±0.9)	4,737	(28.0)	(±1.0)
Some college/technical school	2,375	(20.5)	(±1.1)	3,490	(31.2)	(±1.3)
College graduate	2,454	(22.8)	(±1.2)	3,679	(35.9)	(±1.4)
Annual income						
<$10,000	706	(16.1)	(±1.8)	1,020	(24.9)	(±2.3)
$10,000–$24,999	2,709	(18.4)	(±1.0)	4,155	(28.4)	(±1.1)
$25,000–$74,999	3,678	(20.4)	(±0.9)	5,524	(32.1)	(±1.1)
≥$75,000	863	(23.0)	(±2.0)	1,378	(36.8)	(±2.3)
Health-care coverage						
Yes	9,553	(20.6)	(±0.6)	14,179	(31.4)	(±0.6)
No	275	(8.2)	(±1.5)	490	(16.3)	(±2.1)
Total	**9,832**	**(19.8)**	**(±0.5)**	**14,678**	**(30.4)**	**(±0.6)**

*Numbers may not add to total because of missing data.
†Confidence interval.

particularly within the recommended time intervals. Persons with health-care coverage, higher incomes, and more years of education were more likely to report having had these tests.

The 1997 BRFSS was the first time questions about use of FOBT specified that the test was conducted at home using a kit. Previous survey questions did not address whether samples were obtained at home using a kit or as part of a digital rectal exami-

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TABLE 2. Percentage of respondents aged ≥50 years who reported having had colorectal cancer screening tests within recommended time intervals, by area — United States, Behavioral Risk Factor Surveillance System, 1997

	Fecal occult blood test during preceding year			Sigmoidoscopy/proctoscopy during preceding 5 years		
Area	**No.**	**(%)**	**(95% CI*)**	**No.**	**(%)**	**(95% CI)**
Alabama	124	(14.3)	(±2.6)	251	(29.6)	(±3.4)
Alaska	53	(15.4)	(±5.1)	138	(33.0)	(±6.7)
Arizona	136	(16.9)	(±3.7)	244	(31.3)	(±4.5)
Arkansas	97	(13.4)	(±2.7)	168	(22.9)	(±3.3)
California	261	(16.4)	(±2.0)	533	(35.4)	(±2.7)
Colorado	157	(24.0)	(±3.6)	207	(30.7)	(±3.8)
Connecticut	193	(24.2)	(±3.3)	284	(35.1)	(±3.8)
Delaware	231	(22.5)	(±2.9)	370	(37.1)	(±3.2)
District of Columbia	123	(25.6)	(±4.4)	192	(41.5)	(±5.1)
Florida	385	(24.0)	(±2.3)	459	(28.6)	(±2.5)
Georgia	112	(14.8)	(±2.8)	269	(38.5)	(±4.0)
Hawaii	177	(21.6)	(±3.5)	280	(39.7)	(±4.2)
Idaho	333	(17.6)	(±2.2)	478	(26.1)	(±2.5)
Illinois	74	(14.4)	(±3.3)	147	(29.2)	(±4.3)
Indiana	129	(16.0)	(±3.0)	207	(23.9)	(±3.3)
Iowa	282	(18.6)	(±2.2)	399	(27.9)	(±2.6)
Kansas	165	(23.0)	(±3.3)	226	(29.9)	(±3.5)
Kentucky	283	(18.2)	(±2.2)	378	(25.3)	(±2.5)
Louisiana	100	(16.9)	(±3.2)	157	(26.2)	(±3.8)
Maine	184	(28.4)	(±3.7)	206	(32.0)	(±3.8)
Maryland	403	(25.1)	(±2.7)	386	(25.8)	(±2.8)
Massachusetts	150	(28.1)	(±4.2)	164	(31.0)	(±4.4)
Michigan	186	(22.4)	(±3.1)	296	(34.6)	(±3.4)
Minnesota	378	(21.9)	(±2.1)	669	(39.7)	(±2.5)
Mississippi	68	(9.2)	(±2.2)	173	(25.7)	(±3.7)
Missouri	148	(17.2)	(±2.9)	219	(29.6)	(±3.7)
Montana	117	(16.6)	(±3.0)	182	(25.4)	(±3.3)
Nebraska	214	(17.8)	(±2.5)	268	(24.1)	(±3.0)
Nevada	109	(10.7)	(±4.5)	228	(29.1)	(±6.2)
New Hampshire	143	(26.8)	(±4.4)	163	(33.4)	(±4.4)
New Jersey	200	(21.7)	(±3.0)	271	(29.6)	(±3.3)
New Mexico	99	(15.0)	(±3.0)	178	(27.0)	(±3.7)
New York	291	(24.8)	(±2.8)	357	(31.7)	(±2.9)
North Carolina	370	(27.2)	(±2.6)	423	(30.8)	(±2.8)
North Dakota	110	(14.7)	(±2.8)	222	(30.2)	(±3.6)
Ohio	261	(18.4)	(±2.6)	433	(30.1)	(±3.0)
Oklahoma	96	(10.9)	(±2.3)	139	(15.5)	(±2.7)
Oregon	315	(23.9)	(±2.7)	399	(30.8)	(±2.8)
Pennsylvania	294	(22.0)	(±2.5)	421	(31.9)	(±2.8)
Puerto Rico	150	(16.1)	(±2.6)	183	(20.5)	(±2.8)
Rhode Island	151	(21.1)	(±3.2)	220	(32.7)	(±3.8)
South Carolina	141	(15.5)	(±2.6)	187	(21.2)	(±3.0)
South Dakota	133	(15.0)	(±2.5)	243	(27.9)	(±3.4)
Tennessee	190	(15.9)	(±2.3)	303	(26.5)	(±2.8)
Texas	154	(19.6)	(±3.1)	224	(27.5)	(±3.4)
Utah	106	(14.7)	(±3.3)	256	(30.2)	(±4.0)
Vermont	301	(26.6)	(±2.8)	314	(28.5)	(±2.9)
Virginia	240	(19.8)	(±3.4)	392	(33.5)	(±3.9)
Washington	306	(24.4)	(±2.6)	373	(31.1)	(±2.8)
West Virginia	139	(11.9)	(±2.1)	266	(24.8)	(±2.7)
Wisconsin	147	(17.2)	(±3.0)	271	(34.3)	(±3.8)
Wyoming	123	(14.3)	(±2.5)	262	(30.0)	(±3.3)
Total	**9,832**	**(19.8)**	**(±0.5)**	**14,678**	**(30.4)**	**(±0.6)**

*Confidence interval.

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nation. The home kit is the recommended method of obtaining a stool sample (*3,5,6*). Use of the home kit allows for collection of multiple samples and should be performed in conjunction with dietary restrictions to decrease the possibility of false-positive or false-negative results from certain foods and medications (*4,6*).

Previous estimates of the prevalence of colorectal cancer screening practices using the 1993 BRFSS demonstrated that the rates of use of colorectal cancer screening tests were low (*7*). Although direct comparison between these two analyses is not possible because the wording of the survey questions differed, the current analysis demonstrates continued underuse of sigmoidoscopy/proctoscopy. Both patient and provider barriers have contributed to the low rates of screening. Patient barriers may include lack of knowledge of screening recommendations, access to health care, anticipated discomfort, and embarrassment. Provider barriers may include lack of skills and lack of time to counsel patients (*2,8*).

The findings in this report are subject to at least three limitations. First, because the BRFSS is administered as a telephone survey, only persons with telephones are represented. Second, results are based on self-reports and have not been validated. However, self-report of certain colorectal cancer screening tests appears to be valid (*9*). Third, because the BRFSS questionnaire did not distinguish between tests conducted for diagnostic or screening purposes, the rates of use of these tests for screening purposes were probably lower than reported.

Activities relating to colorectal cancer screening are increasing at both the state and national levels. In 1997, the American Cancer Society and CDC established the National Colorectal Cancer Roundtable, a collaboration of state health departments, professional and medical societies, private industry, consumers, and cancer survivors to promote colorectal cancer screening awareness and activities. In 1998, the Health Care Financing Administration expanded Medicare coverage to include colorectal cancer screening. For average-risk persons aged ≥50 years, coverage will be provided for annual FOBT and sigmoidoscopy every 4 years, and for high-risk persons, coverage will be provided for colonoscopy every 2 years. Double-contrast barium enema may be substituted for either sigmoidoscopy or colonoscopy if requested in writing by the provider. Some commercial health plans also cover colorectal cancer screening.

The findings in this report underscore the need for efforts to increase screening for colorectal cancer. In response to low rates of use of screening tests, CDC is beginning a comprehensive health communication campaign to educate consumers and health-care providers about the importance of colorectal cancer screening and to encourage patients to discuss screening options with their providers. Public health officials, health-care providers, and commercial health plans need to intensify efforts to increase awareness of the effectiveness of screening and to promote the widespread use of colorectal cancer screening tests.

References

1. American Cancer Society. Cancer facts and figures, 1999. Atlanta: American Cancer Society, 1999; publication no. 5008.99.
2. US Preventive Services Task Force. Guide to clinical preventive services. 2nd ed. Baltimore: Williams and Wilkins, 1996.
3. Byers T, Levin B, Rothenberger D, Dodd GD, Smith RA. American Cancer Society guidelines for screening and surveillance for early detection of colorectal polyps and cancer: update 1997. CA Cancer J Clin 1997;47:154–60.

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4. Winawer SJ, Fletcher RH, Miller L, et al. Colorectal cancer screening: clinical guidelines and rationale. Gastroenterology 1997;112:594–642.
5. Mandel JS, Bond JH, Church TR, et al. Reducing mortality from colorectal cancer by screening for fecal occult blood. N Engl J Med 1993;328:1365–71.
6. Ransohoff DF, Lang CA. Screening for colorectal cancer with the fecal occult blood test: a background paper. Ann Intern Med 1997;126:811–22.
7. CDC. Screening for colorectal cancer—United States, 1992–1993, and new guidelines. MMWR 1996;45:107–10.
8. McCarthy BD, Moskowitz MA. Screening flexible sigmoidoscopy: patient attitudes and compliance. J Gen Intern Med 1993;8:120–5.
9. Montaño DE, Phillips WR. Cancer screening by primary care physicians: a comparison of rates obtained from physician self-report, patient survey, and chart audit. Am J Public Health 1995;85:795–800.

Progress Toward Poliomyelitis Eradication — Pakistan, 1994–1998

Since the 1988 World Health Assembly resolution to eradicate poliomyelitis by 2000, polio cases reported globally have decreased by approximately 85% (*1*). Despite a strong commitment to polio eradication, polio remains endemic in Pakistan. In 1997, Pakistan reported 1147 polio cases, representing widespread poliovirus circulation nationally and constituting 22% of cases reported worldwide. However, surveillance and laboratory data from 1998 indicate that previous widespread poliovirus circulation was geographically localized for the first time. This report describes polio eradication activities in Pakistan, including the impact of routine and supplementary vaccination on polio incidence.

Routine Vaccination Coverage

Reported routine vaccination coverage with three or more doses of oral poliovirus vaccine (OPV3) among children aged ≤1 year decreased from 83% in 1990 to 57% in 1995, and increased to 75%–81% during 1996–1998 (Figure 1). In Pakistan during January 1998, cluster surveys conducted in 13 districts revealed a median routine OPV3 coverage of 58% (range: 10%–93%), compared with 71% coverage based on administrative data.

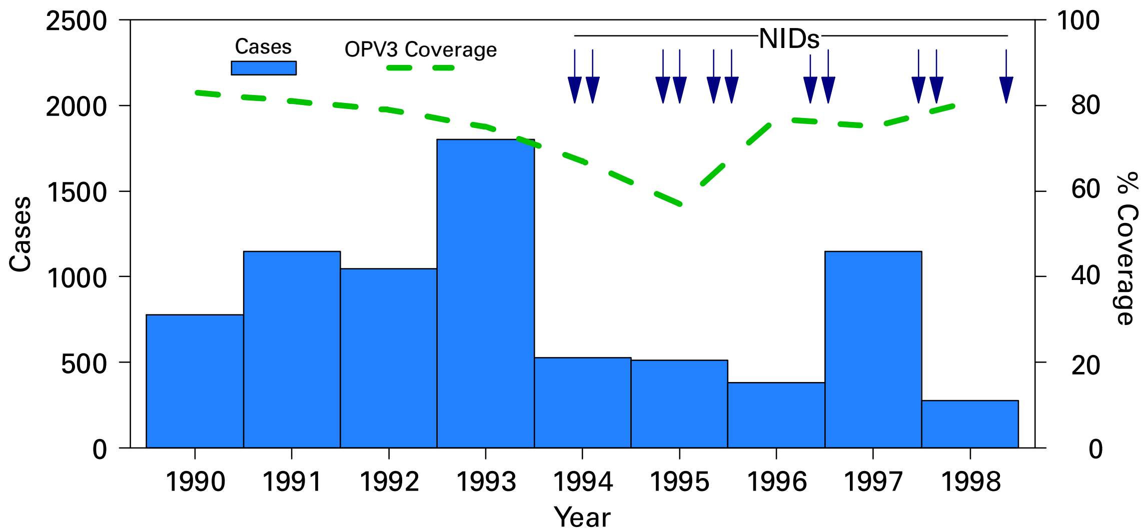
Supplementary Vaccination Coverage

National Immunization Days* (NIDs). Annual NIDs, which delivered two doses of OPV to all children aged <5 years, began in Pakistan in 1994. Since then, >20 million children have been vaccinated each year, with coverage reported at >95% during each of 10 NID rounds. NIDs in 1994 and 1995 were conducted during high poliovirus transmission season to coordinate with NIDs held in neighboring countries; subsequent NIDs have been conducted during Pakistan's low polio season during December–February. In three districts following the December 1997 NID, cluster surveys revealed a median coverage of 87%. NIDs also were conducted in December 1998 (round 1) and January 1999 (round 2); during the first round, 26 million children were vaccinated, representing the highest number of children vaccinated in Pakistan.

*Mass campaigns held over a short period of time (days to weeks) in which two doses of oral poliovirus vaccine are administered to all children in the target group, regardless of prior vaccination history, with an interval of 4–6 weeks between doses.

Polio Eradication — Continued

FIGURE 1. Reported number of poliomyelitis cases, percentage of routine oral poliovirus vaccine coverage (OPV3) among children aged ≤1 year, and national immunization days (NIDs),* by year — Pakistan, 1990–1998†



*Mass campaigns held over a short period of time (days to weeks) in which two doses of oral poliovirus vaccine are administered to all children in the target group, regardless of prior vaccination history, with an interval of 4–6 weeks between doses.
†Cases reported through November 1998.

Cross-border vaccination activities. Pakistan implemented cross-border supplemental vaccination activities in all districts bordering Iran and Afghanistan. During NIDs in Iran in March and April 1998, an average of 177,000 Pakistani children (85% of the target) were vaccinated in each of two rounds through house-to-house vaccinations in five border districts in Balochistan. During NIDs in Afghanistan in May and June 1998, 2,110,000 (round 1) and 1,660,000 (round 2) Pakistani children were vaccinated in 22 districts in Balochistan and Northwest Frontier Province (NWFP), reaching >100% of target children in each round.

Outbreak response. Outbreak response consisted of administering two doses of OPV to children aged <5 years through house-to-house vaccinations throughout the outbreak district. In 1997, approximately 200,000 children were vaccinated during each of two rounds in the districts of Bannu, Lakkimarwat, and Quetta.

Acute Flaccid Paralysis Surveillance

Acute flaccid paralysis (AFP) surveillance was introduced in Pakistan in 1995, and by 1998, staff in all provinces were trained in AFP surveillance and were sending monthly case reports to the Expanded Program on Immunization (EPI) office. AFP surveillance was strengthened through surveillance assessments in many districts and introduction of computerized case line listings at the provincial and national levels. The poliovirus laboratory at the National Institutes of Health in Islamabad serves as both the National Poliomyelitis Laboratory and the WHO Regional Reference Laboratory for Poliomyelitis; it performs primary poliovirus isolation from stool specimens and intratypic differentiation of poliovirus.

Polio Eradication — Continued

To monitor AFP surveillance performance, a reported nonpolio AFP rate of ≥1 per 100,000 population aged <15 years is used to indicate a sensitive AFP surveillance system. In 1997, the nonpolio AFP rate was 0.7 nationally and was <1 in all provinces and territories (Table 1). During January–November 1998, the nonpolio AFP rate was 0.6, with no increase in case findings compared to 1997. The proportions of cases with adequate stools (61%) and 60-day follow-up for residual paralysis (75%) increased in 1998; however, the goals of reaching 80% for both parameters have not been achieved.

Impact of Eradication Activities

Although NIDs have substantially decreased polio cases since 1993 (when 1803 cases were reported), the number of reported cases still remains high (Figure 1). In 1997, Pakistan reported 1147 polio cases; these cases represented widespread poliovirus circulation because poliovirus type 1 was identified in 86 (72%) of the 120 districts and poliovirus type 3 in 24 (20%) districts in 18 (75%) of Pakistan's 24 divisions (Figure 2). Poliovirus type 2 was isolated from two cases from NWFP in 1997. In addition to widespread endemic polio in 1997, four outbreaks of >30 cases each occurred in four districts in NWFP and Balochistan, Pakistan.

Through November 1998, 277 polio cases reported in 1998 have been confirmed, a 74% decrease from the same period of 1997 (Figure 2). These cases occurred predominantly in children aged <3 years (83%) and in children who received less than three doses of routine or supplemental OPV (73%). In addition to substantial reduction in polio incidence, previous widespread transmission has been limited following the 1997–1998 NIDs to three main areas—Karachi, southern Sindh (Hyderabad division), and central NWFP (Peshawar, Kohat, and Malakand divisions). Cases confirmed by wild poliovirus type 1 isolation have decreased by 75% from 1997 and were identified in 44 districts. Wild poliovirus type 3, however, has been found in 25 districts in 1998, with no decrease from 1997. No wild poliovirus type 2 has been isolated in 1998, and no outbreaks of >20 cases had occurred as of November 1998.

Reported by: National Institutes of Health, Islamabad, Pakistan. Expanded Program on Immunization, Eastern Mediterranean Region, World Health Organization, Alexandria, Egypt. Vaccines and Other Biologicals, World Health Organization, Geneva, Switzerland. Respiratory and Enteric Viruses Br, Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases; Vaccine-Preventable Disease Eradication Div, National Immunization Program; and an EIS Officer, CDC.

Editorial Note: Laboratory and surveillance data suggest that after 4 years of eradication efforts in Pakistan, previous widespread poliovirus transmission has been reduced greatly, with sustained transmission limited to focal geographic areas. Polio cases have been reduced by 74% from 1997 to 1998, with an 88% decrease in the most populous province (Punjab). Wild poliovirus type 2 has not been isolated as of November 1998, and the number of poliovirus genotypes circulating in 1998 has been reduced (*2*). The reduced polio incidence in 1998 may be attributed to improved NIDs, cross-border vaccination activities, outbreak response vaccination, and immunity caused by previous widespread virus circulation.

Pakistan conducted five sets of NIDs before reaching the level of poliovirus control observed in 1998. Reasons for delayed impact of polio eradication activities may include conducting the first two sets of NIDs during the high poliovirus circulation season, nonuniform coverage for both NID and routine vaccination, and low routine OPV3

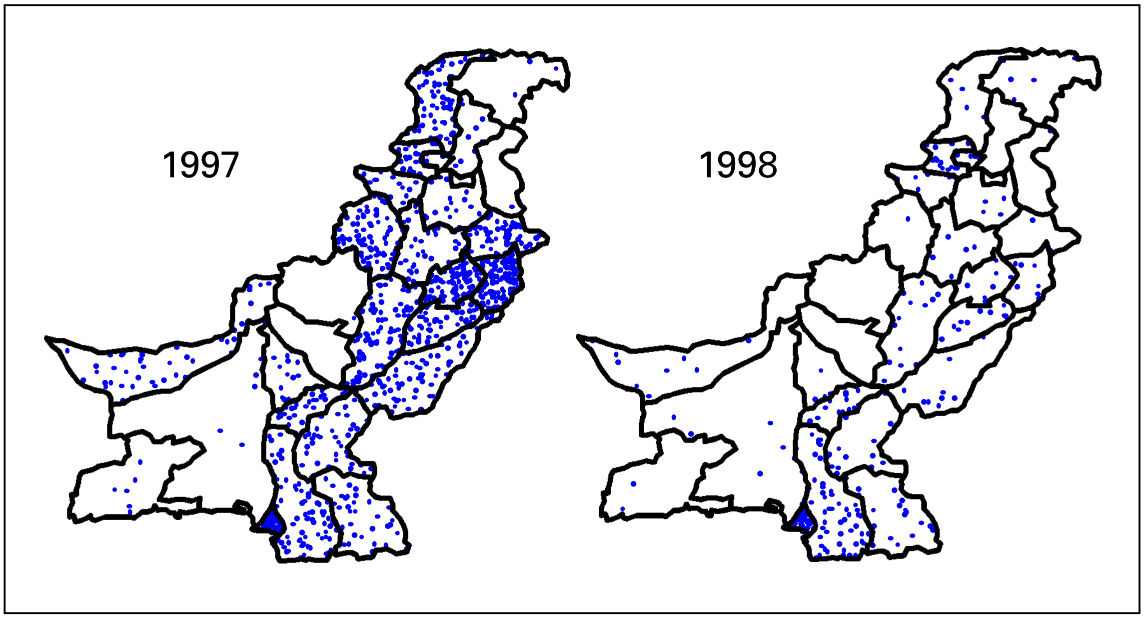
TABLE 1. Number of acute flaccid paralysis (AFP) cases, poliomyelitis cases, and wild poliovirus serotypes, and AFP surveillance indicators, by province and year — Pakistan, 1997–1998

		No. reported cases		No. wild poliovirus serotypes			Surveillance indicators			
Year	Province	Total AFP	Confirmed polio*	P1†	P2	P3	AFP rate§	Nonpolio AFP rate§	% AFP cases with adequate specimens¶	% AFP cases with 60-day follow-up**
1997	Punjab	850	565	224	0	15	2.4	0.8	35	66
	Sindh	361	272	86	0	5	2.4	0.6	41	78
	NWFP/FATA††	311	233	147	2	6	3.1	0.8	68	67
	Balochistan	96	73	25	0	3	2.7	0.7	43	54
	AJK§§	2	1	0	0	0	0.1	0.1	50	50
	FANA¶¶	4	3	2	0	0	1.0	0.3	0	25
	Islamabad	0	0	3	0	0	0	0	0	0
	Total	**1624**	**1147**	**487**	**2**	**29**	**2.5**	**0.7**	**43**	**67**
1998***	Punjab	287	63	16	0	5	0.9	0.6	68	80
	Sindh	290	147	58	0	13	2.2	0.8	51	81
	NWFP/FATA	89	40	28	0	12	1.0	0.5	83	62
	Balochistan	42	22	8	0	3	1.4	0.6	43	41
	AJK	11	1	0	0	0	0.8	0.8	55	45
	FANA	4	4	1	0	0	1.0	0	0	75
	Islamabad	0	0	1	0	0	0	0	0	0
	Total	**723**	**277**	**112**	**0**	**33**	**1.2**	**0.6**	**61**	**75**

* Laboratory-confirmed or clinically (in the absence of adequate specimens) confirmed cases.
† Isolates for 1997 are presumed wild: 205 (42%) were confirmed wild, 97% (205 of 212) of isolates were characterized as wild. Isolates for 1998 all were characterized, and numbers shown are confirmed wild.
§ Per 100,000 children aged <15 years.
¶ Two stool specimens collected 24 hours apart and within 14 days of onset of paralysis.
** Follow-up for residual paralysis 60-days after onset of paralysis; 1998 for cases with onset through October.
†† Northwest Frontier Province/Federally Administered Tribal Areas.
§§ Azad Jammu Kashmi.
¶¶ Federally Administered Northern Areas.
*** Data for cases with onset during January–November 1998.

Polio Eradication — Continued

FIGURE 2. Reported cases of poliomyelitis*, by division — Pakistan, 1997 and 1998†



*n=1147 for 1997; n=277 for January–November 1998.
†Each dot represents one case; dots are distributed randomly within division borders.

coverage. The Pakistan experience indicates that among densely populated countries with a warm climate and poor sanitation such as Pakistan, NIDs may have a rapid impact on polio incidence only in the presence of high routine vaccination (*3*).

Surveillance indicators suggest that case finding and investigation should be strengthened. Efforts to improve AFP surveillance will include hiring surveillance coordinators in each large province, monthly monitoring visits to each district, and interdivisional meetings to review surveillance and provide additional training.

To eradicate polio from Pakistan, successful NIDs and other routine and supplementary vaccination activities should be continued and strengthened. Efforts to improve routine vaccination will include assuring a steady vaccine supply, expanding vaccine delivery to all primary health-care sites, and renewed training and social mobilization to ensure consumer demand for vaccination. Other supplementary vaccination activities, such as a third NID round or subnational NIDs in high-risk areas, will be necessary to assure rapid progress to meet the 2000 goal. Pakistan will expand supplemental vaccination activities in high-risk areas in spring 1999 to include all high-risk districts in Sindh, Balochistan, and NWFP. Strong support from the Pakistan government and international partners will be necessary to continue the substantial progress observed in 1998†.

References

1. CDC. Progress toward global eradication poliomyelitis,1997. MMWR 1998;47:414–9.
2. CDC. Virologic surveillance and progress toward poliomyelitis eradication—eastern mediterranean region, 1995–September 1998. MMWR 1998;47:1001–5.

†Polio eradication in Pakistan is supported by the governments of Pakistan, Japan, and the United Kingdom; WHO; United Nations Children's Fund (UNICEF), CDC, and Rotary International.

Polio Eradication — Continued

3. CDC. Progress toward poliomyelitis eradication—People's Republic of China, 1990–1996. MMWR 1996;45:1076–9.

Notice to Readers

New Population Standard for Age-Adjusting Death Rates

On August 26, 1998, the U.S. Department of Health and Human Services (DHHS) adopted a policy to begin using a single new population standard for age-adjusting death rates. The new standard, which will be effective for deaths occurring in 1999, is based on the 2000 U.S. population.

Since 1943, the National Center for Health Statistics (NCHS) and state health departments have used a population standard based on the 1940 U.S. population for age-adjusting death rates. However, at least three different standards are used by federal and state agencies. Use of a single age-adjustment standard by federal agencies will help alleviate confusion and misunderstanding among data users and the news media.

In 1991 and 1997, NCHS sponsored workshops to examine issues associated with age standardization of death rates. The first workshop examined technical issues and problems related to the calculation and interpretation of age-adjusted death rates (*1*). The second workshop focused on policy issues related to a coordinated approach to age standardization within DHHS (*2*). Workshop participants concluded that although compelling technical reasons existed to change population standards, the public health community would be better served by a new, uniform, and more contemporary standard. The reports of both workshops are available on the World-Wide Web at http://www.cdc.gov/nchswww/products/pubs/pubd/series/sr4/pre-21/pre-21.htm.

Age-adjusted death rates calculated before implementation of the 2000 standard will not be comparable with rates based on the new standard. In addition, mortality time series at all geographic levels will have to be recomputed. Long-range goals (e.g., national health objectives for 2000) will have to be recalibrated in terms of age-adjusted death rates. Use of the 2000 standard will result in rates that are often substantially higher than those based on the 1940 standard. The new standard also will affect trends in age-adjusted death rates for certain causes of death and will narrow race differentials in age-adjusted death rates. The NCHS report on these changes (*3*) is available on the World-Wide Web, http://www.cdc.gov/nchswww/products/pubs/pubd/nvsr/47-pre/47-pre.htm.

The decision by DHHS to adopt a uniform policy to age-adjust death rates represents a major change in statistical practice that has implications for federal, state, and local health programs. The adoption of a uniform standard will reduce the burden on state and local health departments to produce multiple time series to match federal statistical benchmarks. In addition, the adoption of a current population standard will improve the usefulness of health statistics issued by DHHS.

References

1. Feinleib M, Zarate AO, eds. Reconsidering age adjustment procedures: Workshop proceedings. Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, CDC, National Center for Health Statistics, 1992 (Vital and Health Statistics, vol 4, no. 29).

2. Anderson RN, Rosenberg HM. Report of the second workshop on age adjustment. Hyattsville, Maryland: US Department of Health and Human Services, CDC, National Center for Health Statistics, 1998 (Vital and Health Statistics, vol 2, no. 30).
3. Anderson RN, Rosenberg HM. Age standardization of death rates: implementation of the year 2000 standard. Hyattsville, Maryland: US Department of Health and Human Services, CDC, National Center for Health Statistics, 1998. (National vital statistics reports, vol 47 no. 3).

Notice to Readers

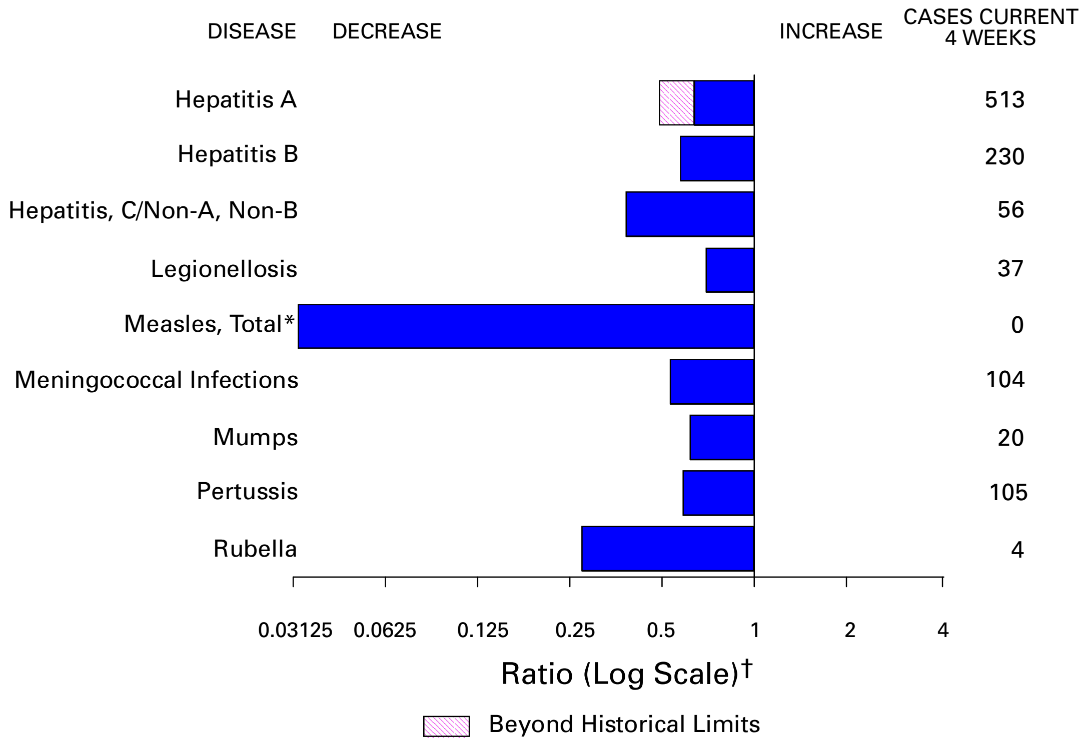
Preparing for the Next Influenza Pandemic Satellite Broadcast

CDC and the Public Health Training Network will cosponsor *Preparing for the Next Influenza Pandemic*, a live interactive satellite program on Thursday, February 25, 1999, from 9 a.m. to 11:30 a.m. eastern standard time, with a repeat broadcast from 1 p.m. to 3:30 p.m. This broadcast will introduce the guidelines and facilitate state and local emergency response preparations—preparations that can be adapted to other infectious disease crises.

This broadcast is designed for state and local health officers; state and local epidemiologists; federal, state, and local emergency preparedness planners; immunization program managers; state governors; physician and health-care organizations; laboratory managers; public information officers; pharmacists; hospital infection control practitioners; members of the news media; and funeral directors associations. Continuing education credit will be awarded for a variety of professions, based on 2.5 hours of instruction.

Registration information is available through the CDC fax information system, (888) 232-3299; request document number 130015. Additional information about this broadcast is available on the World-Wide Web, http://www.cdc.gov/phtn/pandemic/pandemicflu.htm.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending February 13, 1999, with historical data — United States



*No measles cases were reported for the current 4-week period, yielding a ratio for week 6 of zero (0).
† Ratio of current 4-week total to 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 — provisional cases of selected notifiable diseases, United States, cumulative, week ending February 13, 1999 (6th Week)

	Cum. 1999		Cum. 1999
Anthrax	-	Plague	-
Brucellosis	4	Poliomyelitis, paralytic	-
Cholera	1	Psittacosis	2
Congenital rubella syndrome	-	Rabies, human	-
Cryptosporidiosis*	71	Rocky Mountain spotted fever (RMSF)	18
Diphtheria	-	Streptococcal disease, invasive Group A	114
Encephalitis: California*	1	Streptococcal toxic-shock syndrome*	3
eastern equine*	-	Syphilis, congenital¶	-
St. Louis*	-	Tetanus	1
western equine*	-	Toxic-shock syndrome	7
Hansen Disease	4	Trichinosis	2
Hantavirus pulmonary syndrome*†	1	Typhoid fever	18
Hemolytic uremic syndrome, post-diarrheal*	5	Yellow fever	-
HIV infection, pediatric*§	7		

-:no reported cases
*Not notifiable in all states.
† Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§ Updated monthly from reports to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update January 24, 1999.
¶ Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending February 13, 1999, and February 14, 1998 (6th Week)

Reporting Area	AIDS		Chlamydia		*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB	
					NETSS[†]	PHLIS[§]				
	Cum. 1999*	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1999	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998
UNITED STATES	3,137	3,128	46,584	62,805	119	37	28,036	38,958	206	330
NEW ENGLAND	158	64	1,434	2,435	19	11	414	739	37	10
Maine	3	2	57	114	1	-	7	6	-	-
N.H.	3	-	96	110	1	-	5	16	-	-
Vt.	-	5	27	32	-	-	5	1	-	2
Mass.	124	6	987	1,025	11	7	318	265	37	8
R.I.	9	13	258	290	-	-	77	43	-	-
Conn.	19	38	9	864	6	4	2	408	-	-
MID. ATLANTIC	489	893	7,188	9,410	6	-	3,556	5,561	3	22
Upstate N.Y.	17	114	N	N	4	-	139	682	3	20
N.Y. City	237	488	4,352	4,059	-	-	2,048	1,979	-	-
N.J.	162	131	398	1,325	2	-	172	836	-	-
Pa.	73	160	2,438	4,026	N	-	1,197	2,064	-	2
E.N. CENTRAL	179	202	7,394	9,946	27	4	5,470	8,082	58	59
Ohio	38	33	2,644	3,563	17	3	1,647	2,121	-	3
Ind.	25	38	-	-	5	-	691	726	-	1
Ill.	77	101	2,395	2,409	1	-	1,484	2,288	-	9
Mich.	22	15	1,997	2,391	4	-	1,495	2,304	58	46
Wis.	17	15	358	1,583	N	1	153	643	-	-
W.N. CENTRAL	110	57	1,516	3,977	24	9	534	1,474	-	52
Minn.	20	15	506	814	8	8	201	300	-	-
Iowa	3	6	84	334	5	1	24	90	-	1
Mo.	72	19	-	1,344	1	-	-	531	-	50
N. Dak.	-	-	-	113	2	-	-	11	-	-
S. Dak.	-	4	206	199	-	-	21	27	-	-
Nebr.	6	9	259	370	2	-	117	145	-	-
Kans.	9	4	461	803	6	-	171	370	-	1
S. ATLANTIC	883	773	13,125	11,035	13	5	9,938	9,549	21	10
Del.	13	13	316	228	-	-	187	175	-	-
Md.	81	52	965	802	1	-	951	943	15	2
D.C.	8	84	N	N	-	-	354	405	-	-
Va.	54	38	1,766	1,433	5	-	1,503	908	2	1
W. Va.	10	5	278	363	-	1	69	107	-	-
N.C.	69	45	2,500	2,021	2	2	2,337	1,773	-	4
S.C.	60	59	3,427	2,065	1	1	1,864	1,472	1	-
Ga.	111	113	813	2,187	1	-	282	2,064	-	-
Fla.	477	364	3,060	1,936	4	1	2,391	1,702	3	3
E.S. CENTRAL	157	156	4,058	4,453	7	-	3,718	4,628	15	14
Ky.	15	19	-	664	-	-	-	451	-	4
Tenn.	64	52	1,604	1,529	5	-	1,345	1,450	14	9
Ala.	31	56	1,365	1,131	2	-	1,343	1,597	1	1
Miss.	47	29	1,089	1,129	-	-	1,030	1,130	-	-
W.S. CENTRAL	532	379	3,781	8,668	2	-	2,759	5,604	7	8
Ark.	19	17	521	332	-	-	253	525	-	-
La.	27	66	2,158	1,392	1	-	1,904	1,154	6	-
Okla.	6	14	1,102	855	-	-	602	497	-	-
Tex.	480	282	-	6,089	1	-	-	3,428	1	8
MOUNTAIN	45	87	2,181	3,114	5	1	489	932	12	40
Mont.	-	5	114	82	-	-	1	4	-	3
Idaho	4	3	165	184	-	-	10	16	3	15
Wyo.	-	-	-	92	-	-	-	6	-	9
Colo.	26	21	663	742	2	1	107	331	3	3
N. Mex.	4	9	546	496	1	-	111	92	3	5
Ariz.	4	33	522	1,092	1	-	243	395	2	-
Utah	4	13	171	215	1	-	17	25	1	3
Nev.	3	3	-	211	-	-	-	63	-	2
PACIFIC	584	517	5,907	9,767	16	7	1,158	2,389	53	115
Wash.	29	31	-	1,192	-	2	-	216	2	1
Oreg.	15	13	394	687	6	5	55	117	-	1
Calif.	525	468	5,146	7,417	10	-	1,042	1,964	51	89
Alaska	5	-	212	226	-	-	42	45	-	-
Hawaii	10	5	155	245	-	-	19	47	-	24
Guam	1	-	-	10	N	-	-	3	-	-
P.R.	92	87	U	U	-	U	46	69	-	-
V.I.	-	1	N	N	N	U	U	U	U	U
Amer. Samoa	-	-	U	U	N	U	U	U	U	U
C.N.M.I.	-	-	N	N	N	U	-	7	-	-

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly from reports to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update January 24, 1999.

[†]National Electronic Telecommunications System for Surveillance.

[§]Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending February 13, 1999, and February 14, 1998 (6th Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999*	Cum. 1998	Cum. 1999
UNITED STATES	66	133	210	317	104	134	528	817	839	1,145	395
NEW ENGLAND	4	10	26	36	1	6	11	11	24	30	70
Maine	-	-	-	1	-	-	-	-	-	-	4
N.H.	1	2	-	-	-	-	-	1	-	-	4
Vt.	1	-	-	-	-	-	1	-	-	1	13
Mass.	1	-	26	10	1	6	7	10	7	12	21
R.I.	1	3	-	2	-	-	-	-	9	4	7
Conn.	-	5	-	23	-	-	3	-	8	13	21
MID. ATLANTIC	10	26	87	196	25	46	19	51	114	117	89
Upstate N.Y.	2	6	38	49	7	10	1	2	-	9	57
N.Y. City	-	5	-	6	3	27	11	5	45	77	U
N.J.	3	1	41	30	13	5	1	14	45	26	21
Pa.	5	14	8	111	2	4	6	30	24	5	11
E.N. CENTRAL	25	51	10	14	10	13	85	120	90	77	1
Ohio	12	16	7	10	1	1	10	30	32	15	-
Ind.	4	7	2	3	4	1	26	20	4	21	-
Ill.	-	11	-	-	-	7	42	43	51	26	-
Mich.	9	6	1	1	4	3	7	15	-	-	1
Wis.	-	11	U	U	1	1	-	12	3	15	-
W.N. CENTRAL	1	9	4	4	5	5	1	14	22	21	42
Minn.	-	-	-	-	-	-	-	1	17	8	10
Iowa	1	-	1	4	2	1	-	-	-	-	12
Mo.	-	4	-	-	3	3	-	8	4	11	-
N. Dak.	-	-	1	-	-	-	-	-	-	-	11
S. Dak.	-	-	-	-	-	-	-	-	1	-	-
Nebr.	-	5	-	-	-	-	1	2	-	-	1
Kans.	-	-	2	-	-	1	-	3	-	2	8
S. ATLANTIC	13	14	44	49	31	28	221	297	94	161	165
Del.	1	1	-	-	-	1	1	-	-	-	-
Md.	-	4	34	45	13	14	38	86	16	17	33
D.C.	-	2	1	2	5	2	10	7	4	13	-
Va.	2	2	-	-	4	2	21	32	9	5	41
W. Va.	N	N	-	-	-	-	1	-	-	9	-
N.C.	2	3	8	-	1	3	72	77	29	77	42
S.C.	1	1	-	-	-	-	36	38	20	28	11
Ga.	-	-	-	2	-	4	4	20	16	12	19
Fla.	7	1	1	-	8	2	38	37	-	-	19
E.S. CENTRAL	2	6	5	6	2	5	124	145	36	102	10
Ky.	-	4	-	-	-	-	-	13	-	9	-
Tenn.	2	1	2	5	2	3	63	71	-	36	10
Ala.	-	-	3	1	-	1	43	35	34	39	-
Miss.	-	1	-	-	-	1	18	26	2	18	-
W.S. CENTRAL	1	-	-	-	4	2	59	102	14	203	-
Ark.	-	-	-	-	-	-	10	15	8	-	-
La.	1	-	-	-	3	2	23	46	-	-	-
Okla.	-	-	-	-	-	-	26	6	6	12	-
Tex.	-	-	-	-	1	-	-	35	-	191	-
MOUNTAIN	4	7	-	1	4	7	-	30	16	47	7
Mont.	-	-	-	-	1	-	-	-	-	-	3
Idaho	-	-	-	-	-	-	-	-	-	-	-
Wyo.	-	-	-	-	-	-	-	-	-	-	-
Colo.	1	2	-	-	1	3	-	2	-	6	1
N. Mex.	1	1	-	-	1	3	-	2	3	6	-
Ariz.	-	-	-	-	1	-	-	21	5	14	3
Utah	2	4	-	-	-	1	-	2	8	2	-
Nev.	-	-	-	1	-	-	-	3	-	19	-
PACIFIC	6	10	34	11	22	22	8	47	429	387	11
Wash.	-	-	-	-	1	-	-	1	20	25	-
Oreg.	-	-	-	-	-	3	-	1	7	13	-
Calif.	6	10	34	11	20	19	7	45	379	337	11
Alaska	-	-	-	-	-	-	-	-	6	3	-
Hawaii	-	-	-	-	1	-	1	-	17	9	-
Guam	-	-	-	-	-	-	-	-	-	4	-
P.R.	-	-	-	-	-	-	41	28	-	3	9
V.I.	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	-	-	-	-	-	1	-	8	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending February 13, 1999, and February 14, 1998 (6th Week)

Reporting Area	*H. influenzae,* invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported[†]		Total	
	Cum. 1999*	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	1999	Cum. 1999	1999	Cum. 1999	Cum. 1999	Cum. 1998
UNITED STATES	90	129	1,341	2,105	496	898	-	7	-	2	9	2
NEW ENGLAND	5	11	20	51	6	15	-	-	-	-	-	1
Maine	-	-	1	7	-	-	-	-	-	-	-	-
N.H.	1	1	2	3	2	2	-	-	-	-	-	-
Vt.	2	-	-	2	-	-	-	-	-	-	-	-
Mass.	2	10	6	12	2	8	-	-	-	-	-	1
R.I.	-	-	-	4	2	-	-	-	-	-	-	-
Conn.	-	-	11	23	-	5	-	-	-	-	-	-
MID. ATLANTIC	13	16	55	148	50	136	-	-	-	-	-	1
Upstate N.Y.	10	5	12	32	14	26	-	-	-	-	-	-
N.Y. City	-	5	9	63	5	36	-	-	-	-	-	-
N.J.	3	6	15	25	8	23	-	-	-	-	-	1
Pa.	-	-	19	28	23	51	-	-	-	-	-	-
E.N. CENTRAL	13	22	392	394	54	234	-	-	-	-	-	-
Ohio	11	9	78	55	14	10	-	-	-	-	-	-
Ind.	1	2	29	58	4	106	-	-	-	-	-	-
Ill.	1	10	14	104	-	33	-	-	-	-	-	-
Mich.	-	-	271	151	36	67	-	-	-	-	-	-
Wis.	-	1	-	26	-	18	-	-	-	-	-	-
W.N. CENTRAL	3	-	23	203	10	49	-	-	-	-	-	-
Minn.	-	-	-	5	-	2	-	-	-	-	-	-
Iowa	1	-	7	63	4	9	-	-	-	-	-	-
Mo.	-	-	3	117	-	35	-	-	-	-	-	-
N. Dak.	-	-	-	-	-	-	-	-	-	-	-	-
S. Dak.	1	-	-	1	-	1	-	-	-	-	-	-
Nebr.	-	-	10	3	5	-	-	-	-	-	-	-
Kans.	1	-	3	14	1	2	-	-	-	-	-	-
S. ATLANTIC	31	19	150	130	80	72	-	-	-	-	-	-
Del.	-	-	-	-	-	-	-	-	-	-	-	-
Md.	18	7	40	44	21	20	-	-	-	-	-	-
D.C.	-	-	7	5	-	1	-	-	-	-	-	-
Va.	-	3	9	19	6	5	-	-	-	-	-	-
W. Va.	-	1	-	-	-	-	-	-	-	-	-	-
N.C.	2	1	19	10	26	28	-	-	-	-	-	-
S.C.	2	-	1	5	8	-	-	-	-	-	-	-
Ga.	-	7	32	26	3	11	-	-	-	-	-	-
Fla.	9	-	42	21	16	7	-	-	-	-	-	-
E.S. CENTRAL	7	11	46	63	33	51	-	-	-	-	-	-
Ky.	-	2	-	2	-	2	U	-	U	-	-	-
Tenn.	5	4	27	36	23	38	-	-	-	-	-	-
Ala.	2	5	18	13	10	11	-	-	-	-	-	-
Miss.	-	-	1	12	-	-	U	-	U	-	-	-
W.S. CENTRAL	5	7	41	144	18	57	-	-	-	2	2	-
Ark.	-	-	3	2	7	12	-	-	-	-	-	-
La.	3	3	5	3	3	2	-	-	-	-	-	-
Okla.	1	3	2	47	-	3	-	-	-	-	-	-
Tex.	1	1	31	92	8	40	-	-	-	2	2	-
MOUNTAIN	8	28	109	371	56	96	-	1	-	-	1	-
Mont.	1	-	1	6	-	1	-	-	-	-	-	-
Idaho	1	-	4	24	4	3	-	-	-	-	-	-
Wyo.	-	-	-	3	-	1	U	-	U	-	-	-
Colo.	-	2	39	35	14	11	-	1	-	-	1	-
N. Mex.	2	-	5	22	27	31	-	-	-	-	-	-
Ariz.	-	15	50	226	6	29	U	-	U	-	-	-
Utah	4	2	10	24	5	8	-	-	-	-	-	-
Nev.	-	9	-	31	-	12	U	-	U	-	-	-
PACIFIC	5	15	505	601	189	188	-	6	-	-	6	-
Wash.	-	-	8	42	1	14	-	-	-	-	-	-
Oreg.	4	8	6	42	4	16	-	6	-	-	6	-
Calif.	-	6	489	509	182	154	-	-	-	-	-	-
Alaska	1	-	1	-	2	1	-	-	-	-	-	-
Hawaii	-	1	1	8	-	3	-	-	-	-	-	-
Guam	-	-	-	-	-	-	U	-	U	-	-	-
P.R.	-	1	7	6	6	54	-	-	-	-	-	-
V.I.	U	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	-	-	-	7	U	-	U	-	-	-

N: Not notifiable U: Unavailable -: no reported cases

*Of 7 cases among children aged <5 years, serotype was reported for 1 which was not type b.

[†]For imported measles, cases include only those resulting from importation from other countries.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending February 13, 1999, and February 14, 1998 (6th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1999	Cum. 1998	1999	Cum. 1999	Cum. 1998	1999	Cum. 1999	Cum. 1998	1999	Cum. 1999	Cum. 1998
UNITED STATES	213	406	7	37	32	39	246	451	-	3	24
NEW ENGLAND	16	26	-	1	-	4	45	94	-	-	8
Maine	2	1	-	-	-	-	-	4	-	-	-
N.H.	-	1	-	1	-	2	3	7	-	-	-
Vt.	1	1	-	-	-	-	7	18	-	-	-
Mass.	13	10	-	-	-	2	35	62	-	-	1
R.I.	-	3	-	-	-	-	-	-	-	-	-
Conn.	-	10	-	-	-	-	-	3	-	-	7
MID. ATLANTIC	22	39	1	3	1	7	14	41	-	-	11
Upstate N.Y.	4	9	-	-	1	6	13	28	-	-	10
N.Y. City	6	7	-	-	-	-	-	3	-	-	-
N.J.	8	14	-	-	-	-	-	3	-	-	1
Pa.	4	9	1	3	-	1	1	7	-	-	-
E.N. CENTRAL	30	65	-	1	4	2	47	59	-	-	-
Ohio	18	26	-	1	3	2	41	23	-	-	-
Ind.	6	8	-	-	-	-	1	2	-	-	-
Ill.	5	20	-	-	-	-	-	-	-	-	-
Mich.	1	4	-	-	1	-	5	8	-	-	-
Wis.	-	7	-	-	-	-	-	26	-	-	-
W.N. CENTRAL	13	32	-	1	-	-	5	31	-	-	-
Minn.	-	-	-	-	-	-	-	18	-	-	-
Iowa	4	4	-	1	-	-	3	6	-	-	-
Mo.	3	17	-	-	-	-	1	2	-	-	-
N. Dak.	-	-	-	-	-	-	-	-	-	-	-
S. Dak.	3	3	-	-	-	-	1	-	-	-	-
Nebr.	1	1	-	-	-	-	-	2	-	-	-
Kans.	2	7	-	-	-	-	-	3	-	-	-
S. ATLANTIC	43	55	4	7	7	15	40	33	-	3	1
Del.	1	-	-	-	-	-	-	-	-	-	-
Md.	6	7	1	1	-	1	13	5	-	-	-
D.C.	-	-	-	-	-	-	-	-	-	-	-
Va.	2	6	-	-	-	5	6	-	-	-	-
W. Va.	-	2	-	-	-	-	-	-	-	-	-
N.C.	5	8	-	1	4	6	16	23	-	3	1
S.C.	6	5	-	2	2	-	2	-	-	-	-
Ga.	4	20	-	-	-	-	-	-	-	-	-
Fla.	19	7	3	3	1	3	3	5	-	-	-
E.S. CENTRAL	17	37	-	-	-	-	7	11	-	-	-
Ky.	-	8	U	-	-	U	-	-	U	-	-
Tenn.	8	13	-	-	-	-	4	3	-	-	-
Ala.	9	14	-	-	-	-	3	8	-	-	-
Miss.	-	2	U	-	-	U	-	-	U	-	-
W.S. CENTRAL	8	20	-	8	7	1	11	9	-	-	1
Ark.	1	4	-	-	-	-	4	2	-	-	-
La.	6	4	-	-	-	-	-	-	-	-	-
Okla.	-	11	-	-	-	-	-	-	-	-	-
Tex.	1	1	-	8	7	1	7	7	-	-	1
MOUNTAIN	18	26	-	2	2	10	71	106	-	-	2
Mont.	-	1	-	-	-	-	-	1	-	-	-
Idaho	3	1	-	-	-	8	44	51	-	-	-
Wyo.	-	1	U	-	-	U	-	-	U	-	-
Colo.	3	10	-	1	-	1	4	14	-	-	-
N. Mex.	4	3	N	N	N	1	7	36	-	-	-
Ariz.	5	8	U	-	1	U	2	-	U	-	-
Utah	3	1	-	1	-	-	14	2	-	-	2
Nev.	-	1	U	-	1	U	-	2	U	-	-
PACIFIC	46	106	2	14	11	-	6	67	-	-	1
Wash.	4	12	-	-	-	-	2	7	-	-	-
Oreg.	3	26	N	N	N	-	3	8	-	-	-
Calif.	33	65	2	12	5	-	-	52	-	-	1
Alaska	3	1	-	1	2	-	1	-	-	-	-
Hawaii	3	2	-	1	4	-	-	-	-	-	-
Guam	-	-	U	-	-	U	-	-	U	-	-
P.R.	-	-	-	-	-	-	-	-	-	-	-
V.I.	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	U	-	-	U	-	-	U	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE IV. Deaths in 122 U.S. cities,* week ending February 13, 1999 (6th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	601	452	102	32	9	6	86
Boston, Mass.	141	99	25	12	2	3	20
Bridgeport, Conn.	55	40	11	4	-	-	7
Cambridge, Mass.	19	15	4	-	-	-	3
Fall River, Mass.	44	35	7	1	-	1	4
Hartford, Conn.	49	35	8	1	5	-	4
Lowell, Mass.	27	24	3	-	-	-	3
Lynn, Mass.	16	11	2	3	-	-	3
New Bedford, Mass.	30	29	1	-	-	-	2
New Haven, Conn.	44	32	10	-	1	1	9
Providence, R.I.	U	U	U	U	U	U	U
Somerville, Mass.	6	4	2	-	-	-	1
Springfield, Mass.	51	37	12	1	1	-	4
Waterbury, Conn.	33	25	5	3	-	-	8
Worcester, Mass.	86	66	12	7	-	1	18
MID. ATLANTIC	2,656	1,932	483	167	42	32	96
Albany, N.Y.	61	46	10	2	1	2	5
Allentown, Pa.	18	15	3	-	-	-	-
Buffalo, N.Y.	U	U	U	U	U	U	U
Camden, N.J.	34	21	5	5	2	1	4
Elizabeth, N.J.	15	15	-	-	-	-	-
Erie, Pa.	42	31	8	1	1	1	1
Jersey City, N.J.	76	54	11	7	2	2	-
New York City, N.Y.	1,622	1,168	297	111	27	19	7
Newark, N.J.	U	U	U	U	U	U	U
Paterson, N.J.	23	17	3	3	-	-	-
Philadelphia, Pa.	299	188	80	23	4	4	25
Pittsburgh, Pa.§	59	47	8	2	2	-	5
Reading, Pa.	36	29	6	-	1	-	6
Rochester, N.Y.	167	135	23	7	1	1	21
Schenectady, N.Y.	28	23	5	-	-	-	6
Scranton, Pa.	30	26	2	2	-	-	-
Syracuse, N.Y.	72	56	11	4	-	1	9
Trenton, N.J.	41	34	5	-	1	1	6
Utica, N.Y.	33	27	6	-	-	-	1
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	2,264	1,537	465	143	53	63	175
Akron, Ohio	44	34	7	1	-	2	1
Canton, Ohio	47	35	7	5	-	-	5
Chicago, Ill.	477	273	107	52	13	29	35
Cincinnati, Ohio	95	61	22	6	2	4	6
Cleveland, Ohio	154	103	35	9	4	3	-
Columbus, Ohio	199	145	39	7	4	4	25
Dayton, Ohio	114	84	22	4	3	1	13
Detroit, Mich.	237	141	62	23	9	2	9
Evansville, Ind.	58	45	13	-	-	-	5
Fort Wayne, Ind.	75	54	15	4	-	2	7
Gary, Ind.	20	10	4	3	1	2	2
Grand Rapids, Mich.	65	53	7	2	1	2	6
Indianapolis, Ind.	191	129	44	7	6	5	11
Lansing, Mich.	63	45	9	7	2	-	3
Milwaukee, Wis.	128	96	25	3	1	3	20
Peoria, Ill.	43	33	8	1	1	-	7
Rockford, Ill.	54	38	9	6	1	-	11
South Bend, Ind.	58	41	14	1	1	1	1
Toledo, Ohio	87	71	11	2	1	2	5
Youngstown, Ohio	55	46	5	-	3	1	3
W.N. CENTRAL	634	483	101	27	7	16	61
Des Moines, Iowa	U	U	U	U	U	U	U
Duluth, Minn.	19	16	3	-	-	-	2
Kansas City, Kans.	U	U	U	U	U	U	U
Kansas City, Mo.	95	70	16	4	-	5	8
Lincoln, Nebr.	45	32	8	1	-	4	5
Minneapolis, Minn.	204	164	30	6	2	2	25
Omaha, Nebr.	85	63	12	5	3	2	8
St. Louis, Mo.	95	65	19	8	1	2	7
St. Paul, Minn.	91	73	13	3	1	1	6
Wichita, Kans.	U	U	U	U	U	U	U
S. ATLANTIC	1,206	834	215	107	29	20	95
Atlanta, Ga.	U	U	U	U	U	U	U
Baltimore, Md.	209	129	48	22	5	5	28
Charlotte, N.C.	101	69	18	7	5	2	6
Jacksonville, Fla.	163	119	25	12	6	1	9
Miami, Fla.	104	58	25	17	1	3	-
Norfolk, Va.	58	42	8	6	1	1	8
Richmond, Va.	81	51	20	6	3	-	7
Savannah, Ga.	77	60	11	3	-	3	6
St. Petersburg, Fla.	95	77	10	6	-	2	13
Tampa, Fla.	149	112	20	12	3	2	12
Washington, D.C.	145	96	30	14	4	1	6
Wilmington, Del.	24	21	-	2	1	-	-
E.S. CENTRAL	827	542	181	62	22	17	61
Birmingham, Ala.	189	131	39	12	2	2	17
Chattanooga, Tenn.	73	52	14	6	-	1	6
Knoxville, Tenn.	86	61	14	6	4	1	2
Lexington, Ky.	85	57	21	6	1	-	8
Memphis, Tenn.	103	70	22	8	2	1	13
Mobile, Ala.	86	48	21	11	3	3	-
Montgomery, Ala.	55	36	9	8	1	1	12
Nashville, Tenn.	150	87	41	5	9	8	3
W.S. CENTRAL	1,404	961	260	104	43	36	130
Austin, Tex.	77	54	15	5	3	-	5
Baton Rouge, La.	73	59	7	4	3	-	-
Corpus Christi, Tex.	72	59	9	2	2	-	6
Dallas, Tex.	246	158	45	27	5	11	17
El Paso, Tex.	134	92	28	6	4	4	7
Ft. Worth, Tex.	126	92	23	7	4	-	19
Houston, Tex.	389	247	79	41	13	9	30
Little Rock, Ark.	86	51	21	8	4	2	8
New Orleans, La.	U	U	U	U	U	U	U
San Antonio, Tex.	U	U	U	U	U	U	U
Shreveport, La.	54	42	8	-	2	2	11
Tulsa, Okla.	147	107	25	4	3	8	27
MOUNTAIN	1,050	723	179	100	31	16	96
Albuquerque, N.M.	120	82	21	14	2	-	10
Boise, Idaho	41	34	5	1	1	-	2
Colo. Springs, Colo.	76	51	12	6	3	4	8
Denver, Colo.	137	92	29	11	4	1	14
Las Vegas, Nev.	251	172	45	27	4	3	15
Ogden, Utah	19	12	3	3	1	-	-
Phoenix, Ariz.	103	62	19	9	10	3	-
Pueblo, Colo.	30	29	-	1	-	-	3
Salt Lake City, Utah	131	86	23	17	3	2	22
Tucson, Ariz.	142	103	22	11	3	3	22
PACIFIC	1,521	1,116	264	85	30	23	152
Berkeley, Calif.	17	12	4	-	-	1	-
Fresno, Calif.	80	52	17	7	4	-	8
Glendale, Calif.	32	28	4	-	-	-	4
Honolulu, Hawaii	73	58	10	1	-	3	6
Long Beach, Calif.	U	U	U	U	U	U	U
Los Angeles, Calif.	370	259	76	27	4	4	26
Pasadena, Calif.	19	13	2	1	2	1	-
Portland, Oreg.	142	104	26	7	2	3	9
Sacramento, Calif.	181	132	29	10	6	4	36
San Diego, Calif.	102	73	15	7	4	3	9
San Francisco, Calif.	174	127	34	11	1	1	30
San Jose, Calif.	U	U	U	U	U	U	U
Santa Cruz, Calif.	28	25	3	-	-	-	4
Seattle, Wash.	140	99	25	11	2	3	6
Spokane, Wash.	60	51	8	-	1	-	6
Tacoma, Wash.	103	83	11	3	4	-	8
TOTAL	12,163¶	8,580	2,250	827	266	229	952

U: Unavailable -: no reported cases

*Mortality data in this table are voluntarily reported from 122 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 this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

¶Total includes unknown ages.

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