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**MORBIDITY AND MORTALITY
WEEKLY REPORT**

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Workers' Memorial Day — April 28, 2001

Workers' Memorial Day, April 28, 2001, is a designated time to remember workers who have died from work-related injuries or illnesses. Although there have been substantial improvements in occupational health and safety (1), work-related injuries and deaths continue to be a major public health concern. During 1980–1997, 103,945 workers died from work-related injuries, an average of 16 deaths per day. In 1999, the most recent year for which data are available, economic costs of fatal and nonfatal unintentional work-related injuries were an estimated \$122.6 billion (2).

This year, the date also marks the 30th anniversary of the Occupational Safety and Health Act and the establishment of the Occupational Safety and Health Administration and CDC's National Institute for Occupational Safety and Health (NIOSH). NIOSH was established to conduct research and make recommendations to prevent work-related injuries, illnesses, and deaths.

Additional information on causes and prevention of work-related injury and illness is available from CDC, telephone (800) 356-4674 or at <http://www.cdc.gov/niosh/homepage.html>.

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**Baler and Compactor-Related Deaths in the Workplace —
United States, 1992–2000**

Equipment that compacts and bales loose solid waste materials into denser, more easily transported units is common in refuse disposal and recycling and is used routinely at recycling centers, manufacturing facilities, and retail and wholesale stores to compress paper, textiles, metals, plastic, and other material*. Persons operating balers and compactors can become caught by the powered rams of the compression chambers while using these machines. Risk factors resulting from these incidents have been identified through surveillance findings and results of investigations conducted by CDC's National Institute for Occupational Safety and Health (NIOSH) Fatality Assessment and

*This report considers only stationary machines.

Baler and Compactor — Continued

Control Evaluation (FACE) program[†] and the Bureau of Labor Statistics Census of Fatal Occupational Injuries (CFOI)[§], a nationwide multisource reporting system for occupational deaths. This report describes the results of two baler and compactor-related investigations conducted during 1992–2000, summarizes surveillance data from 1992 through 1998, which indicated that some employers and workers may have been unaware of the hazards of operating or working near compacting and baling equipment, and suggests safety recommendations for preventing future incidents.

Case Reports

Case 1. In July 2000, a 16-year-old produce market worker died from crushing injuries when he was caught in the vertical downstroke baler (Figure 1) he was operating. He was working alone in the market's basement and was using the baler to crush cardboard boxes when he was caught by the machine's ram. Investigations determined that the machine's safety interlock[¶] had been bypassed, allowing the machine to operate with the loading door open. The worker may have reached into the compression chamber while the machine was operating and was caught by the ram during its downstroke.

Case 2. In May 1997, a 34-year-old paper products worker died after falling into an operating baler. The worker and a co-worker were loading scrap paper into the baler through a belt conveyor when the material jammed in the baler's feed chute (Figure 1). The co-worker shut down the conveyor but not the baler's automatic controls, and the worker ascended to a platform between the end of the conveyor and the feed chute. When he leaned over the platform rail to clear the jam, he fell through the feed chute and into the compression chamber. His presence tripped the automatic control sensor, and the baler's ram was activated.

Surveillance Data

CFOI identified 34 deaths related to compactors and balers during 1992–1998; 29 (85%) occurred when a worker was caught or crushed by the compacting ram of the machine. Decedents were age 17–72 years (median: 37 years): six were <25 years, 10 were 25–34 years, nine were 35–44 years, and nine were ≥45 years. Twelve worked in the wholesale trade industry; nine in manufacturing; eight in transportation/communications/public utilities; and the remainder in retail and services industries. Six deaths occurred during the processing of cardboard; five workers were processing paper; five were processing trash; and five were processing cans, scrap metal, cotton, or plastic wrap. For eight deaths, the material being processed was not specified.

During 1992–2000, FACE received 19 reports of baler and compactor-related deaths from 13 states (four in Missouri, three in New Jersey, two in Massachusetts, and one each in California, Colorado, Iowa, Nebraska, New York, North Carolina, South Carolina,

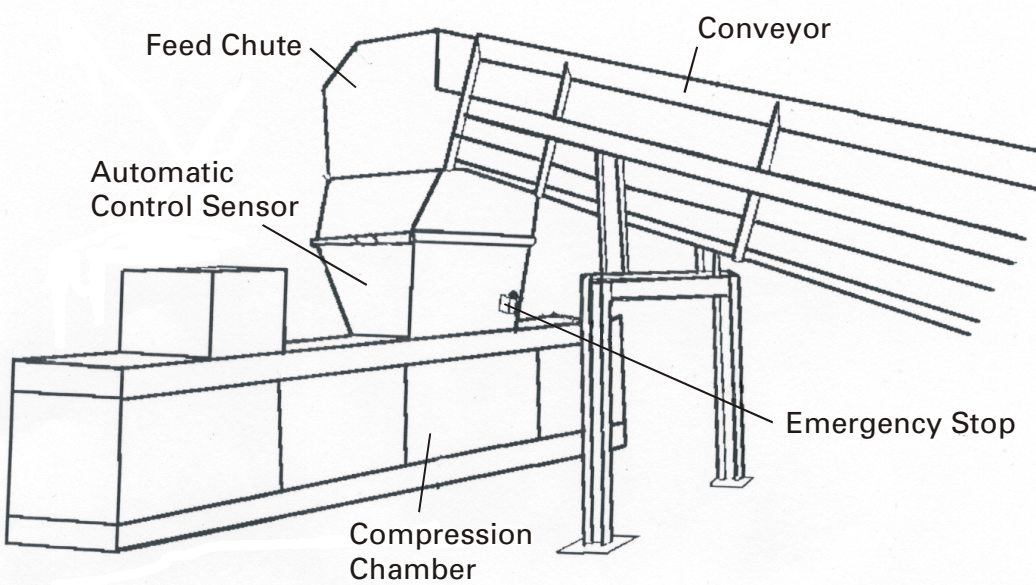
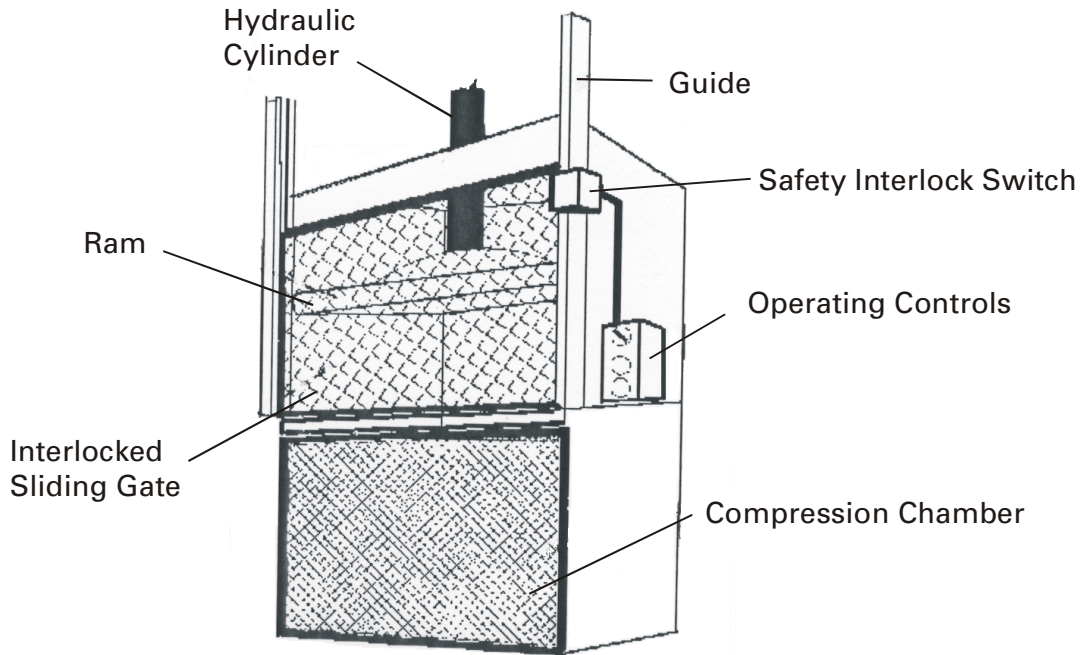
[†] FACE conducts fatality investigations of selected categories of cases, including machinery-related incidents, and disseminates injury prevention information. Through a series of cooperative agreements with NIOSH, 15 states maintain multisource surveillance networks to identify all traumatic occupational deaths, conduct site investigations, and disseminate prevention information.

[§] CFOI is a multisource (e.g., death certificates, medical examiner/coroner reports, workers' compensation reports, and police reports) reporting system for occupational deaths implemented nationwide by the Bureau of Labor Statistics in 1992.

[¶] A device or mechanism used to connect individual components so that the action of one part of the equipment is constrained by or dependent on another (1,2); in general, the purpose of an interlock is to prevent or interrupt the operation of machine components under specified conditions, usually when a hazard is present. As applied to balers and compactors, the interlock prevents or interrupts movement of the compacting ram if the machine's access doors are opened while the machine is energized or in motion.

Baler and Compactor — Continued

FIGURE 1. Diagram of a stationary vertical downstroke compactor/baler and a horizontal baler and conveyor



Baler and Compactor — Continued

Tennessee, Texas, and Washington). All 19 were men, aged 16–52 years (median: 36 years), who sustained crushing or amputation injuries from the compacting ram after they reached into or entered the compression chamber of an operating machine. Injury-related activities were identified through case reports; reaching or falling into the compression chamber injured 12 persons, the presence of the worker in the compression chamber automatically activating the ram injured six, clearing jammed material from an operating machine injured five, co-workers activating the ram without knowing that the worker was inside the compression chamber injured three, and attempting to retrieve unbalable material from an operating machine injured two; some incidents involved more than one factor.

Field investigations that identified injury risks were conducted for 11 incidents. Nine involved failure to implement effective power supply shutdown and ram pressure dissipation procedures, six involved failure to follow standard procedures for clearing material jams, six involved attempting to clear material jams without shutting down the machine's automatic controls, five involved operating machines with bypassed or defective safety interlocks, and three involved workers' operating a machine without determining the location of co-workers.

Reported by: Fatality Assessment and Control Evaluation Program, Div of Safety Research, National Institute for Occupational Safety and Health, CDC.

Editorial Note: Baling and compacting equipment is built in various sizes and configurations; however, whether the machine is a compactor or a baler, workers are exposed to similar injury risks. Both types of machines compress refuse material through the action of a powered ram that moves vertically or horizontally into and through a compression chamber. Using tons of pressure, the ram compresses the chamber contents into a small, dense unit. Balers compress and bind the material using wire or twine, and compactors compress the material into a container that is stored for later transport. Recently manufactured machines conform to American National Standards Institute specifications such as point-of-operation guards to prevent injury associated with reaching into an operating machine and interlocked control systems to interrupt or reverse the ram's motion when the compression chamber doors are opened (1,2). However, some older machines may not have guards and interlocks.

Automatically controlled machines operate when the control system senses the presence of sufficient material to be compressed. Because ram motion may not have started or may have ceased during a jam, workers may not recognize that the machine is operational and the ram could activate inadvertently unless the power supply is disconnected and the ram pressure is dissipated. Employers may not recognize the need to standardize jam clearing procedures to include both power supply shutdown and ram pressure dissipation procedures.

The findings in this report are subject to at least five limitations. First, because of the variety of industries and circumstances in which these machines were used and the limits of surveillance for fatal injuries, this report may underestimate the number of compactor- and baler-related deaths. Second, the FACE state component receives reports of work-related deaths from only 15 states. Third, because of limited injury descriptions in CFOI compared with FACE descriptions, the exact circumstances of injury often cannot be determined. Fourth, deaths identified by FACE from 1992 through 1998 probably were included in CFOI although not necessarily identified as baler- or compactor-related; therefore, FACE and CFOI cases overlap. Finally, the number of reported cases was small, thus limiting generalizability.

Baler and Compactor — Continued

On the basis of information collected from FACE investigations, the following measures are recommended to reduce the risk for worker injury in compactors and balers: 1) employers should train workers to recognize the hazards of operating or working near balers and compactors; 2) before jams are cleared, authorized employees should verify that the machine's electrical power has been disconnected, the disconnecting device has been locked and tagged, and the ram pressure has been dissipated (3); employers should implement appropriate power supply shutdown procedures whenever repair or maintenance is needed (4); 3) employers should implement standard procedures for managing common events such as material jams; 4) balers and compactors should be equipped with machine guards and safety interlocks to prevent worker injury and interlocks should be designed so that they cannot be bypassed; and 5) employers should require machine operators to account for the location of co-workers before activating compactor or baler rams.

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Nonfatal Occupational Injuries and Illnesses Treated in Hospital Emergency Departments — United States, 1998

The National Electronic Injury Surveillance System (NEISS) includes data about non-fatal occupational injuries and illnesses treated in U.S. hospital emergency departments (EDs). This report summarizes 1998 injury and illness estimates based on NEISS, which indicate that the magnitude and patterns of nonfatal occupational injuries and illnesses were comparable to estimates reported for 1996 (1). Younger workers continue to have the highest rates of work-related injuries and illnesses; therefore, interventions should address the health and safety needs of young workers, most of whom lack substantial experience in the work place.

In 1998, NEISS identified approximately 47,000 work-related injuries and illnesses treated in 67 EDs derived from a national stratified probability sample of all U.S. hospitals with a minimum of six beds and a 24-hour ED.* The NEISS sampling frame for work-related ED visits was updated in October 1997 based on the 1995 listing of U.S. hospitals with EDs. As a result, compared with earlier reports, the updated hospital sample had

* Through a collaboration between NIOSH and the U.S. Consumer Product Safety Commission (CPSC), work-related injury and illness information was collected without limitations by age, consumer product involvement, or type of injury event at two thirds of the 101 NEISS hospitals used by CPSC for the collection of product-related injuries.

Nonfatal Occupational Injuries — Continued

changes in the makeup of hospitals within each size stratum in the sample and the statistical weights for cases, which are used to extrapolate to national estimates (1).

Work-related ED visits for injury or illness were identified from admissions information and ED chart review. A work-related case was defined as any injury or illness incurred by a civilian worker while working for compensation, arriving or leaving work but on the employers' premises, during transportation between locations as a part of the job (excluding commuting to or from home), doing agricultural production activities, or working as a volunteer for an organized group (e.g., volunteer fire department) (2). Military injuries, common illness cases (e.g., colds or viruses), routine drug and alcohol screening, and revisits to an ED for a previously treated injury or illness were excluded.

Employment estimates, used to calculate injury rates, were 12-month averages for 1998 Current Population Survey (CPS) data based on full-time equivalent (FTE) workers (1 FTE=2000 hours per year) (3). CPS is a monthly household survey of the U.S. civilian, noninstitutionalized population aged ≥ 15 years that includes wage and salary workers, self-employed workers, part-time workers, and unpaid workers who worked ≥ 15 hours a week in family-operated enterprises, but excludes volunteers for organized groups. However, cases involving volunteer workers were not removed from the injury/illness estimates or rate estimates presented in this report because of difficulties in identifying these workers in the NEISS database. Injuries and illnesses to workers aged ≤ 14 years (0.1% of total) were included in the total injury/illness estimates but were excluded from injury/illness estimates in the rate calculations because employment data for this age group were not available.

In 1998, an estimated 3,600,000 (95% confidence interval [CI]= $\pm 600,000$) occupational injuries and illnesses to workers of all ages were treated in EDs. The overall occupational injury and illness rate was 2.9 (95% CI= ± 0.5) per 100 FTE workers aged ≥ 15 years. The injury and illness rate for males (3.4; 95% CI= ± 0.6) was 1.6 times the rate for females (2.1; 95% CI= ± 0.3). The rate was highest for younger workers and decreased with increasing age (Figure 1).

Workers aged 15–17 years had a particularly high rate of burns, ranging from two- to 10-fold higher than that for older workers (Figure 2). Burns and lacerations accounted for one half of injuries to workers aged < 20 years and approximately one fourth to one third of injuries to workers aged ≥ 20 years.

In 1998, approximately 70% of injuries resulted in lacerations, punctures, amputations, and avulsions (27%); sprains and strains (25%); and contusions, abrasions, and hematomas (21%). Hands and fingers, the most commonly injured body parts (30%), were treated almost twice as frequently in EDs as injuries to other anatomic groups: trunk, back, and groin (18%); head and neck (17%); lower extremities (17%); and upper extremities (excluding hands and fingers) (15%).

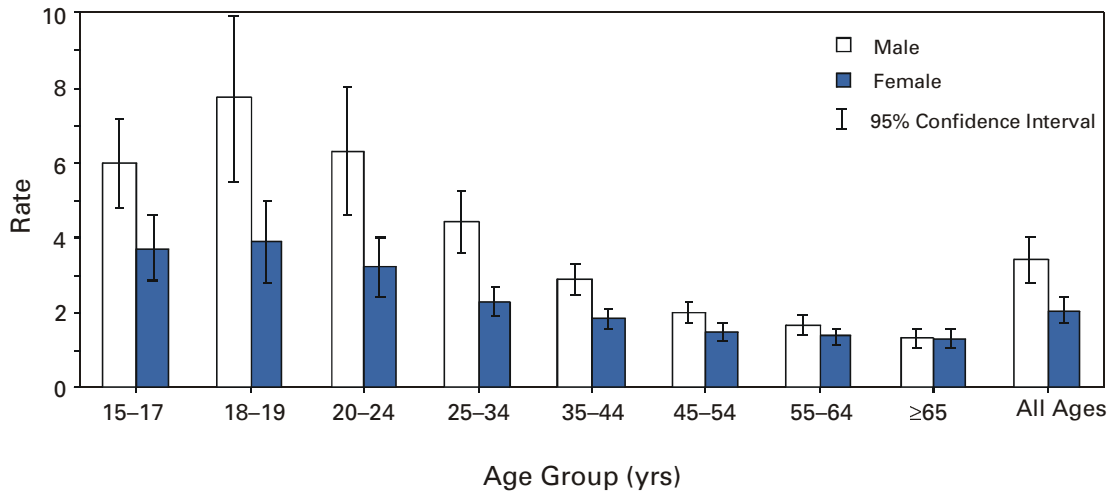
Nearly all of the estimated 3.6 million work-related injuries and illnesses were treated in EDs and released. Approximately 60,000 (95% CI= $\pm 16,000$) of these injuries/illnesses resulted in hospitalization, and an additional 18,000 (95% CI= $\pm 5,000$) were transferred from the ED to another medical facility. Of hospitalized patients, 85% were males. The highest proportion of hospitalizations (35%) were the result of fractures and dislocations.

Reported by: Div of Safety Research, National Institute for Occupational Safety and Health, CDC.

Editorial Note: The findings in this report indicate that the number and distribution of work-related injuries/illnesses treated in an ED and the injury/illness rates, overall and by sex, were approximately equal for 1996 and 1998. These trends continue to be

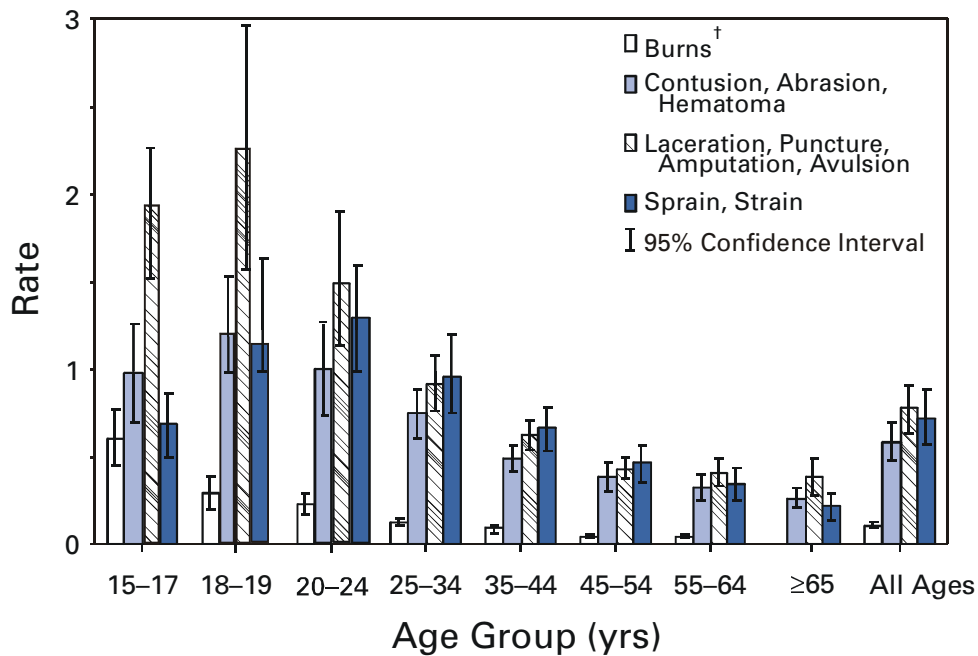
Nonfatal Occupational Injuries — Continued

FIGURE 1. Estimated rates* of nonfatal occupational injuries and illnesses treated in hospital emergency departments, by sex and age group of worker — United States, 1998



*Per 100 full-time equivalents.

FIGURE 2. Estimated rates* of nonfatal occupational injuries and illnesses treated in hospital emergency departments, by selected diagnoses and age group of worker — United States, 1998



*Per 100 full-time equivalents.

† The rate of burns to workers aged ≥65 years did not meet minimum reporting requirements.

Nonfatal Occupational Injuries — Continued

consistent with general patterns observed in the earliest NEISS-based national estimates of ED-treated nonfatal work-related injuries/illnesses reported for 1982 (4).

The 1996 NEISS injury estimates were based on a hospital sampling frame that used the 1985 listing of U.S. hospitals. Because of the 1997 sampling frame update and changes in procedures for correcting hospital underreporting, the previously reported estimate for 1996 of 3.3 million injuries (1) is now crudely estimated to be approximately 4% lower (3.2 million) (NIOSH and the Consumer Product Safety Commission, unpublished data, 2000). Proportional distributions for 1996 are influenced minimally by the sampling and weighting factors and are more directly comparable to 1998 estimates.

The Bureau of Labor Statistics (BLS) reported approximately 5.9 million nonfatal occupational injuries and illnesses in 1998, with an incidence rate of 6.7 injuries/illnesses per 100 FTE workers for private industry (5). BLS excludes the self-employed, small farms, and government employees, restrictions that do not apply to the NEISS work-related injury estimates. However, NEISS estimates are restricted to ED-treated injuries and illnesses; BLS includes workplace injuries and illnesses treated in any health-care venue. If 1998 patterns of medical treatment are similar to those determined from the 1988 National Health Interview Survey (NHIS) Occupational Supplement (1), then the 3.6 million ED-treated injuries/illnesses in NEISS represent approximately one third (34%; 95% CI=±5%[†]) of all U.S. work-related injuries/illnesses that required medical treatment or resulted in lost work time of more than 1 day in 1998. By crude extrapolation, approximately 10 million occupational injuries and illnesses in 1998 is probably a more comprehensive figure for the overall injury/illness burden of U.S. workers.

Workers aged 15–17 years had an injury/illness rate of 4.9 per 100 FTE in 1998. Most of these injuries in younger workers were probably related to the high proportion of youth working in services and retail trades, particularly eating establishments (6,7). Teenagers are at particularly high risk for injuries because they frequently lack substantial work experience, safety training, and appreciation for their workplace injury risk. One of the national health objectives for 2010 is to reduce the adolescent occupational injury rate to no more than 3.4 per 100 FTE workers aged 16–17 years (objective 20-2h) (8). Effective strategies to address workplace safety issues for youth, such as those developed in community-based young worker projects in California and Massachusetts (9), must be implemented to meet the objective.

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[†] Percentage of the 3.1 million occupational injuries estimated for 1988 that received initial medical treatment in an ED. The 2000 NHIS is expected to provide a more up-to-date estimate of ED use for occupational injuries and may indicate that use of different medical venues has changed substantially since the 1988 survey.

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Fatal Occupational Injuries — United States, 1980–1997

CDC monitors deaths from occupational injuries through the National Traumatic Occupational Fatalities (NTOF) surveillance system (1,2). This report provides an overview of traumatic occupational deaths among civilian workers from NTOF from 1980 through 1997, the most recent year for which data are available. The data presented in this report indicate a decrease in occupational deaths over this period with mining, agriculture/forestry/fishing, and construction having the highest death rates; motor-vehicle crashes were the leading cause of injury-related deaths for U.S. workers. State health departments and others involved in prevention of occupational injuries can use the data to prioritize intervention programs.

NTOF contains information obtained from death certificates from the vital statistics reporting units in the 50 states, New York City, and the District of Columbia (1).^{*} Crude death rates per 100,000 workers were calculated as the number of deaths among civilian workers for each year divided by the number of employed civilians for each year. Employment estimates for rate calculations were obtained from the Bureau of Labor Statistics' (BLS) Current Population Survey (CPS), a population-based, household-sample survey of the civilian, noninstitutionalized population. These data were extracted from the BLS *Employment and Earnings*[†] and the CPS monthly microdata files (3). Employment data used for rate calculations were based on the number of workers.

National Estimates

During 1980–1997, 103,945 civilian workers died in the United States from occupational injuries, an average of 16 work-related deaths per day. The annual number of traumatic occupational deaths declined 28%, from 7343 in 1980 to 5285 in 1997. The rate for occupational injury deaths for all workers decreased 45%, from 7.4 per 100,000 workers in 1980 to 4.1 in 1997.

Males accounted for 93% of all deaths, with a death rate approximately 11 times that of females (Table 1). Although 85% of civilian workers who died were white, blacks had a higher fatality rate (5.6 per 100,000 workers) than whites (5.0). Workers aged 25–34 years accounted for the largest number of occupational injury deaths, and workers aged ≥65 years had the highest age-specific death rate (Table 1).

^{*}Inclusion criteria for death certificate submission to the NTOF database include 1) age ≥16 years; 2) external cause of death (*International Classification of Diseases, Ninth Revision*, codes E800–E999); and 3) "Injury at Work?" item marked positive by the certifier.

[†]Employment estimates were based on household data annual averages from the BLS monthly publications of the *Employment and Earnings*. These estimates are extracted from each of the January issues for 1980–1997.

*Fatal Occupational Injuries — Continued***TABLE 1. Number and rate* of traumatic occupational deaths, by sex, race, and age group — United States, 1980–1997**

Characteristic	No.	(%)	Rate
Sex			
Male	97,053	(93)	8.6
Female	6,886	(7)	0.8
Unknown	6	(<1)	—
Race			
White	88,392	(85)	5.0
Black	11,478	(11)	5.6
Other	3,167	(3)	4.8
Unknown	908	(1)	—
Age group (yrs)			
16–17	969	(1)	2.1
18–19	2,714	(3)	3.8
20–24	10,791	(10)	4.5
25–34	26,390	(25)	4.7
35–44	22,881	(22)	4.5
45–54	18,213	(18)	5.2
55–64	14,108	(14)	6.9
≥65	7,779	(7)	13.3
Unknown	100	(<1)	—
Total	103,945	(100)	5.1

*Per 100,000 workers. Rates not calculated for “unknown” or “not classified” categories.

Since 1980, motor-vehicle crashes accounted for 24% of deaths and were the leading cause of injury-related death for U.S. workers. In 1990, homicides became the second leading cause of occupational injury deaths (14%), surpassing machine-related deaths (13%). Deaths caused by falls and electrocutions accounted for 10% and 7% of work-related deaths, respectively.

The industries in which the largest numbers of deaths occurred were construction (19,179 deaths [19% of reported deaths]), transportation/communications/public utilities (17,489 [17%]), and manufacturing (15,490 [15%]). Industries with the highest death rates were mining (30 per 100,000 workers), agriculture/forestry/fishing (19), and construction (15).

The risk for specific causes of death varied by industry. Machinery was the leading cause of death in agriculture/forestry/fishing, mining, and manufacturing. Falls were the most prevalent in construction, followed by motor-vehicle crashes, and machinery. Motor-vehicle crashes were the leading cause of death in transportation/communications/public utilities, wholesale trade, and public administration. Homicide was the leading cause of death in retail trade, finance/insurance/real estate, and services.

The occupation categories in which the largest number of deaths occurred were precision production/craft/repairers (21,412 deaths [21%]), transportation/material movers (18,251 [18%]), and farmers/foresters/fishers (13,597 [13%]). Occupation categories with the highest death rates were farmers/foresters/fishers (21.4 per 100,000 workers), transportation/material movers (21.3), and handlers/equipment cleaners/helpers/laborers (13.4).

State Estimates

The greatest number of fatal occupational injuries occurred in California (10,712 deaths [10%]), Texas (10,294 [10%]), Florida (6,269 [6%]), Illinois (4,582 [4%]), and Pennsylvania

Fatal Occupational Injuries — Continued

(4,402 [4%]). Fatal occupational injury rates were highest in Alaska (22.7 per 100,000 workers), Wyoming (15.8), Montana (11.8), Idaho (10.4), and West Virginia (10.1). The leading causes of death varied for each of these five states. For example, water transport accounted for the most deaths in Alaska (33%), compared with approximately 2% for the United States, and air transport was the second or third leading cause of death in four of the five states, compared with being the seventh overall cause of death nationally.

Reported by: Div of Safety Research, National Institute for Occupational Safety and Health, CDC.

Editorial Note: The findings in this report indicate a general decrease during 1980–1997 in the annual number of deaths and the annual rates of occupational deaths in the United States. In addition, the leading causes of death have changed through the 1990s. Although surveillance data cannot identify reasons for these temporal trends, changes in the workplace (e.g., increased and better targeted regulations, improved hazard awareness, new technology, and mechanization) are possible factors (4). In addition, changes in the economy, the industrial mix, and the distribution of the workforce (4) and improvements in acute trauma care for injured workers may have contributed to these decreases.

NTOF is the only surveillance system with comprehensive fatal occupational injury data for the United States during the 1980s. NTOF provides data for examining temporal trends and analyzing data by cause of death and industry, both useful tools for identifying injury patterns and suggesting targets for interventions.

The findings in this report are subject to at least four limitations. First, only 67%–90% of all fatal occupational injuries can be identified using death certificates as the source of case identification (1). Second, standardized guidelines for coding the “Injury at Work?” item on the death certificates were introduced in 1992;⁵ as a result, earlier application of this item may have been inconsistently applied. Third, information derived solely from death certificates lacks the level of detail found in multisource databases, resulting in increased potential for misclassification. Finally, the rates presented in this report do not reflect the difference in exposure for groups that commonly work <40 hours per week (e.g., youth and older workers).

In 1992, BLS began collecting data on work-related deaths from all 50 states and the District of Columbia through the Census of Fatal Occupational Injuries (CFOI), a multi-source surveillance system that incorporates information from various sources, including death certificates, workers’ compensation reports, medical examiner and coroner reports, news media, motor-vehicle incident reports, information from other federal agencies, and follow-up questionnaires (5). CFOI uses multiple data sources and requires that work-relatedness be substantiated by at least two of these sources, leading to improvements in both case ascertainment and data accuracy. NTOF and CFOI identified similar patterns from 1992 through 1997, the years for which data collection for the two systems overlapped; however, NTOF identified 32,368 deaths, compared with 37,875 by CFOI (6).

One of the national health objectives for 2010 is to reduce the rate of work-related injury death to 3.2 per 100,000 workers (objective 20-1a) (7). Surveillance data, such as those gathered through NTOF and CFOI, provide the basis for strategies to prevent traumatic work-related deaths by profiling high-risk worker groups and leading causes of death. This information can be used to develop targeted injury-prevention efforts.

⁵ In 1992, national guidelines for completing the “Injury at Work?” item were developed and disseminated by the Association for Vital Records and Health Statistics (now the National Association for Public Health Statistics and Information Systems), NIOSH, the National Center for Health Statistics, and the National Center for Environmental Health (1).

Fatal Occupational Injuries — Continued

Additional information about NTOF is available from NIOSH, telephone (800) 356-4674 or (513) 533-8328; or at <http://www.cdc.gov/niosh/homepage.html>.

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Progress Toward Global Poliomyelitis Eradication, 2000

In 1988, the World Health Assembly resolved to eradicate poliomyelitis globally by 2000 (1). Substantial progress toward this goal has been reported from all six World Health Organization (WHO) regions*; 20 countries reported poliovirus transmission in December 2000 compared with 30 in 1999. WHO has prepared a global action plan that anticipates certification of polio eradication in 2005 (2). This report summarizes the status of the eradication effort and describes the remaining tasks to be completed to reach global polio eradication.

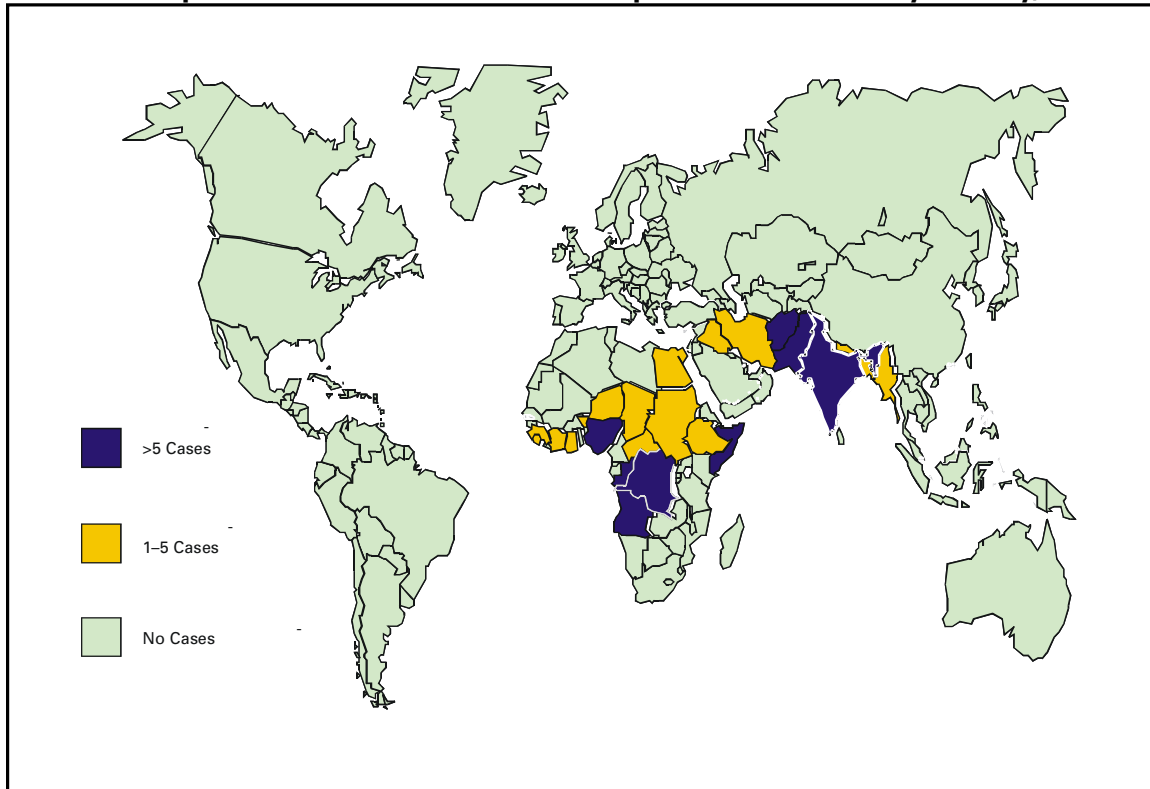
Among infants aged <12 months worldwide, 79% and 78% were vaccinated with three doses of oral poliovirus vaccine (OPV) in 1998 and 1999, respectively. Africa reported the lowest routine vaccination rates (51% in 1998 and 49% in 1999). Among most of the 20 countries where polio is endemic (Figure 1), routine vaccination was <50%.

Three activities supplement routine vaccination: national vaccination days (i.e., nationwide mass campaigns), subnational vaccination days (i.e., mass campaigns conducted in large areas of a country), and mopping-up (i.e., focal mass campaigns in high-risk areas). The supplemental rounds last several days to weeks and usually target children aged <5 years who are administered two OPV doses. Since 1999, countries where polio is endemic have increased the number and improved the quality of supplemental rounds; 10 priority countries held 50% more rounds in 2000 than in 1999, and an additional 10%–40% of children received OPV from health-care workers going house-to-house. During January 1999–May 2000, the number of countries where polio is endemic decreased from 30 to 24 (13 in Africa, seven in the Eastern Mediterranean, and four in the South-East Asia) (Figure 1). Transmission was detected in 20 countries during the second half of 2000.

Despite improved surveillance, the number of reported polio cases decreased by 60% from 7141 in 1999 to 2849 as of April 3, 2001 (Table 1). From 1999 to 2000, the global

*Africa, the Americas, Eastern Mediterranean, Europe, South-East Asia, and Western Pacific.

Global Poliomyelitis — Continued

FIGURE 1. Reported number of confirmed wild poliovirus cases — by country, 2000**TABLE 1. Performance indicators for acute flaccid paralysis (AFP) surveillance — by World Health Organization Regions, 1999–2001***

Region	1999				2000			
	No. reported AFP cases	Nonpolio AFP rate [†]	% AFP with adequate specimens [§]	Confirmed polio (wild virus)	No. reported AFP cases	Nonpolio AFP rate	% AFP with adequate specimens	Confirmed polio (wild virus)
Africa	5,011	0.8	31%	2,861 (246)	5,733	1.5	52%	1,763 (144)
Americas	1,861	1.1	80%	0 (0)	1,981	1.2	80%	12 (0)
Eastern Mediterranean	3,079	1.1	67%	914 (479)	3,242	1.4	70%	465 (261)
Europe	1,703	1.2	74%	0 (0)	1,680	1.2	80%	0 (0)
South-East Asia	11,916	1.6	71%	3,365 (1,161)	10,764	1.8	80%	609 (272)
Western Pacific	6,354	1.4	86%	1 (1)	7,100	1.5	87%	0 (0)
Total	29,924	1.3	67%	7,141 (1,887)	30,500	1.5	75%	2,849 (677)

* As of April 3, 2001.

[†] Per 100,000 children aged <15 years.[§] Two stool specimens collected at an interval of at least 24 hours within 14 days of paralysis onset and adequately shipped to the laboratory.

nonpolio acute flaccid paralysis (AFP) rate, an indicator of surveillance sensitivity, increased from 1.3 per 100,000 population to 1.5, and the proportion of persons with AFP with adequate stool specimens increased from 67% to 75%. Type 2 wild poliovirus has not been detected since October 1999 (3).

By late 2000, 128 (87%) of the 147 laboratories in the polio laboratory network had received WHO accreditation (i.e., attained a standardized quality level). The network

Global Poliomyelitis — Continued

processed 48,370 stool specimens in 1999 and approximately 50,000 in 2000 (3). To ensure consistent handling and results, all AFP specimens are processed in an accredited laboratory.

At the end of 2000, <33% of the world's population lived in countries where polio was endemic, compared with >80% in 1988. Polio-free status has been certified in two of the six WHO regions: the Americas in 1994 and the Western Pacific in 2000. No wild poliovirus has been found in Europe since the last case reported from southeastern Turkey in 1998. All countries in a region must be free of wild poliovirus for 3 years as part of the certification requirements.

During 2000–2001, an outbreak of vaccine-derived poliovirus was reported in the Americas: three laboratory-confirmed cases occurred in Haiti and 14 in the Dominican Republic (4,5). Infected persons were unvaccinated (n=six), inadequately vaccinated (n=five), adequately vaccinated (n=one), or their vaccination status was unknown (n=five). Genetic sequencing of the virus indicated that the outbreak was caused by vaccine-derived poliovirus type 1 that appeared to have acquired neurovirulence and transmission characteristics of wild poliovirus. The Dominican Republic and Haiti are completing three national vaccination rounds in 2001.

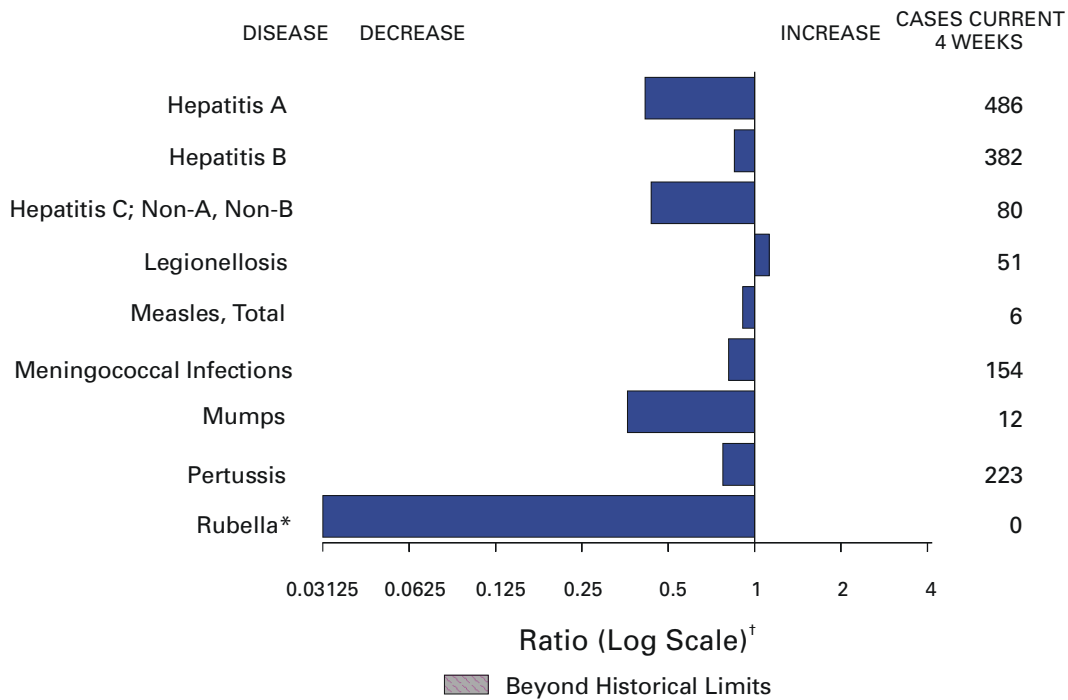
In Africa in 2000, wild poliovirus transmission was reported mostly in central Africa and the Horn of Africa. Nigeria, the Democratic Republic of Congo (DRC), and Angola represent the largest poliovirus reservoirs. Nigeria reported 637 cases of which 11 were laboratory-confirmed. These 11 cases occurred throughout Nigeria, indicating that transmission was widespread. Following a large polio outbreak in 1999, Angola continued to detect virus transmission. The poliovirus type 1 responsible for the outbreak in Cape Verde originated in Angola (6). A polio outbreak also was reported from Congo-Brazzaville (31 confirmed wild poliovirus cases). DRC reported 513 cases, with 24 confirmed wild poliovirus cases found throughout the country, including border areas. In Ethiopia, three of 144 reported cases were laboratory-confirmed; however, transmission probably was underestimated because of the low quality of surveillance. In West Africa, the regional nonpolio AFP rate was 1.3 per 100,000 in 2000 compared with 0.8 per 100,000 in 1999. The proportion of persons in Africa with AFP from which adequate stool samples were collected increased from 31% in 1999 to 52% in 2000. House-to-house and nationwide vaccination rounds were conducted during the fall of 2000 and early 2001.

In 2000, the Eastern Mediterranean reported 261 confirmed wild poliovirus cases. Wild poliovirus transmission remains widespread in Pakistan (173 cases) and Afghanistan (27 cases). Despite increasingly sensitive surveillance, Iraq has not detected wild poliovirus since January 2000. Sudan reported four confirmed wild poliovirus cases but surveillance is not sufficient to assess accurately the intensity of virus transmission. Improved surveillance in Somalia identified an outbreak of type 1 poliovirus (46 cases) in the Mogadishu area. During the first half of 2000, three confirmed wild poliovirus cases were reported from reservoirs in the governorates of Minya, Asyut, and Fayoum in upper Egypt. Wild poliovirus type 1 was detected in samples of sewage from Minya late in 2000; three confirmed wild poliovirus cases were reported in late 2000 and early 2001.

South-East Asia reported 272 confirmed wild poliovirus cases in 2000 compared with 1161 cases in 1999. This decrease was attributable mainly to a decrease in the number of confirmed wild poliovirus cases reported from India where 265 cases were reported in 2000 compared with 1126 in 1999. India maintained high-quality surveillance, with a nonpolio AFP rate of 2.0 and adequate stool specimens collected from 83% of persons

Continued on page 331

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals ending April 21, 2001, with historical data



* No rubella cases were reported for the current 4-week period yielding a ratio for week 16 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 of provisional cases of selected notifiable diseases, United States, cumulative, week ending April 21, 2001 (16th Week)

	Cum. 2001		Cum. 2001
Anthrax	-	Poliomyelitis, paralytic	-
Brucellosis*	17	Psittacosis*	4
Cholera	-	Q fever*	4
Cyclosporiasis*	33	Rabies, human	-
Diphtheria	-	Rocky Mountain spotted fever (RMSF)	32
Ehrlichiosis: human granulocytic (HGE)*	26	Rubella, congenital syndrome	-
human monocytic (HME)*	3	Streptococcal disease, invasive, group A	1,178
Encephalitis: California serogroup viral*	-	Streptococcal toxic-shock syndrome*	18
eastern equine*	-	Syphilis, congenital†	17
St. Louis*	-	Tetanus	4
western equine*	-	Toxic-shock syndrome	43
Hansen disease (leprosy)*	22	Trichinosis	5
Hantavirus pulmonary syndrome*†	3	Tularemia*	8
Hemolytic uremic syndrome, postdiarrheal*	18	Typhoid fever	53
HIV infection, pediatric*§	56	Yellow fever	-
Plague	-		

-: No reported cases.

*Not notifiable in all states.

† 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 March 27, 2001.

§ Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending April 21, 2001, and April 22, 2000 (16th Week)

Reporting Area	AIDS		Chlamydia [†]		Cryptosporidiosis		<i>Escherichia coli</i> O157:H7*			
	Cum. 2001 [‡]	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	NETSS		PHLIS	
							Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000
UNITED STATES	9,062	9,314	184,779	207,787	406	436	292	431	197	358
NEW ENGLAND	317	652	6,382	7,010	14	26	33	39	32	38
Maine	3	11	356	398	1	3	4	3	4	3
N.H.	12	9	337	338	-	1	5	4	6	4
Vt.	10	-	185	179	5	8	1	1	-	2
Mass.	195	438	2,797	3,000	4	7	17	18	15	14
R.I.	35	20	890	698	2	2	-	-	2	-
Conn.	62	174	1,817	2,397	2	5	6	13	5	15
MID. ATLANTIC	1,805	2,341	15,702	20,070	44	90	27	57	15	54
Upstate N.Y.	82	102	N	N	21	22	22	51	10	38
N.Y. City	854	1,428	8,292	8,562	21	63	-	4	1	1
N.J.	503	479	1,334	4,062	1	1	5	2	4	7
Pa.	366	332	6,076	7,446	1	4	N	N	-	8
E.N. CENTRAL	668	850	24,663	36,233	127	88	60	84	26	28
Ohio	108	112	974	9,517	32	14	19	17	10	9
Ind.	65	75	4,629	4,030	15	5	11	10	2	10
Ill.	323	535	7,014	10,038	-	14	9	28	7	-
Mich.	137	99	9,169	7,604	32	11	14	12	-	4
Wis.	35	29	2,877	5,044	48	44	7	17	7	5
W.N. CENTRAL	168	164	9,625	11,544	18	24	25	63	22	68
Minn.	37	36	1,780	2,531	-	4	8	10	11	30
Iowa	18	13	1,239	1,197	9	5	4	12	2	7
Mo.	72	72	3,195	3,968	5	6	5	25	5	16
N. Dak.	1	-	297	285	-	1	-	2	1	4
S. Dak.	-	2	575	545	1	3	3	2	1	2
Nebr.	16	9	778	1,117	3	2	-	7	-	6
Kans.	24	32	1,761	1,901	-	3	5	5	2	3
S. ATLANTIC	3,019	2,488	40,326	37,945	88	57	34	34	14	29
Del.	54	44	932	899	1	1	-	-	-	-
Md.	247	267	4,021	3,716	20	5	1	6	-	1
D.C.	234	186	1,088	999	5	-	-	-	U	U
Va.	224	158	5,324	4,759	6	2	7	6	5	8
W. Va.	19	13	690	651	-	-	1	2	-	1
N.C.	140	101	6,520	6,098	11	6	16	8	5	2
S.C.	228	174	3,981	3,410	-	-	1	2	-	1
Ga.	272	293	8,199	7,418	27	32	2	3	2	8
Fla.	1,601	1,252	9,571	9,995	18	11	6	7	2	8
E.S. CENTRAL	506	343	14,547	15,822	11	14	11	24	8	21
Ky.	74	56	2,554	2,446	1	-	1	8	2	8
Tenn.	182	133	4,478	4,484	2	2	6	9	5	11
Ala.	118	100	4,068	5,162	4	7	4	1	-	-
Miss.	132	54	3,447	3,730	4	5	-	6	1	2
W.S. CENTRAL	862	757	29,553	31,144	7	19	20	26	22	41
Ark.	64	30	2,500	1,807	2	1	1	4	-	3
La.	270	124	5,240	5,676	3	2	-	1	9	8
Okla.	43	31	3,047	2,720	2	1	7	4	5	3
Tex.	485	572	18,766	20,941	-	15	12	17	8	27
MOUNTAIN	349	290	9,502	12,032	37	27	35	36	19	22
Mont.	5	5	553	400	3	1	3	8	-	-
Idaho	5	4	554	585	5	3	5	4	-	3
Wyo.	-	1	227	231	-	2	-	3	-	2
Colo.	69	62	852	3,450	12	8	16	14	10	6
N. Mex.	27	40	1,520	1,537	8	1	1	-	-	2
Ariz.	138	93	3,947	3,901	1	3	6	5	4	6
Utah	36	30	317	768	8	7	3	1	4	1
Nev.	69	55	1,532	1,160	-	2	1	1	1	2
PACIFIC	1,368	1,429	34,479	35,987	60	91	47	68	39	57
Wash.	155	141	4,248	4,017	N	U	10	11	8	24
Oreg.	52	35	363	2,043	2	2	6	10	6	13
Calif.	1,142	1,215	28,142	28,308	58	89	27	41	23	14
Alaska	7	5	744	778	-	-	-	1	-	1
Hawaii	12	33	982	841	-	-	4	5	2	5
Guam	7	13	-	-	-	-	N	N	U	U
P.R.	327	184	1,451	U	-	-	-	1	U	U
V.I.	1	11	53	-	-	-	-	-	U	U
Amer. Samoa	-	-	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	U	U	U	U	U	U	U	U

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

* Individual cases can be reported through both the National Electronic Telecommunications System for Surveillance (NETSS) and the Public Health Laboratory Information System (PHLIS).

[†] Chlamydia refers to genital infections caused by *C. trachomatis*. Totals reported to the Division of STD Prevention, NCHSTP.

[‡] Updated monthly from reports to the Division of HIV/AIDS Prevention — Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention. Last update March 27, 2001.

TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending April 21, 2001, and April 22, 2000 (16th Week)

Reporting Area	Gonorrhea		Hepatitis C; Non-A, Non-B		Legionellosis		Listeriosis	Lyme Disease	
	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2001	Cum. 2000
UNITED STATES	87,646	104,109	559	1,000	197	215	96	604	1,283
NEW ENGLAND	1,727	1,918	10	6	9	16	10	145	179
Maine	37	25	-	-	-	2	-	-	-
N.H.	37	26	-	-	3	2	-	42	18
Vt.	27	17	4	3	3	-	-	1	1
Mass.	848	764	6	3	2	9	6	19	70
R.I.	227	173	-	-	-	-	-	-	-
Conn.	551	913	-	-	1	3	4	83	90
MID. ATLANTIC	9,589	10,997	23	211	18	48	15	292	871
Upstate N.Y.	2,202	1,782	14	13	12	17	8	231	347
N.Y. City	3,558	3,599	-	-	3	5	3	-	33
N.J.	823	2,291	-	186	2	2	1	-	97
Pa.	3,006	3,325	9	12	1	24	3	61	394
E.N. CENTRAL	13,094	21,706	69	80	57	61	8	15	37
Ohio	717	5,271	5	1	32	26	1	15	4
Ind.	1,942	1,823	-	-	5	9	1	-	-
Ill.	4,352	7,091	3	9	-	6	-	-	1
Mich.	5,160	5,338	61	70	14	11	5	-	-
Wis.	923	2,183	-	-	6	9	1	U	32
W.N. CENTRAL	3,941	4,889	158	144	16	12	2	21	24
Minn.	527	968	-	1	1	1	-	14	11
Iowa	308	289	-	-	4	3	-	1	-
Mo.	2,008	2,398	154	136	8	6	1	4	7
N. Dak.	11	15	-	-	-	-	-	-	-
S. Dak.	65	77	-	-	-	1	-	-	-
Nebr.	248	366	2	2	2	-	-	1	1
Kans.	774	776	2	5	1	1	1	1	5
S. ATLANTIC	24,906	27,151	32	25	30	42	17	108	136
Del.	483	488	-	2	-	4	-	-	20
Md.	2,406	2,584	10	5	8	11	2	90	96
D.C.	971	694	-	-	1	-	-	7	-
Va.	2,759	3,330	-	1	4	3	2	7	8
W. Va.	154	183	4	3	N	N	1	1	4
N.C.	5,290	5,387	7	8	2	5	-	2	4
S.C.	2,957	2,951	2	-	1	2	1	-	-
Ga.	4,564	4,620	-	-	2	2	4	-	-
Fla.	5,322	6,914	9	6	12	15	7	1	4
E. S. CENTRAL	9,379	10,940	66	149	18	6	7	2	1
Ky.	1,006	994	3	15	6	4	1	2	-
Tenn.	2,927	3,353	19	29	8	1	3	-	1
Ala.	3,313	3,784	1	4	2	1	3	-	-
Miss.	2,133	2,809	43	101	2	-	-	-	-
W. S. CENTRAL	14,399	16,030	143	295	3	5	2	-	12
Ark.	1,583	908	3	3	-	-	1	-	-
La.	3,560	4,048	57	184	2	2	-	-	2
Okla.	1,430	1,191	2	1	1	1	-	-	-
Tex.	7,826	9,883	81	107	-	2	1	-	10
MOUNTAIN	3,025	3,146	24	32	16	13	11	1	-
Mont.	30	8	-	1	-	-	-	-	-
Idaho	27	26	1	-	-	1	-	-	-
Wyo.	16	20	3	1	1	-	-	-	-
Colo.	1,011	990	8	13	5	6	1	-	-
N. Mex.	272	328	8	4	1	1	3	-	-
Ariz.	1,061	1,278	1	10	6	2	2	-	-
Utah	33	90	-	-	1	3	1	-	-
Nev.	575	406	3	3	2	-	4	1	-
PACIFIC	7,586	7,332	34	58	30	12	24	20	23
Wash.	940	726	9	8	5	5	2	2	-
Oreg.	57	257	2	12	N	N	-	1	2
Calif.	6,316	6,143	23	38	25	7	22	17	21
Alaska	95	89	-	-	-	-	-	-	-
Hawaii	178	117	-	-	-	-	-	N	N
Guam	-	-	-	-	-	-	-	-	-
P.R.	364	150	-	1	2	-	-	N	N
V.I.	6	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	-	U	U
C.N.M.I.	U	U	U	U	U	U	-	U	U

N: Not notifiable.

U: Unavailable.

-: No reported cases.

TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending April 21, 2001, and April 22, 2000 (16th Week)

Reporting Area	Malaria		Rabies, Animal		Salmonellosis*			
	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	NETSS		PHLIS	
					Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000
UNITED STATES	235	281	1,353	1,751	6,138	7,571	5,045	6,980
NEW ENGLAND	21	10	163	195	497	470	482	496
Maine	1	1	20	48	48	36	36	23
N.H.	2	-	5	3	40	25	34	34
Vt.	-	1	27	13	20	36	22	42
Mass.	6	6	47	59	297	271	252	264
R.I.	-	-	17	17	23	18	35	36
Conn.	12	2	47	55	69	84	103	97
MID. ATLANTIC	38	54	210	281	532	1,138	742	1,260
Upstate N.Y.	11	16	166	198	209	241	122	322
N.Y. City	18	25	3	3	212	337	266	333
N.J.	6	6	40	41	69	311	143	241
Pa.	3	7	1	39	42	249	211	364
E.N. CENTRAL	26	36	8	15	899	1,139	737	634
Ohio	5	3	1	2	347	254	274	221
Ind.	8	2	1	-	79	115	75	133
Ill.	-	20	-	-	219	401	179	1
Mich.	13	9	6	7	173	178	143	199
Wis.	-	2	-	6	81	191	66	80
W.N. CENTRAL	7	16	94	143	365	357	396	490
Minn.	1	4	15	24	71	37	142	144
Iowa	1	1	17	20	66	47	53	51
Mo.	2	2	6	5	115	124	137	157
N. Dak.	-	-	16	26	1	4	11	19
S. Dak.	-	-	13	37	25	20	12	27
Nebr.	1	3	-	-	32	53	-	40
Kans.	2	6	27	31	55	72	41	52
S. ATLANTIC	66	62	587	614	1,617	1,264	1,053	1,076
Del.	1	1	10	10	24	18	23	28
Md.	27	25	91	129	166	194	170	196
D.C.	4	-	-	-	22	-	U	U
Va.	13	16	110	141	261	146	217	157
W. Va.	-	-	43	35	13	38	18	27
N.C.	1	7	166	152	294	201	160	160
S.C.	3	-	27	43	206	104	200	92
Ga.	3	1	77	67	220	218	219	321
Fla.	14	12	63	37	411	345	46	95
E.S. CENTRAL	8	10	44	62	365	377	177	292
Ky.	2	2	6	9	68	77	36	49
Tenn.	3	1	33	38	99	91	98	133
Ala.	3	6	5	15	145	122	31	93
Miss.	-	1	-	-	53	87	12	17
W.S. CENTRAL	4	4	86	313	436	724	389	471
Ark.	1	1	-	-	64	67	29	44
La.	1	3	-	-	83	81	132	86
Okla.	1	-	27	23	38	66	30	63
Tex.	1	-	59	290	251	510	198	278
MOUNTAIN	18	16	53	51	470	689	377	624
Mont.	2	1	9	13	16	23	-	-
Idaho	1	-	-	-	20	37	4	36
Wyo.	-	-	10	22	14	14	13	13
Colo.	9	8	-	-	139	220	120	201
N. Mex.	1	-	2	3	59	57	48	51
Ariz.	1	2	32	13	141	177	119	169
Utah	2	3	-	-	51	107	50	102
Nev.	2	2	-	-	30	54	23	52
PACIFIC	47	73	108	77	957	1,413	692	1,637
Wash.	1	4	-	-	104	88	144	168
Oreg.	2	17	-	-	21	95	65	116
Calif.	41	50	76	68	732	1,156	401	1,287
Alaska	1	-	32	9	12	19	-	18
Hawaii	2	2	-	-	88	55	82	48
Guam	-	-	-	-	-	-	U	U
P.R.	-	2	42	18	75	93	U	U
V.I.	-	-	-	-	-	-	U	U
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	U	U	U	U	U	U	U	U

N: Not notifiable. U: Unavailable. -: No reported cases.

* Individual cases can be reported through both the National Electronic Telecommunications System for Surveillance (NETSS) and the Public Health Laboratory Information System (PHLIS).

TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending April 21, 2001, and April 22, 2000 (16th Week)

Reporting Area	Shigellosis*				Syphilis (Primary & Secondary)		Tuberculosis	
	NETSS		PHLIS		Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000
	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000				
UNITED STATES	3,020	4,835	1,551	2,972	1,487	1,976	2,815	3,499
NEW ENGLAND	48	93	56	82	12	23	97	98
Maine	1	2	1	-	-	-	5	3
N.H.	1	1	1	3	-	-	6	2
Vt.	2	1	1	-	-	-	1	1
Mass.	34	68	35	53	8	19	54	58
R.I.	2	7	5	9	1	1	9	7
Conn.	8	14	13	17	3	3	22	27
MID. ATLANTIC	296	739	244	507	95	94	576	592
Upstate N.Y.	126	237	6	134	4	4	69	60
N.Y. City	100	385	124	240	67	43	309	348
N.J.	40	69	49	65	14	17	132	148
Pa.	30	48	65	68	10	30	66	36
E.N. CENTRAL	467	800	246	276	218	421	291	356
Ohio	145	48	73	39	27	22	47	69
Ind.	78	106	16	22	51	147	24	28
Ill.	124	296	84	2	40	144	159	203
Mich.	95	251	66	204	92	88	39	30
Wis.	25	99	7	9	8	20	22	26
W.N. CENTRAL	336	302	290	247	16	30	122	150
Minn.	105	43	160	78	7	3	65	51
Iowa	72	55	61	59	-	8	9	11
Mo.	76	161	53	88	6	15	30	60
N. Dak.	9	1	1	1	-	-	-	-
S. Dak.	21	1	1	-	-	-	4	8
Nebr.	24	22	-	11	-	2	14	3
Kans.	29	19	14	10	3	2	-	17
S. ATLANTIC	493	555	153	164	605	645	535	562
Del.	3	3	2	4	2	2	-	-
Md.	36	33	13	10	74	101	54	68
D.C.	18	-	U	U	12	19	13	-
Va.	35	24	19	26	48	40	53	64
W. Va.	4	2	6	2	-	1	9	13
N.C.	109	36	51	16	148	170	77	89
S.C.	32	5	17	7	86	68	19	22
Ga.	64	66	41	62	82	112	121	142
Fla.	192	386	4	37	153	132	189	164
E.S. CENTRAL	272	210	76	163	168	291	180	241
Ky.	99	39	30	26	12	30	21	25
Tenn.	28	108	23	126	95	181	43	92
Ala.	79	9	17	8	28	42	83	81
Miss.	66	54	6	3	33	38	33	43
W.S. CENTRAL	418	741	253	240	215	277	351	570
Ark.	167	66	65	21	15	30	42	43
La.	26	81	54	38	49	69	-	25
Okla.	6	11	2	8	27	52	34	30
Tex.	219	583	132	173	124	126	275	472
MOUNTAIN	205	289	131	173	56	58	80	143
Mont.	-	2	-	-	-	-	-	4
Idaho	6	24	-	17	-	-	4	2
Wyo.	-	1	-	2	-	1	-	-
Colo.	46	49	34	26	4	2	26	16
N. Mex.	40	27	28	17	4	6	5	19
Ariz.	85	112	48	48	39	47	23	57
Utah	12	20	13	24	6	-	5	8
Nev.	16	54	8	39	3	2	17	37
PACIFIC	485	1,106	102	1,120	102	137	583	787
Wash.	56	195	62	235	19	18	55	60
Oreg.	7	87	29	52	-	3	-	22
Calif.	409	806	-	822	80	116	474	649
Alaska	2	6	-	3	-	-	14	22
Hawaii	11	12	11	8	3	-	40	34
Guam	-	-	U	U	-	-	-	-
P.R.	7	14	U	U	96	52	38	21
V.I.	-	-	U	U	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	U	U	U	U	U	U	U	U

N: Not notifiable. U: Unavailable. -: No reported cases.

*Individual cases can be reported through both the National Electronic Telecommunications System for Surveillance (NETSS) and the Public Health Laboratory Information System (PHLIS).

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending April 21, 2001, and April 22, 2000 (16th Week)

Reporting Area	<i>H. influenzae</i> , Invasive		Hepatitis (Viral), By Type				Measles (Rubeola)					
	Cum. 2001 [†]	Cum. 2000	A		B		Indigenous		Imported*		Total	
			Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	2001	Cum. 2001	2001	Cum. 2001	Cum. 2001	Cum. 2000
UNITED STATES	430	440	2,591	3,874	1,753	1,840	1	14	-	16	30	23
NEW ENGLAND	16	35	115	97	31	33	-	3	-	1	4	-
Maine	1	1	2	5	3	2	-	-	-	-	-	-
N.H.	-	6	5	8	7	6	-	-	-	-	-	-
Vt.	-	3	2	3	1	3	-	1	-	-	1	-
Mass.	15	20	37	39	2	1	-	2	-	1	3	-
R.I.	-	1	5	6	6	6	-	-	-	-	-	-
Conn.	-	4	64	36	12	15	-	-	-	-	-	-
MID. ATLANTIC	53	65	233	269	246	308	-	1	-	5	6	8
Upstate N.Y.	19	27	72	76	40	32	-	-	-	4	4	-
N.Y. City	21	21	100	138	143	173	-	-	-	-	-	8
N.J.	12	13	46	-	44	14	-	-	-	1	1	-
Pa.	1	4	15	55	19	89	-	1	-	-	1	-
E.N. CENTRAL	50	70	277	525	210	178	-	-	-	7	7	3
Ohio	26	22	81	112	37	33	-	-	-	2	2	2
Ind.	13	7	23	13	5	12	-	-	-	2	2	-
Ill.	4	26	59	222	20	3	-	-	-	3	3	-
Mich.	3	4	112	165	148	129	-	-	-	-	-	1
Wis.	4	11	2	13	-	1	-	-	-	-	-	-
W.N. CENTRAL	19	13	138	329	60	110	1	4	-	-	4	-
Minn.	8	7	9	36	7	7	1	2	-	-	2	-
Iowa	1	-	13	32	7	14	-	-	-	-	-	-
Mo.	8	5	40	205	32	72	-	2	-	-	2	-
N. Dak.	-	1	-	-	-	-	-	-	-	-	-	-
S. Dak.	-	-	1	-	1	-	-	-	-	-	-	-
Nebr.	2	-	18	12	6	13	-	-	-	-	-	-
Kans.	-	-	57	44	7	4	-	-	-	-	-	-
S. ATLANTIC	155	108	546	391	394	299	-	3	-	1	4	-
Del.	-	-	-	6	-	4	-	-	-	-	-	-
Md.	40	28	78	49	47	48	-	2	-	1	3	-
D.C.	-	-	15	-	3	-	-	-	-	-	-	-
Va.	9	20	44	49	42	42	-	-	-	-	-	-
W. Va.	4	3	2	34	6	2	-	-	-	-	-	-
N.C.	20	8	34	65	85	81	-	-	-	-	-	-
S.C.	4	5	20	13	5	2	-	-	-	-	-	-
Ga.	34	30	184	52	95	45	-	1	-	-	1	-
Fla.	44	14	169	123	111	75	-	-	-	-	-	-
E.S. CENTRAL	27	19	85	175	99	129	-	-	-	-	-	-
Ky.	1	9	10	18	11	24	-	-	-	-	-	-
Tenn.	13	7	41	58	39	56	-	-	-	-	-	-
Ala.	12	3	30	23	28	10	-	-	-	-	-	-
Miss.	1	-	4	76	21	39	U	-	U	-	-	-
W.S. CENTRAL	14	25	335	724	217	206	-	1	-	-	1	-
Ark.	-	-	18	55	29	28	-	-	-	-	-	-
La.	2	8	26	29	14	51	-	-	-	-	-	-
Okla.	12	17	55	109	25	27	-	-	-	-	-	-
Tex.	-	-	236	531	149	100	-	1	-	-	1	-
MOUNTAIN	74	52	249	288	166	149	-	-	-	1	1	6
Mont.	-	-	4	1	1	3	-	-	-	-	-	-
Idaho	1	2	27	11	4	4	-	-	-	1	1	-
Wyo.	-	-	1	3	-	-	-	-	-	-	-	-
Colo.	16	11	29	57	36	31	-	-	-	-	-	1
N. Mex.	10	11	8	31	43	47	-	-	-	-	-	-
Ariz.	38	22	123	146	61	48	-	-	-	-	-	-
Utah	2	4	24	18	6	4	-	-	-	-	-	3
Nev.	7	2	33	21	15	12	-	-	-	-	-	2
PACIFIC	22	53	613	1,076	330	428	-	2	-	1	3	6
Wash.	1	3	24	72	28	17	-	-	-	-	-	3
Oreg.	2	16	19	77	6	35	-	1	-	-	1	-
Calif.	5	20	558	916	286	368	-	1	-	1	2	3
Alaska	1	1	11	4	4	2	-	-	-	-	-	-
Hawaii	13	13	1	7	6	6	-	-	-	-	-	-
Guam	-	-	-	-	-	-	U	-	U	-	-	-
P.R.	-	2	28	110	15	75	U	-	U	-	-	-
V.I.	-	-	-	-	-	-	U	-	U	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	U	U	U	U	U	U	U	U	U	U	U	U

N: Not notifiable. U: Unavailable. -: No reported cases.

*For imported measles, cases include only those resulting from importation from other countries.

[†] Of 85 cases among children aged <5 years, serotype was reported for 41, and of those, 8 were type b.

TABLE III. (Cont'd) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending April 21, 2001, and April 22, 2000 (16th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 2001	Cum. 2000	2001	Cum. 2001	Cum. 2000	2001	Cum. 2001	Cum. 2000	2001	Cum. 2001	Cum. 2000
UNITED STATES	877	843	6	49	143	103	1,447	1,545	-	3	27
NEW ENGLAND	59	49	-	-	2	1	217	415	-	-	6
Maine	-	3	-	-	-	-	-	9	-	-	-
N.H.	5	3	-	-	-	-	16	49	-	-	1
Vt.	4	2	-	-	-	-	22	77	-	-	-
Mass.	35	31	-	-	-	-	172	261	-	-	4
R.I.	1	3	-	-	1	-	-	6	-	-	-
Conn.	14	7	-	-	1	1	7	13	-	-	1
MID. ATLANTIC	69	81	-	1	10	2	89	141	-	1	5
Upstate N.Y.	29	15	-	-	5	2	73	70	-	1	2
N.Y. City	17	23	-	1	3	-	6	29	-	-	3
N.J.	21	20	-	-	-	-	2	-	-	-	-
Pa.	2	23	-	-	2	-	8	42	-	-	-
E.N. CENTRAL	108	146	2	6	17	4	166	216	-	1	-
Ohio	40	25	-	1	6	-	112	131	-	-	-
Ind.	17	17	-	-	-	2	7	12	-	-	-
Ill.	18	40	2	5	4	2	14	18	-	1	-
Mich.	21	47	-	-	6	-	15	12	-	-	-
Wis.	12	17	-	-	1	-	18	43	-	-	-
W.N. CENTRAL	58	52	1	5	7	19	66	46	-	-	1
Minn.	7	3	1	1	-	17	17	21	-	-	-
Iowa	15	12	-	-	4	-	5	8	-	-	-
Mo.	21	27	-	-	1	-	29	7	-	-	-
N. Dak.	2	1	-	-	-	-	-	1	-	-	-
S. Dak.	2	4	-	-	-	1	3	1	-	-	-
Nebr.	2	3	-	-	1	1	2	2	-	-	1
Kans.	9	2	-	4	1	-	10	6	-	-	-
S. ATLANTIC	170	121	1	6	18	8	68	110	-	1	3
Del.	-	-	-	-	-	-	-	1	-	-	-
Md.	22	12	1	3	5	1	11	34	-	-	-
D.C.	-	-	-	-	-	-	1	-	-	-	-
Va.	19	19	-	2	4	-	8	10	-	-	-
W. Va.	4	3	-	-	-	-	1	-	-	-	-
N.C.	39	24	-	-	2	1	24	28	-	-	-
S.C.	15	9	-	1	6	5	13	15	-	-	2
Ga.	23	22	-	-	-	-	2	12	-	1	-
Fla.	48	32	-	-	1	1	8	10	-	-	1
E.S. CENTRAL	59	55	-	-	4	-	29	35	-	-	4
Ky.	10	11	-	-	-	-	6	23	-	-	1
Tenn.	21	23	-	-	2	-	16	3	-	-	-
Ala.	24	16	-	-	1	-	4	8	-	-	3
Miss.	4	5	U	-	1	U	3	1	U	-	-
W.S. CENTRAL	127	95	-	6	14	1	25	30	-	-	3
Ark.	10	5	-	1	1	1	3	6	-	-	-
La.	44	27	-	2	3	-	1	3	-	-	-
Okla.	14	17	-	-	-	-	1	-	-	-	-
Tex.	59	46	-	3	10	-	20	21	-	-	3
MOUNTAIN	50	50	-	5	8	67	692	269	-	-	-
Mont.	-	1	-	-	1	-	5	1	-	-	-
Idaho	4	6	-	-	-	2	159	35	-	-	-
Wyo.	-	-	-	1	-	-	-	-	-	-	-
Colo.	20	13	-	2	1	1	135	167	-	-	-
N. Mex.	8	7	-	2	1	2	42	38	-	-	-
Ariz.	9	16	-	-	-	62	337	20	-	-	-
Utah	5	5	-	-	3	-	9	5	-	-	-
Nev.	4	2	-	-	2	-	5	3	-	-	-
PACIFIC	177	194	2	20	63	1	95	283	-	-	5
Wash.	33	14	-	-	1	-	29	76	-	-	4
Oreg.	9	24	N	N	N	1	4	26	-	-	-
Calif.	128	149	2	16	55	-	58	167	-	-	1
Alaska	1	2	-	1	2	-	-	4	-	-	-
Hawaii	6	5	-	3	5	-	4	10	-	-	-
Guam	-	-	U	-	-	U	-	-	U	-	-
P.R.	1	4	U	-	-	U	-	-	U	-	-
V.I.	-	-	U	-	-	U	-	-	U	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	U	U	U	U	U	U	U	U	U	U	U

N: Not notifiable.

U: Unavailable.

- : No reported cases.

**TABLE IV. Deaths in 122 U.S. cities,* week ending
April 21, 2001 (16th Week)**

Reporting Area	All Causes, By Age (Years)						P&I [†] Total	Reporting Area	All Causes, By Age (Years)						P&I [†] Total
	All Ages	≥65	45-64	25-44	1-24	<1			All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	641	466	115	42	5	13	77	S. ATLANTIC	1,145	748	230	99	35	28	73
Boston, Mass.	165	116	36	7	1	5	12	Atlanta, Ga.	141	94	27	15	2	3	-
Bridgeport, Conn.	41	27	8	4	-	2	3	Baltimore, Md.	167	98	42	22	5	-	11
Cambridge, Mass.	17	15	1	1	-	-	-	Charlotte, N.C.	111	65	26	10	6	4	9
Fall River, Mass.	34	28	3	3	-	-	4	Jacksonville, Fla.	158	108	33	7	4	6	8
Hartford, Conn.	66	41	15	7	2	1	3	Miami, Fla.	U	U	U	U	U	U	U
Lowell, Mass.	18	15	2	1	-	-	2	Norfolk, Va.	42	29	7	3	1	2	2
Lynn, Mass.	13	10	3	-	-	-	4	Richmond, Va.	88	55	22	9	1	1	13
New Bedford, Mass.	22	18	2	2	-	-	1	Savannah, Ga.	97	67	15	4	10	1	12
New Haven, Conn.	48	35	8	3	-	2	12	St. Petersburg, Fla.	79	59	10	7	3	-	-
Providence, R.I.	50	39	8	3	-	-	9	Tampa, Fla.	209	147	35	18	3	5	18
Somerville, Mass.	1	1	-	-	-	-	-	Washington, D.C.	53	26	13	4	-	6	-
Springfield, Mass.	58	38	15	2	2	1	8	Wilmington, Del.	U	U	U	U	U	U	U
Waterbury, Conn.	36	23	7	6	-	-	7	E. S. CENTRAL	844	579	170	58	19	17	71
Worcester, Mass.	72	60	7	3	-	2	12	Birmingham, Ala.	163	109	34	13	4	2	18
MID. ATLANTIC	2,257	1,566	465	140	42	43	146	Chattanooga, Tenn.	95	63	20	5	2	5	11
Albany, N.Y.	49	34	8	5	-	2	7	Knoxville, Tenn.	124	91	22	7	2	2	5
Allentown, Pa.	24	21	3	-	-	-	2	Lexington, Ky.	69	47	16	2	4	-	7
Buffalo, N.Y.	85	61	18	1	2	3	8	Memphis, Tenn.	145	101	27	10	5	2	11
Camden, N.J.	42	25	13	2	1	1	3	Mobile, Ala.	68	54	5	7	1	1	4
Elizabeth, N.J.	24	16	6	-	-	2	-	Montgomery, Ala.	33	23	7	3	-	-	5
Erie, Pa.‡	35	24	10	-	-	1	1	Nashville, Tenn.	147	91	39	11	1	5	10
Jersey City, N.J.	47	35	8	3	1	-	-	W. S. CENTRAL	1,443	985	275	102	43	38	90
New York City, N.Y.	1,119	793	215	72	18	20	65	Austin, Tex.	124	91	20	7	3	3	11
Newark, N.J.	U	U	U	U	U	U	U	Baton Rouge, La.	6	2	2	-	2	-	-
Paterson, N.J.	39	26	6	3	2	2	1	Corpus Christi, Tex.	49	35	10	1	2	1	3
Philadelphia, Pa.	390	233	113	30	9	5	15	Dallas, Tex.	230	151	49	18	5	7	18
Pittsburgh, Pa.‡	33	23	4	3	1	2	3	El Paso, Tex.	169	122	31	7	4	5	7
Reading, Pa.	26	19	7	-	-	-	5	Ft. Worth, Tex.	98	60	25	7	3	3	4
Rochester, N.Y.	153	112	23	14	3	1	12	Houston, Tex.	326	212	59	32	13	10	21
Schenectady, N.Y.	20	17	3	-	-	-	3	Little Rock, Ark.	65	44	8	8	2	3	5
Scranton, Pa.‡	23	19	3	-	1	-	1	New Orleans, La.	U	U	U	U	U	U	U
Syracuse, N.Y.	95	70	15	4	3	3	13	San Antonio, Tex.	235	165	46	16	5	3	9
Trenton, N.J.	26	17	6	2	-	1	4	Shreveport, La.	16	8	3	1	2	2	2
Utica, N.Y.	27	21	4	1	1	-	3	Tulsa, Okla.	125	95	22	5	2	1	10
Yonkers, N.Y.	U	U	U	U	U	U	U	MOUNTAIN	926	617	217	55	23	13	77
E. N. CENTRAL	1,795	1,245	360	113	39	38	120	Albuquerque, N.M.	134	93	29	8	4	-	12
Akron, Ohio	58	37	12	6	-	3	1	Boise, Idaho	33	28	5	-	-	-	6
Canton, Ohio	52	41	5	3	2	1	4	Colo. Springs, Colo.	62	44	12	3	2	1	7
Chicago, Ill.	U	U	U	U	U	U	U	Denver, Colo.	109	68	24	10	3	4	5
Cincinnati, Ohio	110	71	26	8	5	2	10	Las Vegas, Nev.	276	184	62	18	8	3	16
Cleveland, Ohio	177	110	41	15	4	7	10	Ogden, Utah	25	17	7	-	1	-	-
Columbus, Ohio	197	137	35	15	7	3	16	Phoenix, Ariz.	U	U	U	U	U	U	U
Dayton, Ohio	108	74	22	8	1	3	10	Pueblo, Colo.	25	19	4	1	1	-	3
Detroit, Mich.	203	115	57	19	7	5	12	Salt Lake City, Utah	109	63	32	8	3	3	19
Evansville, Ind.	50	37	10	1	1	1	5	Tucson, Ariz.	153	101	42	7	1	2	9
Fort Wayne, Ind.	79	58	14	4	1	2	3	PACIFIC	1,905	1,431	309	111	25	29	162
Gary, Ind.	16	12	4	-	-	-	-	Berkeley, Calif.	10	4	5	1	-	-	-
Grand Rapids, Mich.	58	41	11	3	1	2	4	Fresno, Calif.	120	91	20	6	2	1	7
Indianapolis, Ind.	174	137	25	8	2	2	14	Glendale, Calif.	27	23	3	1	-	-	4
Lansing, Mich.	58	48	6	4	-	-	6	Honolulu, Hawaii	68	50	13	3	1	1	6
Milwaukee, Wis.	157	110	36	7	3	1	22	Long Beach, Calif.	99	67	19	11	1	1	11
Peoria, Ill.	56	41	13	1	-	1	4	Los Angeles, Calif.	573	432	89	36	9	7	41
Rockford, Ill.	54	35	14	4	1	-	2	Pasadena, Calif.	25	22	1	2	-	-	4
South Bend, Ind.	47	37	8	2	-	-	3	Portland, Oreg.	52	38	8	5	-	1	6
Toledo, Ohio	90	66	13	2	3	6	3	Sacramento, Calif.	215	166	28	16	2	3	8
Youngstown, Ohio	51	38	8	3	1	1	2	San Diego, Calif.	168	121	24	12	-	11	21
W. N. CENTRAL	645	449	122	35	21	18	37	San Francisco, Calif.	U	U	U	U	U	U	U
Des Moines, Iowa	U	U	U	U	U	U	U	San Jose, Calif.	187	131	42	8	2	4	18
Duluth, Minn.	30	27	2	1	-	-	2	Santa Cruz, Calif.	41	34	6	1	-	-	4
Kansas City, Kans.	62	47	10	2	2	1	4	Seattle, Wash.	144	105	28	8	3	-	15
Kansas City, Mo.	103	73	20	6	3	1	5	Spokane, Wash.	57	45	11	-	1	-	7
Lincoln, Nebr.	U	U	U	U	U	U	U	Tacoma, Wash.	119	102	12	1	4	-	10
Minneapolis, Minn.	148	100	31	8	3	6	8	TOTAL	11,601 [§]	8,086	2,263	755	252	237	853
Omaha, Nebr.	120	73	21	12	10	4	4								
St. Louis, Mo.	U	U	U	U	U	U	U								
St. Paul, Minn.	80	62	15	3	-	-	4								
Wichita, Kans.	102	67	23	3	3	6	10								

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. 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.

Global Poliomyelitis — Continued

with AFP. Uttar Pradesh and Bihar in northern India remain the foci of poliovirus transmission along with a few scattered areas. During 2000, each campaign that targeted the ≥ 15 presumed virus reservoir outside northern India involved vaccinating approximately 1 million children aged < 5 years. Despite improved surveillance, one wild poliovirus-associated case was reported in Bangladesh near Dhaka. However, virus sequence information suggested that transmission may not have been detected earlier in 2000. Myanmar reported two confirmed wild poliovirus cases near the border with Bangladesh, and Nepal reported four cases from its border with Uttar Pradesh and Bihar, India.

Reported by: Vaccines and Biologicals Div, World Health Organization, Geneva, Switzerland. Enteric and Respiratory Viruses Br, Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases; Vaccine Preventable Disease Eradication Div, National Immunization Program, CDC.

Editorial Note: Progress toward interrupting wild poliovirus transmission, particularly in India, the largest country where polio is endemic, underscores the feasibility of eradication. The goal of interrupting transmission globally by the end of 2000 could not be achieved for several reasons, including delayed implementation of the polio eradication strategies in some regions, difficulties in accessing populations in war-torn countries, and slow progress toward raising the quality of both supplemental vaccination and surveillance.

During 2000, progress toward eradication included a 60% decline in reported cases globally within 1 year, the certification of the Western Pacific as polio-free, the acceleration of activities in Africa as indicated by the 16 West African countries conducting synchronized national campaigns in the fall of 2000, and the public commitment to a polio-free world by international leaders and polio partners at the polio summit at the United Nations in September 2000.

Challenges during 2000 included poliovirus importations from countries where polio is endemic to polio-free areas, which demonstrated the fragility of polio-free status and highlighted the importance of maintaining high polio vaccination coverage and certification-standard surveillance. The 17 deaths in Cape Verde associated with poliovirus imported from Angola underscore the severity of poliovirus infection even in areas that have been polio-free for years and the risk for transmission if population immunity is not maintained. On Hispaniola Island, the outbreak of vaccine-derived poliovirus would not have occurred had the population been vaccinated adequately; the outbreak confirms the need to maintain high vaccination coverage and sensitive AFP surveillance for early detection of and response to such outbreaks.

During 2001, the major objective of the eradication process is to continue vaccination activities in countries where polio is endemic, including war-torn areas. Success will depend on negotiated cease-fires during vaccination rounds, enhanced access to all children, and the continued support of external partners[†].

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[†] Includes polio-free countries and countries where polio is endemic, WHO, Rotary International, United Nations Children's Fund (UNICEF), CDC, other bilateral and multilateral partners, and private foundations.

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