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Trends in Infant Mortality Attributable to Birth Defects — United States, 1980–1995

Infant mortality has declined in the United States because of advances in public health and clinical medicine. Birth defects are the leading cause of infant mortality (*1*), but infant mortality attributable to birth defects (IMBD) has not declined as rapidly as overall infant mortality. From 1968 to 1995, the proportion of IMBD increased from 14.5% to 22.2% (*2,3*). To help focus efforts to reduce IMBD, CDC examined trends in IMBD, highlighting demographic, geographic, and defect-specific mortality rates. This report summarizes the results of this analysis, which indicate variation in rates for IMBD by sex, race/ethnicity, and state of residence.

The underlying cause-of-death for all infants (children aged <1 year) was obtained from U.S. public-use, multiple-cause mortality data tapes maintained by CDC. Birth defects in this study were classified according to the *International Classification of Diseases, Clinical Modification, Ninth Revision*, codes 740–759. The number of live births per year by the child's race and sex and mother's state of residence (including the District of Columbia) was determined from published natality statistics. The number of live births was 3,612,258 in 1980 and 3,899,589 in 1995 (*3*). Only births and deaths to U.S. residents were included in the analyses.

During 1980–1995, IMBD declined 34.2%, and overall infant mortality declined 39.8% (Table 1). The proportion of overall infant mortality caused by birth defects increased from 20% to 22%. Among females, the decrease in IMBD was greater and the rate of IMBD was lower than among males. Among whites and Asians/Pacific Islanders, the decreases in IMBD were greater than those among blacks and American Indians/ Alaskan Natives. As a result, by 1995, the gap between IMBD in whites and in both blacks and American Indians/Alaskan Natives increased.

The decline in IMBD varied by organ system (Table 2). Deaths associated with defects of the cardiovascular, central nervous, musculoskeletal, genitourinary, and digestive systems declined substantially. Deaths associated with trisomies 13 and 18, reduction defects of the brain, and defects of the respiratory system increased.

From 1980 to 1995, IMBD declined in every state and the District of Columbia; however, IMBD was consistently higher in the South and parts of the Midwest than in other regions (Figure 1). This geographic variation persisted when the analysis was restricted by race. Hawaii, Maryland, Oregon, and Vermont had the greatest decline in

Infant Mortality — Continued

TABLE 1. Rate* of infant mortality attributable to birth defects (IMBD) and percent change in IMBD and overall infant mortality, by sex and race/ethnicity — United States, 1980 and 1995

	IMBD			% Change in infant mortality
Characteristic	**1980**	**1995**	**% Change†**	
Sex				
Female	2.4	1.6	–35.4%	–39.2%
Male	2.7	1.8	–33.0%	–40.2%
Race/Ethnicity				
White	2.5	1.6	–35.1%	–42.1%
Black	2.7	2.0	–26.6%	–31.9%
Asian/Pacific Islander	2.1	1.2	–42.5%	–42.9%
American Indian/ Alaskan Native§	2.5	2.0	–20.1%	–43.2%
Hispanic¶	**	1.6††	**	**
Total	**2.6**	**1.7**	**–34.2%**	**–39.8%**

*Per 1000 live-born infants.
†Percent change was based on the exact rates rather than the rounded rates presented here.
§Two-year averages (1979–1980 and 1994–1995) are used because of small and unstable numbers in individual years.
¶The race groups white, black, American Indian/Alaskan Native, and Asian/Pacific Islander include persons of Hispanic origin, and persons of Hispanic origin may be of any race.
**Not calculated because only 22 states reported Hispanic origin on birth certificates in 1980.
††Includes only the 50 reporting areas with Hispanic origin both on the birth certificate and death certificate in 1995.

IMBD, moving from the highest category (2.7–3.2 per 1000 live-born infants) to the lowest (1.1–1.4).

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Editorial Note: The findings in this report document a large decline in IMBD but substantial variations in IMBD across populations and geographic areas. Efforts to reduce IMBD should focus on identifying reasons for these variations. The causes of most birth defects are unknown, and the causes of deaths from birth defects require further study.

Cardiovascular defects are the single largest contributor to IMBD. The largest specific cause of cardiovascular IMBD was hypoplastic left heart syndrome, the rate of which declined slightly during 1980–1995. Other important causes of cardiovascular IMBD (e.g., transposition of the great vessels and ventricular septal defect) declined substantially, probably because of improvements in treatment.

The second largest contributor to IMBD was central nervous system defects. The birth prevalence of these defects is affected by primary prevention (e.g., increased intake of folic acid initiated before conception), changes in prenatal diagnosis patterns, and the availability and use of pregnancy termination services following a prenatal diagnosis of a serious defect. These factors probably account for some of the decline in anencephalus and hydrocephalus. IMBD attributable to reduction defects of

Infant Mortality — Continued

TABLE 2. Rate* of infant mortality associated with birth defects, by specific organ systems — United States, 1980–1995

	1980	1995	% Change†
Cardiovascular defects	105.5	58.8	– 44.3%
Hypoplastic left heart syndrome	*14.3*	*13.6*	*– 4.7%*
Transposition of great vessels	*5.2*	*3.3*	*– 36.4%*
Ventricular septal defect	*4.6*	*1.8*	*– 60.7%*
Central nervous system defects	46.7	21.9	– 53.1%
Anencephalus	*21.8*	*8.9*	*– 59.5%*
Congenital hydrocephalus	*9.0*	*3.2*	*– 64.4%*
Reduction defects of brain	*1.3*	*3.2*	*+153.7%*
Chromosomal defects	18.1	23.0	+ 26.8%
Trisomy 18	*7.2*	*10.0*	*+ 39.0%*
Trisomy 13	*5.4*	*6.4*	*+ 18.6%*
Trisomy 21 (Down syndrome)	*3.4*	*2.3*	*– 33.7%*
Respiratory defects	17.8	25.2	+ 42.2%
Musculoskeletal defects	17.8	12.1	– 32.1%
Anomalies of diaphragm	*10.7*	*8.2*	*– 23.9%*
Anomalies of abdominal wall	*1.9*	*0.9*	*– 51.0%*
Osteodystrophies	*1.6*	*1.1*	*– 33.4%*
Genitourinary defects	12.5	10.0	– 20.5%
Renal agenesis/Dysgenesis/Hypoplasia	*8.8*	*7.6*	*– 13.5%*
Cystic kidney disease	*2.0*	*1.3*	*– 35.7%*
Digestive system defects	8.0	2.2	– 71.9%
Anomalies of gallbladder, bile ducts, and liver	*2.4*	*0.5*	*– 79.0%*
Tracheoesophageal fistula, esophageal atresia, and stenosis	*1.0*	*0.2*	*– 82.0%*
All other defects	28.7	14.9	– 48.2%
Total	**255.2**	**168.1**	**– 34.2%**

*Per 100,000 live-born infants.
†Percent change was based on the exact rates rather than the rounded rates presented here.

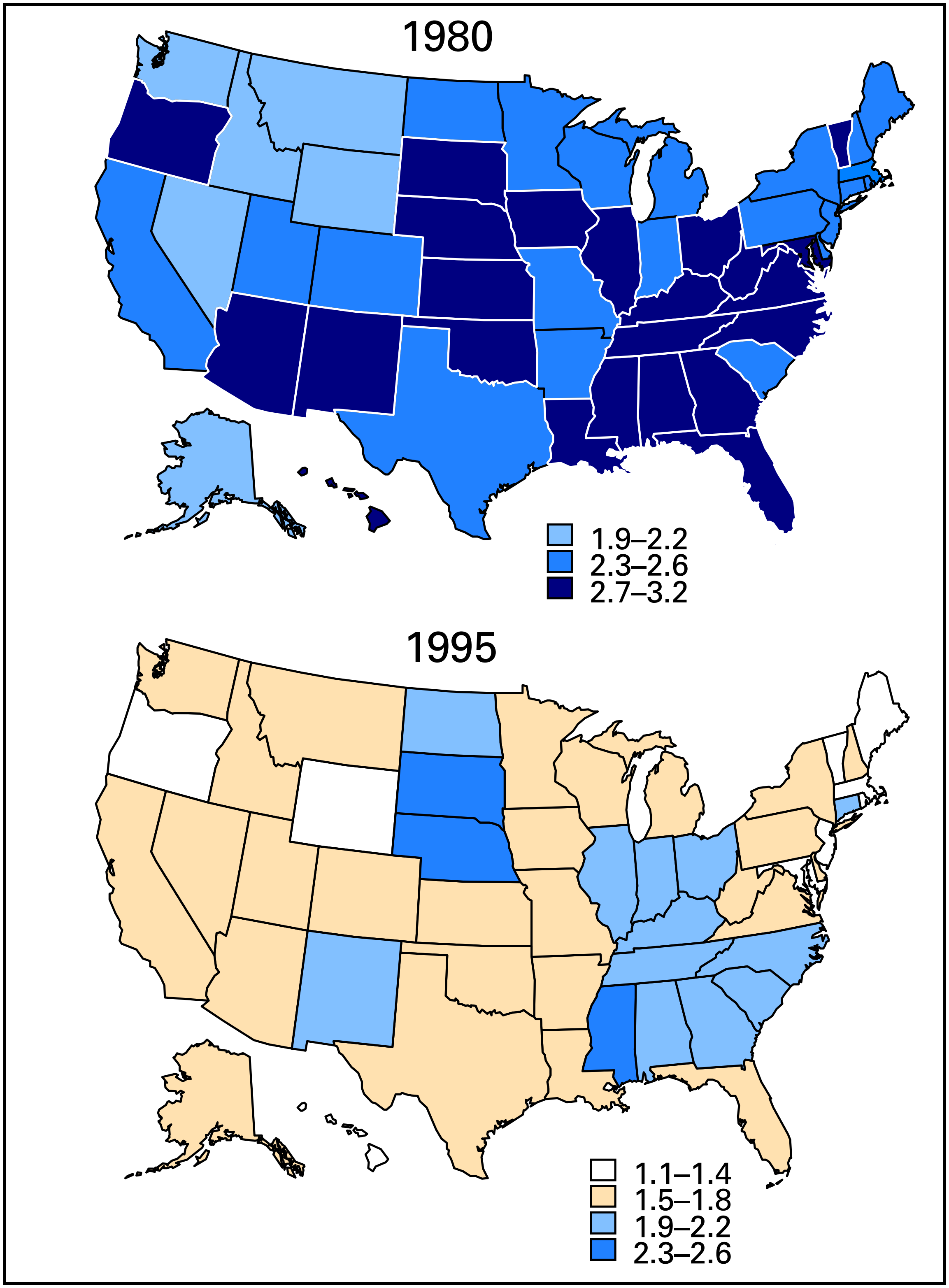
the brain has increased dramatically, most likely because of increasing use of sophisticated imaging techniques that make diagnosis of this defect more common.

The increase in IMBD attributable to chromosomal defects includes increases in both trisomies 13 and 18 and a decrease in trisomy 21. Increases in rates of trisomy 13 and 18 are probably a result of increased use of diagnostic karyotyping. In comparison, the decline in deaths attributed to trisomy 21 (Down syndrome) is probably related to improved treatment for the congenital heart defects that are the leading cause of deaths among these infants, and increased use of prenatal diagnosis. The increase in IMBD attributable to respiratory defects may be associated with an increasing use of the diagnostic code for lung agenesis/hypoplasia/dysplasia.

IMBD attributable to musculoskeletal and digestive system defects has declined dramatically, most likely because of advances in surgical treatments. In one children's

Infant Mortality — Continued

FIGURE 1. Rate* of infant mortality attributable to birth defects, by state and year — United States, 1980 and 1995



*Per 1000 live-born infants.

Infant Mortality — Continued

hospital, survival rates for infants with congenital diaphragmatic hernia improved from 42% during 1970–1983 to 79% during 1989–1997 (*4*). In Japan, esophageal atresia survival increased from an estimated 28% in the late 1950s and early 1960s to 80% since 1980 (*5*).

Previous studies have documented substantial racial differences in the incidence of birth defects and IMBD (*6,7*), although the magnitude of these differences vary by the method of assigning the child's race (*8*). Higher IMBD in some racial/ethnic populations may reflect reduced access to perinatal and other health care associated with disadvantaged socioeconomic status and other factors that may affect mortality trends. Males consistently have higher rates of IMBD than females, probably because of the higher incidence of many birth defects among males (*9*).

Poverty and access to health care also may affect geographic variations in IMBD. During 1995, 10 of the 12 states (83%) with IMBD ≥1.9 per 1000 live-born infants were above the U.S. median for percent of population in poverty (*10*). In comparison, only six states would have been above the median if there was no relation between poverty and IMBD.

The findings in this report are subject to at least two limitations. First, the reliability of data on IMBD is limited by the accuracy of demographic and cause-of-death data included on infant death certificates. In addition, changes in administrative and diagnostic practices also may affect the validity of the data.

The correlation between poverty and high IMBD suggests that access to health-care services also may be an important factor limiting declines in IMBD. Unlike the effect of race and sex, the effect of poverty on IMBD can be changed. Improving access to perinatal and other preventive and health-care services is a key factor in reducing IMBD and overall infant mortality.

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Infant Mortality — Continued

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Progress Toward Poliomyelitis Eradication — India, 1998

In 1988, the World Health Assembly resolved to eradicate poliomyelitis globally by 2000 (*1*). In 1995, India began to accelerate implementation of polio eradication strategies by conducting annual National Immunization Days (NIDs)* (*2,3*). In 1997, an active surveillance system for polio using acute flaccid paralysis (AFP) as a screening case definition was established. This report summarizes progress toward polio eradication, focusing on the implementation of supplemental vaccination activities and the establishment of sensitive surveillance. The findings suggest that NIDs in India have decreased previously widespread poliovirus circulation.

Since 1995, NIDs have been conducted biannually during a single day each in December and in January (the low season for poliovirus transmission). NIDs in 1995 targeted children aged <3 years (three birth cohorts); however, the 1996–97 and 1997–98 NIDs have targeted children aged <5 years (five birth cohorts). These NIDs reached >79 million children in 1995 and 134 million children in 1998 (Table 1). The Indian NIDs were synchronized with NIDs in other countries of south and east Asia, including Pakistan and China (*4–7*).

In India in 1997, routine coverage of children aged 12–23 months with three doses of oral poliovirus vaccine was previously estimated as 89% nationally. However, more precise estimates available from surveys indicated national coverage was 73%, ranging from 5% in Bihar to >95% in Maharashtra, Tamil Nadu, and several smaller states and union territories.

National surveillance for AFP began in April 1997 and was enhanced by the posting of 59 surveillance medical officers (SMOs) in October 1997. These officers provide training, technical assistance, and logistic support to each of the 556 districts of India. By July 1998, approximately 7500 health-care institutions had been enrolled in a

*Mass vaccination campaigns over a short period (usually days to weeks) in which two doses of oral poliovirus vaccine are administered to all children aged <5 years, regardless of previous vaccination history, with an interval of 4–6 weeks between doses.

TABLE 1. Number of children vaccinated and percentage of oral poliovirus vaccine coverage achieved during National Immunization Days (NIDs)* — India, 1995–1998

NIDs	Round (Date)	Target age group	No. vaccinated	Coverage with 2 doses†	Coverage with >1 dose†
1995–96	1 (December 9)	<3 years	79,300,000	85.5%	98.4%
	2 (January 20)		85,400,000		
1996–97	1 (December 7)	<5 years	117,400,000	93.3%	98.3%
	2 (January 18)		127,400,000		
1997–98	1 (December 7)	<5 years	127,000,000	92.1%	96.6%
	2 (January 18)		134,000,000		

*Mass vaccination campaigns over a short period (usually days to weeks) in which two doses of oral poliovirus vaccine are administered to all children aged <5 years, regardless of previous vaccination history, with an interval of 4–6 weeks between doses.
†Proportion of targeted children as estimated by survey.

Poliomyelitis Eradication — Continued

weekly reporting network, collecting epidemiologic and virologic information for each reported AFP case. Stool specimens collected from persons reported with AFP are forwarded to a network of nine World Health Organization (WHO)-accredited laboratories for poliovirus isolation studies; two of these laboratories also serve as reference laboratories for intratypic differentiation of poliovirus as wild or vaccine-derived strains.

From January through July 1998, the surveillance network reported 3950 AFP cases (Table 2). Of these, 3432 (87%) were investigated within 48 hours of reporting, and 2233 (57%) had two stool specimens collected for virus culture within 14 days of illness onset. Of 5890 stool specimens collected, 5710 (97%) arrived in the laboratory in good condition for virologic studies.†

The results of clinical follow-up and virus isolation studies are used to classify AFP cases as polio or nonpolio. As of September 10, 1998, 2032 (72%) of 2813 persons with AFP cases eligible for 60-day follow-up (those with onset of illness during January–June 1998) have been examined for residual paralysis: 867 (43%) had no residual paralysis, 867 (43%) had residual paralysis, 73 (4%) were lost to follow-up, and 225 (11%) died. The reported annualized nonpolio AFP rate for January–June 1998 was 0.83 cases per 100,000 children aged <15 years, excluding 21% of AFP cases pending classification (Table 2).

The number of reported polio cases decreased from 4729 in 1994 (before NIDs began) to 1005 in 1996, and increased to 2262 in 1997 (Figure 1). The increase in 1997 probably was due to improved surveillance and a large outbreak of polio in Uttar

† Good condition means that on arrival, 1) ice or frozen icepacks or a temperature indicator (showing <46 F [<8 C]) is in the container, 2) the specimen volume is adequate (>5 g), 3) no evidence of leakage or desiccation is present, and 4) appropriate documentation (laboratory request/reporting form) is completed.

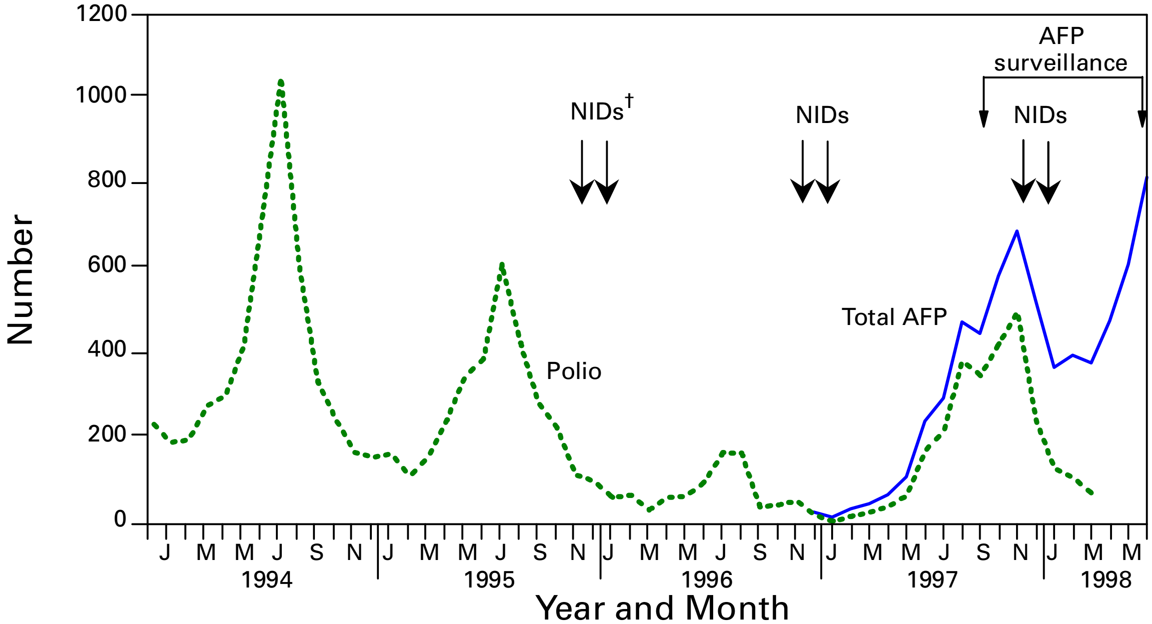
TABLE 2. Number and rate of reported poliomyelitis and acute flaccid paralysis (AFP) cases, nonpolio AFP rate, and stool specimen results, by year — India, 1995–1998

Year	No. polio or AFP cases reported	No. confirmed polio cases*	Overall AFP reporting rate†	Nonpolio AFP reporting rate†	No. polio or AFP cases with stool specimens§	Serotype distribution of wild poliovirus isolated		
						P1	P2	P3
1995	3263	3263	0.95	0	NA¶	117**	44**	60**
1996	1005	1005	0.29	0	NA	95**	6**	17**
1997	3050	2262	0.89	0.23	1370	398††	3††	50††
1998	3950§§	829§§	1.92¶¶	0.83***	2503	162††	1††	20††

* All polio cases reported before 1997 were confirmed by attending physicians with no standard case definition.
† Per 100,000 children aged <15 years.
§ One or two specimens within 14 days of onset.
¶ Not available.
** Aggregate data indicating the number of isolates reported to the World Health Organization, not the number of cases with wild poliovirus isolated.
†† Number of cases with wild poliovirus isolated.
§§ January–July, as of September 10, 1998.
¶¶ Annualized rate.
*** Annualized from cases reported during January–June (allows 60 days for classification); does not include 21% of AFP cases pending classification.

Poliomyelitis Eradication — Continued

FIGURE 1. Confirmed poliomyelitis cases and total acute flaccid paralysis (AFP) cases, by year and month of onset — India, January 1994–June 1998*



*Data as of September 10, 1998.

†National Immunization Days are mass vaccination campaigns over a short period (usually days to weeks) in which two doses of oral poliovirus vaccine are administered to all children aged <5 years, regardless of previous vaccination history, with an interval of 4–6 weeks between doses.

Pradesh with 1150 reported cases. As of September 10, 1998, 849 AFP cases reported in 1998, representing 281 districts, have been confirmed as polio.

Poliovirus types 1 and 3 continue to circulate, but preliminary results of genetic sequencing show a substantial decrease in their genetic biodiversity, suggesting that many independent lineages of poliovirus genotypes are being eliminated (Dr. J.M. Deshpande, Enterovirus Research Center, Haffkine Institute, Mumbai, personal communication, 1998). Four isolates of type 2 poliovirus were last isolated in India in 1996. As of September 10, there were 183 isolates of wild poliovirus in 1998, with 162 (89%) identified as type 1, one (1%) as type 2, and 20 (11%) as type 3. In addition, 180 isolates are pending differentiation as wild or vaccine strains. Of 374 isolates differentiated in 1998, 278 (74%) have been wild strains.

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Editorial Note: Progress toward polio eradication in India, the second most populous country in the world, is critical for the success of the global polio eradication initiative. India has completed 3 years of successful NIDs—representing the largest public health campaigns ever conducted in a single country—followed by reduction in genetic biodiversity of circulating poliovirus types 1 and 3. The persistance of poliovirus type 2 and wide distribution of the remaining type 1 and 3 strains suggest that substantially increased efforts will be required to eradicate polio by 2000.

Routine vaccination coverage in some areas must be improved, and the intensity of vaccination efforts during NIDs will need to increase to reach areas with children missed by previous NIDs. As the circulation of polioviruses becomes more focal (especially during the low transmission season), identification and targeting of these areas for supplemental vaccination activities, especially house-to-house vaccination, increasingly will depend on sensitive and timely surveillance. Surveillance data were used for the first time to target areas in three districts of Maharashtra State for supplemental vaccination activities during April–May 1998.

To prepare for NIDs in 1998–99, SMOs are assisting state immunization officers in obtaining sufficient resources for planning, vaccine, and operational costs of house-to-house vaccination in districts identified as at risk for continuing wild poliovirus transmission. This intensified NID strategy should accelerate progress toward the final stage of polio eradication.

Although the experience in other countries suggests that it takes 3–4 years to develop an adequate AFP surveillance system, the experience in India suggests that this period can be shortened substantially if sufficient resources and trained personnel are made available.

Fewer than 850 days remain to reach the target for global polio eradication. Globally, further progress is dependent on expanding the polio eradication strategies to all remaining countries where polio is endemic and providing adequate funding[§] in support of these strategies (*8*). The progress reported from India, the world's largest country where polio remains endemic, indicates that polio eradication can be achieved worldwide by 2000.

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[§] The polio eradication initiative in India is supported by the government of India; WHO; United Nations Children's Fund (UNICEF); the governments of Japan, Denmark, and Germany; U.S. Agency for International Development; CDC; and Rotary International.

Incidence of Foodborne Illnesses — FoodNet, 1997

Each year, millions of persons become ill from foodborne diseases, though many cases are not reported. The Foodborne Diseases Active Surveillance Network (FoodNet), the primary foodborne diseases component of CDC's Emerging Infections Program (*1*), was developed to better characterize, understand, and respond to foodborne illnesses in the United States. This report describes FoodNet surveillance data from 1997, the second year of surveillance, and compares findings with data from 1996. The findings demonstrate regional and seasonal differences in the reported incidence of certain bacterial and parasitic diseases and that substantial changes occurred in the incidence of illnesses caused by some pathogens (e.g., *Vibrio* and *Escherichia coli* O157:H7) but the overall incidence of illness caused by the seven diseases under surveillance in both years changed little.

Active bacterial surveillance for laboratory-confirmed cases of *Campylobacter*, *E. coli* O157:H7, *Listeria*, *Salmonella*, *Shigella*, *Vibrio*, and *Yersinia* infections was initiated on January 1, 1996, in Minnesota, Oregon, and two counties in California, three in Connecticut, and eight in Georgia (expanding to 20 counties in 1997). In 1997, surveillance for laboratory-confirmed cases of *Cryptosporidium* and *Cyclospora* infections was added statewide in Minnesota, Connecticut, and eight counties (including the two counties with bacterial surveillance) in California. To identify cases, surveillance personnel contacted each clinical laboratory in their catchment areas either weekly or monthly, depending on the size of the clinical laboratory. Annual incidence was calculated using the number of laboratory-confirmed cases ascertained in the catchment area as the numerator and 1997 postcensus estimates in the same areas as the denominator (*2*). Monthly incidence was calculated based on date of specimen collection.

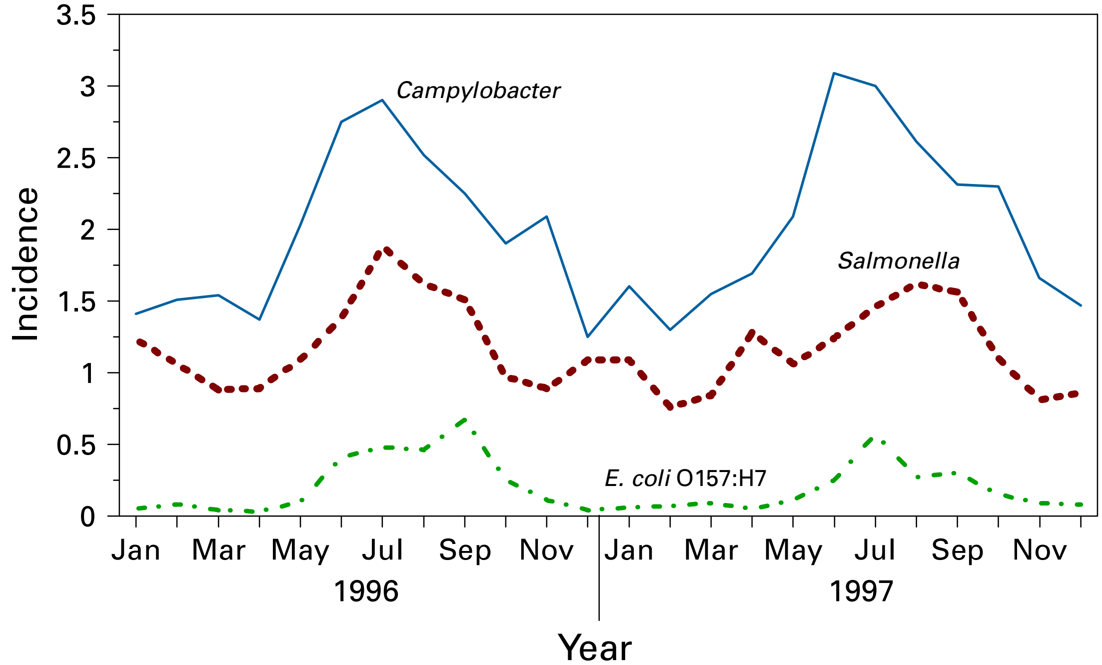
1997 Surveillance

In 1997, 8576 laboratory-confirmed cases were identified: 3974 of campylobacteriosis, 2205 of salmonellosis, 1273 of shigellosis, 468 of cryptosporidiosis, 340 of *E. coli* O157:H7 infections, 139 of yersiniosis, 77 of listeriosis, 51 of *Vibrio* infections, and 49 of cyclosporiasis. Seasonal variation in isolation rates was seen for several pathogens; 52% of *E. coli* O157:H7, 35% of *Campylobacter,* and 32% of *Salmonella* were isolated in summer months (June–August) (Figure 1). Organisms were isolated from normally sterile sites, including blood and cerebrospinal fluid, in 99% of reported *Listeria* cases, 7% of *Salmonella* cases, 3% of *Yersinia* cases, and <1% of *Shigella* and *Campylobacter* cases. Overall, 1270 (15%) of 8576 patients with laboratory-confirmed infections were hospitalized; the proportion of persons with cases hospitalized was highest for listeriosis (88%), *E. coli* O157:H7 infections (29%), and salmonellosis (21%). Thirty-six patients with laboratory-confirmed infections died: 15 with *Listeria*, 13 with *Salmonella*, four with *E. coli* O157:H7, two with *Cryptosporidium*, one with *Campylobacter*, and one with *Shigella*.

All-site incidence was highest for campylobacteriosis (24.7 per 100,000 population), salmonellosis (13.7), and shigellosis (7.8). The incidence of campylobacteriosis varied from 13.7 in Georgia to 49.3 in California. Although overall salmonellosis incidence was similar among the sites, the incidence of infections with *Salmonella* serotype Enteritidis varied, from 0.6 in Georgia to 5.8 in Connecticut. Shigellosis incidence varied from 2.9 in Minnesota to 15.9 in Georgia. Incidence differed by site for *E. coli*

Incidence of Foodborne Illnesses — Continued

FIGURE 1. Monthly incidence* of selected pathogens — FoodNet,† 1996–1997



*Per 100,000 population.
†Laboratory-confirmed cases of *Campylobacter, Escherichia coli* O157:H7, and *Salmonella* infections were identified in Minnesota, Oregon, and selected counties in California (two), Connecticut (three), and Georgia (eight in 1996 and 20 in 1997).

O157:H7 infections and yersiniosis: *E. coli* O157:H7 infections varied from 0.2 in Georgia to 4.2 in Minnesota; yersiniosis varied from 0.5 in Oregon to 1.2 in Georgia.

Annual incidence also varied by age; for example, the incidence among children aged <1 year was 56 per 100,000 for campylobacteriosis (range: 18 in Georgia to 159 in California) and 111 per 100,000 for salmonellosis (range: 66 in Oregon to 174 in California) (Figure 2).

Comparison with 1996 Surveillance Data

Overall, incidence of illness caused by the pathogens under surveillance changed little from 1996 to 1997 (Table 1). The largest percentage change occurred in cases of illness caused by *Vibrio* (from 0.1 in 1996 to 0.3 in 1997). *E. coli* O157:H7 showed the next largest percentage change (from 2.7 to 2.1, a decrease of 27%). From 1996 to 1997, Minnesota and Oregon reported an overall increase in the incidence of illnesses caused by the pathogens under surveillance; California, Connecticut, and Georgia reported decreases.

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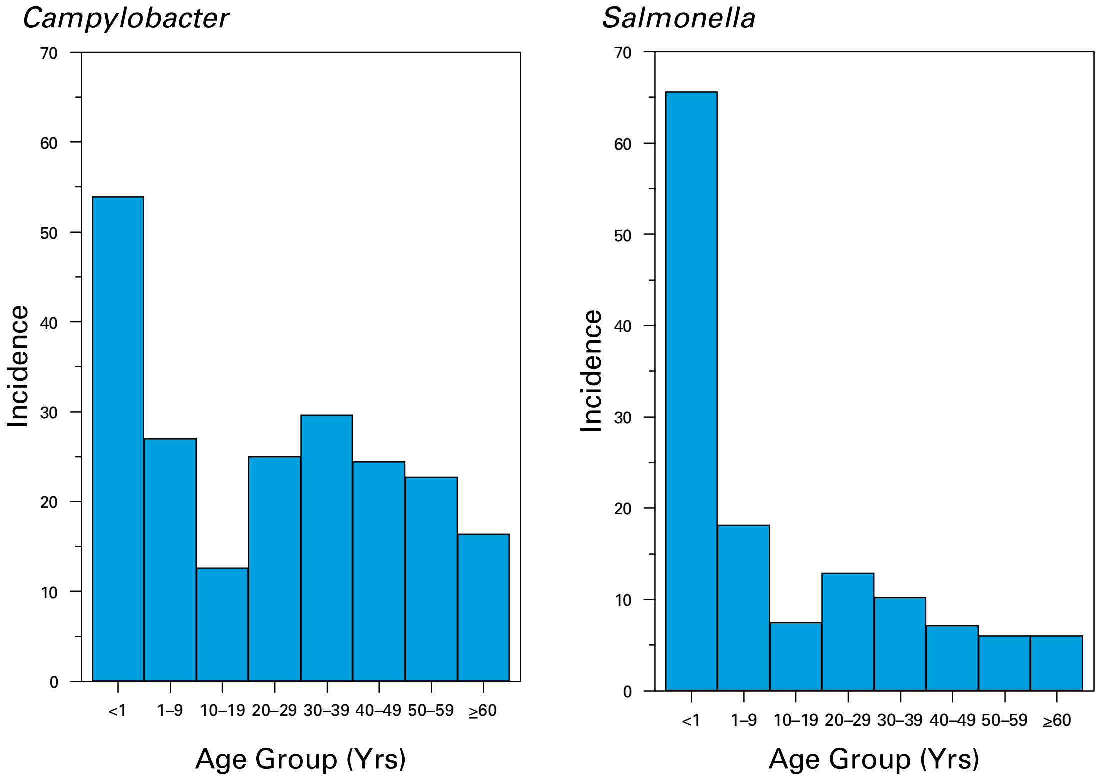
Incidence of Foodborne Illnesses — Continued

FIGURE 2. Incidence* of laboratory-confirmed cases of *Campylobacter* and *Salmonella* infections, by age group — FoodNet,† 1997



*Per 100,000 population.

†Laboratory-confirmed cases of *Campylobacter* and *Salmonella* infections were identified in Minnesota, Oregon, and two counties in California, three in Connecticut, and 20 in Georgia.

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Editorial Note: The findings from FoodNet in 1997 document regional and seasonal differences in the incidence of bacterial foodborne diseases. Although the pathogens under surveillance can be transmitted many ways (e.g., through water and person-to-person), they are often transmitted by food. The primary goals of FoodNet are to better characterize, understand, and respond to foodborne illness in the United States.

Some of the variation in the incidence of bacterial foodborne diseases might be explained by differences in levels of contamination of specific food items and differences in foodhandling practices. The variation in the regional incidence of *Campylobacter* and *Salmonella* is unlikely to be a result of different laboratory culturing practices because the proportion of specimens tested for these pathogens remained consistently high across the sites (>99%). The possible role of differences in requests for cultures by physicians resulting in the regional variation in the incidence of disease is under investigation.

Incidence of Foodborne Illnesses — Continued

TABLE 1. Incidence* of selected pathogens, by year — FoodNet,† 1996–1997

	All sites	
Organism	**1996**	**1997**
Campylobacter	23.5	24.7
Escherichia coli O157:H7	2.7	2.1
Listeria	0.5	0.5
Salmonella	14.5	13.7
Shigella	8.9	7.9
Vibrio	0.1	0.3
Yersinia	1.0	0.9
Cryptosporidium	§	2.8
Cyclospora	§	0.3
Overall	**51.2**	**50.1¶**

*Per 100,000 population.
†In 1996, laboratory-confirmed cases of *Campylobacter, Escherichia coli* O157:H7, *Listeria, Salmonella, Shigella, Vibrio,* and *Yersinia* infections were identified in Minnesota, Oregon, and two counties in California, three in Connecticut, and eight in Georgia (expanding to 20 in 1997). In 1997, surveillance for laboratory-confirmed cases of *Cryptosporidium* and *Cyclospora* infections was added statewide in Minnesota and Connecticut and in eight counties (including the two counties with bacterial surveillance) in California.
§Not reported in 1996.
¶Excludes *Cryptosporidium* and *Cyclospora.*

More data are needed to assess whether the variations in rates for specific pathogens reflect year-to-year variation or are part of longer-term trends. For *Vibrio*, the increase in incidence is the result of a large outbreak during the summer of 1997 of *Vibrio parahaemolyticus* infections linked to raw oyster consumption in the Pacific Northwest (*3*). The decrease in the incidence of *E. coli* O157:H7 infections in 1997 probably is linked to fewer cases associated with known outbreaks in FoodNet catchment areas. Changes in the pathogens under surveillance (e.g., the development of fluoroquinolone resistance in *Campylobacter* [*4*]) are not reflected in annual incidence data. Additional investigations—including laboratory, physician, and population surveys and pathogen-specific case-control studies (*5*)—are under way to further characterize annual differences in incidence.

Preliminary data (using 1997 population estimates as the denominator) reported to FoodNet through the first 6 months of 1998 show a decrease in *Campylobacter* and *Salmonella* infections and an increase in *E. coli* O157:H7, *Vibrio*, and *Yersinia* infections compared with the first 6 months of 1996 and 1997. Final data will be available when the annual number of cases is known (usually available by April, allowing for auditing) and the postcensus population estimates are released (typically by midyear). A preliminary report will be available in early 1999.

FoodNet was initiated in 1995 as a collaborative effort among CDC, the U.S. Department of Agriculture, the Food and Drug Administration, and the California, Connecticut, Georgia, Minnesota, and Oregon state health departments. In 1997, the catchment area included 16.1 million persons, 6.0% of the U.S. population. Two new sites (selected counties in Maryland and in New York) joined FoodNet in 1997; data from these sites will be included in subsequent reports. An eighth site will be added in 1998. Continued monitoring of the incidence of foodborne illnesses and analysis of FoodNet

Incidence of Foodborne Illnesses — Continued

data will provide a more accurate description and a better understanding of foodborne illness in this country. Additional information about FoodNet, which includes the 1997 summary report, is available on the World-Wide Web at http://www.cdc.gov/ncidod/dbmd/foodnet/foodnet.htm.

References

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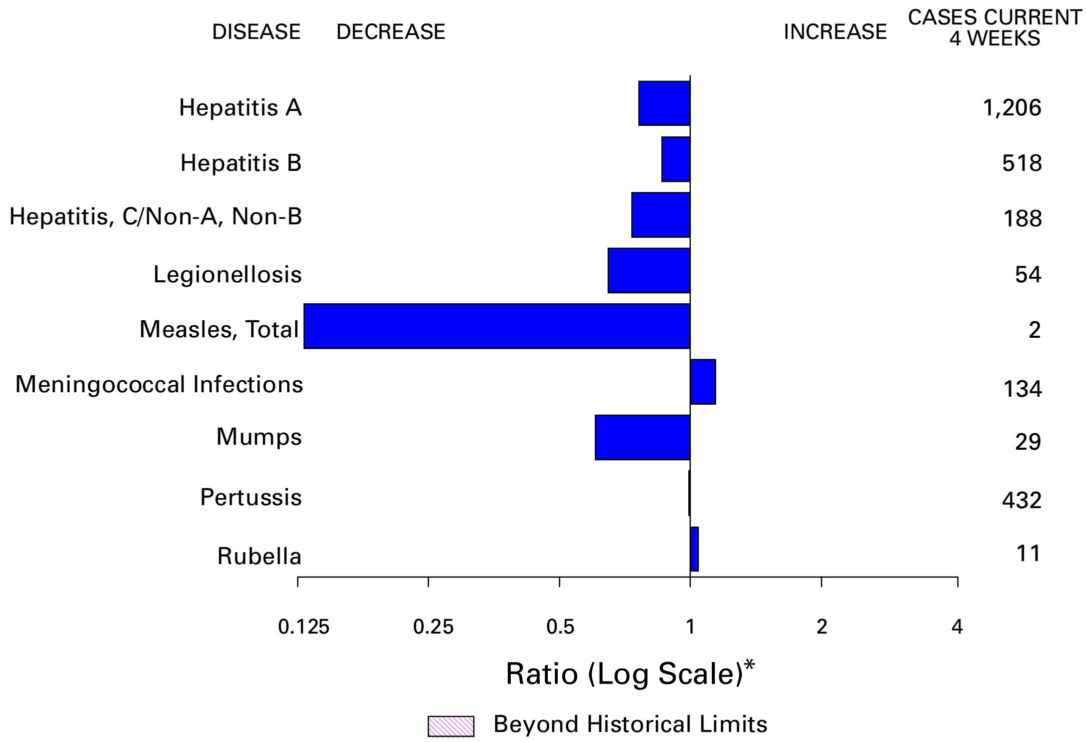
Notice to Readers

Unlicensed Use of Combination of *Haemophilus influenzae* type b Conjugate Vaccine and Diphtheria and Tetanus Toxoid and Acellular Pertussis Vaccine for Infants

The only licensed combination vaccine containing *Haemophilus influenzae* type b (Hib) conjugate vaccine and diphtheria and tetanus toxoid and acellular pertussis vaccine (DTaP) is for use in children aged 15–18 months. The Food and Drug Administration and CDC's National Immunization Program have received reports from state health departments that in certain clinical settings, licensed Hib conjugate vaccines and DTaP vaccines are being combined for administration as a single injection in infants aged 2, 4, and 6 months. These vaccines (DTaP/Hib) have not been licensed for combination use in the primary vaccination series in infants. Clinical studies in infants conducted under Investigational New Drug applications have demonstrated that using some combination vaccine products containing Hib vaccine may induce a suboptimal immune response to the Hib vaccine component. Additional information about further vaccination actions that may be required for the infant who received an unlicensed DTaP/Hib combination product is available from CDC's Immunization Hotline, telephone (800) 232-2522.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending September 19, 1998, 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 September 19, 1998 (37th Week)

	Cum. 1998		Cum. 1998
Anthrax	-	Plague	6
Brucellosis	39	Poliomyelitis, paralytic	1
Cholera	7	Psittacosis	30
Congenital rubella syndrome	3	Rabies, human	-
Cryptosporidiosis*	2,391	Rocky Mountain spotted fever (RMSF)	217
Diphtheria	2	Streptococcal disease, invasive Group A	1,638
Encephalitis: California*	49	Streptococcal toxic-shock syndrome*	40
eastern equine*	3	Syphilis, congenital¶	268
St. Louis*	2	Tetanus	30
western equine*	-	Toxic-shock syndrome	95
Hansen Disease	85	Trichinosis	9
Hantavirus pulmonary syndrome*†	17	Typhoid fever	237
Hemolytic uremic syndrome, post-diarrheal*	50	Yellow fever	-
HIV infection, pediatric*§	164		

-: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–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update August 30, 1998.
¶ Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending September 19, 1998, and September 13, 1997 (37th Week)

Reporting Area	AIDS		Chlamydia		*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB	
					NETSS[†]	PHLIS[§]				
	Cum. 1998*	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1998	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997
UNITED STATES	31,523	40,204	378,895	319,775	2,043	1,217	228,605	202,696	2,732	2,513
NEW ENGLAND	1,194	1,732	13,698	12,375	254	193	3,937	4,165	37	46
Maine	22	42	692	657	29	-	49	41	-	-
N.H.	28	26	666	560	33	36	70	72	-	-
Vt.	17	31	298	284	12	7	26	37	-	2
Mass.	604	598	5,917	5,081	123	113	1,535	1,525	34	37
R.I.	88	113	1,634	1,423	11	1	265	330	3	7
Conn.	435	922	4,491	4,370	46	36	1,992	2,160	-	-
MID. ATLANTIC	8,893	12,414	45,639	40,763	209	60	26,047	26,621	280	234
Upstate N.Y.	1,014	1,931	N	N	151	-	3,923	4,468	216	173
N.Y. City	5,005	6,451	24,987	19,111	5	10	11,028	9,713	-	-
N.J.	1,655	2,598	7,566	7,000	53	40	4,852	5,441	-	-
Pa.	1,219	1,434	13,086	14,652	N	10	6,244	6,999	64	61
E.N. CENTRAL	2,276	3,016	62,857	42,462	316	215	43,838	27,839	382	430
Ohio	485	663	17,804	15,242	87	48	11,294	10,026	7	14
Ind.	379	408	4,656	6,461	73	38	2,974	4,308	4	12
Ill.	888	1,176	18,087	U	78	14	14,882	U	24	72
Mich.	390	581	15,203	13,030	78	49	11,646	10,203	347	308
Wis.	134	188	7,107	7,729	N	66	3,042	3,302	-	24
W.N. CENTRAL	599	778	21,792	22,422	322	228	10,956	9,859	228	47
Minn.	119	136	4,360	4,616	135	98	1,623	1,625	9	3
Iowa	51	78	2,063	3,051	84	42	660	803	7	23
Mo.	282	377	8,475	8,413	26	46	6,235	5,194	206	8
N. Dak.	4	10	616	598	10	13	51	40	-	2
S. Dak.	13	7	1,105	903	22	21	175	97	-	-
Nebr.	56	71	1,428	1,703	26	-	505	676	2	2
Kans.	74	99	3,745	3,138	19	8	1,707	1,424	4	9
S. ATLANTIC	7,960	9,668	77,081	65,916	175	114	63,804	64,987	139	166
Del.	104	174	1,799	-	-	2	1,002	858	-	-
Md.	914	1,167	5,336	5,028	27	12	5,942	8,161	7	4
D.C.	635	717	N	N	1	-	2,588	3,086	-	-
Va.	650	769	9,420	8,131	N	38	6,242	5,672	11	21
W. Va.	60	77	1,840	2,084	8	5	546	654	6	13
N.C.	536	597	15,541	12,084	43	36	13,482	11,958	18	38
S.C.	507	535	12,980	8,874	8	5	8,403	8,289	3	32
Ga.	846	1,161	16,173	11,545	56	-	14,401	13,470	9	-
Fla.	3,708	4,471	13,992	18,170	32	16	11,198	12,839	85	58
E.S. CENTRAL	1,273	1,366	27,675	24,322	84	28	27,239	24,333	152	264
Ky.	195	237	4,477	4,593	22	-	2,561	2,907	18	11
Tenn.	434	570	9,405	8,947	38	24	8,254	7,655	127	176
Ala.	372	334	7,174	5,902	21	2	9,308	8,272	5	7
Miss.	272	225	6,619	4,880	3	2	7,116	5,499	2	70
W.S. CENTRAL	3,799	4,171	58,582	41,753	102	12	33,993	28,045	491	323
Ark.	136	159	2,599	2,120	8	6	1,247	3,463	9	10
La.	654	733	10,851	6,629	5	2	9,311	6,285	33	153
Okla.	224	216	7,054	5,295	12	4	3,854	3,518	9	7
Tex.	2,785	3,063	38,078	27,709	77	-	19,581	14,779	440	153
MOUNTAIN	1,052	1,127	14,864	20,677	266	178	5,654	5,488	298	214
Mont.	20	33	924	734	14	-	30	34	7	16
Idaho	19	37	1,217	1,110	30	7	119	92	87	44
Wyo.	1	13	399	414	51	53	18	41	70	51
Colo.	209	292	10	4,870	59	45	1,616	1,396	22	23
N. Mex.	166	112	2,508	2,689	17	13	623	614	74	40
Ariz.	385	269	7,537	7,568	21	25	2,724	2,492	3	24
Utah	91	93	1,527	1,193	64	21	163	186	21	3
Nev.	161	278	742	2,099	10	14	361	633	14	13
PACIFIC	4,477	5,932	56,707	49,085	315	189	13,137	11,359	725	789
Wash.	303	454	7,569	6,380	65	56	1,297	1,357	15	21
Oreg.	128	222	4,062	3,432	86	86	587	526	5	3
Calif.	3,919	5,170	42,125	36,982	160	35	10,691	8,839	650	643
Alaska	17	42	1,332	1,064	4	-	228	278	1	-
Hawaii	110	44	1,619	1,227	N	12	334	359	54	122
Guam	-	2	201	193	N	-	24	27	-	-
P.R.	1,246	1,381	U	U	6	U	263	432	-	-
V.I.	19	74	N	N	N	U	U	U	U	U
Amer. Samoa	-	-	U	U	N	U	U	U	U	U
C.N.M.I.	-	1	N	N	N	U	28	17	-	2

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–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update August 30, 1998.

†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 September 19, 1998, and September 13, 1997 (37th Week)

	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
Reporting Area	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998*	Cum. 1997	Cum. 1998
UNITED STATES	846	652	8,415	8,288	900	1,308	5,121	6,025	10,177	12,546	5,021
NEW ENGLAND	54	57	2,147	2,234	45	70	54	110	327	309	1,039
Maine	1	2	6	8	4	1	1	-	5	17	151
N.H.	3	6	32	21	4	8	1	-	9	10	47
Vt.	4	10	8	6	-	2	4	-	2	4	50
Mass.	24	21	590	262	15	25	35	54	187	172	375
R.I.	13	5	346	277	4	5	1	2	39	27	67
Conn.	9	13	1,165	1,660	18	29	12	54	85	79	349
MID. ATLANTIC	205	133	5,235	4,717	219	387	183	291	2,014	2,224	1,151
Upstate N.Y.	68	38	3,030	1,937	64	54	24	29	254	304	809
N.Y. City	23	14	18	141	97	241	46	64	1,044	1,120	U
N.J.	11	19	808	1,431	34	71	55	116	422	459	142
Pa.	103	62	1,379	1,208	24	21	58	82	294	341	200
E.N. CENTRAL	258	206	80	420	89	122	693	462	845	1,273	107
Ohio	99	79	57	29	10	16	94	156	75	216	48
Ind.	47	30	17	23	10	12	150	119	78	101	9
Ill.	25	18	5	11	27	52	262	U	444	660	11
Mich.	58	50	1	22	37	30	141	102	245	209	30
Wis.	29	29	U	335	5	12	46	85	3	87	9
W.N. CENTRAL	59	37	156	82	68	42	94	131	272	396	533
Minn.	5	1	127	56	39	19	6	15	104	106	97
Iowa	8	9	20	5	8	8	-	6	28	46	120
Mo.	20	7	1	15	10	8	72	83	88	156	19
N. Dak.	-	2	-	-	2	2	-	-	7	9	108
S. Dak.	3	2	-	1	-	-	1	-	16	9	109
Nebr.	16	12	3	2	1	1	4	2	11	14	6
Kans.	7	4	5	3	8	4	11	25	18	56	74
S. ATLANTIC	102	86	590	575	212	229	2,099	2,475	1,424	2,349	1,476
Del.	9	9	12	104	2	4	17	17	U	23	17
Md.	22	14	430	372	63	70	471	682	208	224	351
D.C.	6	3	4	7	14	12	53	82	78	75	-
Va.	16	19	50	39	39	55	116	176	187	220	427
W. Va.	N	N	9	4	1	-	2	3	30	45	62
N.C.	8	11	42	25	18	13	543	617	278	310	136
S.C.	7	4	4	2	5	11	214	280	195	238	104
Ga.	7	-	5	1	27	25	524	393	360	432	223
Fla.	25	26	34	21	43	39	159	225	70	782	156
E.S. CENTRAL	50	42	66	67	23	28	872	1,305	815	936	218
Ky.	23	8	13	12	4	8	79	102	126	122	28
Tenn.	15	25	38	31	12	7	406	556	243	334	115
Ala.	5	2	14	5	5	10	210	332	287	306	73
Miss.	7	7	1	19	2	3	177	315	159	174	2
W.S. CENTRAL	19	12	22	60	24	17	758	880	1,509	1,817	125
Ark.	-	1	6	16	1	4	80	120	90	134	29
La.	2	2	3	2	11	8	302	257	106	159	-
Okla.	8	1	2	12	4	5	72	87	126	152	96
Tex.	9	8	11	30	8	-	304	416	1,187	1,372	-
MOUNTAIN	48	43	12	8	43	59	154	121	286	411	153
Mont.	2	1	-	-	1	2	-	-	16	6	44
Idaho	2	2	3	3	7	-	1	1	8	7	-
Wyo.	1	1	-	1	-	2	1	-	4	2	53
Colo.	13	16	3	-	15	26	8	10	U	66	19
N. Mex.	2	2	4	1	11	8	19	5	43	43	5
Ariz.	10	9	-	1	8	9	119	91	138	185	12
Utah	17	8	-	-	1	3	3	5	43	26	19
Nev.	1	4	2	2	-	9	3	9	34	76	1
PACIFIC	51	36	107	125	177	354	214	250	2,685	2,831	219
Wash.	9	6	6	6	16	18	23	8	154	226	-
Oreg.	-	-	14	16	13	18	5	5	99	114	3
Calif.	40	29	86	103	144	309	184	235	2,278	2,293	193
Alaska	1	-	1	-	1	3	1	1	35	60	23
Hawaii	1	1	-	-	3	6	1	1	119	138	-
Guam	2	-	-	-	1	-	1	3	36	13	-
P.R.	-	-	-	-	-	5	148	175	68	164	39
V.I.	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	-	-	-	-	164	9	77	2	-

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

*Additional information about areas displaying "U" for cumulative 1998 Tuberculosis cases can be found in Notice to Readers, *MMWR* Vol. 47, No. 2, p. 39.

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending September 19, 1998, and September 13, 1997 (37th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported[†]		Total	
	Cum. 1998*	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	1998	Cum. 1998	1998	Cum. 1998	Cum. 1998	Cum. 1997
UNITED STATES	776	800	15,404	19,637	5,790	6,606	-	31	-	20	51	114
NEW ENGLAND	51	45	189	486	126	122	-	1	-	2	3	19
Maine	2	4	16	47	2	6	-	-	-	-	-	1
N.H.	7	6	8	22	13	9	-	-	-	-	-	1
Vt.	5	3	13	9	4	6	-	-	-	1	1	-
Mass.	33	28	67	200	32	52	-	1	-	1	2	16
R.I.	3	2	13	111	57	12	-	-	-	-	-	-
Conn.	1	2	72	97	18	37	-	-	-	-	-	1
MID. ATLANTIC	108	122	1,032	1,527	794	971	-	8	-	5	13	23
Upstate N.Y.	45	38	258	240	214	204	-	1	-	1	2	5
N.Y. City	21	32	241	681	198	355	-	-	-	-	-	7
N.J.	37	37	238	223	144	181	U	7	U	1	8	3
Pa.	5	15	295	383	238	231	-	-	-	3	3	8
E.N. CENTRAL	130	133	2,300	2,026	612	1,064	-	11	-	3	14	10
Ohio	42	73	243	240	57	59	-	-	-	1	1	-
Ind.	35	13	118	216	74	77	-	2	-	1	3	-
Ill.	45	32	376	549	117	202	-	-	-	-	-	7
Mich.	4	15	1,439	873	338	313	-	9	-	1	10	2
Wis.	4	-	124	148	26	413	-	-	-	-	-	1
W.N. CENTRAL	74	39	1,041	1,558	294	347	-	1	-	-	1	16
Minn.	58	27	95	133	34	27	-	-	-	-	-	7
Iowa	2	5	381	324	50	26	-	1	-	-	1	-
Mo.	8	4	430	796	174	253	-	-	-	-	-	1
N. Dak.	-	-	3	10	4	5	-	-	-	-	-	-
S. Dak.	-	2	21	18	2	1	-	-	-	-	-	8
Nebr.	-	1	29	72	9	12	-	-	-	-	-	-
Kans.	6	-	82	205	21	23	-	-	-	-	-	-
S. ATLANTIC	160	124	1,354	1,206	835	868	-	3	-	5	8	11
Del.	-	-	3	23	-	5	-	-	-	1	1	-
Md.	43	45	235	143	118	119	-	-	-	1	1	2
D.C.	-	-	42	17	10	25	-	-	-	-	-	1
Va.	15	12	160	162	75	91	-	-	-	2	2	1
W. Va.	4	3	4	8	5	11	-	-	-	-	-	-
N.C.	23	19	90	147	159	180	-	-	-	-	-	2
S.C.	3	4	24	77	27	79	-	-	-	-	-	1
Ga.	34	23	407	266	125	95	-	1	-	1	2	1
Fla.	38	18	389	363	316	263	-	2	-	-	2	3
E.S. CENTRAL	42	40	290	459	276	507	-	-	-	2	2	1
Ky.	7	6	18	60	32	28	-	-	-	-	-	-
Tenn.	23	24	173	280	193	328	-	-	-	1	1	-
Ala.	10	8	56	67	50	50	-	-	-	1	1	1
Miss.	2	2	43	52	1	101	-	-	-	-	-	-
W.S. CENTRAL	46	36	3,009	3,918	1,013	811	-	1	-	-	1	7
Ark.	-	2	77	171	69	62	-	-	-	-	-	-
La.	22	8	64	149	75	105	-	1	-	-	1	-
Okla.	21	24	417	1,126	69	35	-	-	-	-	-	-
Tex.	3	2	2,451	2,472	800	609	-	-	-	-	-	7
MOUNTAIN	76	70	2,255	3,089	596	632	-	-	-	-	-	8
Mont.	-	-	74	58	5	7	-	-	-	-	-	-
Idaho	-	1	197	102	27	27	-	-	-	-	-	-
Wyo.	1	3	32	24	6	22	-	-	-	-	-	-
Colo.	17	13	228	309	85	115	-	-	-	-	-	-
N. Mex.	6	7	109	249	246	188	-	-	-	-	-	-
Ariz.	41	28	1,371	1,562	138	148	U	-	U	-	-	5
Utah	4	3	156	461	57	73	-	-	-	-	-	1
Nev.	7	15	88	324	32	52	U	-	U	-	-	2
PACIFIC	89	191	3,934	5,368	1,244	1,284	-	6	-	3	9	19
Wash.	7	4	771	394	77	52	-	-	-	1	1	2
Oreg.	34	29	274	269	80	82	-	-	-	-	-	-
Calif.	40	147	2,839	4,572	1,073	1,131	-	5	-	2	7	13
Alaska	1	4	15	25	9	11	-	1	-	-	1	-
Hawaii	7	7	35	108	5	8	-	-	-	-	-	4
Guam	-	-	-	-	2	3	U	-	U	-	-	-
P.R.	2	-	49	223	319	557	U	-	U	-	-	-
V.I.	U	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	6	3	1	53	34	U	-	U	-	-	1

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

*Of 184 cases among children aged <5 years, serotype was reported for 102 and of those, 39 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 September 19, 1998, and September 13, 1997 (37th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997
UNITED STATES	1,963	2,430	11	352	438	94	3,773	3,809	3	319	135
NEW ENGLAND	76	150	-	4	8	15	636	687	-	38	1
Maine	5	17	-	-	-	-	5	7	-	-	-
N.H.	4	12	-	-	-	2	62	85	-	-	-
Vt.	1	4	-	-	-	2	65	190	-	-	-
Mass.	38	74	-	2	2	11	463	376	-	8	1
R.I.	3	15	-	-	5	-	7	12	-	1	-
Conn.	25	28	-	2	1	-	34	17	-	29	-
MID. ATLANTIC	179	250	-	19	47	11	403	296	-	130	31
Upstate N.Y.	46	68	-	4	10	7	210	119	-	111	4
N.Y. City	20	42	-	4	3	4	23	58	-	14	27
N.J.	47	47	U	2	7	U	5	12	U	4	-
Pa.	66	93	-	9	27	-	165	107	-	1	-
E.N. CENTRAL	296	360	-	59	53	5	391	398	-	-	6
Ohio	113	132	-	23	19	2	191	109	-	-	-
Ind.	51	40	-	5	7	-	83	39	-	-	-
Ill.	73	105	-	10	8	2	49	55	-	-	2
Mich.	34	52	-	21	16	1	51	47	-	-	-
Wis.	25	31	-	-	3	-	17	148	-	-	4
W.N. CENTRAL	166	173	-	25	14	8	304	286	-	27	-
Minn.	29	29	-	12	5	7	184	184	-	-	-
Iowa	31	39	-	9	7	1	56	23	-	-	-
Mo.	59	73	-	3	-	-	22	51	-	2	-
N. Dak.	5	2	-	1	-	-	2	1	-	-	-
S. Dak.	6	4	-	-	-	-	8	4	-	-	-
Nebr.	9	8	-	-	1	-	10	5	-	-	-
Kans.	27	18	-	-	1	-	22	18	-	25	-
S. ATLANTIC	342	413	5	42	53	9	228	327	2	15	62
Del.	2	5	-	-	-	-	3	1	-	-	-
Md.	24	38	-	-	1	-	40	101	-	1	-
D.C.	-	7	-	-	-	-	1	3	-	-	1
Va.	28	42	-	6	9	-	19	34	-	-	1
W. Va.	12	14	-	-	-	-	1	6	-	-	-
N.C.	47	78	-	10	9	1	76	89	2	11	52
S.C.	48	43	-	6	10	-	22	20	-	-	6
Ga.	75	78	-	1	8	-	18	11	-	-	-
Fla.	106	108	5	19	16	8	48	62	-	3	2
E.S. CENTRAL	178	184	-	13	23	-	83	103	-	2	1
Ky.	22	38	-	-	3	-	25	42	-	-	-
Tenn.	56	62	-	1	3	-	31	31	-	1	-
Ala.	76	61	-	7	7	-	24	20	-	1	1
Miss.	24	23	-	5	10	-	3	10	-	-	-
W.S. CENTRAL	232	231	3	53	53	6	254	170	1	88	4
Ark.	26	26	-	7	1	1	53	19	-	-	-
La.	52	47	-	9	12	-	5	15	1	1	-
Okla.	32	29	-	-	-	1	19	25	-	-	-
Tex.	122	129	3	37	40	4	177	111	-	87	4
MOUNTAIN	111	141	1	29	51	29	700	886	-	5	7
Mont.	4	7	-	-	-	-	7	15	-	-	-
Idaho	9	8	-	4	2	24	225	482	-	-	2
Wyo.	6	2	-	1	1	-	8	6	-	-	-
Colo.	22	37	-	7	3	3	147	249	-	-	-
N. Mex.	19	24	N	N	N	-	78	75	-	1	-
Ariz.	35	37	U	5	31	U	142	31	U	1	5
Utah	11	11	1	5	7	2	67	14	-	2	-
Nev.	5	15	U	7	7	U	26	14	U	1	-
PACIFIC	383	528	2	108	136	11	774	656	-	14	23
Wash.	53	66	-	7	14	5	236	267	-	9	5
Oreg.	65	100	N	N	N	3	68	31	-	-	-
Calif.	258	354	2	80	96	3	451	326	-	3	10
Alaska	3	2	-	2	6	-	13	16	-	-	-
Hawaii	4	6	-	19	20	-	6	16	-	2	8
Guam	1	1	U	2	1	U	-	-	U	-	-
P.R.	6	8	U	1	7	U	3	-	U	-	-
V.I.	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	U	2	4	U	1	-	U	-	-

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

TABLE IV. Deaths in 122 U.S. cities,* week ending September 19, 1998 (37th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	553	382	102	46	12	11	39
Boston, Mass.	118	72	31	12	2	1	4
Bridgeport, Conn.	47	29	10	5	2	1	3
Cambridge, Mass.	26	21	4	1	-	-	6
Fall River, Mass.	30	23	4	3	-	-	2
Hartford, Conn.	54	37	10	3	-	4	3
Lowell, Mass.	17	11	5	-	1	-	1
Lynn, Mass.	13	9	1	2	1	-	2
New Bedford, Mass.	18	13	4	1	-	-	2
New Haven, Conn.	43	27	6	7	2	1	6
Providence, R.I.	66	50	10	2	2	2	2
Somerville, Mass.	3	3	-	-	-	-	-
Springfield, Mass.	31	20	5	6	-	-	2
Waterbury, Conn.	31	25	4	2	-	-	1
Worcester, Mass.	56	42	8	2	2	2	5
MID. ATLANTIC	2,112	1,465	387	174	53	33	117
Albany, N.Y.	41	29	5	5	1	1	5
Allentown, Pa.	16	14	2	-	-	-	-
Buffalo, N.Y.	92	59	19	11	2	1	3
Camden, N.J.	31	23	2	2	3	1	5
Elizabeth, N.J.	8	6	2	-	-	-	-
Erie, Pa.	55	45	6	3	-	1	1
Jersey City, N.J.	27	20	4	2	-	1	-
New York City, N.Y.	1,165	799	227	100	22	17	52
Newark, N.J.	51	22	13	11	4	1	2
Paterson, N.J.	21	15	3	2	1	-	-
Philadelphia, Pa.	200	120	43	21	12	4	14
Pittsburgh, Pa.§	91	66	15	7	2	1	8
Reading, Pa.	18	15	1	1	1	-	1
Rochester, N.Y.	123	102	12	3	4	2	12
Schenectady, N.Y.	19	13	3	3	-	-	-
Scranton, Pa.	28	22	5	1	-	-	5
Syracuse, N.Y.	95	70	21	1	1	2	8
Trenton, N.J.	13	8	3	1	-	1	-
Utica, N.Y.	18	17	1	-	-	-	1
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	1,611	1,121	318	106	37	29	86
Akron, Ohio	46	31	10	4	1	-	-
Canton, Ohio	33	29	4	-	-	-	3
Chicago, Ill.	U	U	U	U	U	U	U
Cincinnati, Ohio	122	89	20	9	2	2	15
Cleveland, Ohio	158	106	31	14	2	5	4
Columbus, Ohio	210	139	50	12	4	5	10
Dayton, Ohio	125	92	22	6	4	1	6
Detroit, Mich.	212	112	66	20	9	5	5
Evansville, Ind.	45	34	10	1	-	-	2
Fort Wayne, Ind.	51	36	11	2	2	-	4
Gary, Ind.	6	3	2	1	-	-	-
Grand Rapids, Mich.	53	42	5	2	2	2	1
Indianapolis, Ind.	159	111	33	8	5	2	13
Lansing, Mich.	52	34	12	4	1	1	-
Milwaukee, Wis.	140	110	18	8	3	1	15
Peoria, Ill.	58	50	4	-	1	3	1
Rockford, Ill.	47	33	5	7	-	2	3
South Bend, Ind.	43	34	5	4	-	-	2
Toledo, Ohio	U	U	U	U	U	U	U
Youngstown, Ohio	51	36	10	4	1	-	2
W.N. CENTRAL	863	594	163	55	17	23	57
Des Moines, Iowa	59	44	12	2	1	-	11
Duluth, Minn.	26	22	3	-	-	1	3
Kansas City, Kans.	21	16	4	1	-	-	2
Kansas City, Mo.	121	72	25	10	2	3	8
Lincoln, Nebr.	35	28	5	1	1	-	3
Minneapolis, Minn.	205	145	35	12	5	6	14
Omaha, Nebr.	97	65	19	8	2	3	4
St. Louis, Mo.	122	70	32	10	5	5	2
St. Paul, Minn.	79	66	11	2	-	-	7
Wichita, Kans.	98	66	17	9	1	5	3

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,278	813	277	121	38	29	70
Atlanta, Ga.	156	90	36	26	3	1	2
Baltimore, Md.	248	140	72	25	8	3	24
Charlotte, N.C.	110	80	19	4	1	6	13
Jacksonville, Fla.	123	84	24	8	4	3	2
Miami, Fla.	111	75	25	8	2	1	-
Norfolk, Va.	47	31	7	6	1	2	2
Richmond, Va.	71	41	15	8	5	2	2
Savannah, Ga.	63	35	18	5	3	2	3
St. Petersburg, Fla.	64	49	7	4	1	3	2
Tampa, Fla.	184	133	33	10	4	4	14
Washington, D.C.	91	50	20	13	6	2	6
Wilmington, Del.	10	5	1	4	-	-	-
E.S. CENTRAL	759	515	141	61	24	15	54
Birmingham, Ala.	170	106	33	16	8	4	9
Chattanooga, Tenn.	78	57	16	5	-	-	6
Knoxville, Tenn.	63	48	12	2	1	-	4
Lexington, Ky.	58	40	11	4	1	2	5
Memphis, Tenn.	158	103	26	17	10	2	19
Mobile, Ala.	43	32	7	3	-	1	-
Montgomery, Ala.	58	44	12	1	-	1	4
Nashville, Tenn.	131	85	24	13	4	5	7
W.S. CENTRAL	1,477	931	286	151	63	46	72
Austin, Tex.	67	35	19	10	1	2	4
Baton Rouge, La.	44	20	14	6	2	2	-
Corpus Christi, Tex.	52	37	9	5	1	-	2
Dallas, Tex.	193	106	45	26	7	9	2
El Paso, Tex.	69	46	10	7	5	1	2
Ft. Worth, Tex.	105	67	27	8	1	2	7
Houston, Tex.	369	224	70	47	17	11	31
Little Rock, Ark.	89	63	11	9	3	3	5
New Orleans, La.	140	83	27	15	11	4	-
San Antonio, Tex.	225	157	39	10	10	9	12
Shreveport, La.	25	17	6	-	2	-	2
Tulsa, Okla.	99	76	9	8	3	3	5
MOUNTAIN	981	663	187	72	29	29	46
Albuquerque, N.M.	81	61	14	4	1	1	6
Boise, Idaho	35	27	2	2	3	1	-
Colo. Springs, Colo.	58	39	11	3	3	2	2
Denver, Colo.	87	60	15	9	1	2	8
Las Vegas, Nev.	234	156	57	14	4	2	7
Ogden, Utah	35	23	3	6	2	1	1
Phoenix, Ariz.	194	125	38	11	7	13	5
Pueblo, Colo.	21	13	5	1	-	2	-
Salt Lake City, Utah	110	68	20	12	5	5	8
Tucson, Ariz.	126	91	22	10	3	-	9
PACIFIC	1,876	1,321	353	124	43	35	151
Berkeley, Calif.	22	10	10	2	-	-	1
Fresno, Calif.	78	61	11	4	1	1	6
Glendale, Calif.	20	15	5	-	-	-	3
Honolulu, Hawaii	72	50	17	2	2	1	10
Long Beach, Calif.	73	51	18	2	1	1	8
Los Angeles, Calif.	417	296	76	29	10	6	24
Pasadena, Calif.	28	18	7	3	-	-	2
Portland, Oreg.	147	108	23	8	4	4	5
Sacramento, Calif.	201	139	37	11	7	7	31
San Diego, Calif.	161	108	28	11	7	7	25
San Francisco, Calif.	113	79	21	10	1	2	8
San Jose, Calif.	215	161	37	14	2	1	12
Santa Cruz, Calif.	39	28	8	2	1	-	7
Seattle, Wash.	154	103	27	19	5	-	4
Spokane, Wash.	41	29	8	1	2	1	2
Tacoma, Wash.	95	65	20	6	-	4	3
TOTAL	11,510¶	7,805	2,214	910	316	250	692

U: Unavailable -: no reported cases

*Mortality data in this table are voluntarily reported from 122 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

†Pneumonia and influenza.

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

¶Total includes unknown ages.

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