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Incidence and Costs to Medicare of Fractures Among Medicare Beneficiaries Aged ≥65 Years — United States, July 1991–June 1992

An estimated 850,000 fractures occur annually in the United States among persons aged ≥65 years (*1,2*). Osteoporosis, an age-associated condition resulting in decreased bone density, is a major cause of these fractures, which typically result from a fall to the floor (*2*); approximately 25 million persons may be at increased risk for fracture because of low bone mass (*3*). During 1986–1995, annual medical-care costs for fractures among older adults ranged from $7 billion to $10 billion in 1986 (*4*) to $13.8 billion in 1995 (*5*). To determine more accurately the incidence of fractures at 10 anatomical sites among persons aged ≥65 years during July 1991–June 1992 and to estimate the excess costs to Medicare of these fractures during the 1-year period following the fracture, claims data were analyzed for a 5% systematic sample (n=1,288,618) of Medicare beneficiaries. This report summarizes the findings, which indicate that excess costs to Medicare for the 10 incident fracture types represent 3% of all Medicare costs for 1992.

Medicare is a national health insurance program that includes coverage for persons aged ≥65 years, and the Medicare dataset comprises claims for 97% of persons in this age group (*6*). Medicare data include claims from inpatient hospitals, physicians/suppliers, outpatient-care facilities, skilled-nursing facilities (SNF), home-health agencies, and hospice care. Claims files for hospital inpatient services, outpatient hospitals, and physicians' services were reviewed to identify persons with a single fracture at one of 10 sites: ankle, nonankle tibia-fibula, patella, nonhip femur, hip, pelvis, distal forearm (wrist), nonwrist radius-ulna, shaft-distal humerus, and proximal humerus. These persons were identified through use of algorithms employing fracture diagnosis codes from the *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM), and current procedure codes indicating a particular treatment for fracture (*6,7*).

Denominators used to compute incidence rates were obtained from the annual Medicare denominator files that include demographic and entitlement information for the beneficiary population. Incidence rates were age-adjusted by 5-year age groups to the 1990 U.S. population aged ≥65 years. Fracture incidence was analyzed by race because previous studies have documented race-specific differences in age-related fractures. The race categories (black, white, and other/unknown) included in this

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analysis reflect categories coded in the Medicare dataset. Data were excluded for persons with incomplete information (i.e., health-maintenance organization enrollees, Railroad Retirement Board enrollees, non-U.S. residents, and persons without continuous part A and part B coverage), with bone cancer, or with evidence of previous fracture (i.e., prevalent fractures).

Costs to Medicare were determined for the 10 types of incident fractures by using claims data listing the amount reimbursed by Medicare (including per diem adjustments for inpatient and SNF care) (*8*). Two types of costs were calculated for three specific time intervals pre- and post-fracture: the 6-month baseline before fracture, an initial 12-week episode of care (i.e., the usual healing time for a simple fracture), and a 40-week follow-up period. Mean costs to Medicare per person per day were computed for each of the 10 fracture sites, and excess costs per person were determined by comparing costs during the initial episode and follow-up periods to baseline costs for the 6-month period before fracture. Excess costs for each fracture site were extrapolated to the entire population that met the criteria for inclusion in this analysis.

Incidence Rates

From July 1991 through June 1992, a total of 26,785 single fractures at the 10 sites were identified among the 1,288,618 Medicare beneficiaries in the 5% sample (Table 1). Hip fracture occurred most frequently (incidence rate: 73.9 per 10,000 population), followed by fracture of the wrist (37.8) and of the proximal humerus (21.8). The incidence rate was lowest for fracture of the patella (5.5). Sex-specific rates were higher for women than for men for all fracture sites and for all races: race-specific rates were higher for whites than for blacks and other/unknown races for all fracture sites; for most fracture sites, rates were highest for white women and lowest for blacks.

Cost of Fractures

From July 1991 through June 1992, the mean daily cost to Medicare for a beneficiary was greatest during the initial 12-week period following a fracture; the daily costs were highest for persons with a fracture of the hip ($191.50) and of the lower femur ($153.98) (Table 2). Mean daily costs were lower during the 40-week follow-up period; however, for most fracture sites, these costs were higher than mean daily costs during the 6-month baseline preceding the fracture. Total excess costs to Medicare for a person during the year following a fracture ranged from $2564 following wrist fracture to $15,294 following hip fracture. The total excess cost to Medicare for the 10 fracture sites among beneficiaries aged ≥65 years meeting inclusionary criteria was $4.2 billion; $2.9 billion (69%) of this excess was associated with hip fracture (Table 3).

Reported by: JA Baron, MD, Dept of Medicine, and Dept of Community and Family Medicine, J Barrett, MSc, Dept of Community and Family Medicine, Dartmouth Medical School, Hanover, New Hampshire. M Berger, MD, Merck & Co., Inc., West Point, Pennsylvania. Prevention Effectiveness Activity, Div of Prevention Research and Analytic Methods (proposed), Epidemiology Program Office; Div of Adult and Community Health, National Center for Chronic Disease Prevention and Health Promotion, CDC.

Editorial Note: The overall national incidence of fractures cannot be readily estimated because many types of fractures are treated in outpatient settings, which are not linked to integrated databases (*3*). For Medicare beneficiaries aged ≥65 years, however, the Medicare dataset provides a means for estimating the occurrence and costs of fractures among nearly the entire population, and for fracture types not previously

TABLE 1. Incidence rate* of fractures among Medicare beneficiaries aged ≥65 years, by fracture site, race,† and sex — United States, July 1991–June 1992§

Characteristic	Ankle (n=2432)		Nonankle tibia-fibula (n=976)		Patella (n=712)		Nonhip femur (n=924)		Hip (n=10,139)	
	Rate	(95% CI¶)	Rate	(95% CI)	Rate	(95% CI)	Rate	(95% CI)	Rate	(95% CI)
Race										
White	19.2	(18.4–20.1)	7.5	(7.0– 8.1)	5.6	(5.1– 6.1)	6.9	(6.3– 7.4)	77.4	(75.8–79.0)
Black	15.8	(13.2–18.4)	7.0	(5.3– 8.8)	3.6	(2.3– 4.9)	6.8	(5.1– 8.5)	37.0	(33.2–40.9)
Other/Unknown	17.6	(13.3–22.0)	4.1	(1.9– 6.3)	4.5	(2.3– 6.7)	4.5	(2.1– 6.9)	54.8	(46.2–63.3)
Sex										
Male	10.2	(9.3–11.2)	3.7	(3.1– 4.3)	2.5	(2.0– 3.0)	2.9	(2.4– 3.4)	48.0	(45.9–50.0)
Female	24.8	(23.6–26.0)	9.5	(8.8–10.3)	7.4	(6.7– 8.0)	8.8	(8.2– 9.5)	88.0	(86.0–90.1)
Total	**18.9**	**(18.1–19.7)**	**7.4**	**(6.9– 7.9)**	**5.5**	**(5.0– 5.9)**	**6.8**	**(6.3– 7.3)**	**73.9**	**(72.4–75.4)**

Characteristic	Pelvis (n=1783)		Distal forearm (wrist) (n=4980)		Non-wrist radius-ulna (n=1100)		Shaft distal humerus (n=831)		Proximal humerus (n=2908)	
	Rate	(95% CI)	Rate	(95% CI)	Rate	(95% CI)	Rate	(95% CI)	Rate	(95% CI)
Race										
White	13.7	(13.0–14.4)	39.6	(38.4–40.8)	8.8	(8.2– 9.4)	6.5	(6.0– 7.0)	22.9	(22.0–23.8)
Black	5.3	(3.8– 6.8)	17.3	(14.6–20.0)	3.2	(2.0– 4.4)	3.7	(2.4– 5.0)	7.6	(5.8– 9.4)
Other/Unknown	11.3	(7.5–15.2)	33.5	(27.2–39.8)	7.2	(4.3–10.1)	5.3	(2.7– 8.0)	22.7	(17.4–27.9)
Sex										
Male	5.1	(4.4– 5.8)	11.7	(10.7–12.7)	3.7	(3.1– 4.3)	3.2	(2.7– 3.8)	9.5	(8.5–10.4)
Female	17.3	(16.3–18.2)	54.0	(52.4–55.7)	11.4	(10.6–12.2)	8.1	(7.4– 8.7)	29.2	(28.0–30.4)
Total	**13.0**	**(12.4–13.7)**	**37.8**	**(36.7–38.9)**	**8.4**	**(7.8– 8.9)**	**6.2**	**(5.8– 6.7)**	**21.8**	**(20.9–22.6)**

* Per 10,000 Medicare beneficiaries. Age-adjusted by 5-year age groups to the 1990 U.S. population aged ≥65 years.
† The race categories (black, white, and other/unknown) included in this analysis reflect categories coded in the Medicare dataset.
§ Data were analyzed for a 5% systematic sample (n=1,288,618) of Medicare beneficiaries. Data were excluded for persons with incomplete information (i.e., health-maintenance organization enrollees, Railroad Retirement Board enrollees, non-U.S. residents, and persons without continuous part A and part B coverage), with bone cancer, or with evidence of previous fracture (i.e., prevalent fractures).
¶ Confidence interval.

TABLE 2. Estimated mean daily costs and estimated total excess costs to Medicare* per person for beneficiaries aged ≥65 years with an incident fracture, by fracture site — United States, July 1991–June 1992†

Type of Cost/ Time period	Ankle (n=2247)	Nonankle tibia-fibula (n=809)	Patella (n=595)	Nonhip femur (n=752)	Hip (n=9343)	Pelvis (n=1523)	Distal forearm (wrist) (n=4405)	Nonwrist radius-ulna (n=869)	Shaft distal humerus (n=639)	Proximal humerus (n=2477)
Mean daily cost										
Baseline (6 mos pre-fracture)	$ 9.14	$ 12.84	$ 10.47	$ 20.43	$ 16.16	$ 18.37	$ 9.00	$ 9.43	$ 12.26	$ 12.22
12 wks post-fracture	47.71	82.01	54.00	153.98	191.50	93.62	27.86	38.60	66.86	52.13
13–52 wks post-fracture	13.37	17.96	15.15	20.52	18.17	16.89	12.48	13.18	16.63	16.36
Total excess cost										
12 wks post-fracture	3,240.00	5,811.00	3,656.00	11,218.00	14,729.00	6,321.00	1,584.00	2,450.00	4,586.00	3,352.00
13–52 wks post-fracture	1,188.00	1,438.00	1,316.00	25.00	565.00	–414.00§	979.00	1,054.00	1,227.00	1,163.00
Total excess costs 0–52 wks post-fracture	**$4,328.00**	**$7,249.00**	**$4,972.00**	**$11,242.00**	**$15,294.00**	**$5,907.00**	**$2,564.00**	**$3,505.00**	**$5,814.00**	**$4,515.00**

* Medicare costs are the amounts the program paid institutions (inpatient hospitals, outpatient hospitals, skilled-nursing facilities, home-health agencies, and hospices) or providers (physicians/suppliers). These costs include costs for fractures plus excess costs of complications or comorbid conditions. Excess costs were calculated by subtracting baseline costs from post-fracture costs.

† Data were analyzed for a 5% systematic sample (n=1,288,618) of Medicare beneficiaries. Data were excluded for persons with incomplete information (i.e., health-maintenance organization enrollees, Railroad Retirement Board enrollees, non-U.S. residents, and persons without continuous part A and part B coverage), with bone cancer, or with evidence of previous fracture (i.e., prevalent fractures). The sample size for each type of fracture in this table is lower than in Table 1 because of the exclusion of persons with fewer than 6 months of data before the fracture.

§ Negative excess costs during the 40-week follow-up period may be the result of a high proportion of deaths among persons with a pelvis fracture.

TABLE 3. Estimated total excess costs to Medicare* for beneficiaries aged ≥65 years who met the inclusionary criteria and had an incident fracture, by fracture site — United States, July 1991–June 1992†

Time period	Ankle	Nonankle tibia-fibula	Patella	Non-hip femur	Hip	Pelvis	Distal forearm (wrist)	Nonwrist radius-ulna	Shaft distal humerus	Proximal humerus	Total
12 wks post-fracture	146	94	44	169	2,752	193	140	43	59	166	**3,806**
13–52 wks post-fracture	54	23	16	0	106	–13§	86	18	16	58	**364**
Total excess costs 0–52 wks post-fracture	**199**	**117**	**59**	**169**	**2,858**	**180**	**226**	**61**	**74**	**224**	**4,167¶**

* In millions of dollars. Medicare costs are the amounts the program paid institutions (inpatient hospitals, outpatient hospitals, skilled-nursing facilities, home-health agencies, and hospices) or providers (physicians/suppliers). These costs include costs for fractures plus excess costs of complications or comorbid conditions. Excess costs were calculated by subtracting baseline costs from post-fracture costs.

† Data were analyzed for a 5% systematic sample (n=1,288,618) of Medicare beneficiaries. Data were excluded for persons with incomplete information (i.e., health-maintenance organization enrollees, Railroad Retirement Board enrollees, non-U.S. residents, and persons without continuous part A and part B coverage), with bone cancer, or with evidence of previous fracture (i.e., prevalent fractures).

§ Negative excess costs during the 40-week follow-up period may be the result of a high proportion of deaths among persons with a pelvis fracture.

¶ The row total differs from the column total because of rounding.

Fractures — Continued

characterized. The race- and sex-specific fracture incidence rates in this report reflect known differences in bone density between the sexes and among racial groups. For example, women have lower peak bone density and lose bone more rapidly than men; similarly, whites have lower bone mass and may lose bone more rapidly than blacks (*2*). These findings also highlight the increased risk among older women—particularly white women—for fractures later in life.

The total excess costs to Medicare for all fracture sites combined ($4.2 billion) represent 3% of the total annual federal outlay for the Medicare program for 1992 ($138.3 billion) (*1*). However, the excess costs to Medicare described in this report represent only part of the total costs of health care for fractures among the elderly; these excess costs omit beneficiary deductibles, copayments, and other out-of-pocket expenses (*8*) and estimates for persons excluded from the study. The number of persons aged ≥65 years is projected to increase from 32.0 million to 51.5 million during 1990–2020; with a concomitant increase in the proportion of the U.S. population at risk for age-related fractures, excess costs to Medicare for fracture treatment are likely to increase steadily. Future estimates of the cost impact of fractures also must consider these additional costs to the health-care system and social costs related to functional impairment and disability resulting from fractures.

The findings in this report include cost estimates to Medicare for several fracture types for which specific costs have not previously been characterized. Vertebral compressions, which are among the more common fractures among older persons, were not included in this study because onset often is gradual and painless; in addition, because there are no uniform diagnostic criteria for vertebral compressions, these fractures are likely to be underreported.

The findings in this report emphasize the need for further characterization of modifiable risk factors for fractures at specific sites and improved interventions for fracture prevention. Strategies for primary prevention of fractures optimally should include maximizing bone density during adolescence and young adulthood through measures such as promoting a calcium-rich diet and physical activity, and later in life, by reducing falls. Current efforts for primary prevention, which have especially been directed toward perimenopausal white women, include promotion of adequate dietary intake of calcium, regular weight-bearing physical activity, avoidance of smoking and excess alcohol consumption, and elimination of host and environmental causes of falls (e.g., poor balance or household obstacles, respectively) (*2,9,10*). Strength and balance training also may effectively reduce the incidence of falls and subsequent fractures among older adults (*9*). Strategies for secondary prevention for high-risk postmenopausal women include bone-density screening; hormone-replacement therapy; or for women with low bone density, the use of agents that retard bone resorption (*9*). Reduction of fractures among the elderly requires increased awareness among the public and health-care providers about this problem, therapies, and modifiable risk factors.

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Ten Leading Nationally Notifiable Infectious Diseases — United States, 1995

The National Notifiable Diseases Surveillance System (NNDSS) is a national passive surveillance system comprising 52 infectious diseases designated by the Council of State and Territorial Epidemiologists as reportable to CDC (*1*). This report is based on the *Summary of Notifiable Diseases* for 1995 (*2*) and presents the most commonly reported nationally notifiable diseases for 1995. During 1995, sexually transmitted diseases (STDs) predominated and were reported among all age groups.

The 10 most frequently reported nationally notifiable infectious diseases for 1995 were, in descending order, chlamydia, gonorrhea, acquired immunodeficiency syndrome (AIDS), salmonellosis, hepatitis A, shigellosis, tuberculosis (TB), primary and secondary syphilis, Lyme disease, and hepatitis B (*2*). The STDs of chlamydia, gonorrhea, AIDS, primary and secondary syphilis, and hepatitis B accounted for 87% of cases reported for these 10 diseases.

Although 1995 was the first year genital infections with *Chlamydia trachomatis* were nationally notifiable, this condition was the most commonly reported disease for 1995. Most cases were reported among women; infection with *C. trachomatis* is tested for and reported less frequently for men than for women. Rates for AIDS and TB were substantially higher among males than females. Consistent with previous surveillance data, the rate of AIDS reported among men was more than four times that for women, and for TB, nearly twice that for women. Except for AIDS, TB, and genital infection with *C. trachomatis*, sex-specific rates of notifiable diseases were similar.

The most commonly reported infectious diseases varied by age group. Salmonellosis and shigellosis continued to be the most common notifiable diseases reported among children aged <5 years (61.8 and 46.3 per 100,000 population, respectively). Among children aged 5–14 years, gonorrhea and shigellosis (rates of 21.8 and 20.1, respectively) were the most frequently reported diseases. Gonorrhea remained the most common disease reported among persons aged 15–24 years (645.0), and rates for both gonorrhea and AIDS were high among persons aged 25–44 years (162.4 and 65.3, respectively) and persons aged 45–64 years (22.3 and 27.8, respectively). Among

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persons aged >65 years, TB was the most commonly reported notifiable disease (16.3). Age-specific data about chlamydial infections were not available for 1995.

Reported by: Council of State and Territorial Epidemiologists. Div of Public Health Surveillance and Informatics (proposed), Epidemiology Program Office, CDC.

Editorial Note: The findings in the *Summary of Notifiable Diseases* reflect only diseases that are diagnosed by health-care or laboratory workers and reported to state and local health departments, who then report to CDC. Resources available for conducting surveillance vary widely by disease (*3*). In addition, patterns of detection and reporting probably vary by disease, age or population group, state, and locality. Consequently, for many of these conditions, the true incidences in the United States probably are underestimated. Despite such limitations, however, these and other surveillance data are useful for monitoring trends and for determining relative disease burdens.

As part of the *MMWR* series, CDC will release on October 25 the *Summary of Notifiable Diseases, United States, 1995* (*2*). This publication contains summary tables of the official statistics for the reported occurrence of nationally notifiable diseases during 1995. Data for 1995 are presented by month; geographic location; and patient age, sex, and race/ethnicity in maps and graphs for many conditions. Also included are a brief history of notifiable disease reporting, highlights of important developments in the reported occurrences of selected nonnotifiable diseases (e.g., dengue fever, hantavirus pulmonary syndrome, penicillin-nonsusceptible *Streptococcus pneumoniae*, and Ebola hemorrhagic fever), and data from the Public Health Laboratory Information System.

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Hunting–Associated Injuries and Wearing "Hunter" Orange Clothing — New York, 1989–1995

"Hunter" orange (i.e., fluorescent or international orange) is worn by hunters to increase their visibility and to reduce their potential for being mistaken for game. Although education courses for hunters promote the use of hunter orange, hunters in New York are not required to wear high-visibility clothing. To examine factors associated with two-party hunting injuries involving firearms (i.e., the injury resulted from the intentional or unintentional discharge of the firearm of another hunter), including the use of hunter orange, the New York State Department of Environmental Conservation (DEC) and the New York State Department of Health analyzed hunting-associated injury reports during 1989–1995. This report describes three of the 62 reported hunting-associated injuries during 1995 and summarizes information about two-party hunting-associated injuries involving firearms during 1989–1995. The

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findings indicate that most injured hunters in two-party incidents were not wearing hunter orange.

In New York, reporting of hunting injuries involving firearms is required by law, and all incidents are investigated, either by local law enforcement officers or a state environmental conservation officer. Hunting-injury reports filed with DEC include a description of the event, the primary factor contributing to the injury as determined by the investigator, and the type and color of clothing worn by the participants. Hunter orange use was defined as the wearing of one or more of the following solid orange colored garments: hat, coat, vest, or pants. The number of licensed hunters in New York during 1989–1995 was used as the denominator to calculate injury rates.

Case Reports

Case 1: On December 3, 1995, four hunters separated to flush deer out of an overgrown field. Two hunters walked through the field attempting to drive deer toward the other two hunters who were in a stationary position. One of the stationary hunters observed movement in the thick brush and, believing the movement to be a deer, fired his shotgun at a range of 48 yards. However, the movement had been caused by a hunter who was not wearing orange and who was struck in the chest by the shotgun slug and killed.

Case 2: On October 30, 1995, two hunters looking for grouse became separated while hiking through an area of dense brush. One hunter flushed a grouse, which took flight, and fired at the bird. The other hunter, who was in the line of fire 25 yards away and dressed in camouflage clothing, was wounded by 12 pellets to the upper body.

Case 3: On May 1, 1995, a licensed guide assisted a client in hunting turkey. The guide issued calls to attract turkeys. Another hunter in the area heard the calls and, believing that a turkey was nearby, began to move through open woods toward the sound. The hunter, who was wearing camouflage clothing, moved to within 40 yards of the guide and fired his shotgun after observing movement. The guide, who was not wearing orange, was wounded by shotgun pellets in the shoulder, neck, and face.

Injuries During 1989–1995

During 1989–1995, a total of 508 hunting-associated firearm injuries were reported to DEC, representing an annual mean rate of 9.8 injuries per 100,000 licensed hunters. Of these 508 injuries, 39 (8%) were fatal, 152 (30%) involved one person, and 356 (70%) involved two persons (rate: 6.9). Of the 39 fatal injuries, 31 (79%) were two-party incidents.

Among two-party injuries, big-game (e.g., deer and bear) hunters accounted for 135 (38%) injuries, including 25 (81%) fatalities. Turkey hunters accounted for 78 (22%) injuries, including two (6%) fatalities; and small-game (e.g., rabbit, squirrel, pheasant, grouse, raccoon, and woodchuck) hunters accounted for 132 (37%) injuries, including three (10%) fatalities.

Of the 331 (93%) two-party injuries in which the estimated distance from the hunter to the injured hunter was recorded, 54 (16%) occurred at a range of ≤10 yards, 161 (49%) between 11–50 yards, and 116 (35%) at >50 yards. In 125 (35%) incidents, the primary contributing factor was listed as injured hunter mistaken for game (Table 1). In 79 (22%) incidents, the injured person was out of sight of the hunter, and 60 (17%) incidents occurred when the injured person was in the line of fire. Of

Hunting Injuries — Continued

TABLE 1. Number and percentage of two-party hunting-associated firearm injuries, by factor contributing to injury* and "hunter" orange use† by injured hunter — New York, 1989–1995

			Injured hunter wearing hunter orange					
			Yes		No		Unknown	
Contributing factor	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Mistaken for game	125	(35)	6	(5)	117	(94)	2	(1)
Out of sight	79	(22)	29	(37)	46	(58)	4	(5)
In line of fire	60	(17)	18	(30)	37	(62)	5	(8)
Unintentional discharge	39	(11)	11	(28)	27	(69)	1	(3)
Struck by ricochet	37	(10)	13	(35)	23	(62)	1	(3)
Other/Unknown	16	(5)	7	(44)	9	(66)	0	(0)
Total	**356**	**(100)**	**84**	**(24)**	**259**	**(73)**	**13**	**(4)**

*Determined by a local law enforcement officer or a state environmental conservation officer following an investigation of the injury.
†Wearing any one of the following solid orange garments: hat, coat, vest, or pants.

78 injuries associated with turkey hunting, 61 (78%) were the result of one hunter mistaking another for game.

Wearing of hunter orange was determined for 343 (96%) two-party hunters who were injured. In 259 (76%) incidents, the injured hunter was not wearing hunter orange. Of the 125 incidents in which the injured hunter was mistaken for game, 117 (94%) were not wearing hunter orange, and six (5%) were wearing hunter orange; for two (1%), hunter orange information was not recorded. Wearing of hunter orange was determined for 77 (99%) of 78 persons injured who were hunting turkey; none were wearing hunter orange.

In 1992, DEC interviewed 576 randomly selected licensed hunters in New York about the use of hunter orange clothing. Of the 559 (97%) respondents who hunted big game, 452 (81%) reported routine use of hunter orange clothing. Of the 566 (98%) respondents who hunted small game, 359 (63%) reported routinely wearing hunter orange clothing.

Reported by: W Jones, M O'Hara, Sportsman Education Program; JE Kautz, PhD, Bur of Wildlife, New York State Dept of Environmental Conservation, Albany; B Hutton, Bur of Injury Prevention, D Ackman, MD, Div Of Chronic Disease Prevention, D Morse, MD, State Epidemiologist, New York State Dept of Health. State Br, Div of Applied Public Health Training (proposed), Epidemiology Program Office, CDC.

Editorial Note: Based on estimates by the International Hunter Education Association (IHEA), in 1995, approximately 17 million persons purchased hunting licenses in the United States (excluding Alaska) (*1*). In 1995, IHEA reported 1201 hunting injuries involving firearms, including 107 (9%) fatalities (*2*). Of these injuries, 851 (71%) involved two parties, including 69 (5.8%) fatalities.

In 40 states, hunters are required to wear hunter orange; however, in some states, regulations apply only to hunting on public lands or hunting big game. In New York, the 1992 survey indicated that an estimated 19% of big-game hunters and 37% of small-game hunters did not routinely wear hunter orange clothing. The finding that approximately 72% of injured hunters in two-party incidents were not wearing hunter orange clothing is consistent with previous reports that found low proportions of hunter orange use among injured hunters (*3,4*).

Hunting Injuries — Continued

In New York, hunter orange clothing was not usually worn by persons who bowhunted, hunted with muzzle-loaded firearms, or hunted waterfowl—activities which accounted for only 10 (3%) two-party injuries during 1989–1995. However, 22% of two-party injuries involved turkey hunting; most (78%) injuries resulted from one hunter mistaking another for game. None of the turkey hunters involved in a two-party injury were wearing hunter orange, and many were dressed in complete camouflage because of the perception that turkeys will see and avoid displays of hunter orange. Because turkey hunting often occurs in areas of thick brush or undergrowth, increasing hunter visibility may be particularly important in preventing "mistaken for game" injuries.

Since 1960, the state legislature in New York has required that all first-time hunting license holders complete a hunter-education course. From 1965 to 1994, reported hunting injuries in New York decreased steadily from 157 (22.3 injuries per 100,000 licensed hunters) to 52 (7.2) and from 11 deaths to one death. In 1991, DEC reviewed hunting-injury reports and concluded that most hunting injuries were associated with violations of basic firearms safety rules. DEC also found that most hunters who were injured as the result of being "mistaken for game" or "in line of fire" were not wearing hunter orange at the time of injury (*3*).

In 1992, DEC initiated a campaign in New York to promote basic firearms safety and the use of hunter orange clothing through hunter education courses, meetings with hunter organizations, and advertisements in hunting literature. During 1992–1995, following the initiation of this safety promotion campaign, the average annual injury rate decreased 27% compared with the rate during 1988–1991.

The routine wearing of hunter orange clothing can increase visibility of hunters, especially if worn in combinations that display orange in all directions. Efforts to increase the use of hunter orange also should include education of experienced hunters to wear hunter orange and, for turkey hunters who do not wear hunter orange, to display hunter orange near their calling location.

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Population-Based Prevalence of Perinatal Exposure to Cocaine — Georgia, 1994

Maternal cocaine use during pregnancy is associated with adverse health effects for both the mother and the infant (e.g., intrauterine growth retardation, placental abruption, preterm delivery, congenital anomalies, and cerebral injury) (*1*). Because cocaine use often occurs concurrently with use of other substances (e.g., cigarettes and alcohol) and because fear of prosecution may deter women from obtaining

Perinatal Exposure to Cocaine — Continued

medical care, the occurrence of perinatal exposure to cocaine has not been well characterized. In Georgia, the routine collection of dried blood spots (DBSs) from a heelstick of newborns for screening for metabolic diseases enabled the Georgia Chapter of the March of Dimes Birth Defects Foundation, the Georgia Department of Human Resources (DHR), and CDC to collaborate on a feasibility study of the use of residual DBSs for conducting low-cost population-based surveillance for perinatal cocaine exposure. This report presents the findings of the study, which indicate that, in 1994, at least 0.5% of infants in Georgia had had perinatal exposure to cocaine.

The sample for this study comprised newborns whose DBS specimens were submitted to DHR during a 2-month period in 1994 and for whom an adequate specimen was available after completion of metabolic screening. Because of probable fear of prosecution and lack of informed consent, testing for cocaine metabolite was conducted with anonymous specimens. If more than one DBS specimen was obtained for a newborn, only the results of the earliest specimen were included in this analysis. Newborns with gestations <31 weeks or birthweights <1500 g (<3 lbs, 5 oz) were excluded from analysis because only approximately 50% of these newborns were tested within 7 days after birth—a maximum time period for reliable detection of cocaine metabolite in the DBS specimen. Multiple births and all newborns tested after 7 days of age also were excluded. A total of 16,470 eligible infants were born during the 2-month period; of these, DBS specimens from 14,968 (91%) newborns were submitted to DHR and tested by CDC for cocaine metabolite.

Data about maternal characteristics were collected from the birth certificate. For each specimen, a ¼-punch (equivalent to a 12-μL blood specimen) was obtained from one blood spot and was tested for benzoylecognine (BE)—a primary cocaine metabolite—using a modified radioimmunoassay (RIA) (*2*). Samples with BE measured at >0 ng/mL by RIA were then tested by liquid chromatography/tandem mass spectrometry for confirmation of BE at CDC (*3*).

Rigorous measures were employed to ensure anonymity of the final analysis database. In particular, personal identifying information and laboratory results were not present in the database simultaneously, and the analysis files precluded combination of attributes that potentially could permit inferential identification of any person.

Of the 14,968 newborns, specimens for 73 tested positive for BE, representing a statewide prevalence rate of 4.9 BE-positive per 1000 newborns. Maternal characteristics associated with high rates of BE in newborns included older age; education of <13 years; self-reported cigarette smoking, alcohol drinking, or both during pregnancy; inadequate weight gain during pregnancy; black race; having had three or more previous live-born infants; and having a short interpregnancy interval (Table 1). Rates also were higher for mothers residing in large standard metropolitan statistical areas (population ≥1,000,000). Mothers of BE-positive newborns resided in 17 of the 19 health districts in Georgia.

The mothers of BE-positive newborns were more likely than those of BE-negative newborns to have received late or no prenatal care. However, 74% of the mothers of BE-positive newborns had received some prenatal care, and 34% had initiated prenatal care during the first trimester. Mothers of BE-positive newborns were more likely to have given birth in large hospitals with specialized perinatal services (level III) and in hospitals with no obstetric services or outside of hospitals (level 0) than in hospitals with intermediate obstetric services (levels I and II).

Perinatal Exposure to Cocaine — Continued

TABLE 1. Number and rate* of detection of benzoylecognine (BE) in residual dried blood spots of newborns, by selected maternal characteristics — Georgia, 1994

Maternal characteristic	Sample size	BE-positive infant				
		No.	Rate	(95% CI†)	OR§	(95% CI)
Age group (yrs)						
<25	7,143	17	2.4	(1.4– 3.8)	1.0	referent
≥25	7,824	56	7.2	(5.4– 9.3)	3.0	(1.8– 5.1)
Education (yrs)						
≤12	8,855	59	6.7	(5.1– 8.6)	2.9	(1.6– 5.0)
≥13	5,993	14	2.3	(1.3– 3.9)	1.0	referent
Cigarette smoking and drinking during pregnancy						
Cigarette smoking only	1,584	28	17.7	(11.7– 25.5)	8.1	(5.2–12.6)
Drinking only	111	3	27.0	(5.6– 79.0)	12.5	(4.9–31.9)
Both	106	13	122.6	(65.3–209.7)	63.1	(43.6–91.3)
Neither	13,117	29	2.2	(1.5– 3.2)	1.0	referent
Weight gain during pregnancy (lbs)						
<15	996	13	13.1	(6.9– 22.3)	3.7	(2.1– 6.8)
15–24	3,001	18	6.0	(3.6– 9.5)	1.7	(1.0– 3.0)
≥25	9,955	35	3.5	(2.4– 4.9)	1.0	referent
Unknown	1,016	7	6.9	(2.8– 14.2)	2.0	(0.9– 4.4)
Race/Ethnicity¶						
Black, non-Hispanic	5,049	61	12.1	(9.2– 15.5)	9.3	(5.6–15.5)
White, non-Hispanic	9,139	12	1.3	(0.7– 2.3)	1.0	referent
Hispanic	491	0	—	—	—	—
Other	287	0	—	—	—	—
Previous births						
0	6,520	6	0.9	(0.3– 2.0)	1.0	referent
1–2	7,277	30	4.1	(2.8– 5.9)	4.5	(2.0–10.0)
≥3	1,171	37	31.6	(22.2– 43.6)	35.4	(20.7–60.8)
Interpregnancy interval (mos)						
0–6	675	15	22.2	(12.4– 36.7)	3.9	(2.2– 6.7)
≥7	7,542	44	5.8	(4.2– 7.8)	1.0	referent
No previous birth	6,520	6	0.9	(0.3– 2.0)	0.2	(0.1– 0.3)
Unknown	231	8	34.6	(15.0– 68.2)	6.1	(3.1–12.0)
Residence						
Large SMSA**	7,471	48	6.4	(4.7– 8.5)	2.2	(1.2– 4.1)
Other SMSA	3,003	12	4.0	(2.1– 15.6)	1.4	(0.6– 3.0)
Non-SMSA	4,493	13	2.9	(1.5– 5.0)	1.0	referent
Month of pregnancy at initiation of prenatal care						
0–3	12,080	25	2.1	(1.3– 3.1)	1.0	referent
4–6	2,139	21	9.8	(6.1– 15.0)	4.8	(2.8– 8.1)
7–9	447	8	17.9	(7.7– 5.3)	8.8	(4.5–17.1)
No prenatal care	167	15	89.8	(50.3–148.1)	47.6	(32.4–69.8)
Unknown	135	4	29.6	(8.1– 75.9)	14.5	(6.6–33.0)
Hospital services received						
Specialized perinatal	7,152	45	6.3	(4.6– 8.4)	2.2	(1.3– 3.6)
Intermediate obstetric	7,661	22	2.9	(1.8– 4.3)	1.0	referent
No obstetric services	149	6	40.3	(14.8– 87.6)	14.6	(7.3–29.2)
Total††	**14,968**	**73**	**4.9**	**(3.8– 6.1)**		

*Per 1000 live-born infants.
†Confidence interval.
§Odds ratio.
¶Numbers for racial/ethnic groups other than blacks, whites, and Hispanics were too small for meaningful analysis.
**Standard metropolitan statistical area. Large SMSAs have populations ≥1,000,000.
††Some numbers do not total to 14,968 because of missing data: age (one); education (120); smoking and drinking during pregnancy (50); race and ethnicity (two); SMSA (one); and hospital services received (six).

Perinatal Exposure to Cocaine — Continued

Reported by: M Brantley, MPH, R Rochat, MD, Office of Perinatal Epidemiology, Epidemiology and Prevention Br; V Floyd, MD, D Norris, Family Health Br; E Franko, DrPH, Public Health Laboratory; P Blake, MD, Epidemiology Section, K Toomey, MD, State Epidemiologist, Div of Public Health, Georgia Dept of Human Resources. P Fernhoff, MD, B Ziegler, L Mayer, Georgia Chapter, March of Dimes Birth Defects Foundation, Atlanta. Clinical Biochemistry Br, Div of Environmental Health Laboratory Sciences, Birth Defects and Genetic Diseases Br, and Div of Birth Defects and Developmental Disabilities, National Center for Environmental Health; Pregnancy and Infant Health Br, Div of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, CDC.

Editorial Note: This study in Georgia is the first to use newborn DBSs to determine perinatal exposure to cocaine. Statewide prevalences of perinatal cocaine exposure have been estimated previously by testing maternal urine samples obtained at delivery from women in California (*4*), Missouri (*5*), Rhode Island (*6*), South Carolina (*7*), and Utah (*8*). In Alabama, statewide prevalence was estimated by testing maternal urine specimens at delivery from pregnant women attending public health clinics (*9*). Although these studies employed different methodologies, the characteristics of women in Georgia who used cocaine during pregnancy were consistent with patterns in previous reports (*1,8*). In addition, in Georgia, evidence of antepartum cocaine exposure was present among newborns in areas throughout the state and in diverse population groups.

To reduce cocaine use during pregnancy, in 1990 the Georgia General Assembly convened a Conference on Children of Cocaine and Substance Abuse (CCCSA), which recommended that cocaine-using pregnant women be treated and not prosecuted. Acknowledging this recommendation, in 1992 the Georgia Court of Appeals established that mothers who prenatally pass cocaine to their infants may not be prosecuted under Georgia law.* In addition, CCCSA recommended the feasibility study detailed in this report.

The findings in this report probably underestimate the prevalence of cocaine exposure during pregnancy in Georgia for at least three reasons. First, screening of newborns provides information about cocaine exposure only near the time of delivery and not about exposures that may have occurred earlier (*10*). Second, DBS samples are not collected for fetal deaths and may not be collected routinely during the interval of detection of BE for early neonatal deaths and for newborns in intensive care, especially for infants with very low birthweight and infants born prematurely. Finally, because cocaine metabolite is excreted from the body, testing must occur soon after birth; in a preliminary analysis before this Georgia study, no positive test results were identified for newborns aged >7 days.

Despite these limitations, this feasibility study illustrates that DBS screening can assist in estimating the population-based prevalence of perinatal cocaine exposure. As a result of technological improvements associated with this effort in Georgia, the immunoassay for BE in DBSs can now be used for screening with laboratory confirmation of positive values by liquid chromatography/tandem mass spectrometry (*2*). This methodology also can be used to detect other substances (e.g., tetrahydrocannabinol and nicotine) and their metabolites. When measures for ensuring anonymity are employed and legal protection against prosecution is provided, this approach can assist states or large communities in designing and evaluating population-wide prevention and intervention activities to reduce cocaine and other substance use

*The State v. Luster, 204 Ga. App. 156; 419 S.E. 2d. 32, (1992).

Perinatal Exposure to Cocaine — Continued

among pregnant women. In addition, efforts are needed to increase public support for such studies and for programs to prevent cocaine use during pregnancy.

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Notice to Readers

Recommendations from a Meeting on the Feasibility of Global Measles Eradication

During July 9–10, 1996, the World Health Organization (WHO), the Pan American Health Organization, and CDC cosponsored a meeting to review recent progress in controlling measles and to discuss the feasibility of global measles eradication. Participants included representatives from each WHO regional office, U.S. academic medical institutions, the Council of State and Territorial Epidemiologists, local health departments, and several state public health laboratories.

Country and regional presentations documented tremendous recent progress in worldwide measles control and increasing interest in pursuing global measles eradication. Six principal conclusions and recommendations resulted from the meeting:

1. Worldwide measles eradication is feasible using currently available vaccines and should be achievable within the next 10–15 years;
2. Single-dose strategies are not adequate to achieve eradication, and intensive efforts are needed to achieve adequate levels of population immunity;
3. Surveillance for measles, which must guide all efforts to control measles, must be based on clinical findings suggestive of measles;
4. Laboratory diagnosis will become increasingly important as control of measles improves, and molecular epidemiologic studies, which require measles virus isolates, will be increasingly used to track transmission of measles;

Notice to Readers — Continued

5. Measles outbreaks represent an opportunity to build the political will necessary to implement appropriate prevention strategies and must be well understood to refine prevention strategies; and
6. The major obstacles to measles eradication are perceptual, political, and financial. Considerable efforts are needed to change the incorrect perception that, in many industrialized countries, measles is a mild illness.

International consensus and commitment and a global plan of action are essential to facilitate coordination between countries, donors, technical agencies, and international organizations to assure that activities are efficiently conducted. In addition, polio-eradication efforts need to be strengthened in countries with endemic poliovirus transmission to ensure that the introduction of measles-elimination activities sustains the polio-eradication initiative.

The report of the meeting is available in WHO's *Weekly Epidemiological Record* (*1*) from the World Wide Web at http://www.who.ch/wer/wer_home.htm or from WHO, Distribution and Sales, 20 Avenue Appia, CH-1211 Geneva 27, Switzerland; fax: 41 22 791 4857. Additional information about the progress in controlling measles will be provided in an *MMWR Recommendations and Reports* during the first quarter of 1997.

Reference

1. World Health Organization. Expanded Programme on Immunization (EPI). Meeting on advances in measles elimination: conclusions and recommendations. Wkly Epidemiol Rec 1996;71:305–9.

Notice to Readers

Voluntary Worldwide Recall of Albuminar® and Plasma-Plex® by Centeon, L.L.C.

On October 9, 1996, Centeon, L.L.C. (King of Prussia, Pennsylvania) announced a worldwide recall of all lots of Albumin, 5%, 20%, 25% (Human), U.S.P. (Albuminar®-5, Albuminar®-20, Albuminar®-25), and Plasma Protein Fraction, (Human) U.S.P. 5% Solution Heated-Treated (Plasma-Plex®, PPF) distributed under the Centeon or Armour label as a precaution because of concerns related to manufacturing (*1*). Hospitals, dialysis centers, and other users should discontinue use of all lots of Centeon/Armour Albuminar® and Plasma-Plex®, quarantine all vials, and contact their distributors or Centeon for disposition orders.

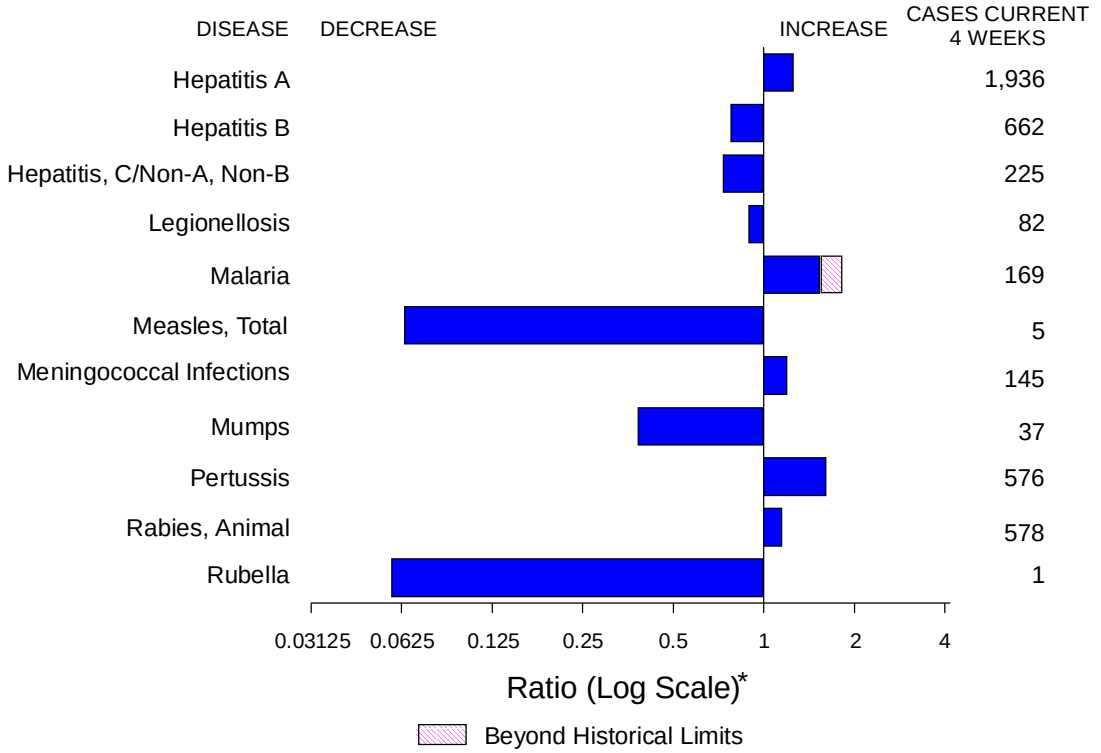
Health-care professionals should report any episode of infection associated with Centeon Albuminar® or Plasma-Plex® to CDC's Hospital Infections Program, National Center for Infectious Diseases (telephone [404] 639-6413]; fax [404] 639-6459), and to Food and Drug Administration's (FDA's) MedWatch Program (telephone [800] 332-1088; fax [800] 332-0178).

Replacement albumin is available from other U.S.-licensed sources. Shortages should be reported to the FDA Biologics Supply Officer, telephone (301) 827-0379.

Reference

1. CDC. Bacterial sepsis associated with receipt of albumin. MMWR 1996;45:866–7.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending October 12, 1996, with historical data — United States



*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 October 12, 1996 (41st Week)

	Cum. 1996		Cum. 1996
Anthrax	-	HIV infection, pediatric*§	216
Brucellosis	63	Plague	2
Cholera	3	Poliomyelitis, paralytic¶	-
Congenital rubella syndrome	1	Psittacosis	34
Cryptosporidiosis*	1,683	Rabies, human	1
Diphtheria	1	Rocky Mountain spotted fever (RMSF)	566
Encephalitis: California*	74	Streptococcal toxic-shock syndrome*	13
eastern equine*	1	Syphilis, congenital**	225
St. Louis*	-	Tetanus	22
western equine*	-	Toxic-shock syndrome	106
Hansen Disease	84	Trichinosis	16
Hantavirus pulmonary syndrome*†	15	Typhoid fever	282

-: 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 to the Division of HIV/AIDS Prevention, National Center for HIV, STD, and TB Prevention (NCHSTP), last update September 24, 1996.
¶ Three suspected cases of polio with onset in 1996 has been reported to date.
**Updated quarterly from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending October 12, 1996, and October 14, 1995 (41st Week)

Reporting Area	AIDS*		Chlamydia	*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB		Legionellosis	
				NETSS†	PHLIS§						
	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1996	Cum. 1996	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995
UNITED STATES	51,611	55,190	285,193	2,129	1,116	222,015	310,841	2,626	3,131	690	946
NEW ENGLAND	2,065	2,741	13,120	289	67	5,441	6,000	94	102	42	29
Maine	32	82	707	21	-	49	72	-	-	2	5
N.H.	66	77	397	36	31	80	91	8	12	3	2
Vt.	18	28	U	30	26	42	48	32	10	4	-
Mass.	997	1,235	5,529	136	10	1,769	2,106	48	73	24	18
R.I.	129	187	1,517	15	-	408	417	6	7	9	4
Conn.	823	1,132	4,970	51	-	3,093	3,266	-	-	N	N
MID. ATLANTIC	14,243	15,014	34,298	185	39	26,142	34,499	241	364	172	162
Upstate N.Y.	1,855	1,779	N	127	12	5,290	7,410	190	184	58	43
N.Y. City	7,855	7,617	15,878	10	-	8,618	13,879	1	1	6	5
N.J.	2,905	3,716	4,161	48	5	3,971	3,325	-	143	12	24
Pa.	1,628	1,902	14,259	N	22	8,263	9,885	50	36	96	90
E.N. CENTRAL	4,076	4,197	48,428	504	326	32,875	62,303	360	261	183	279
Ohio	871	847	14,294	147	82	10,288	19,416	30	9	83	127
Ind.	498	423	7,933	72	47	5,160	7,147	8	4	38	69
Ill.	1,808	1,727	19,358	199	84	14,119	16,010	53	72	9	25
Mich.	685	914	U	86	65	U	14,473	269	176	36	27
Wis.	214	286	6,843	N	48	3,308	5,257	-	-	17	31
W.N. CENTRAL	1,221	1,265	22,096	490	287	9,934	16,052	98	68	35	68
Minn.	226	284	2,702	224	202	U	2,430	2	4	4	6
Iowa	72	91	3,435	105	55	906	1,274	43	12	7	19
Mo.	626	559	9,654	53	-	6,553	9,081	33	18	8	14
N. Dak.	10	4	2	14	14	-	26	-	5	-	3
S. Dak.	10	14	739	20	-	104	172	-	1	2	3
Nebr.	83	84	2,049	45	4	783	945	5	15	11	16
Kans.	194	229	3,515	29	12	1,588	2,124	15	13	3	7
S. ATLANTIC	13,079	14,165	43,375	118	59	75,658	86,852	213	197	116	149
Del.	232	265	1,148	1	1	1,147	1,771	1	-	11	2
Md.	1,961	2,226	5,448	N	8	11,478	10,467	1	7	25	24
D.C.	1,001	828	N	-	-	3,386	3,668	-	-	8	4
Va.	896	1,122	8,984	N	29	7,108	8,636	13	16	16	21
W. Va.	88	84	1	N	2	419	542	9	43	1	4
N.C.	677	835	-	37	12	14,440	19,208	41	47	9	31
S.C.	667	766	-	9	7	8,594	9,844	25	19	5	30
Ga.	1,867	1,791	9,315	30	-	14,685	16,399	U	15	3	14
Fla.	5,690	6,248	18,479	29	-	14,401	16,317	123	50	38	19
E.S. CENTRAL	1,749	1,760	24,075	55	50	25,724	32,109	453	810	39	50
Ky.	309	220	5,230	11	6	3,310	3,776	27	28	4	10
Tenn.	647	709	10,559	23	41	9,405	10,913	330	780	19	24
Ala.	470	483	6,690	10	3	10,622	13,242	5	2	3	6
Miss.	323	348	U	11	-	2,387	4,178	91	U	13	10
W.S. CENTRAL	5,138	4,686	32,045	61	12	24,199	43,695	371	259	18	20
Ark.	207	222	-	13	3	2,620	4,359	8	6	2	6
La.	1,177	792	5,935	6	4	6,341	8,779	175	148	1	3
Okla.	189	207	5,996	10	1	3,863	4,696	69	40	5	4
Tex.	3,565	3,465	20,114	32	4	11,375	25,861	119	65	10	7
MOUNTAIN	1,533	1,757	12,861	174	87	5,499	7,426	459	386	37	97
Mont.	33	17	-	23	-	25	55	14	13	1	4
Idaho	32	38	1,213	30	10	86	115	93	44	-	2
Wyo.	5	13	461	11	9	32	43	146	161	3	12
Colo.	406	523	-	62	35	1,077	2,281	47	57	7	35
N. Mex.	139	138	3,017	10	-	685	837	63	42	2	4
Ariz.	461	550	5,132	N	22	2,713	2,865	56	38	16	9
Utah	144	112	1,234	23	-	241	209	22	11	3	13
Nev.	313	366	1,804	15	11	640	1,021	18	20	5	18
PACIFIC	8,506	9,605	54,895	253	189	16,543	21,905	337	684	48	92
Wash.	538	712	7,287	79	72	1,606	2,172	46	161	6	20
Oreg.	359	348	U	65	37	475	610	6	34	1	-
Calif.	7,440	8,295	41,530	105	70	13,848	18,110	111	437	36	67
Alaska	28	60	946	4	2	340	544	3	1	1	-
Hawaii	141	190	1,031	N	8	274	469	171	51	4	5
Guam	4	-	168	N	-	31	89	1	5	2	1
P.R.	1,792	1,951	N	16	U	296	470	81	185	-	-
V.I.	17	27	N	N	U	-	-	-	-	-	-
Amer. Samoa	-	-	-	N	U	-	26	-	-	-	-
C.N.M.I.	1	-	N	N	U	11	51	-	5	-	-

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

*Updated monthly to the Division of HIV/AIDS Prevention, National Center for HIV, STD, and TB Prevention, last update September 24, 1996.

†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 October 12, 1996, and October 14, 1995 (41st Week)

Reporting Area	Lyme Disease		Malaria		Meningococcal Disease		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal	
	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995
UNITED STATES	10,668	8,843	1,164	1,045	2,535	2,404	8,508	13,019	14,693	16,399	5,387	6,228
NEW ENGLAND	3,380	1,706	46	39	109	111	133	292	341	391	594	1,248
Maine	43	24	7	5	12	8	-	2	21	11	89	46
N.H.	38	20	2	1	5	19	1	1	11	15	51	125
Vt.	15	8	4	1	3	9	-	-	1	2	122	149
Mass.	292	116	17	13	41	38	63	48	171	217	94	369
R.I.	428	285	6	4	13	5	2	3	27	40	33	269
Conn.	2,564	1,253	10	15	35	32	67	238	110	106	205	290
MID. ATLANTIC	6,288	5,785	321	282	227	302	342	667	2,641	3,407	1,140	1,583
Upstate N.Y.	3,323	2,888	70	53	68	82	57	72	325	407	849	934
N.Y. City	244	368	169	156	32	44	106	289	1,315	1,910	-	-
N.J.	1,100	1,540	56	55	55	70	77	136	589	603	107	284
Pa.	1,621	989	26	18	72	106	102	170	412	487	184	365
E.N. CENTRAL	67	381	109	133	341	341	1,107	2,240	1,604	1,549	85	90
Ohio	41	24	13	11	128	96	466	709	238	213	11	10
Ind.	23	16	13	15	54	48	164	267	140	138	7	14
Ill.	3	16	35	68	89	89	339	866	840	799	23	15
Mich.	-	5	35	18	38	62	U	232	297	330	31	37
Wis.	U	320	13	21	32	46	138	166	89	69	13	14
W.N. CENTRAL	133	157	42	23	202	151	289	620	369	465	440	310
Minn.	59	80	19	4	25	25	51	37	81	113	25	24
Iowa	20	12	2	3	41	28	16	39	50	49	204	110
Mo.	22	42	9	7	85	56	189	507	155	179	17	28
N. Dak.	-	-	1	1	3	1	-	-	6	3	56	24
S. Dak.	-	-	-	2	9	5	-	-	17	20	105	82
Nebr.	3	4	3	3	17	14	11	11	13	20	5	5
Kans.	29	19	8	3	22	22	22	26	47	81	28	37
S. ATLANTIC	558	552	244	207	516	401	2,970	3,257	2,832	2,903	2,226	1,728
Del.	78	38	3	1	2	6	34	14	20	46	61	79
Md.	328	364	66	55	66	35	521	370	241	314	504	347
D.C.	3	3	7	16	10	5	113	91	108	86	9	11
Va.	42	47	39	47	48	55	325	497	234	202	480	350
W. Va.	11	22	5	3	11	8	3	9	50	58	79	97
N.C.	62	49	25	15	65	68	836	894	400	335	581	392
S.C.	5	16	11	1	48	51	305	472	277	253	74	107
Ga.	1	10	23	27	117	78	524	610	502	571	240	233
Fla.	28	3	65	42	149	95	309	300	1,000	1,038	198	112
E.S. CENTRAL	56	62	26	23	184	169	1,992	2,686	1,014	1,132	173	238
Ky.	14	13	3	3	25	37	119	148	185	248	36	24
Tenn.	19	28	13	9	50	67	654	697	306	345	66	80
Ala.	6	7	3	8	62	34	448	520	337	324	68	125
Miss.	17	14	7	3	47	31	771	1,321	186	215	3	9
W.S. CENTRAL	95	93	38	48	289	283	1,175	2,593	1,763	2,228	322	534
Ark.	21	7	-	2	33	27	121	398	146	192	21	41
La.	2	5	6	5	47	43	429	803	59	217	13	24
Okla.	20	40	-	1	31	30	148	151	134	146	27	28
Tex.	52	41	32	40	178	183	477	1,241	1,424	1,673	U	441
MOUNTAIN	7	12	51	53	144	171	111	176	488	525	130	155
Mont.	-	-	7	3	4	2	-	4	14	10	20	41
Idaho	1	-	-	1	22	8	4	-	7	12	-	3
Wyo.	2	3	7	-	3	8	2	-	6	3	26	23
Colo.	-	-	21	23	31	43	23	96	71	59	41	9
N. Mex.	1	1	2	5	22	30	1	6	64	66	6	6
Ariz.	-	1	6	10	35	50	66	36	186	257	28	47
Utah	1	1	4	6	15	15	2	4	39	31	4	15
Nev.	2	6	4	5	12	15	13	30	101	87	5	11
PACIFIC	84	95	287	237	523	475	389	488	3,641	3,799	277	342
Wash.	14	10	20	19	82	76	5	12	211	217	6	13
Oreg.	13	15	18	15	93	86	11	19	134	103	1	2
Calif.	56	70	239	190	336	299	372	455	3,107	3,269	262	320
Alaska	-	-	3	3	8	10	-	2	50	61	8	7
Hawaii	1	-	7	10	4	4	1	-	139	149	-	-
Guam	-	-	-	1	1	2	3	8	35	86	-	-
P.R.	-	-	-	1	4	23	108	229	63	162	38	35
V.I.	-	-	-	2	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	4	-	-
C.N.M.I.	-	-	-	1	-	-	1	9	-	31	-	-

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

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending October 12, 1996, and October 14, 1995 (41st Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (viral), by type				Measles (Rubeola)			
			A		B		Indigenous		Imported†	
	Cum. 1996*	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	1996	Cum. 1996	1996	Cum. 1996
UNITED STATES	823	894	21,574	23,319	7,568	7,794	-	399	-	44
NEW ENGLAND	24	33	302	239	155	184	-	11	-	4
Maine	-	3	16	23	2	7	-	-	-	-
N.H.	9	9	13	11	14	18	-	-	-	-
Vt.	1	2	6	5	10	5	-	1	-	1
Mass.	12	10	156	102	51	70	-	9	-	3
R.I.	2	3	15	28	9	8	-	-	-	-
Conn.	-	6	96	70	69	76	-	1	-	-
MID. ATLANTIC	147	133	1,476	1,430	1,173	1,104	-	23	-	5
Upstate N.Y.	43	36	347	360	261	299	-	-	-	-
N.Y. City	31	32	475	676	485	332	-	9	-	3
N.J.	47	18	278	212	205	304	-	3	-	-
Pa.	26	47	376	182	222	169	-	11	-	2
E.N. CENTRAL	134	150	1,790	2,630	783	887	-	5	-	7
Ohio	80	75	630	1,485	103	88	-	2	-	3
Ind.	10	19	255	147	128	182	-	-	-	-
Ill.	32	38	413	533	195	231	-	2	-	1
Mich.	7	16	345	297	302	325	-	-	-	3
Wis.	5	2	147	168	55	61	-	1	-	-
W.N. CENTRAL	41	68	1,929	1,552	349	508	-	20	-	2
Minn.	25	38	108	157	50	49	-	16	-	2
Iowa	5	3	300	67	60	40	-	-	-	-
Mo.	7	20	916	1,101	171	349	-	3	-	-
N. Dak.	-	-	100	22	2	4	U	-	U	-
S. Dak.	1	1	41	49	5	2	-	-	-	-
Nebr.	1	3	176	38	33	25	-	-	-	-
Kans.	2	3	288	118	28	39	-	1	-	-
S. ATLANTIC	161	174	1,133	899	1,174	1,006	-	4	-	9
Del.	2	-	15	9	7	7	-	1	-	-
Md.	51	58	198	171	241	205	-	-	-	2
D.C.	5	-	30	21	28	15	U	-	U	-
Va.	8	23	135	167	112	93	-	-	-	3
W. Va.	7	7	13	21	21	45	-	-	-	-
N.C.	22	25	136	89	265	224	-	3	-	1
S.C.	4	2	44	40	72	40	-	-	-	-
Ga.	42	54	149	51	30	62	-	-	-	2
Fla.	20	5	413	330	398	315	-	-	-	1
E.S. CENTRAL	26	10	1,037	1,543	662	692	-	2	-	-
Ky.	5	4	38	41	52	60	-	-	-	-
Tenn.	12	-	677	1,273	378	547	-	2	-	-
Ala.	8	5	148	71	57	85	-	-	-	-
Miss.	1	1	174	158	175	U	U	-	U	-
W.S. CENTRAL	33	56	4,507	3,420	999	1,074	-	26	-	2
Ark.	-	6	401	455	63	51	-	-	-	-
La.	3	1	150	102	116	157	-	-	-	-
Okla.	27	21	1,897	878	59	138	-	-	-	-
Tex.	3	28	2,059	1,985	761	728	-	26	-	2
MOUNTAIN	82	97	3,468	3,282	895	669	-	152	-	5
Mont.	-	-	97	118	12	19	-	-	-	-
Idaho	1	3	178	258	76	76	-	1	-	-
Wyo.	35	6	29	97	36	22	-	1	-	-
Colo.	12	14	374	419	115	101	-	4	-	3
N. Mex.	9	12	314	691	312	254	-	16	-	-
Ariz.	9	24	1,341	894	199	97	U	8	U	-
Utah	8	10	809	589	81	53	-	117	-	2
Nev.	8	28	326	216	64	47	-	5	-	-
PACIFIC	175	173	5,932	8,324	1,378	1,670	-	156	-	10
Wash.	3	8	433	682	77	150	-	51	-	-
Oreg.	22	22	689	2,199	81	98	-	4	-	-
Calif.	146	138	4,714	5,261	1,194	1,398	-	36	-	5
Alaska	2	1	36	40	14	11	-	63	-	-
Hawaii	2	4	60	142	12	13	-	2	-	5
Guam	-	-	2	7	-	4	U	-	U	-
P.R.	1	3	96	83	294	495	-	7	-	-
V.I.	-	-	-	7	-	14	U	-	U	-
Amer. Samoa	-	-	-	6	-	-	U	-	U	-
C.N.M.I.	10	11	1	24	5	22	U	-	U	-

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

*Of 195 cases among children aged <5 years, serotype was reported for 43 and of those, 13 were 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 October 12, 1996, and October 14, 1995 (41st Week)

Reporting Area	Measles (Rubeola), cont'd. Total		Mumps			Pertussis			Rubella		
	Cum. 1996	Cum. 1995	1996	Cum. 1996	Cum. 1995	1996	Cum. 1996	Cum. 1995	1996	Cum. 1996	Cum. 1995
UNITED STATES	443	277	8	508	674	135	4,058	3,424	-	202	107
NEW ENGLAND	15	9	-	2	11	23	848	465	-	27	44
Maine	-	-	-	-	4	-	20	28	-	-	-
N.H.	-	-	-	-	1	14	90	43	-	-	1
Vt.	2	-	-	-	-	6	91	62	-	2	-
Mass.	12	2	-	2	2	3	590	306	-	21	7
R.I.	-	5	-	-	1	-	30	3	-	-	-
Conn.	1	2	-	-	3	-	27	23	-	4	36
MID. ATLANTIC	28	12	3	74	101	27	367	287	-	11	13
Upstate N.Y.	-	1	-	22	24	17	210	133	-	4	3
N.Y. City	12	5	-	16	15	1	29	44	-	4	8
N.J.	3	6	-	2	17	-	16	17	-	2	2
Pa.	13	-	3	34	45	9	112	93	-	1	-
E.N. CENTRAL	12	15	-	86	122	6	414	439	-	3	3
Ohio	5	2	-	39	41	-	192	120	-	-	-
Ind.	-	-	-	7	8	-	46	42	-	-	-
Ill.	3	2	-	19	33	6	137	88	-	1	-
Mich.	3	5	-	20	40	-	34	62	-	2	3
Wis.	1	6	-	1	-	-	5	127	-	-	-
W.N. CENTRAL	22	2	-	14	38	10	307	232	-	-	-
Minn.	18	-	-	5	2	9	243	120	-	-	-
Iowa	-	-	-	1	9	-	15	7	-	-	-
Mo.	3	1	-	5	22	1	33	55	-	-	-
N. Dak.	-	-	U	2	1	U	1	8	U	-	-
S. Dak.	-	-	-	-	-	-	4	11	-	-	-
Nebr.	-	-	-	-	4	-	7	10	-	-	-
Kans.	1	1	-	1	-	-	4	21	-	-	-
S. ATLANTIC	13	12	2	87	97	20	479	291	-	91	9
Del.	1	-	-	-	-	-	12	10	-	-	-
Md.	2	1	1	25	30	10	177	37	-	-	1
D.C.	-	-	U	-	-	U	1	6	U	1	-
Va.	3	-	-	12	20	-	71	19	-	2	-
W. Va.	-	-	-	-	-	-	2	-	-	-	-
N.C.	4	-	-	19	16	-	79	110	-	77	1
S.C.	-	-	-	5	10	4	36	22	-	1	-
Ga.	2	2	-	3	6	-	17	19	-	-	-
Fla.	1	9	1	23	15	6	84	68	-	10	7
E.S. CENTRAL	2	-	-	21	9	-	75	265	-	2	1
Ky.	-	-	-	-	-	-	29	22	-	-	-
Tenn.	2	-	-	3	2	-	19	206	-	-	1
Ala.	-	-	-	3	4	-	18	35	-	2	-
Miss.	-	-	U	15	3	U	9	2	N	N	N
W.S. CENTRAL	28	29	-	28	47	3	96	254	-	3	7
Ark.	-	2	-	2	7	-	10	33	-	-	-
La.	-	18	-	13	12	-	8	17	-	1	-
Okla.	-	-	-	-	-	-	8	28	-	-	-
Tex.	28	9	-	13	28	3	70	176	-	2	7
MOUNTAIN	157	68	-	21	30	4	349	509	-	7	4
Mont.	-	-	-	-	1	1	28	3	-	-	-
Idaho	1	-	-	-	3	-	102	96	-	3	-
Wyo.	1	-	-	-	-	-	5	1	-	-	-
Colo.	7	26	-	3	2	1	91	85	-	2	-
N. Mex.	16	31	N	N	N	-	50	92	-	-	-
Ariz.	8	10	U	1	2	U	27	153	U	1	3
Utah	119	-	-	2	11	2	19	22	-	-	1
Nev.	5	1	-	15	11	-	27	57	-	1	-
PACIFIC	166	130	3	175	219	42	1,123	682	-	58	26
Wash.	51	19	1	19	10	40	503	219	-	2	1
Oreg.	4	1	-	-	-	2	33	43	-	1	-
Calif.	41	108	1	127	188	-	557	372	-	52	20
Alaska	63	-	-	2	12	-	3	-	-	-	-
Hawaii	7	2	1	27	9	-	27	48	-	3	5
Guam	-	-	U	5	4	U	1	2	U	-	1
P.R.	7	3	-	1	2	-	1	1	-	-	-
V.I.	-	-	U	-	3	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	-	1	U	-	-	U	-	-

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

TABLE IV. Deaths in 121 U.S. cities,* week ending October 12, 1996 (41st Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	556	392	113	35	10	6	29
Boston, Mass.	130	89	26	10	3	2	4
Bridgeport, Conn.	40	32	3	4	-	1	1
Cambridge, Mass.	19	14	4	1	-	-	3
Fall River, Mass.	34	28	4	1	1	-	1
Hartford, Conn.	54	32	17	2	2	1	3
Lowell, Mass.	17	8	8	1	-	-	2
Lynn, Mass.	7	4	3	-	-	-	1
New Bedford, Mass.	27	19	6	2	-	-	-
New Haven, Conn.	41	27	8	3	2	1	1
Providence, R.I.	49	37	6	5	1	-	1
Somerville, Mass.	3	2	1	-	-	-	-
Springfield, Mass.	44	30	12	1	1	-	1
Waterbury, Conn.	27	20	4	3	-	-	1
Worcester, Mass.	64	50	11	2	-	1	10
MID. ATLANTIC	2,206	1,529	418	193	28	38	102
Albany, N.Y.	49	37	9	2	-	1	2
Allentown, Pa.	19	13	5	1	-	-	2
Buffalo, N.Y.	74	51	16	5	1	1	9
Camden, N.J.	28	19	5	4	-	-	1
Elizabeth, N.J.	20	15	5	-	-	-	1
Erie, Pa.§	33	28	5	-	-	-	2
Jersey City, N.J.	38	19	11	6	1	1	3
New York City, N.Y.	1,236	831	250	119	17	19	41
Newark, N.J.	U	U	U	U	U	U	U
Paterson, N.J.	27	18	5	3	-	1	1
Philadelphia, Pa.	300	207	50	35	6	2	17
Pittsburgh, Pa.§	52	40	6	3	1	2	1
Reading, Pa.	7	5	1	1	-	-	1
Rochester, N.Y.	121	94	19	6	1	1	8
Schenectady, N.Y.	27	22	5	-	-	-	-
Scranton, Pa.§	35	27	6	2	-	-	1
Syracuse, N.Y.	91	73	15	2	-	1	10
Trenton, N.J.	33	18	2	4	-	9	1
Utica, N.Y.	16	12	3	-	1	-	1
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	1,947	1,287	389	169	63	39	95
Akron, Ohio	50	36	11	1	1	1	-
Canton, Ohio	36	31	5	-	-	-	-
Chicago, Ill.	400	234	88	51	19	8	27
Cincinnati, Ohio	93	59	24	4	4	2	6
Cleveland, Ohio	147	86	40	11	8	2	3
Columbus, Ohio	160	108	35	10	4	3	5
Dayton, Ohio	139	101	21	10	2	5	10
Detroit, Mich.	213	127	41	29	10	6	6
Evansville, Ind.	43	33	6	3	1	-	2
Fort Wayne, Ind.	56	45	5	3	2	1	2
Gary, Ind.	13	9	2	1	1	-	2
Grand Rapids, Mich.	41	29	8	4	-	-	3
Indianapolis, Ind.	171	105	40	15	8	3	9
Madison, Wis.	U	U	U	U	U	U	U
Milwaukee, Wis.	130	94	20	9	1	6	9
Peoria, Ill.	29	22	6	-	1	-	5
Rockford, Ill.	47	38	9	-	-	-	1
South Bend, Ind.	46	36	7	3	-	-	2
Toledo, Ohio	75	51	13	8	1	2	2
Youngstown, Ohio	58	43	8	7	-	-	1
W.N. CENTRAL	637	443	114	39	13	11	37
Des Moines, Iowa	U	U	U	U	U	U	U
Duluth, Minn.	14	12	2	-	-	-	2
Kansas City, Kans.	30	19	7	4	-	-	1
Kansas City, Mo.	97	61	15	1	3	-	5
Lincoln, Nebr.	34	27	5	1	-	1	1
Minneapolis, Minn.	147	94	35	11	5	2	13
Omaha, Nebr.	84	65	14	4	-	1	7
St. Louis, Mo.	114	81	18	8	4	3	-
St. Paul, Minn.	62	45	7	6	1	3	7
Wichita, Kans.	55	39	11	4	-	1	1

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,158	677	285	125	38	32	61
Atlanta, Ga.	134	71	35	20	6	2	8
Baltimore, Md.	196	98	59	29	5	5	17
Charlotte, N.C.	80	52	21	6	1	-	3
Jacksonville, Fla.	130	80	33	7	3	6	8
Miami, Fla.	105	64	16	13	8	4	1
Norfolk, Va.	65	40	17	5	2	1	2
Richmond, Va.	65	34	16	13	-	2	5
Savannah, Ga.	34	21	8	4	1	-	5
St. Petersburg, Fla.	37	30	5	-	2	-	1
Tampa, Fla.	169	104	43	10	1	11	7
Washington, D.C.	126	77	29	12	7	1	4
Wilmington, Del.	17	6	3	6	2	-	-
E.S. CENTRAL	749	479	167	62	21	19	62
Birmingham, Ala.	130	75	28	15	5	7	4
Chattanooga, Tenn.	78	50	18	5	2	3	7
Knoxville, Tenn.	65	43	14	5	3	-	4
Lexington, Ky.	42	22	12	3	2	3	3
Memphis, Tenn.	220	142	48	21	6	3	24
Mobile, Ala.	46	22	15	5	-	3	1
Montgomery, Ala.	28	21	5	2	-	-	-
Nashville, Tenn.	140	104	27	6	3	-	19
W.S. CENTRAL	1,369	888	264	146	43	28	82
Austin, Tex.	64	45	13	5	-	1	3
Baton Rouge, La.	51	32	9	8	-	2	2
Corpus Christi, Tex.	53	36	11	2	2	2	3
Dallas, Tex.	180	111	31	29	7	2	4
El Paso, Tex.	87	59	12	10	1	5	7
Ft. Worth, Tex.	84	56	16	6	5	1	2
Houston, Tex.	355	220	79	42	9	5	25
Little Rock, Ark.	65	47	14	-	3	1	3
New Orleans, La.	90	49	19	18	3	1	-
San Antonio, Tex.	183	127	32	15	8	1	23
Shreveport, La.	51	29	13	4	2	3	3
Tulsa, Okla.	106	77	15	7	3	4	7
MOUNTAIN	871	591	159	75	21	24	56
Albuquerque, N.M.	104	75	18	7	3	1	3
Colo. Springs, Colo.	46	35	4	4	2	1	4
Denver, Colo.	119	73	21	13	2	10	8
Las Vegas, Nev.	157	98	44	11	3	1	8
Ogden, Utah	21	16	4	1	-	-	-
Phoenix, Ariz.	180	113	31	23	5	7	10
Pueblo, Colo.	22	17	4	-	1	-	2
Salt Lake City, Utah	104	76	13	10	4	1	11
Tucson, Ariz.	118	88	20	6	1	3	10
PACIFIC	925	632	151	93	24	25	66
Berkeley, Calif.	15	10	2	2	1	-	1
Fresno, Calif.	58	38	8	3	6	3	1
Glendale, Calif.	U	U	U	U	U	U	U
Honolulu, Hawaii	69	54	7	5	-	3	6
Long Beach, Calif.	81	51	17	9	3	1	7
Los Angeles, Calif.	U	U	U	U	U	U	U
Pasadena, Calif.	U	U	U	U	U	U	U
Portland, Oreg.	116	71	24	15	2	4	1
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	135	98	20	11	4	2	12
San Francisco, Calif.	145	90	27	23	2	3	16
San Jose, Calif.	U	U	U	U	U	U	U
Santa Cruz, Calif.	40	30	5	4	1	-	6
Seattle, Wash.	114	80	16	13	2	3	4
Spokane, Wash.	63	50	9	2	1	1	6
Tacoma, Wash.	89	60	16	6	2	5	6
TOTAL	10,418¶	6,918	2,060	937	261	222	590

U: Unavailable -: no reported cases

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

†Pneumonia and influenza.

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

¶Total includes unknown ages.

Contributors to the Production of the *MMWR* (Weekly)

Weekly Notifiable Disease Morbidity Data and 121 Cities Mortality Data

Denise Koo, M.D., M.P.H.
Deborah A. Adams
Timothy M. Copeland
Patsy A. Hall
Carol M. Knowles
Sarah H. Landis
Myra A. Montalbano

Desktop Publishing and Graphics Support

Jolene W. Altman
Morie M. Higgins
Peter M. Jenkins

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