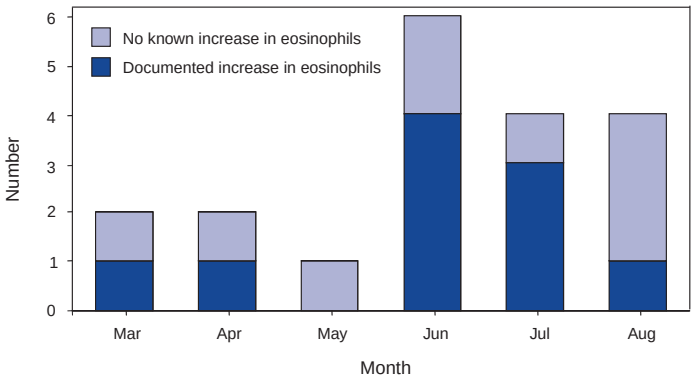
MMWR
Morbidity and Mortality Weekly Report
Weekly September 12, 2003 / Vol. 52 / No. 36

Severe Acute Pneumonitis Among Deployed U.S. Military Personnel — Southwest Asia, March–August 2003

During March–August 2003, a total of 19 U.S. military personnel deployed in the Central Command (CENTCOM) area of responsibility had bilateral pneumonitis requiring intubation and mechanical ventilation (Figure); two patients died. This report summarizes the results of the U.S. Army's investigation of these cases and describes the ongoing investigation to determine the cause(s). Cases of rapidly progressive respiratory failure among former or current CENTCOM personnel should be reported to state health departments and to the Department of Defense (DoD).

Of the 19 patients (median age: 25 years; range: 19–47 years), 18 were men; 12 were full-time active duty personnel, and seven were in the Reserve Component or National Guard (based in Arkansas, Illinois, Indiana, Kansas, Missouri, New Mexico, and North Dakota). Seventeen were in the Army, one was in the Navy, and one was in the Marine Corps; 11 were junior enlisted personnel, seven were noncommissioned officers, and one was an officer. Military specialties included combat arms (eight), engineering (three), transportation (two), signal corps (two), medical services (two), supply (one), and military police (one). Illness onset occurred a median of 81 days (range: 1–189 days) after arrival in the area of responsibility. Ten patients had evidence of elevated eosinophils in at least one of the following: peripheral blood (eight), bronchoalveolar lavage fluid (three), pulmonary tissue (one), or pleural fluid (one). Among the eight patients with peripheral eosinophilia, the maximum absolute number of eosinophils was 2,000–6,600 μ/L of blood (normal: <600 μ/L). The peripheral eosinophilia was detected a median of 6 days (range: 4–11 days) after illness onset.

FIGURE. Number* of cases of severe acute pneumonitis among U.S. military personnel, by month of illness onset — Central Command area of operations, March–August 2003



* N = 19.

An interim case definition has been established. A confirmed case of severe acute pneumonitis with elevated eosinophils is defined as an illness occurring in a current or former member of the U.S. armed forces or a U.S. government employee deployed to the CENTCOM area of responsibility who had 1) bilateral pneumonitis (i.e., radiographically confirmed pulmonary infiltrates) that required mechanical ventilation and that did not result from a complication of another medical condition and 2) elevated pulmonary eosinophils (identified

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DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

The *MMWR* series of publications is published by the Epidemiology Program Office, Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, Atlanta, GA 30333.

SUGGESTED CITATION
Centers for Disease Control and Prevention. [Article Title]. MMWR 2003;52:[inclusive page numbers].

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histologically, in bronchoalveolar lavage fluid [>5%] or in pleural fluid [>5%]). A probable case is defined as an illness in a person deployed to the CENTCOM area of responsibility who had bilateral pneumonitis requiring mechanical ventilation and the presence of peripheral eosinophilia (≥600 μ/L blood absolute count). A suspect case is defined as an illness in a person deployed to the CENTCOM area of responsibility who had bilateral pneumonitis requiring mechanical ventilation only.

As of September 8, four cases were confirmed, six were probable, and nine were suspect. Four patients had laboratory evidence of infection with a microbial agent. *Streptococcus pneumoniae* was isolated from sputum culture in one probable case. Three patients with suspect cases showed evidence of infection (*S. pneumoniae* based on urine antigen, *Coxiella burnettii* based on serology, and *Acinetobacter baumannii* from bronchoscopic culture).

All patients were treated with broad-spectrum antibiotics, and six received corticosteroids, including two patients whose cases were confirmed and three whose cases were probable. The course of illness varied (median duration of intubation: 6 days; range: 2–35 days). For some patients, infiltrates and respiratory failure resolved rapidly (i.e., 2–3 days) with or without steroids, and other patients required longer periods of mechanical ventilation. All 17 surviving patients either have been placed on convalescent leave or have returned to duty.

When they became ill, 13 patients were in Iraq, and six were in other countries (Kuwait [three], Djibouti [one], Qatar [one], and Uzbekistan [one]). Other than two patients from the same unit with suspect cases and with onset of illness 4 months apart, no apparent geographic or unit-level clustering has been identified. Of the 19 patients, 15 (79%) smoked cigarettes or cigars, including the 10 patients whose cases were either confirmed or probable. Nine of these 10 patients had begun smoking tobacco after deployment, compared with none of the nine patients whose cases were suspect. Two recent-onset smokers reported smoking non-U.S.-brand cigarettes. All troops in the CENTCOM area of responsibility have been exposed to heat, dust, and various amounts of environmental pollution (e.g., smoke).

The U.S. Army is conducting a clinical and epidemiologic investigation to identify the cause(s) of this disease, including intensive testing of clinical material (i.e., blood, urine, bronchoalveolar lavage fluid, and acute and convalescent sera) to identify potential microbial pathogens and toxins. In addition, military personnel are interviewing patients systematically to identify any common exposures or practices. Environmental testing to identify potential toxins will be guided by clinical diagnostic and patient surveys. Initial data analysis suggests that medications, vaccines, and biologic weapons are not associated with the disease.

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Editorial Note: The majority of cases of acute lower respiratory illness (LRI) among U.S. military personnel in Southwest Asia have been comparable clinically and have occurred at a rate similar to those in other military populations and settings (*1*). In contrast, the rapidly progressive LRI cases described in this report were life-threatening and required intensive medical care, including mechanical ventilation with high-end expiratory pressures.

Although investigations are ongoing, preliminary findings suggest a subset of these cases are compatible with the diagnosis of acute eosinophilic pneumonia (AEP). AEP is an acute febrile illness without an identifiable infectious cause that is characterized by the rapid onset and progression of respiratory failure, diffuse bilateral infiltrates on chest radiographs, and elevated eosinophils in lung biopsy specimens or bronchoalveolar lavage fluid (*2*). Cigarette smoking (particularly of recent onset) is a risk factor for AEP (*3–7*), and some affected persons have experienced acute respiratory distress when exposed to cigarette smoke in a laboratory setting (*5,6*). The finding that nine of the 10 persons whose cases were severe and who had documented elevated eosinophils started smoking cigarettes after their deployment suggests the possibility of a toxin or allergen exposure; however, no single brand of cigarette or location of production has been implicated in this association. DoD has advised CENTCOM personnel that cigarette smoking, particularly the initiation of smoking, might be associated with the development of severe acute pneumonitis with elevated eosinophils.

In 1997, two U.S. soldiers had rapidly progressive acute respiratory distress syndrome and elevated eosinophils shortly after returning from field training in the Mojave Desert in California (*8*). The occurrence of these cases in troops who were not deployed overseas suggests that exposures unique to Iraq (e.g., abandoned buildings, unexploded ordnance, and war-damaged vehicles or equipment) or to any of the countries in which the cases occurred (e.g., indigenous food, water, and materials) might not be necessary or sufficient for the development of this disease.

No U.S.-based military personnel are known to have had severe acute pneumonitis with increased eosinophils during this period. However, the return of troops from Southwest Asia raises the possibility that U.S. health-care providers might be the first to observe members of this population who experience otherwise unexplained, acute respiratory failure. Clinicians should elicit the travel histories of patients with rapidly progressive respiratory failure of unknown etiology and report cases occurring among persons, particularly military personnel, who have returned recently from the CENTCOM area of responsibility to their state health department and to the U.S. Army Center for Health Promotion and Preventive Medicine, telephone 410-436-4655.

References

1. Gray GC, Callahan JD, Hawksworth AW, Fisher CA, Gaydos JC. Respiratory diseases among U.S. military personnel: countering emerging threats. Emerg Infect Dis 1999;3:379–85.
2. Allen JN, Pacht ER, Gadek JE, et al. Acute eosinophilic pneumonia as a reversible cause of noninfectious respiratory failure. N Engl J Med 1989;321:569–74.
3. Shiota Y, Kawai T, Matsumoto H, et al. Acute eosinophilic pneumonia following cigarette smoking. Intern Med 2000;39:830–3.
4. Shintani H, Fujimura M, Yasui M, et al. Acute eosinophilic pneumonia caused by cigarette smoking. Intern Med 2000;39:66–8.
5. Tanino Y, Yamaguchi E, Takaoka K, et al. Cytokines and Th2 cells in AEP of smoking. Allergy 2002;57:463–4.
6. Watanabe K, Fujimura M, Kasahara K, et al. Acute eosinophilic pneumonia following cigarette smoking: a case report including cigarette-smoking challenge test. Intern Med 2002;41:1016–20.
7. Nakajima M, Manabe T, Sasaki T, Niki Y, Matsushima T. Acute eosinophilic pneumonia caused by cigarette smoking. Intern Med 2000;39:1131–2.
8. Giacoppe GN, Degler DA. Rapidly evolving adult respiratory distress syndrome with eosinophilia of unknown cause in previously healthy active duty soldiers at an Army training center: report of two cases. Mil Med 1999;164:911–6.

Injuries Associated with Landmines and Unexploded Ordnance — Afghanistan, 1997–2002

Landmines and unexploded ordnance (UXO) pose a substantial public health risk (*1,2*). Approximately 60–70 million landmines are scattered in approximately 70 countries (*3*), and an estimated 24,000 persons, mostly civilians, are killed or injured annually by landmines and UXO (*4*). In Afghanistan, approximately 5–7 million landmines are scattered throughout the country (*4*). During 2000–2001, Afghanistan had the highest number of reported landmine and UXO casualties in the world (*5*). This report presents analyses of surveillance data on landmine- and UXO-related injuries in Afghanistan during January 1997–September 2002, which indicate that the proportion of victims injured by UXO increased during this time, compared with the proportion injured by landmines. The majority (61%) of adult victims were injured by landmines, and the majority (66%) of children and adolescents were injured by UXO. Mine-risk education programs should focus on UXO hazards for children and on landmine hazards for adults and should address age-specific risk behaviors.

Data on landmine- and UXO-related injuries were obtained from the United Nations Mine Action Center for Afghanistan (UN MACA), which conducts surveillance for these injuries in Afghanistan. The data include geographic location of incident, victim demographics, type of injury, type of explosive involved, activity at the time of injury, and other information about the circumstances of the incident. Approximately 70% of records in the database came from the clinic-based surveillance system operated by the International Committee of the Red Cross (ICRC), which uses both active and passive data-collection methods. ICRC clinic-based surveillance began in 1998 and has expanded during the observation period to include approximately 390 health clinics and hospitals in Afghanistan (*6*). The remaining data on landmine- and UXO-related injuries were collected from mine-clearance teams and community mine-risk education programs operated by the nongovernment organizations working in mine clearance, mine-risk education, and victim assistance under the auspices of UN MACA. Rates were not calculated because no reliable data were available on large population changes during 1997–2002 and the sensitivity of the system is unknown. Duplicate entries were excluded, and statistical analyses were performed by using JMP (version 5.0) software from SAS Institute. Statistical significance of associations was tested by using chi-square tests.

During January 1997–September 2002, a total of 6,114 injuries from landmines and UXO were reported to UN MACA in Afghanistan. The number of reported victims of landmines and UXO was highest in 1999 and decreased gradually; sex and age distributions of victims remained relatively stable (Table 1). Injuries in males were approximately 10 times higher than in females. In each year during 1997–2002, approximately half of all injuries occurred in persons aged <18 years. The greatest number (1,830 [29%]) of injuries occurred in children aged 10–14 years, followed by persons aged 15–19 years (891 [14%]) and children aged 5–9 years (834 [13%]). During this period, the proportion of UXO-related injuries increased, and that of landmine-related injuries decreased (chi square for linear trend = 114.8; $p<0.001$). The proportion of children injured by UXO was 2.3 times as high as that of adults (chi square = 729.7; $p<0.001$) (Table 2). The proportion of adult victims sustaining amputation was 1.3 times higher than that of child victims (chi square = 67.7; $p<0.001$). The case-fatality rate was the same (approximately 7%) in both age groups. Children were injured most often while playing or tending animals; adults were injured most often while traveling or engaging in military activities (Table 2).

Reported by: *M Wennerstrom, United Nations Mine Action Center for Afghanistan, Kabul; S Baaser, P Salama, MD, United Nations Children's Fund, Kabul, Afghanistan. M Brennan, MD, BA Woodruff, MD, National Center for Environmental Health; O Bilukha, MD, EIS Officer, CDC.*

Editorial Note: The data presented in this report demonstrate that injuries from landmines and UXO remain a public health concern in Afghanistan. The majority of landmines were laid during the Soviet occupation in the 1980s (*3*); however, many areas have been newly contaminated with UXO during recent episodes of fighting between Taliban and allied forces (*5*). Mines often are laid around objects of economic importance (e.g., industrial buildings, roads, water sources, and fertile land), resulting in injuries among persons who are traveling or performing activities of economic necessity (e.g., farming, collecting wood or water, and tending animals). UXO often lie on the surface of the ground and thus are more visible and easier to avoid. However, because of their visibility, UXO pose a particular threat to children and adolescents who like to play or tamper with strange objects.

The findings in this report are subject to at least four limitations. First, because surveillance for landmine- and UXO-related injuries is predominantly clinic-based, it probably undercounts victims who die before reaching the clinic, whose

TABLE 1. Number and percentage of persons with injuries associated with landmines and unexploded ordnance (UXO), by year and selected characteristics — Afghanistan, 1997–2002

	1997		1998		1999		2000		2001		2002*		Total	
Characteristic	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**
Male	455	(88)	1,232	(92)	1,457	(93)	1,074	(91)	849	(91)	534	(90)	**5,601**	**(92)**
Aged <18 yrs	267	(52)	807	(61)	794	(51)	631	(53)	504	(54)	311	(53)	**3,314**	**(54)**
Explosive type														
Landmine†	296	(57)	750	(56)	749	(48)	499	(42)	399	(43)	212	(36)	**2,905**	**(48)**
UXO	189	(37)	513	(39)	631	(40)	622	(53)	481	(52)	337	(57)	**2,773**	**(45)**
Unknown	31	(6)	71	(5)	181	(12)	61	(5)	49	(5)	43	(7)	**436**	**(7)**
Total	**516**	**(100)**	**1,334**	**(100)**	**1,561**	**(100)**	**1,182**	**(100)**	**929**	**(100)**	**592**	**(100)**	**6,114**	**(100)**

* January–September 2002.
† Antipersonnel and antitank.

TABLE 2. Number and percentage of persons with injuries associated with landmines and unexploded ordnance (UXO), by age group and selected characteristics — Afghanistan, 1997–2002

	Aged <18 yrs		Aged ≥18 yrs		Total	
Characteristic	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**
Explosive type						
Landmine*	1,049	(32)	1,856	(66)	**2,905**	**(48)**
UXO	2,027	(61)	746	(27)	**2,773**	**(45)**
Unknown	238	(7)	198	(7)	**436**	**(7)**
Injury type						
Fatal	244	(7)	196	(7)	**440**	**(7)**
Amputation	1,112	(34)	1,227	(44)	**2,339**	**(38)**
Severe† (including blindness)	934	(28)	690	(25)	**1,624**	**(27)**
Minor	948	(29)	596	(21)	**1,544**	**(25)**
Unknown	76	(2)	91	(3)	**167**	**(3)**
Activity type						
Playing	785	(24)	92	(3)	**877**	**(14)**
Tampering with explosive	276	(8)	147	(5)	**423**	**(7)**
Tending animals	1,071	(32)	307	(11)	**1,378**	**(23)**
Collecting wood/water	438	(13)	340	(12)	**778**	**(13)**
Farming	133	(4)	234	(8)	**367**	**(6)**
Traveling on foot	353	(11)	542	(19)	**895**	**(15)**
Traveling by vehicle	80	(2)	172	(6)	**252**	**(4)**
Engaging in military activity	36	(1)	778	(28)	**814**	**(13)**
Other/Unknown	142	(4)	188	(7)	**330**	**(5)**
Total	**3,314**	**(54)**	**2,800**	**(46)**	**6,114**	**(100)**

* Antipersonnel and antitank.
† Excluding amputations.

injuries are too minor to seek medical care, or who do not have access to medical facilities. The overall sensitivity of the system is unknown but is thought to be <50% (*5,7*). Second, the reported case-fatality rate probably is underestimated because surveillance detects predominantly victims who survive long enough to receive medical care. Survey data from Afghanistan and other countries have shown case-fatality rates as high as 50%–55% (*8,9*). Third, the time trends in recorded injuries should be interpreted with caution because of the low sensitivity of the system and variability in system coverage over time depending on the availability of resources, the security situation, and other factors. However, sensitivity of the system to landmine-related injuries versus sensitivity to UXO-related injuries probably has not changed substantially over time, suggesting that the data reflect a true increase in the proportion of UXO-related injuries among all recorded injuries. Finally, although this surveillance system identifies acute injuries, it does not monitor long-term disability or psychological impact on victims and their families, which can add substantially to the public health burden.

The more restricted mobility of Afghan women and the resulting lower likelihood that women engage in activities that put them at risk for landmine- and UXO-related injuries might account for the low proportion of female victims. In addition, because of cultural restrictions, women, if injured, might be less likely to receive medical care or to be interviewed and recorded by the surveillance system. Among children aged ≤5 years, sex-specific differences in mobility generally do not apply, and the proportion of female victims is 35%.

The increasing proportion of injuries from UXO and the high proportion of such injuries among children and adolescents underscore the need for effective mine-risk education programs for children and adolescents that focus on UXO hazards and address age-specific risk behaviors, such as playing, tending animals, and tampering with explosives. Mine-risk education programs for adults should focus more on hazards from landmines. Such programs also should address the approximately two million refugees who returned to Afghanistan in 2002 and who might be at higher risk for landmine- and UXO-related injuries because they are unaware of dangerous areas.

Surveillance data about the incidence and types of injury sustained by victims of landmines and UXO should be instrumental in planning and implementing victim-assistance programs. Similarly, mine-clearance programs should use surveillance data to prioritize areas for clearance. Expansion of community-based reporting will improve sensitivity and representativeness of surveillance.

Acknowledgment

This report is based on data provided by the United Nations Mine Action Center for Afghanistan and the International Committee of the Red Cross.

References

1. Kakar F, Bassani F, Romer CJ, Gunn SW. The consequence of land mines on public health. Prehospital Disaster Med 1996;11:2–10.
2. CDC. Landmine-related injuries, 1993–1996. MMWR 1997;46:724–6.
3. Office of Humanitarian Demining Programs. Hidden killers: the global landmine crisis. Washington, DC: U.S. Department of State, Bureau of Political Military Affairs, 1998.
4. Giannou C. Antipersonnel landmines: facts, fictions, and priorities. BMJ 1997;315:1453–4.
5. International Campaign to Ban Landmines. Landmine monitor report 2002. Washington, DC: Human Rights Watch, 2002.
6. International Committee of the Red Cross Mine Action Program. Semiannual report (January–June 2002). Kabul, Afghanistan: International Committee of the Red Cross, 2002.
7. Human Rights Watch. Landmine use in Afghanistan. Human Rights Watch, 2001. Available at http://www.hrw.org/backgrounder/arms/landmines-bck1011.htm.
8. Andersson N, da Sousa CP, Paredes S. Social cost of landmines in four countries: Afghanistan, Bosnia, Cambodia, and Mozambique. BMJ 1995;311:718–21.
9. Ascherio A, Biellik R, Epstein A, et al. Deaths and injuries caused by land mines in Mozambique. Lancet 1995;346:721–4.

Increasing Infant Mortality Among Very Low Birthweight Infants — Delaware, 1994–2000

One of the national health objectives for 2010 is to reduce the U.S. infant mortality rate (IMR) to ≤4.5 deaths per 1,000 live births (objective no. 16-1c) (*1*). Historically, Delaware's IMR exceeded the national average; however, during the early 1990s, Delaware's IMR decreased, reaching the U.S. average in 1993. During 1995–2000, the overall U.S. IMR decreased from 7.6 to 6.9; since 1996, Delaware's IMR has increased, and the state now has the seventh highest IMR nationally (*2*). To understand the cause of this increase, the Delaware Division of Public Health and CDC analyzed Delaware birth and death data. This report summarizes the results of the investigation, which attributed the Delaware IMR increase primarily to increased mortality among very low birthweight (VLBW) infants born to older, married, suburban mothers who were insured privately and who received early prenatal care. Further study, including collection of data on method of conception, is required to determine the etiology of the increased mortality in this subpopulation.

IMR was analyzed by using a state-based linked birth-death certificate cohort database, which included data on all live births to women residing in Delaware. IMR was averaged by using 3-year increments. Normal birthweight was defined as ≥2,500 g, moderately low birthweight (MLBW) as 1,500 g–2,499 g, and VLBW as <1,500 g. Plurality was classified as singletons, twins, and triplets-plus (i.e., multiple births of three or more infants). The 3-year period when Delaware's IMR was lowest (1994–1996) was used as a baseline and compared with the most recent 3-year period for which data were available (1998–2000). IMR was adjusted for changes in plurality distribution over time; the plurality-adjusted IMR represents IMR in a given period, assuming the same plurality distribution as in 1994–1996. IMR also was adjusted for changes in birthweight distribution. Stratified analyses were conducted to examine IMR trends within infant birthweight and plurality subpopulations and by maternal characteristics. Use of assisted reproductive technology (ART) procedures in Delaware in 2000 was assessed by using data from the population-based U.S. Registry of ART Procedures maintained by CDC, which includes data on pregnancies and live births conceived through the use of infertility treatment procedures in which both egg and sperm are handled outside the body (e.g., in vitro fertilization).

Delaware's IMR increased from 7.1 deaths per 1,000 live births during 1994–1996 to 8.7 during 1998–2000; the rate of twin births increased from 2.8% to 3.3%, the rate of triplets-plus births was unchanged (0.2%), and the VLBW rate increased from 1.7% to 1.9% (Table 1). Adjusting for plurality distribution did not alter the observed IMR trend significantly (Figure). Adjusting for birthweight distribution attenuated the IMR trend, but a 16% increase remained. Analysis of birthweight-specific mortality indicated that IMR among normal birthweight and MLBW infants did not change significantly; however, IMR among VLBW infants increased 25%, from 235 to 294 ($p = 0.03$). When the birthweight-adjusted IMR was analyzed while IMR among VLBW infants was held constant, the IMR trend no longer was evident.

TABLE 1. Percentage* of live births, by infant characteristics — Delaware, 1994–2000

Characteristic	1994–1996 (n = 30,802)	1998–2000 (n = 32,286)
Birthweight		
VLBW† (<1,500 g)	1.7	1.9
MLBW§ (1,500 g–2,499 g)	6.5	6.7
Normal (≥2,500 g)	91.8	91.4
Plurality		
Singletons	97.1	96.5
Twins	2.8	3.3
Triplets-plus	0.2	0.2
Gestational age (wks)		
<28	0.9	1.0
28–36	10.5	11.7
≥37	88.6	87.2

* Percentages might not add to 100% because of rounding.
† Very low birthweight.
§ Moderately low birthweight.

a•ware: *adj*

(ə-'wâr) 1 : marked by comprehension, cognizance, and perception; see also *MMWR*.

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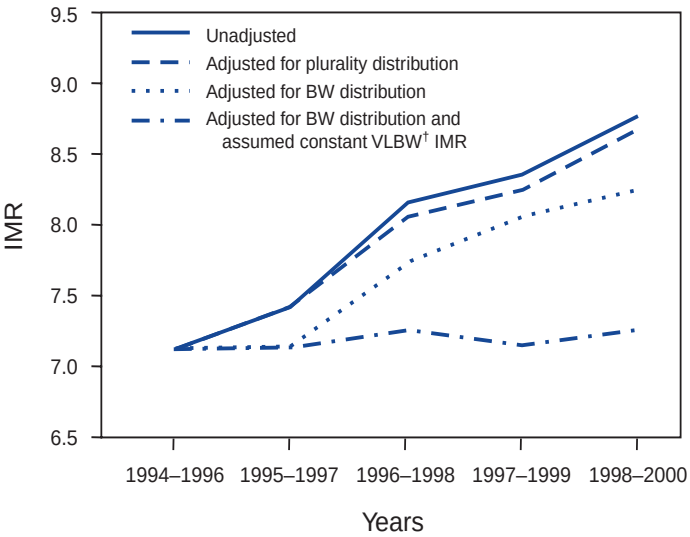
FIGURE. Adjusted infant mortality rates* (IMRs), by plurality and birthweight (BW) distributions — Delaware, 1994–2000



* Per 1,000 live births.
† Very low birthweight.

Examination of VLBW infants indicated increased mortality among all plurality subpopulations: 8% for singletons (from 261 to 283; p = 0.6), 93% for twins (from 160 to 315; p = 0.03), and 304% for triplets-plus (from 95 to 385; p = 0.08). During 1998–2000, VLBW singletons accounted for 26% of the excess mortality, and twins and triplets-plus accounted for 54% and 20%, respectively. Analyses of birthweight in 500-gram increments indicated that the IMR trend was not attributable to an increase in extremely LBW infants (i.e., those weighing <1,000 g), because neither the proportion of infants weighing <500 g nor that of infants weighing <1,000 g increased. Among VLBW infants, the largest increase (67%) in IMR (from 29 to 48; p = 0.3) was among infants weighing 1,000 g–1,499 g.

The distribution of maternal demographic and pregnancy factors during 1994–1996 was similar to that during 1998–2000 (Table 2). Analyses of IMR trends among VLBW infants according to these factors (Table 3) revealed statistically significant increases in IMR for infants of mothers who were aged ≥30 years, were married, had prenatal care during their first trimester, were insured privately, and resided in New Castle County excluding Wilmington (i.e., Delaware's only predominantly suburban area). The increase in IMR for infants of mothers who had at least a high school education approached statistical significance (p = 0.06).

Increased use of and improved success rates for ART have led to an increase in the annual number of ART-conceived infants born to Delaware residents. ART use has increased in surrounding states, which might have provided ART services to Delaware residents (*3*). During 1996–2000, the number of ART procedures performed in Delaware increased 13%. In 2000, an estimated 113 (1%) of the 11,046 live births recorded in Delaware were conceived with the use of ART; however, ART-conceived infants accounted for approximately 8% of VLBW infants born in 2000. Among multiple-birth infants born in Delaware in 2000, an estimated 56% were born through natural conception; this estimate was made on the basis of national multiple-birth rates in 1971, before the widespread use of infertility drugs or ART. On the basis of births reported to the ART registry, approximately 17% of the multiple births in 2000 were attributable to ART; the other approximately 28% likely were attributable to other non-ART infertility treatments.

TABLE 2. Percentage* of live births, by maternal characteristics — Delaware, 1994–2000

Characteristic	1994–1996 (n = 30,802)	1998–2000 (n = 32,286)
Race/Ethnicity		
White, non-Hispanic	69.3	64.3
Black, non-Hispanic	22.7	24.3
Hispanic	5.8	8.2
Age group (yrs)		
<20	13.3	12.9
20–29	50.8	50.7
≥30	35.8	36.4
Education		
<High school	17.8	18.7
≥High school	81.8	80.7
Marital status		
Single	35.0	38.0
Married	65.0	62.0
Initiated prenatal care in first trimester		
Yes	87.0	86.8
No	12.2	12.7
Source of payment		
Private insurance	62.8	63.0
Medicaid	32.9	33.8
Self-pay	3.7	3.1
Smoked during pregnancy		
Yes	13.7	13.5
No	86.0	86.2
County/City of residence†		
City of Wilmington	11.8	11.4
Other New Castle County	53.1	53.2
Kent County	17.9	17.8
Sussex County	17.2	17.6

* Percentages might not add to 100% because of rounding.
† Delaware comprises three counties; the city of Wilmington lies within New Castle County but is considered separately in this analysis.

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TABLE 3. Infant mortality rates* (IMRs) among very low birthweight (VLBW) infants, by maternal characteristics — Delaware, 1994–1996 and 1998–2000†

Characteristic	1994–1996	1998–2000	Absolute increase§	Relative increase¶ (%)	p value for trend
Race/Ethnicity					
White, non-Hispanic	205.2	241.5	36.3	(17.7)	—**
Black, non-Hispanic	259.4	344.3	84.9	(32.7)	—
Hispanic	260.9	279.1	18.2	(7.0)	—
Age group (yrs)					
<20	247.6	299.1	51.5	(20.8)	—
20–29	271.0	297.6	26.6	(9.8)	—
≥30	151.9	287.1	135.2	(89.0)	0.02
Education					
<High school	302.1	325.2	23.1	(7.6)	—
≥High school	214.5	286.0	71.5	(33.3)	0.06
Marital status					
Single	313.4	297.5	-15.9	(-5.1)	—
Married	149.8	290.4	140.6	(93.9)	<0.01
Initiated prenatal care in first trimester					
Yes	224.1	301.8	77.7	(34.7)	0.04
No	280.5	230.8	-49.7	(-17.7)	—
Source of payment					
Private insurance	181.2	294.7	113.5	(62.6)	0.01
Medicaid	281.6	259.9	-21.7	(-7.7)	—
Self-pay	425.0	442.3	17.3	(4.1)	—
Smoked during pregnancy					
Yes	238.1	256.6	18.5	(7.8)	—
No	235.8	303.5	67.7	(28.7)	0.08
County/City of residence††					
Kent County	279.6	275.5	-4.1	(-1.5)	—
City of Wilmington	292.9	263.6	-29.3	(-10.0)	—
Other New Castle County	177.0	315.4	138.4	(78.2)	<0.01
Sussex County	287.5	282.6	-4.9	(-1.7)	—

* Per 1,000 live births.
† No. VLBW infant deaths: for 1994–1996, n = 121; for 1998–2000, n = 176.
§ Difference between IMR for 1998–2000 and IMR for 1994–1996.
¶ Absolute increase/IMR (1994–1996) x 100.
** Not statistically significant.
†† Delaware comprises three counties; the city of Wilmington lies within New Castle County but is considered separately in this analysis.

Editorial Note: The findings in this report indicate that the IMR increase in Delaware is attributable primarily to increased mortality among VLBW infants. Analysis of maternal risk factors suggested that mortality rates were higher among infants born to women of higher socioeconomic status (SES) as indicated by age, marital status, education level, suburban residence, insurance status, and access to early prenatal care. A trend toward higher LBW rates among mothers with higher SES has been reported previously for births in Massachusetts (*4*); however, that study did not evaluate the impact on IMR trends.

The etiology of this excess mortality is uncertain. ART and other infertility treatments might increase risk for poor outcomes. Women who undergo ART are more likely to deliver preterm and to undergo Cesarean section, even with singleton pregnancies (*5*), and they have a higher risk for preeclampsia (*6*). ART is a well-recognized factor in the increasing multiple-birth rate in the United States. Evidence exists that singletons born through use of ART have higher rates of LBW (*7*) and congenital malformations (*8*) than infants who were conceived naturally. Because insurance coverage for ART often is limited or lacking (and is not mandated in Delaware), parents of infants conceived from these treatments tend disproportionately to have high SES. Studies also suggest that other infertility treatments (e.g., ovarian stimulation) increase the risk for adverse infant outcomes (*9*). These treatments are less well studied. Infertility itself might result in lessened capacity to maintain a healthy pregnancy. Higher rates of LBW have been observed among subfertile couples who take >1 year to conceive but do not undergo infertility treatment (*10*).

The findings in this report are subject to at least three limitations. First, some trends noted in this report should be interpreted with caution because numbers of infant deaths among certain subpopulations were small, a common occurrence in smaller states. Second, although ART might have an increasing impact on births in Delaware generally, the hypothesis that the increase in ART births contributed to the increasing IMR in Delaware could not be evaluated. Because the method of conception is not recorded on Delaware birth certificates, analyses of ART were based on comparison between two unlinked data sources. ART births were estimated from a registry that includes approximately 95% of all ART conceptions, and no means were available to account for migration between conception and birth. In addition, although the ART registry includes data on plurality and birthweight, it is not designed to capture infant mortality. Finally, no data are available on which to base an evaluation of the contributions of births conceived using non-ART infertility treatments or, with the national trend toward delayed childbearing, an increase in conceptions among subfertile couples.

Changes in prenatal care practices might have contributed to Delaware's increased IMR. Timing of initiation of prenatal care could be established by using vital statistics data, but

quality and content of prenatal care could not. Differences might have affected maternal, fetal, and infant health, and might have affected some subpopulations more negatively than others. Prepregnancy health also could not be assessed, nor could the contribution of changes in fetal survival and subsequent early neonatal death. The finding that the heaviest VLBW infants (1,000 g–1,499 g) had the greatest increases in mortality suggests the need for more detailed study of this subpopulation.

Limiting the number of embryos transferred with ART will help reduce multiple births. Recording the method of conception on birth certificates, as has been initiated in Massachusetts, would provide additional data about risk for infant mortality resulting from infertility treatments. Further study is required to assess the direct contribution of infertility treatments and changes in prenatal care strategies to infant mortality.

Acknowledgments

This report is based on assistance provided by T Jarrell, PhD, Delaware Health Statistics Center, Div of Public Health, Delaware Health and Social Svcs. A De, PhD, Div of Applied Public Health Training, Epidemiology Program Office, CDC.

References

1. U.S. Department of Health and Human Services. Healthy People 2010, 2nd ed. With Understanding and Improving Health and Objectives for Improving Health (2 vols.). Washington, DC: U.S. Department of Health and Human Services, 2000.
2. Mathews TJ, Menacker F, MacDorman MF. Infant mortality statistics from the 2000 period linked birth/infant death data set. Hyattsville, Maryland: U.S. Department of Health and Human Services, CDC, National Center for Health Statistics, 2002 (National Vital Statistics Reports 50;12).
3. CDC. Use of assisted reproductive technology—United States, 1996 and 1998. MMWR 2002;51:97–101.
4. CDC. Impact of multiple births on low birthweight—Massachusetts, 1989–1996. MMWR 1999;48:289–92.
5. Henriksen TB, Baird DD, Olsen J, Hedegaard M, Secher NJ, Wilcox AJ. Time to pregnancy and preterm delivery. Obstet Gynecol 1997;89:595–9.
6. Lynch A, McDuffie R, Murphy J, Faber K, Orleans M. Preeclampsia in multiple gestation: the role of assisted reproductive technologies. Obstet Gynecol 2002;99:445–51.
7. Schieve LA, Meikle SF, Ferre C, Peterson HB, Jeng G, Wilcox LS. Low and very low birth weight in infants conceived with use of assisted reproductive technology. N Engl J Med 2002;346:731–7.
8. Koivurova S, Hartikainen A-L, Gissler M, Hemminki E, Sovio U, Järvelin M-R. Neonatal outcome and congenital malformations in children born after in-vitro fertilization. Hum Reprod 2002;17: 1391–8.
9. Gaudoin M, Dobbie R, Finlayson A, Chalmers J, Cameron IT, Fleming R. Ovulation induction/intrauterine insemination in infertile couples is associated with low birth weight infants. Am J Obstet Gynecol 2003;188:611–6.
10. Williams MA, Goldman MB, Mittendorf R, Monson RR. Subfertility and the risk of low birth weight. Fertil Steril 1991;56:668–71.

Rapid Point-of-Care Testing for HIV-1 During Labor and Delivery — Chicago, Illinois, 2002

On November 7, 2002, the Food and Drug Administration (FDA) approved the OraQuick Rapid HIV-1 Antibody Test (OraSure Technologies, Inc., Bethlehem, Pennsylvania) (*1*). Rapid human immunodeficiency virus (HIV) testing during labor and delivery allows pregnant women who were not tested previously during pregnancy to be tested and, if HIV-infected, to begin antiretroviral therapy immediately to prevent perinatal transmission (*2,3*). To evaluate whether point-of-care rapid HIV testing during labor and delivery expedites the diagnosis of HIV infection in pregnant women, CDC assessed turnaround testing times at three hospitals in Chicago, Illinois, in which obstetric staff performed rapid tests on whole blood specimens at point of care, and at a fourth hospital in which testing was performed in the hospital laboratory (*4*). This report summarizes the results of that analysis, which indicate that point-of-care rapid testing provided HIV test results faster than laboratory testing, resulting in prompt administration of intrapartum and neonatal antiretroviral prophylaxis. Hospitals should assess the costs and benefits of implementing point-of-care HIV testing within their institutions.

The four Chicago hospitals with the city's highest HIV-1 prevalence among childbearing-aged women participated in the Mother Infant Rapid Intervention at Delivery (MIRIAD) study. MIRIAD is a multisite study funded by CDC to 1) determine the feasibility of rapid HIV testing in labor and delivery units of women with undocumented HIV status, 2) provide timely therapy to reduce perinatal transmission, and 3) facilitate follow-up care for HIV-infected mothers and their infants. Women eligible for MIRIAD do not have documentation of HIV status in their health-care records and are expected to deliver either during that hospitalization or at >34 weeks' gestational age.

For the MIRIAD study, FDA allowed use of the OraQuick rapid test before its formal licensure. After institutional review board approval, hospital staff were trained to recruit eligible women, obtain informed consent, perform the OraQuick rapid test, and counsel participants about their test results. Three of the four hospitals received approval from their respective point-of-care testing committees for obstetric staff to perform the OraQuick test onsite in labor and delivery units; one hospital sent specimens to its 24-hour laboratory for OraQuick rapid testing. At each hospital, duplicate specimens were sent for standard HIV testing (enzyme immunoassay and, when necessary, Western blot) as part of the study protocol.

Hospital staff performing point-of-care testing in labor and delivery units used timers attached to their clothing to continue other work during the 20 minutes necessary for development of test results. In the hospital in which testing was performed in the laboratory, staff delivered specimens to the laboratory and reported test results to patients when the results were available. Staff recorded the time of each step in the testing protocol. Median times were analyzed by using the Wilcoxon rank-sum test.

During January–July 2002, a total of 5,771 women were evaluated in the labor-and-delivery units of all four hospitals; 514 (9%) were deemed eligible for rapid HIV testing. Of the 514 women, 30 (6%) were not offered participation, 104 (20%) declined participation, and 380 (74%) gave informed consent and were enrolled. A total of 225 women were tested at the three hospitals using point-of-care testing, and 155 were tested at the hospital using laboratory testing. Standard enzyme immunoassay and, when necessary, Western blot testing, confirmed 100% of the rapid test results. Three women were identified as HIV-infected, and antiretroviral therapy was administered to mothers and infants during labor and delivery. None of these infants became HIV-infected.

Turnaround testing time was measured as the time that elapsed between obtaining the participant's blood and the participant receiving the test results. Median turnaround time at the three hospitals using point-of-care testing was 45 minutes (interquartile range: 30 minutes–2.5 hours), substantially less than at the hospital using laboratory testing (median time: 3.5 hours; interquartile range: 94 minutes–16 hours) ($p<0.0001$).

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Editorial Note: The findings in this report indicate that point-of-care rapid testing provided valid HIV test results faster than laboratory testing. The median turnaround time for point-of-care testing was less than one fourth that for laboratory testing. With rapid testing, three pregnant women who had not received an HIV diagnosis previously were able to learn their HIV status quickly, resulting in prompt administration of intrapartum and neonatal antiretroviral therapy, measures proven to reduce vertical HIV transmission (*3,5,6*).

The majority of pregnant women are offered HIV testing early during prenatal care, which is the optimum approach to HIV prevention and care. However, women who do not receive prenatal care are at increased risk for HIV infection (*3*). FDA's approval of the OraQuick rapid test now provides health-care providers with an opportunity to test for HIV infection and inform patients of their HIV status rapidly. This can have a profound benefit for the care of women who have not been tested for HIV during pregnancy. Women can be informed about a negative rapid test result without further testing (pending state-specific regulations). Reactive rapid test results require confirmation but can be used to initiate therapy in this setting.

The findings in this report complement the new CDC initiative aimed at reducing barriers to early diagnosis of HIV infection, which includes a goal to further decrease perinatal HIV transmission in the United States (*7*). Rapid HIV testing of pregnant women not screened during prenatal care will help achieve this goal by increasing the proportion of infected women and their infants receiving intrapartum and neonatal antiretroviral drug prophylaxis. As rapid HIV testing becomes more available in labor and delivery settings, implementation will require training and logistic planning (*8*). FDA waived the OraQuick rapid test under the Clinical Laboratory Improvement Amendments on the basis of the test's simplicity and accuracy.

Data from this study indicate that point-of-care testing was feasible and support using nonlaboratory personnel to perform this rapid test. However, adequate training and quality-assurance procedures are necessary. Point-of-care testing also requires coordination with the laboratory information system to ensure test results are documented correctly. Hospitals will need to assess the costs and benefits of implementing point-of-care HIV testing within their institutions (*9,10*).

Acknowledgments

This report is based on data contributed by the following MIRIAD Study principal investigators: S Nesheim, Atlanta, Georgia; MH Cohen, Chicago, Illinois; MJ O'Sullivan, Miami, Florida; R Maupin, New Orleans, Louisiana; and MP Webber, New York, New York. The following persons provided data management and analysis: A Podolanczuk, CORE Center, Chicago, Illinois. S Danner, S Wei, J Wiener, Div of HIV/AIDS Prevention—Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, CDC.

References

1. CDC. Approval of a new rapid test for HIV antibody. MMWR 2002;51:1051–2.
2. Minkoff H, O'Sullivan MJ. The case for rapid HIV testing during labor. JAMA 1998;279:1743–4.
3. CDC. U.S. Public Health Service Task Force recommendations for use of antiretroviral drugs in pregnant HIV-1 infected women for maternal health and interventions to reduce perinatal HIV-1 transmission in the United States. MMWR 2002;51(No. RR-18).
4. Cohen MH, Olszewski Y, Branson B, et al. Using point-of-care testing to make rapid HIV-1 tests in labor really rapid. AIDS 2003(in press).
5. Kourtis AP, Bulterys M, Nesheim SR, Lee FK. Understanding the timing of HIV transmission from mother to infant. JAMA 2001;285:709–12.

6. Moodley D, Moodley J, Coovadia H, et al. A multicenter randomized controlled trial of nevirapine versus a combination of zidovudine and lamivudine to reduce intrapartum and early postpartum mother-to-child transmission of human immunodeficiency virus type 1. J Infect Dis 2003;187:725–35.
7. CDC. Advancing HIV prevention: new strategies for a changing epidemic—United States, 2003. MMWR 2003;52:329–32.
8. National Committee for Clinical Laboratory Standards. Point-of-care *in vitro* diagnostic (IVD) testing; approved guideline. Wayne, Pennsylvania: National Committee for Clinical Laboratory Standards, 1999; NCCLS document AST2-A.
9. Humbertson SK. Management of a point-of-care program. Organization, quality assurance, and data management. Clin Lab Med 2001;21:255–68.
10. Stringer JS, Rouse DJ. Rapid testing and zidovudine treatment to prevent vertical transmission of HIV in unregistered parturients: a cost-effectiveness analysis. Obstet Gynecol 1999;94:34–40.

Global Progress Toward Universal Childhood Hepatitis B Vaccination, 2003

In 1992, the World Health Organization (WHO) set a goal for all countries to integrate hepatitis B vaccination into their universal childhood vaccination programs by 1997. This report summarizes the global progress achieved toward vaccination of children against hepatitis B virus (HBV) infection. Although many countries have introduced hepatitis B vaccination into their national vaccination programs, efforts are needed to increase coverage with the 3-dose hepatitis B vaccination series and expand vaccination programs into countries where the vaccine has not yet been introduced.

In 2001, the most recent year for which complete program data are available, 126 (66%) of 191 WHO member states had universal infant or childhood hepatitis B vaccination programs (*1*). Through these programs, an estimated 32% of children aged <1 year were vaccinated fully with the 3-dose hepatitis B vaccination series. In the six WHO regions, the proportion of children aged <1 year who were vaccinated fully was 65% in the Western Pacific Region, 58% in the Americas Region, 45% in the European Region, 41% in the Eastern Mediterranean Region, 9% in the South-East Asian Region, and 6% in the African Region.

As of May 2003, a total of 151 (79%) of 192* WHO member states had adopted universal childhood hepatitis B vaccination policies, including six that have policies for vaccinating adolescents (Figure). Of the 137 member states that have adopted universal childhood hepatitis B vaccination and for which data are available, 76 (55%) have a policy for administering the first dose of vaccine soon after birth (birth dose).

Of the 89 member states with historically high prevalences of chronic HBV infection (i.e., prevalence of hepatitis B surface antigen [HBsAg] ≥8%) and for which universal infant hepatitis B vaccination is recommended specifically, 64 (72%) have adopted universal infant hepatitis B vaccination. Of these 64 member states, 34 (53%) have a policy for administration of a birth dose of vaccine. Goals for global hepatitis B vaccination are for the vaccine to be introduced in all countries by 2007 and for coverage with the 3-dose hepatitis B vaccination series to reach 90% by 2010 (*2*).

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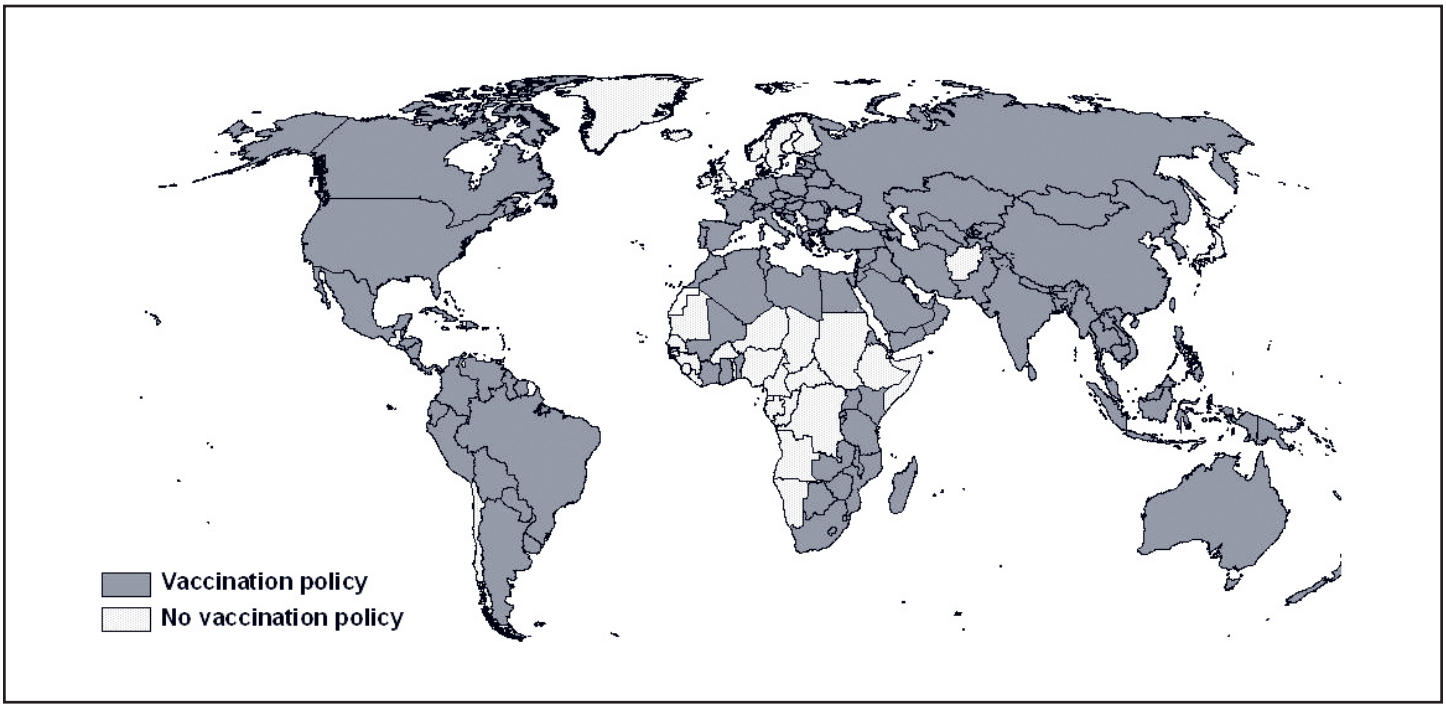
Editorial Note: Each year, approximately 600,000 HBV-related deaths occur worldwide (CDC and WHO, unpublished data, 2003). An estimated 93% of these deaths result from the chronic sequelae of HBV infection: cirrhosis and hepatocellular carcinoma (HCC) (CDC, unpublished data, 2003). Approximately 21% of HBV-related deaths result from infection acquired in the perinatal period and 48% from infection acquired in early childhood (age <5 years) (CDC, unpublished data, 2003). Therefore, vaccination of infants and children is the highest priority for hepatitis B vaccination programs. Three doses of hepatitis B vaccine are 90%–95% efficacious in preventing HBV infection and its chronic sequelae (*3*). To prevent perinatal HBV transmission, the first dose of vaccine should be administered within the first 24 hours after birth (*3,4*).

Hepatitis B vaccination has been shown to reduce the prevalence of chronic HBV infection and the incidence of HCC dramatically. In The Gambia, the prevalence of chronic infection among children declined from 10.0% to 0.6% after implementation of universal infant hepatitis B vaccination (*5*). Similar declines in prevalence of chronic infection associated with infant and childhood hepatitis B vaccination have been demonstrated in China, Indonesia, Senegal, and Thailand, and among Alaska Natives (*6,7*). After implementation of universal infant hepatitis B vaccination in Taiwan, the incidence of HCC among children declined from 0.7 to 0.36 per 100,000 (*8*).

Several important challenges remain to achieve the goal of global childhood hepatitis B vaccination introduction. Countries that have not yet introduced hepatitis B vaccine should do so. For many of these countries, this will require strengthening their existing vaccination program infrastructure to accommodate the addition of a new vaccine (*9*). In countries

* In September 2002, Timor Leste (East Timor) became a WHO member state.

FIGURE. World Health Organization member states with universal infant or childhood hepatitis B vaccination programs, 2003



where the vaccine has been introduced already, coverage with the 3-dose hepatitis B vaccination series should be increased to that of the 3-dose diphtheria-tetanus-pertussis (DTP) series, and then to ≥90%. Countries that do not have a policy for administration of a birth dose of vaccine should consider the feasibility of implementing such a policy. In countries with high hepatitis B vaccination coverage among children, consideration should be given to catch-up vaccination of older children, adolescents, and adult populations at increased risk for HBV infection.

A major barrier to the introduction of hepatitis B vaccination has been the high cost of hepatitis B vaccines. Although the price of monovalent hepatitis B vaccine for developing countries has decreased from approximately U.S.$3.00 per dose in 1990 to U.S.$0.30 per dose in 2001, the cost remains higher than that of the older vaccines (e.g., DTP, oral polio, and measles), which cost U.S.$0.06–$0.10 per dose. Since 1999, support from the Global Alliance for Vaccines and Immunization (GAVI) and the Vaccine Fund (VF) has accelerated introduction of hepatitis B vaccine in the world's poorest countries (*9*). As of May 2003, of 75 countries eligible for GAVI/VF support, 48 (64%) had received funding for hepatitis B vaccination introduction.

Administration of a birth dose of vaccine presents a challenge. Worldwide, approximately 50% of infants are born at home and do not have immediate access to health care. However, because hepatitis B vaccine has been shown to be heat stable, it could be administered by trained birth attendants to infants born at home. The feasibility of such a strategy has been demonstrated in Indonesia, where trained birth attendants were taught to administer the birth dose of vaccine to infants born at home by using a single-use, pre-filled injection device (*10*).

WHO, in collaboration with CDC and other GAVI partners, conducted process evaluations of hepatitis B vaccination introduction in five African countries where the vaccine had been introduced recently. These evaluations demonstrated that hepatitis B vaccine introduction did not negatively impact the existing vaccination programs, including coverage with the other childhood vaccines. However, several problems were identified related to the management of this relatively costly vaccine: vaccine freezing during storage and shipment, and vaccine wastage. Outcome evaluations are needed to document the impact of vaccination on the prevalence of chronic HBV infection and HBV-related morbidity and mortality.

References

1. World Health Organization. WHO Vaccine Preventable Diseases Monitoring System: 2002 Global Summary. Geneva, Switzerland: World Health Organization, 2002; document no. WHO/V&B/02.20.
2. Global Alliance for Vaccines and Immunization. GAVI Milestones, 2003. Available at http://www.vaccinealliance.org/home/General_Information/About_alliance/Background/milestones.php.
3. CDC. Hepatitis B virus: a comprehensive strategy for eliminating transmission in the United States through universal childhood vaccination: Recommendations of the Immunization Practices Advisory Committee (ACIP). MMWR 1991;40(No. RR-13).

4. Yeoh EK, Young B, Chan YY, et al. Determinants of immunogenicity and efficacy of hepatitis B vaccine in infants. In: Hollinger FB, Lemon SM, Margolis HS, eds. Viral Hepatitis and Liver Disease. Baltimore, Maryland: Williams & Wilkins, 1991.
5. Viviani S, Jack A, Hall AJ, et al. Hepatitis B vaccination in infancy in The Gambia: protection against carriage at 9 years of age. Vaccine 1999;17:2946–50.
6. Kane MA. Status of hepatitis B immunization programmes in 1998. Vaccine 1998;16:S104.
7. Harpaz R, McMahon BJ, Margolis HS, et al. Elimination of new chronic hepatitis B virus infections: results of the Alaska Immunization Program. J Infect Dis 2000;181:413–8.
8. Chang MH, Chen CJ, Lai MS, et al. Universal hepatitis B vaccination in Taiwan and the incidence of hepatocellular carcinoma in children. N Engl J Med 1997;336:1855–9.
9. Martin JF, Marshall J. New tendencies and strategies in international immunisation: GAVI and the Vaccine Fund. Vaccine 2003;21:587–92.
10. Otto BF, Suarnawa IM, Stewart T, et al. At-birth immunisation against hepatitis B using a novel pre-filled immunisation device stored outside the cold chain. Vaccine 2000;18:498–502.

West Nile Virus Activity — United States, September 4–10, 2003

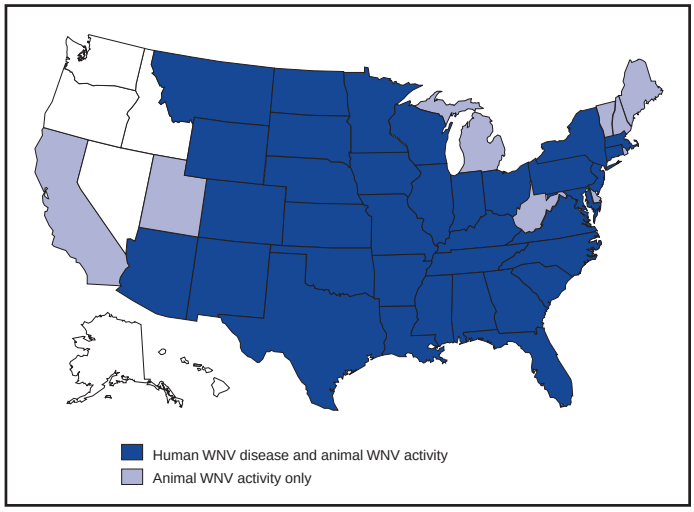
This report summarizes West Nile virus (WNV) surveillance data reported to CDC through ArboNET as of 3 a.m., Mountain Daylight Time, September 10, 2003.

During the reporting week of September 4–10, a total of 1,067 human cases of WNV infection were reported from 24 states (Colorado, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Louisiana, Maryland, Minnesota, Mississippi, Montana, Nebraska, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee, Texas, Wisconsin, and Wyoming), including 17 fatal cases from seven states (Colorado, Georgia, Montana, Nebraska, New York, South Dakota, and Texas). During the same period, WNV infections were reported in 948 dead birds, 395 horses, five dogs, one squirrel, and 600 mosquito pools.

During 2003, a total of 2,923 human cases of WNV infection have been reported from Colorado (n = 973), Nebraska (n = 436), South Dakota (n = 407), Wyoming (n = 239), Texas (n = 190), Montana (n = 116), New Mexico (n = 95), North Dakota (n = 91), Louisiana (n = 48), Mississippi (n = 43), Pennsylvania (n = 38), Minnesota (n = 31), Oklahoma (n = 25), Iowa (n = 23), Florida (n = 22), Alabama (n = 20), Ohio (n = 19), Kansas (n = 18), New York (n = 13), North Carolina (n = 10), Illinois (n = eight), Maryland (n = eight), Georgia (n = seven), Indiana (n = six), Missouri (n = six), Tennessee (n = six), Arkansas (n = five), Wisconsin (n = five), Kentucky (n = four), Virginia (four), New Jersey (n = three), Arizona (n = one), Connecticut (n = one), Massachusetts (n = one), and South Carolina (n = one) (Figure). Of 2,800 (96%) cases for which demographic data were available, 1,471 (53%) occurred among males; the median age was 47 years (range: 1 month–99 years), and the dates of illness onset ranged from March 28 to August 29. Of the 2,800 cases, 54 fatal cases were reported from Colorado (n = 13), Nebraska (n = 10), Texas (n = six), South Dakota (n = five), New Mexico (n = four), Wyoming (n = four), Alabama (n = two), Iowa (n = two), New York (n = two), Georgia (n = one), Kansas (n = one), Mississippi (n = one), Missouri (n = one), Montana (n = one), and Ohio (n = one). A total of 240 presumptive West Nile (WN)–viremic blood donors have been reported from Nebraska (n = 116), South Dakota (n = 48), Texas (n = 20), Wyoming (n=16), New Mexico (n = 11), Oklahoma (n = 11), Montana (n = five), Iowa (n = three), Minnesota (n = three), Mississippi (n = three), Florida (n = one), Louisiana (n = one), New Jersey (n = one), and Tennessee (n = one). Of these 240 donors, 20 subsequently had onset of WN fever, and one subsequently had onset of WN meningoencephalitis. In addition, 6,145 dead birds with WNV infection were reported from 40 states and New York City; 1,557 WNV infections in horses have been reported from 34 states, 10 WNV infections were reported in dogs, three infections in squirrels, and 12 infections in unidentified animal species. During 2003, WNV seroconversions have been reported in 552 sentinel chicken flocks from 12 states, and 17 seropositive sentinel horses have been reported from five states. A total of 3,774 WNV-positive mosquito pools have been reported from 36 states and New York City.

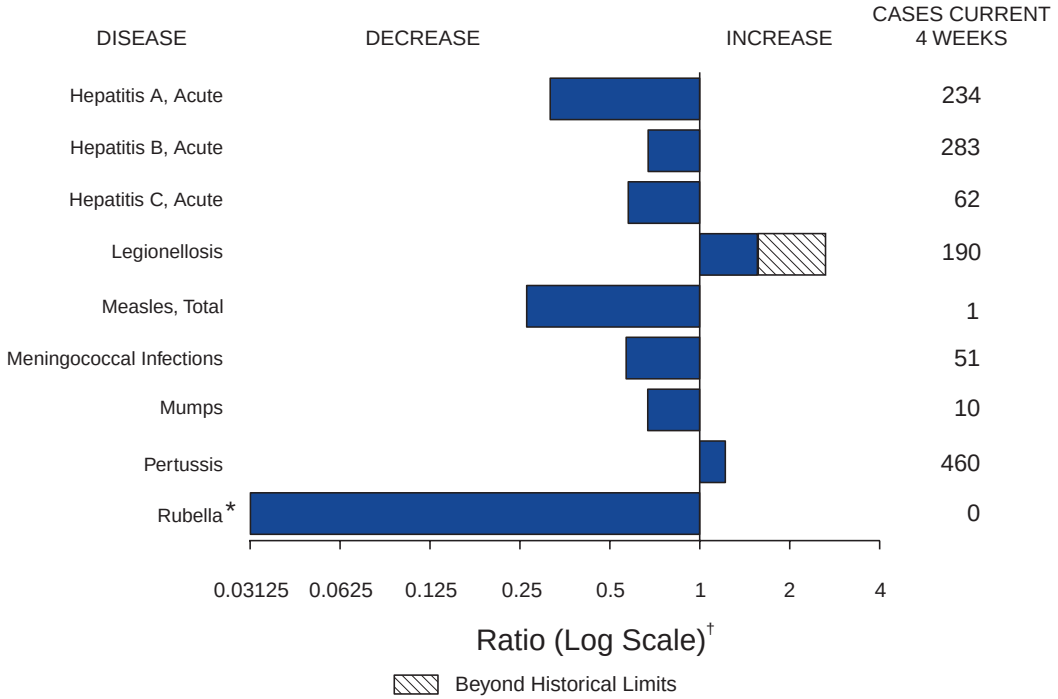
Additional information about WNV activity is available from CDC at http://www.cdc.gov/ncidod/dvbid/westnile/index.htm and http://westnilemaps.usgs.gov.

FIGURE. Areas reporting West Nile virus (WNV) activity — United States, 2003*



* As of 3 a.m., Mountain Daylight Time, September 10, 2003.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals September 6, 2003, with historical data



* No rubella cases were reported for the current 4-week period yielding a ratio for week 36 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 September 6, 2003 (36th Week)*

	Cum. 2003	Cum. 2002		Cum. 2003	Cum. 2002
Anthrax	-	2	Hansen disease (leprosy)†	37	65
Botulism:	-	-	Hantavirus pulmonary syndrome†	13	15
foodborne	1	20	Hemolytic uremic syndrome, postdiarrheal†	78	146
infant	38	50	HIV infection, pediatric†§	151	112
other (wound & unspecified)	18	11	Measles, total	35¶	26**
Brucellosis†	49	78	Mumps	138	192
Chancroid	31	51	Plague	1	-
Cholera	8	1	Poliomyelitis, paralytic	-	-
Cyclosporiasis†	50	143	Psittacosis†	12	13
Diphtheria	-	1	Q fever†	51	36
Ehrlichiosis:	-	-	Rabies, human	-	2
human granulocytic (HGE)†	208	200	Rubella	7	10
human monocytic (HME)†	98	127	Rubella, congenital	-	1
other and unspecified	18	15	Streptococcal toxic-shock syndrome†	119	86
Encephalitis/Meningitis:	-	-	Tetanus	10	17
California serogroup viral†	17	61	Toxic-shock syndrome	90	75
eastern equine†	5	2	Trichinosis	2	13
Powassan†	-	1	Tularemia†	47	56
St. Louis†	1	13	Yellow fever	-	-
western equine†	76	-			

-: No reported cases.
* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).
† 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. Last update August 24, 2003.
¶ Of 35 cases reported, 30 were indigenous, and five were imported from another country.
** Of 26 cases reported, 13 were indigenous, and 13 were imported from another country.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending September 6, 2003, and September 7, 2002 (36th Week)*

Reporting area	AIDS		Chlamydia†		Coccidiodomycosis		Cryptosporidiosis		Encephalitis/Meningitis West Nile	
	Cum. 2003§	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	30,269	27,789	534,778	561,883	2,424	3,061	1,672	1,925	409	1,178
NEW ENGLAND	989	1,102	18,622	18,563	-	-	106	128	-	12
Maine	49	25	1,315	1,095	N	N	10	9	-	-
N.H.	24	22	1,023	1,070	-	-	11	21	-	-
Vt.	13	8	655	607	-	-	23	20	-	-
Mass.	408	579	7,584	7,424	-	-	41	51	-	9
R.I.	79	74	1,961	1,871	-	-	12	14	-	-
Conn.	416	394	6,084	6,496	N	N	9	13	-	3
MID. ATLANTIC	6,726	6,437	61,377	63,137	-	-	221	240	22	39
Upstate N.Y.	693	502	12,995	11,331	N	N	74	67	1	8
N.Y. City	3,390	3,663	22,367	20,981	-	-	52	98	-	17
N.J.	1,159	1,026	9,313	9,623	-	-	4	13	2	13
Pa.	1,484	1,246	16,702	21,202	N	N	91	62	19	1
E.N. CENTRAL	2,925	2,868	86,492	103,187	7	18	417	644	17	584
Ohio	555	510	18,130	25,824	-	-	70	90	17	59
Ind.	378	397	10,745	11,364	N	N	54	28	-	2
Ill.	1,348	1,357	26,753	32,917	-	2	42	85	-	424
Mich.	506	461	20,686	21,505	7	16	81	79	-	82
Wis.	138	143	10,178	11,577	-	-	170	362	-	17
W.N. CENTRAL	563	477	31,218	31,583	1	1	268	250	79	29
Minn.	110	105	6,779	7,113	N	N	82	120	14	-
Iowa	63	58	2,676	3,570	N	N	49	28	6	-
Mo.	266	217	11,434	10,633	-	-	23	24	3	14
N. Dak.	2	1	700	836	N	N	11	10	5	-
S. Dak.	9	3	1,759	1,443	-	-	25	17	16	12
Nebr.¶	39	44	3,142	3,183	1	1	9	38	17	2
Kans.	74	49	4,728	4,805	N	N	69	13	18	1
S. ATLANTIC	8,582	8,222	107,134	105,288	3	3	226	207	29	27
Del.	176	142	2,072	1,796	N	N	3	2	1	-
Md.	994	1,199	11,222	10,676	3	3	13	13	6	8
D.C.	765	394	1,980	2,245	-	-	12	4	-	-
Va.	655	578	11,232	11,934	-	-	33	9	-	-
W. Va.	61	66	1,711	1,649	N	N	3	2	-	-
N.C.	869	628	18,063	16,757	N	N	23	25	-	-
S.C.¶	551	586	10,258	9,688	-	-	3	4	1	-
Ga.	1,369	1,234	23,192	21,575	-	-	72	85	7	17
Fla.	3,142	3,395	27,404	28,968	N	N	64	63	14	2
E.S. CENTRAL	1,306	1,247	35,951	36,205	N	N	92	98	15	179
Ky.	111	198	5,627	5,962	N	N	20	3	4	7
Tenn.	575	525	13,739	11,124	N	N	32	48	5	-
Ala.	308	248	8,245	11,399	-	-	32	41	6	9
Miss.	312	276	8,340	7,720	N	N	8	6	-	163
W.S. CENTRAL	3,128	3,024	68,071	75,020	-	10	29	47	125	308
Ark.	127	175	5,148	5,239	-	-	5	7	5	5
La.	414	782	11,783	13,440	N	N	2	8	2	172
Okla.	154	143	6,828	7,897	N	N	9	9	3	-
Tex.	2,433	1,924	44,312	48,444	-	10	13	23	115	131
MOUNTAIN	1,152	885	31,394	34,828	1,695	1,979	86	114	122	-
Mont.	11	8	1,288	1,391	N	N	16	4	116	-
Idaho	17	23	1,758	1,699	N	N	18	20	-	-
Wyo.	6	6	683	643	1	-	3	8	3	-
Colo.	296	178	7,271	9,595	N	N	20	40	-	-
N. Mex.	92	59	4,803	5,171	4	7	6	18	2	-
Ariz.	490	370	9,043	10,321	1,656	1,936	4	11	-	-
Utah	47	49	2,989	1,924	9	10	13	10	1	-
Nev.	193	192	3,559	4,084	25	26	6	3	-	-
PACIFIC	4,898	3,527	94,519	94,072	717	1,049	227	197	-	-
Wash.	311	336	10,902	9,888	N	N	25	22	-	-
Oreg.	184	234	4,378	4,734	-	-	31	28	-	-
Calif.	4,319	2,854	74,550	73,930	717	1,049	171	146	-	-
Alaska	13	22	2,431	2,484	-	-	-	-	-	-
Hawaii	71	81	2,258	3,036	-	-	-	1	-	-
Guam	6	1	-	431	-	-	-	-	-	-
P.R.	787	798	1,331	1,785	N	N	N	N	-	-
V.I.	25	63	142	125	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	2	U	-	U	-	U	-	U	-	U

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

* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

† Chlamydia refers to genital infections caused by *C. trachomatis*.

§ Updated monthly from reports to the Division of HIV/AIDS Prevention — Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention. Last update August 31, 2003.

¶ Contains data reported through National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 6, 2003, and September 7, 2002 (36th Week)*

Reporting area	*Escherichia coli*, Enterohemorrhagic (EHEC)						Giardiasis		Gonorrhea	
	O157:H7		Shiga toxin positive, serogroup non-O157		Shiga toxin positive, not serogrouped					
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	1,358	2,289	153	126	91	30	11,029	13,190	203,208	239,415
NEW ENGLAND	93	175	28	37	10	4	791	1,214	4,806	5,244
Maine	8	23	1	6	-	-	113	129	134	90
N.H.	11	20	2	-	-	-	21	31	76	80
Vt.	12	5	-	1	-	-	75	87	49	71
Mass.	35	85	3	16	10	4	339	655	1,966	2,262
R.I.	1	8	-	1	-	-	82	101	650	594
Conn.	26	34	22	13	-	-	161	211	1,931	2,147
MID. ATLANTIC	152	238	9	1	23	4	2,198	2,695	24,759	28,714
Upstate N.Y.	59	110	5	-	10	-	642	759	5,100	5,854
N.Y. City	3	12	-	-	-	-	719	1,011	8,736	8,589
N.J.	12	43	-	-	-	-	217	319	5,623	5,227
Pa.	78	73	4	1	13	4	620	606	5,300	9,044
E.N. CENTRAL	313	568	18	25	16	3	1,800	2,270	38,343	50,250
Ohio	66	93	13	9	15	2	594	594	9,811	14,577
Ind.	60	47	-	-	-	-	-	-	4,170	4,857
Ill.	54	138	-	6	-	-	471	659	12,001	16,708
Mich.	50	88	-	3	-	1	469	580	8,888	9,963
Wis.	83	202	5	7	1	-	266	437	3,473	4,145
W.N. CENTRAL	242	319	25	22	18	3	1,190	1,280	10,957	12,305
Minn.	81	109	14	19	1	-	456	467	1,846	2,136
Iowa	50	71	-	-	-	-	169	198	607	840
Mo.	57	43	8	-	1	-	314	319	5,538	6,073
N. Dak.	8	4	-	-	9	-	24	13	30	50
S. Dak.	14	31	3	1	-	-	40	50	154	172
Nebr.	14	39	-	2	-	-	77	118	1,016	1,055
Kans.	18	22	-	-	7	3	110	115	1,766	1,979
S. ATLANTIC	104	172	48	18	5	-	1,789	1,952	53,212	60,863
Del.	4	5	N	N	N	N	27	34	811	1,094
Md.	7	19	-	-	-	-	73	77	5,372	6,093
D.C.	1	-	-	-	-	-	35	29	1,587	1,825
Va.	28	34	8	2	-	-	233	178	5,204	7,073
W. Va.	3	4	-	-	-	-	25	35	588	672
N.C.	5	29	15	-	-	-	N	N	10,443	11,104
S.C.	-	5	-	-	-	-	81	73	5,600	6,129
Ga.	21	38	2	7	-	-	610	633	11,520	11,816
Fla.	35	38	23	9	5	-	705	893	12,087	15,057
E.S. CENTRAL	54	78	2	-	6	9	229	245	17,355	20,854
Ky.	17	20	2	-	6	9	N	N	2,467	2,492
Tenn.	22	34	-	-	-	-	109	114	5,640	6,401
Ala.	12	16	-	-	-	-	120	131	5,086	7,306
Miss.	3	8	-	-	-	-	-	-	4,162	4,655
W.S. CENTRAL	38	83	1	-	7	3	184	155	28,066	33,630
Ark.	6	9	-	-	-	-	98	103	2,716	3,261
La.	3	3	-	-	-	-	5	4	7,073	8,316
Okla.	19	16	-	-	-	-	81	46	2,691	3,344
Tex.	10	55	1	-	7	3	-	2	15,586	18,709
MOUNTAIN	173	225	20	17	6	4	997	1,027	6,662	7,522
Mont.	12	18	-	-	-	-	64	64	69	60
Idaho	40	29	15	9	-	-	127	75	55	59
Wyo.	2	8	-	1	-	-	15	21	32	42
Colo.	36	70	2	4	6	4	268	341	1,709	2,358
N. Mex.	6	5	3	3	-	-	32	115	795	1,030
Ariz.	23	27	N	N	N	N	185	128	2,493	2,497
Utah	38	46	-	-	-	-	229	191	299	189
Nev.	16	22	-	-	-	-	77	92	1,210	1,287
PACIFIC	189	431	2	6	-	-	1,851	2,352	19,048	20,033
Wash.	53	98	1	-	-	-	185	262	1,874	1,947
Oreg.	52	148	1	6	-	-	244	281	581	583
Calif.	77	148	-	-	-	-	1,312	1,676	15,722	16,637
Alaska	2	6	-	-	-	-	52	66	341	410
Hawaii	5	31	-	-	-	-	58	67	530	456
Guam	N	N	-	-	-	-	-	7	-	36
P.R.	-	1	-	-	-	-	35	54	144	259
V.I.	-	-	-	-	-	-	-	-	36	31
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	-	U	-	U

N: Not notifiable. U: Unavailable. - : No reported cases.
* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 6, 2003, and September 7, 2002 (36th Week)*

Reporting area	*Haemophilus influenzae*, invasive†								Hepatitis (viral, acute), by type	
	All ages		Age <5 years							
	All serotypes		Serotype b		Non-serotype b		Unknown serotype		A	
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	1,211	1,206	12	25	68	97	129	109	3,935	6,346
NEW ENGLAND	94	83	1	-	6	8	5	2	199	221
Maine	2	1	-	-	-	-	1	-	9	7
N.H.	11	7	1	-	-	-	-	-	11	11
Vt.	7	6	-	-	-	-	-	-	5	1
Mass.	45	39	-	-	6	4	3	2	115	99
R.I.	4	10	-	-	-	-	1	-	11	29
Conn.	25	20	-	-	-	4	-	-	48	74
MID. ATLANTIC	270	219	-	2	1	12	35	20	762	800
Upstate N.Y.	99	85	-	2	1	4	11	6	87	129
N.Y. City	44	53	-	-	-	-	9	9	243	296
N.J.	50	43	-	-	-	-	6	5	97	134
Pa.	77	38	-	-	-	8	9	-	335	241
E.N. CENTRAL	175	242	3	3	6	9	27	31	438	798
Ohio	55	62	-	-	-	1	10	7	76	224
Ind.	36	35	-	1	4	7	-	-	49	36
Ill.	58	92	-	-	-	-	14	16	139	210
Mich.	16	11	3	2	2	1	1	-	136	169
Wis.	10	42	-	-	-	-	2	8	38	159
W.N. CENTRAL	87	50	-	1	6	2	11	3	133	227
Minn.	34	31	-	1	6	2	2	1	33	32
Iowa	-	1	-	-	-	-	-	-	22	52
Mo.	35	10	-	-	-	-	9	2	48	65
N. Dak.	1	4	-	-	-	-	-	-	-	1
S. Dak.	1	1	-	-	-	-	-	-	-	3
Nebr.	2	-	-	-	-	-	-	-	7	16
Kans.	14	3	-	-	-	-	-	-	23	58
S. ATLANTIC	283	270	1	5	10	15	14	19	961	1,752
Del.	-	-	-	-	-	-	-	-	4	10
Md.	62	68	-	2	5	3	-	1	99	222
D.C.	-	-	-	-	-	-	-	-	27	56
Va.	40	22	-	-	-	-	5	3	58	74
W. Va.	13	14	-	-	-	1	-	1	13	15
N.C.	31	27	-	-	2	3	1	-	58	164
S.C.	3	10	-	-	-	-	-	2	26	49
Ga.	52	57	-	-	-	-	5	9	368	355
Fla.	82	72	1	3	3	8	3	3	308	807
E.S. CENTRAL	54	51	1	1	-	4	7	9	121	197
Ky.	3	4	-	-	-	1	-	-	23	40
Tenn.	31	25	-	-	-	-	4	6	71	79
Ala.	18	14	1	1	-	3	2	1	13	30
Miss.	2	8	-	-	-	-	1	2	14	48
W.S. CENTRAL	50	42	1	2	7	7	3	2	177	722
Ark.	6	1	-	-	1	-	-	-	17	40
La.	7	6	-	-	-	-	2	2	38	62
Okla.	34	33	-	-	6	7	1	-	10	38
Tex.	3	2	1	2	-	-	-	-	112	582
MOUNTAIN	126	136	4	4	17	24	18	12	336	390
Mont.	-	-	-	-	-	-	-	-	7	11
Idaho	3	2	-	-	-	-	1	1	-	23
Wyo.	1	2	-	-	-	-	-	-	1	2
Colo.	25	26	-	-	-	-	5	2	49	60
N. Mex.	14	22	-	-	4	6	1	1	15	15
Ariz.	64	61	4	2	6	13	8	6	199	212
Utah	11	14	-	1	4	3	3	-	28	30
Nev.	8	9	-	1	3	2	-	2	37	37
PACIFIC	72	113	1	7	15	16	9	11	808	1,239
Wash.	8	2	-	1	6	1	1	-	39	121
Oreg.	34	44	-	-	-	-	3	3	44	46
Calif.	17	37	1	6	9	15	4	4	711	1,045
Alaska	-	1	-	-	-	-	-	1	8	7
Hawaii	13	29	-	-	-	-	1	3	6	20
Guam	-	-	-	-	-	-	-	-	-	-
P.R.	-	1	-	-	-	-	-	-	25	161
V.I.	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	-	U	-	U

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

* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

† Non-serotype b: nontypeable and type other than b; Unknown serotype: type unknown or not reported. Previously, cases reported without type information were counted as non-serotype b.

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 6, 2003, and September 7, 2002 (36th Week)*

Reporting area	Hepatitis (viral, acute), by type				Legionellosis		Listeriosis		Lyme disease	
	B		C							
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	4,177	5,023	886	1,305	1,201	717	383	392	10,348	13,167
NEW ENGLAND	164	192	2	18	50	62	32	40	1,886	3,196
Maine	1	6	-	-	2	2	5	4	142	49
N.H.	11	13	-	-	6	4	3	4	87	174
Vt.	2	4	2	12	5	25	-	2	23	23
Mass.	134	109	-	6	18	22	13	19	408	1,593
R.I.	8	21	-	-	3	1	-	1	344	186
Conn.	8	39	U	U	16	8	11	10	882	1,171
MID. ATLANTIC	657	1,048	116	68	311	185	74	111	6,795	7,522
Upstate N.Y.	79	80	34	28	93	51	21	31	2,868	3,304
N.Y. City	251	525	-	-	23	37	11	28	3	55
N.J.	135	209	-	4	19	25	9	21	915	1,875
Pa.	192	234	82	36	176	72	33	31	3,009	2,288
E.N. CENTRAL	262	455	115	76	246	193	48	54	483	1,064
Ohio	92	68	7	-	156	67	18	15	52	45
Ind.	23	31	4	-	17	13	5	6	15	16
Ill.	1	98	14	16	3	21	5	13	-	45
Mich.	123	219	90	57	57	62	16	14	4	22
Wis.	23	39	-	3	13	30	4	6	412	936
W.N. CENTRAL	221	153	158	568	44	38	10	10	242	186
Minn.	28	18	8	2	3	9	3	-	182	112
Iowa	7	12	1	1	9	8	-	1	23	30
Mo.	153	81	148	555	20	10	4	6	27	34
N. Dak.	2	4	-	-	1	-	-	1	-	-
S. Dak.	2	1	-	1	1	2	-	-	-	1
Nebr.	16	21	1	9	2	9	3	1	2	5
Kans.	13	16	-	-	8	-	-	1	8	4
S. ATLANTIC	1,327	1,208	122	146	353	126	86	53	783	954
Del.	5	13	-	-	20	7	N	N	129	144
Md.	90	92	13	8	86	22	13	11	463	565
D.C.	7	14	-	-	10	5	-	-	6	17
Va.	123	139	6	5	68	16	9	4	56	67
W. Va.	20	18	1	2	12	-	5	-	13	12
N.C.	111	174	10	22	26	7	14	4	62	92
S.C.	106	80	24	4	5	6	2	8	1	11
Ga.	404	318	3	60	19	10	21	9	12	1
Fla.	461	360	65	45	107	53	22	17	41	45
E.S. CENTRAL	274	255	57	97	73	24	21	10	42	46
Ky.	48	40	9	4	29	10	5	2	10	14
Tenn.	129	99	15	22	28	8	4	5	12	16
Ala.	45	52	6	6	13	6	10	3	5	8
Miss.	52	64	27	65	3	-	2	-	15	8
W.S. CENTRAL	216	695	195	203	25	20	18	22	33	107
Ark.	38	87	3	10	2	-	1	-	-	2
La.	46	96	46	65	-	4	1	1	3	3
Okla.	31	36	2	4	5	3	1	6	-	-
Tex.	101	476	144	124	18	13	15	15	30	102
MOUNTAIN	446	434	49	44	45	26	23	21	15	12
Mont.	13	4	1	-	2	3	1	-	-	-
Idaho	-	6	-	-	3	-	2	2	3	3
Wyo.	27	14	-	5	2	1	-	-	1	1
Colo.	56	57	25	6	9	5	9	4	4	1
N. Mex.	26	121	-	2	2	2	2	2	-	1
Ariz.	223	161	6	4	9	6	7	9	1	2
Utah	47	29	-	4	13	7	-	3	3	3
Nev.	54	42	17	23	5	2	2	1	3	1
PACIFIC	610	583	72	85	54	43	71	71	69	80
Wash.	45	51	12	16	7	3	2	8	1	7
Oreg.	81	98	11	10	N	N	3	8	14	11
Calif.	461	422	47	58	47	40	62	49	51	60
Alaska	8	6	1	-	-	-	-	-	3	2
Hawaii	15	6	1	1	-	-	4	6	N	N
Guam	-	-	-	-	-	-	-	-	-	-
P.R.	40	133	-	-	-	-	-	2	N	N
V.I.	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	-	U	-	U

N: Not notifiable. U: Unavailable. -: No reported cases.
* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 6, 2003, and September 7, 2002 (36th Week)*

Reporting area	Malaria		Meningococcal disease		Pertussis		Rabies, animal		Rocky Mountain spotted fever	
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	665	973	1,132	1,335	4,534	5,492	3,662	5,297	457	678
NEW ENGLAND	27	57	51	76	489	483	395	625	-	2
Maine	3	4	5	4	12	7	43	40	-	-
N.H.	2	6	3	10	57	10	13	29	-	-
Vt.	1	2	-	4	50	92	26	80	-	-
Mass.	6	24	33	40	357	338	149	200	-	2
R.I.	1	3	2	5	12	10	42	53	-	-
Conn.	14	18	8	13	1	26	122	223	-	-
MID. ATLANTIC	158	250	138	168	452	251	337	849	22	43
Upstate N.Y.	38	30	35	38	257	170	270	484	2	-
N.Y. City	72	160	26	31	-	12	5	10	6	9
N.J.	24	35	19	25	31	-	62	116	7	16
Pa.	24	25	58	74	164	69	-	239	7	18
E.N. CENTRAL	61	130	171	192	366	639	114	122	9	26
Ohio	14	15	46	60	169	305	41	25	6	10
Ind.	2	11	37	24	43	67	15	27	1	3
Ill.	20	56	38	43	-	104	15	25	-	11
Mich.	19	38	33	30	74	41	36	32	2	2
Wis.	6	10	17	35	80	122	7	13	-	-
W.N. CENTRAL	37	50	101	113	233	463	432	357	43	85
Minn.	21	16	20	27	78	209	24	29	1	-
Iowa	3	3	16	16	58	108	85	57	2	3
Mo.	3	14	48	39	57	89	22	37	32	78
N. Dak.	1	1	1	-	3	5	41	30	-	-
S. Dak.	2	1	1	2	3	5	67	72	4	-
Nebr.	-	5	7	22	4	7	58	-	2	4
Kans.	7	10	8	7	30	40	135	132	2	-
S. ATLANTIC	204	226	216	212	415	306	1,811	1,871	273	312
Del.	3	2	7	6	1	2	26	24	1	1
Md.	50	79	24	7	53	49	245	288	75	32
D.C.	8	15	-	-	-	1	-	-	-	-
Va.	26	18	20	29	76	107	379	403	19	22
W. Va.	4	3	4	4	6	29	64	133	5	1
N.C.	18	16	30	25	87	28	559	502	121	188
S.C.	3	6	19	20	80	31	168	91	13	43
Ga.	33	38	24	25	30	22	261	299	31	19
Fla.	59	49	88	96	82	37	109	131	8	6
E.S. CENTRAL	11	16	59	74	111	172	135	178	61	95
Ky.	4	5	13	12	37	74	29	18	1	3
Tenn.	4	3	16	30	55	63	85	108	42	58
Ala.	3	3	15	17	15	27	21	50	10	11
Miss.	-	5	15	15	4	8	-	2	8	23
W.S. CENTRAL	18	51	98	162	355	1,333	173	859	40	100
Ark.	4	1	11	21	16	464	25	2	-	28
La.	3	3	25	32	6	7	-	-	-	-
Okla.	4	6	13	17	12	34	148	88	39	61
Tex.	7	41	49	92	321	828	-	769	1	11
MOUNTAIN	31	36	57	77	688	671	123	218	9	13
Mont.	-	1	3	2	4	4	19	14	1	1
Idaho	1	-	6	3	60	52	12	24	2	-
Wyo.	1	-	2	-	119	10	4	15	2	4
Colo.	13	20	16	23	230	262	24	35	2	2
N. Mex.	1	2	7	4	43	138	5	9	-	1
Ariz.	10	6	15	23	124	108	47	109	1	-
Utah	4	4	1	4	85	59	9	9	1	-
Nev.	1	3	7	18	23	38	3	3	-	5
PACIFIC	118	157	241	261	1,425	1,174	142	218	-	2
Wash.	19	15	23	50	414	335	-	-	-	-
Oreg.	10	8	40	37	339	157	6	12	-	2
Calif.	83	126	166	165	662	653	129	180	-	-
Alaska	-	2	3	3	-	4	7	26	-	-
Hawaii	6	6	9	6	10	25	-	-	-	-
Guam	-	-	-	1	-	2	-	-	-	-
P.R.	1	1	2	5	-	2	52	61	N	N
V.I.	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	-	U	-	U

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

* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 6, 2003, and September 7, 2002 (36th Week)*

Reporting area	Salmonellosis		Shigellosis		Streptococcal disease, invasive, group A		*Streptococcus pneumoniae*, invasive: Drug resistant, all ages		*Streptococcus pneumoniae*, invasive: Age <5 years	
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002
UNITED STATES	24,321	27,199	13,429	12,513	4,021	3,487	1,570	1,775	320	234
NEW ENGLAND	1,435	1,478	202	231	330	266	40	83	6	2
Maine	95	98	6	3	22	20	-	-	-	-
N.H.	94	87	5	8	21	30	-	-	N	N
Vt.	48	54	6	1	17	9	6	4	3	1
Mass.	837	850	135	152	157	91	N	N	N	N
R.I.	84	100	10	8	11	14	10	11	3	1
Conn.	277	289	40	59	102	102	24	68	U	U
MID. ATLANTIC	2,826	3,671	1,541	1,119	727	565	96	83	73	58
Upstate N.Y.	691	955	268	186	293	228	54	72	56	48
N.Y. City	764	955	249	322	92	130	U	U	U	U
N.J.	326	748	198	409	128	120	N	N	N	N
Pa.	1,045	1,013	826	202	214	87	42	11	17	10
E.N. CENTRAL	3,674	3,924	1,215	1,444	885	747	329	162	133	88
Ohio	992	920	245	448	251	169	216	32	77	1
Ind.	415	362	109	71	92	41	113	128	34	44
Ill.	1,170	1,356	591	675	180	213	-	2	-	-
Mich.	554	638	185	118	300	236	N	N	N	N
Wis.	543	648	85	132	62	88	N	N	22	43
W.N. CENTRAL	1,680	1,684	557	766	261	191	127	331	44	40
Minn.	355	392	68	155	131	98	-	220	38	36
Iowa	255	274	44	96	N	N	N	N	N	N
Mo.	675	568	289	118	55	38	9	5	2	1
N. Dak.	28	24	3	16	11	-	3	1	4	3
S. Dak.	70	76	11	151	18	11	1	1	-	-
Nebr.	99	120	89	162	21	16	-	25	N	N
Kans.	198	230	53	68	25	28	114	79	N	N
S. ATLANTIC	6,532	6,585	5,265	3,934	714	569	817	821	15	24
Del.	58	59	146	83	6	2	1	3	N	N
Md.	548	638	462	784	211	89	-	-	-	18
D.C.	31	51	50	42	11	6	2	-	5	3
Va.	718	651	302	624	89	58	N	N	N	N
W. Va.	80	93	-	8	31	16	57	36	10	3
N.C.	791	867	673	241	86	105	N	N	U	U
S.C.	425	432	302	80	32	31	114	141	N	N
Ga.	1,212	1,246	1,322	892	86	107	193	205	N	N
Fla.	2,669	2,548	2,008	1,180	162	155	450	436	N	N
E.S. CENTRAL	1,619	1,973	624	922	156	79	105	110	-	-
Ky.	284	228	72	97	37	14	13	13	N	N
Tenn.	514	508	231	57	119	65	92	97	N	N
Ala.	364	504	190	479	-	-	-	-	N	N
Miss.	457	733	131	289	-	-	-	-	-	-
W.S. CENTRAL	1,935	2,882	1,755	1,926	149	231	33	148	45	19
Ark.	443	605	72	146	5	6	8	6	-	-
La.	258	514	144	319	1	1	25	142	10	6
Okla.	296	320	588	341	64	35	N	N	27	2
Tex.	938	1,443	951	1,120	79	189	N	N	8	11
MOUNTAIN	1,409	1,501	698	478	353	415	20	37	4	3
Mont.	71	68	2	3	2	-	-	-	-	-
Idaho	125	99	24	3	18	6	N	N	N	N
Wyo.	68	45	5	6	2	7	4	10	-	-
Colo.	311	439	126	108	98	87	-	-	-	-
N. Mex.	135	204	129	96	88	78	16	27	-	-
Ariz.	439	381	334	206	135	210	-	-	N	N
Utah	153	117	38	21	9	27	-	-	4	3
Nev.	107	148	40	35	1	-	-	-	-	-
PACIFIC	3,211	3,501	1,572	1,693	446	424	3	-	-	-
Wash.	352	320	108	101	38	46	-	-	N	N
Oreg.	270	248	170	72	N	N	N	N	N	N
Calif.	2,398	2,697	1,257	1,478	327	328	N	N	N	N
Alaska	54	45	7	3	-	-	-	-	N	N
Hawaii	137	191	30	39	81	50	3	-	-	-
Guam	-	33	-	23	-	-	-	4	-	-
P.R.	166	332	3	26	N	N	N	N	N	N
V.I.	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	-	U	-	U

N: Not notifiable. U: Unavailable. - : No reported cases.
* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending September 6, 2003, and September 7, 2002 (36th Week)*

Reporting area	Syphilis: Primary & secondary Cum. 2003	Syphilis: Primary & secondary Cum. 2002	Syphilis: Congenital Cum. 2003	Syphilis: Congenital Cum. 2002	Tuberculosis Cum. 2003	Tuberculosis Cum. 2002	Typhoid fever Cum. 2003	Typhoid fever Cum. 2002	Varicella (Chickenpox) Cum. 2003
UNITED STATES	4,514	4,521	242	280	7,265	8,681	181	213	8,441
NEW ENGLAND	139	96	1	-	204	275	20	10	1,264
Maine	6	2	1	-	5	10	-	-	640
N.H.	13	2	-	-	7	9	2	-	-
Vt.	-	1	-	-	3	4	-	-	496
Mass.	92	65	-	-	129	143	10	7	125
R.I.	14	5	-	-	27	39	2	-	3
Conn.	14	21	-	-	33	70	6	3	-
MID. ATLANTIC	552	485	45	42	1,436	1,501	24	54	24
Upstate N.Y.	28	23	13	1	189	217	6	5	N
N.Y. City	320	287	24	17	785	725	10	27	-
N.J.	113	97	8	23	273	332	6	15	-
Pa.	91	78	-	1	189	227	2	7	24
E.N. CENTRAL	608	843	44	43	771	873	12	23	3,797
Ohio	147	101	2	2	143	140	2	5	938
Ind.	33	41	7	2	90	76	3	2	-
Ill.	229	326	15	32	362	426	1	9	-
Mich.	188	357	20	7	140	181	6	3	2,283
Wis.	11	18	-	-	36	50	-	4	576
W.N. CENTRAL	95	86	3	-	311	371	3	9	39
Minn.	33	41	-	-	127	154	-	3	N
Iowa	4	2	-	-	17	21	1	-	N
Mo.	33	21	3	-	78	102	1	2	-
N. Dak.	-	-	-	-	-	4	-	-	39
S. Dak.	1	-	-	-	16	10	-	-	-
Nebr.	3	5	-	-	8	20	1	4	-
Kans.	21	17	-	-	65	60	-	-	-
S. ATLANTIC	1,207	1,117	47	66	1,487	1,786	36	27	1,581
Del.	4	9	-	-	-	13	-	-	20
Md.	192	130	8	12	152	204	7	6	-
D.C.	37	36	-	1	-	-	-	-	22
Va.	58	52	1	1	183	195	10	3	436
W. Va.	2	2	-	-	12	24	-	-	928
N.C.	112	204	16	17	198	224	6	1	N
S.C.	78	84	4	8	111	115	-	-	175
Ga.	300	243	5	13	217	364	7	5	-
Fla.	424	357	13	14	614	647	6	12	N
E.S. CENTRAL	208	346	12	19	437	526	5	4	-
Ky.	29	66	1	3	83	97	-	4	N
Tenn.	92	126	5	6	148	212	2	-	N
Ala.	71	120	4	7	139	134	3	-	-
Miss.	16	34	2	3	67	83	-	-	-
W.S. CENTRAL	590	583	42	62	961	1,324	7	24	1,337
Ark.	39	23	-	4	65	88	-	-	-
La.	84	100	-	-	-	-	-	-	4
Okla.	34	48	1	2	90	112	-	-	N
Tex.	433	412	41	56	806	1,124	7	24	1,333
MOUNTAIN	203	220	21	10	255	266	3	7	399
Mont.	-	-	-	-	5	6	-	-	N
Idaho	5	1	-	-	5	10	-	-	N
Wyo.	-	-	-	-	3	2	-	-	42
Colo.	13	45	3	1	56	58	3	3	-
N. Mex.	37	23	-	-	6	24	-	-	-
Ariz.	134	138	18	9	130	135	-	-	4
Utah	5	4	-	-	28	18	-	2	353
Nev.	9	9	-	-	22	13	-	2	-
PACIFIC	912	745	27	38	1,403	1,759	71	55	-
Wash.	53	37	-	1	174	166	3	4	-
Oreg.	27	11	-	-	79	78	4	2	-
Calif.	830	690	27	36	1,070	1,373	63	47	-
Alaska	-	-	-	-	39	33	-	-	-
Hawaii	2	7	-	1	41	109	1	2	-
Guam	-	6	-	-	-	45	-	-	-
P.R.	138	179	1	21	33	75	-	-	278
V.I.	1	1	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	-	U	-	U	-

N: Not notifiable. U: Unavailable. - : No reported cases.
* Incidence data for reporting years 2002 and 2003 are provisional and cumulative (year-to-date).

TABLE III. Deaths in 122 U.S. cities,* week ending September 6, 2003 (36th Week)

Reporting Area	All causes, by age (years)						P&I†
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	489	346	104	25	6	8	44
Boston, Mass.	135	87	33	10	3	2	6
Bridgeport, Conn.	45	33	10	1	-	1	2
Cambridge, Mass.	13	11	2	-	-	-	1
Fall River, Mass.	25	22	2	1	-	-	5
Hartford, Conn.	45	34	11	-	-	-	5
Lowell, Mass.	14	9	4	1	-	-	2
Lynn, Mass.	11	9	1	1	-	-	-
New Bedford, Mass.	21	15	3	3	-	-	2
New Haven, Conn.	49	30	13	3	-	3	9
Providence, R.I.	U	U	U	U	U	U	U
Somerville, Mass.	2	1	-	1	-	-	-
Springfield, Mass.	44	28	11	2	2	1	6
Waterbury, Conn.	34	28	5	1	-	-	-
Worcester, Mass.	51	39	9	1	1	1	6
MID. ATLANTIC	1,981	1,338	409	149	48	32	85
Albany, N.Y.	42	31	5	2	4	-	-
Allentown, Pa.	17	13	3	-	-	1	1
Buffalo, N.Y.	79	54	17	2	5	1	8
Camden, N.J.	11	6	-	4	1	-	-
Elizabeth, N.J.	21	17	3	-	-	1	-
Erie, Pa.	27	22	4	-	-	1	-
Jersey City, N.J.	35	16	10	8	1	-	-
New York City, N.Y.	898	619	171	73	16	15	27
Newark, N.J.	58	26	18	12	1	1	6
Paterson, N.J.	15	8	6	-	-	1	-
Philadelphia, Pa.	438	274	114	29	13	7	18
Pittsburgh, Pa.§	29	20	7	1	1	-	1
Reading, Pa.	17	15	2	-	-	-	1
Rochester, N.Y.	120	91	18	6	3	2	5
Schenectady, N.Y.	15	12	1	2	-	-	4
Scranton, Pa.	26	20	5	1	-	-	3
Syracuse, N.Y.	63	39	15	6	2	1	6
Trenton, N.J.	30	17	8	3	1	1	2
Utica, N.Y.	16	16	-	-	-	-	1
Yonkers, N.Y.	24	22	2	-	-	-	2
E.N. CENTRAL	1,859	1,182	427	136	51	59	103
Akron, Ohio	50	35	8	5	1	1	6
Canton, Ohio	36	22	9	3	1	1	3
Chicago, Ill.	360	199	95	37	13	12	14
Cincinnati, Ohio	75	50	17	5	2	1	7
Cleveland, Ohio	105	76	22	3	1	3	5
Columbus, Ohio	191	123	48	9	3	8	14
Dayton, Ohio	105	70	24	7	4	-	3
Detroit, Mich.	196	98	57	19	11	11	6
Evansville, Ind.	44	35	8	-	-	1	4
Fort Wayne, Ind.	45	29	11	3	2	-	3
Gary, Ind.	30	12	12	3	1	2	-
Grand Rapids, Mich.	69	51	7	6	2	3	10
Indianapolis, Ind.	114	71	25	11	1	6	5
Lansing, Mich.	54	37	13	2	-	2	3
Milwaukee, Wis.	100	68	19	7	2	4	7
Peoria, Ill.	33	22	6	3	1	1	-
Rockford, Ill.	58	39	15	2	1	1	4
South Bend, Ind.	48	36	11	1	-	-	2
Toledo, Ohio	99	71	17	6	5	-	3
Youngstown, Ohio	47	38	3	4	-	2	4
W.N. CENTRAL	521	368	93	39	14	6	26
Des Moines, Iowa	125	93	22	3	6	1	4
Duluth, Minn.	23	18	3	2	-	-	2
Kansas City, Kans.	33	21	5	7	-	-	-
Kansas City, Mo.	80	54	18	5	1	1	3
Lincoln, Nebr.	31	21	7	3	-	-	1
Minneapolis, Minn.	45	28	7	5	4	1	1
Omaha, Nebr.	79	55	18	4	1	1	7
St. Louis, Mo.	U	U	U	U	U	U	U
St. Paul, Minn.	41	31	4	4	-	2	4
Wichita, Kans.	64	47	9	6	2	-	4
S. ATLANTIC	1,208	716	290	114	49	39	73
Atlanta, Ga.	160	88	37	23	6	6	2
Baltimore, Md.	245	140	66	27	6	6	19
Charlotte, N.C.	92	62	20	5	4	1	6
Jacksonville, Fla.	113	61	36	5	7	4	8
Miami, Fla.	84	55	16	10	3	-	7
Norfolk, Va.	40	20	9	3	2	6	2
Richmond, Va.	49	25	11	8	4	1	8
Savannah, Ga.	68	39	19	3	3	4	4
St. Petersburg, Fla.	82	55	17	6	3	1	5
Tampa, Fla.	160	103	34	13	5	5	7
Washington, D.C.	100	56	22	11	6	5	3
Wilmington, Del.	15	12	3	-	-	-	2
E.S. CENTRAL	861	559	195	60	24	23	59
Birmingham, Ala.	162	108	38	10	4	2	10
Chattanooga, Tenn.	70	51	10	4	1	4	5
Knoxville, Tenn.	102	69	22	5	2	4	-
Lexington, Ky.	57	36	11	7	1	2	4
Memphis, Tenn.	232	141	64	15	8	4	14
Mobile, Ala.	61	37	14	3	5	2	3
Montgomery, Ala.	37	26	5	4	1	1	7
Nashville, Tenn.	140	91	31	12	2	4	16
W.S. CENTRAL	1,445	919	312	111	67	36	84
Austin, Tex.	69	48	15	4	-	2	3
Baton Rouge, La.	29	22	6	-	1	-	-
Corpus Christi, Tex.	48	33	10	4	-	1	1
Dallas, Tex.	182	103	52	14	8	5	8
El Paso, Tex.	85	70	9	2	3	1	2
Ft. Worth, Tex.	111	68	22	9	8	4	3
Houston, Tex.	398	226	81	42	36	13	36
Little Rock, Ark.	89	53	22	6	2	6	4
New Orleans, La.	39	23	10	4	2	-	-
San Antonio, Tex.	212	152	43	10	4	3	13
Shreveport, La.	61	36	17	6	1	1	6
Tulsa, Okla.	122	85	25	10	2	-	8
MOUNTAIN	895	554	136	76	20	17	51
Albuquerque, N.M.	109	82	15	8	4	-	1
Boise, Idaho	38	28	6	1	-	3	2
Colo. Springs, Colo.	51	31	11	7	-	2	-
Denver, Colo.	103	65	20	9	4	5	4
Las Vegas, Nev.	229	148	48	21	6	4	16
Ogden, Utah	23	14	6	3	-	-	2
Phoenix, Ariz.	91	1	-	-	-	-	6
Pueblo, Colo.	22	15	4	3	-	-	2
Salt Lake City, Utah	126	92	13	14	5	2	14
Tucson, Ariz.	103	78	13	10	1	1	4
PACIFIC	2,199	1,500	467	142	56	33	161
Berkeley, Calif.	18	12	4	1	-	1	1
Fresno, Calif.	130	90	24	10	3	3	7
Glendale, Calif.	16	15	1	-	-	-	2
Honolulu, Hawaii	68	45	18	3	-	2	6
Long Beach, Calif.	58	42	10	4	1	1	7
Los Angeles, Calif.	324	224	67	22	9	2	20
Pasadena, Calif.	34	23	7	2	1	1	5
Portland, Oreg.	617	412	134	41	17	13	34
Sacramento, Calif.	194	131	43	12	6	2	18
San Diego, Calif.	154	97	38	10	7	1	15
San Francisco, Calif.	113	68	33	11	1	-	6
San Jose, Calif.	160	114	36	7	3	-	15
Santa Cruz, Calif.	37	27	4	5	1	-	4
Seattle, Wash.	126	90	21	8	3	4	10
Spokane, Wash.	57	43	8	3	1	2	8
Tacoma, Wash.	93	67	19	3	3	1	3
TOTAL	11,458¶	7,482	2,433	852	335	253	686

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.

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☆U.S. Government Printing Office: 2003-533-155/69143 Region IV ISSN: 0149-2195