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Surveillance for Acute Insecticide-Related Illness Associated with Mosquito-Control Efforts — Nine States, 1999–2002

Ground and aerial applications of insecticides are used to control populations of adult mosquitoes, which spread such diseases as West Nile virus–related illness, eastern equine encephalitis, and dengue fever (*1*). This report summarizes investigations of illnesses associated with exposures to insecticides used during 1999–2002 to control mosquito populations in nine states (Arizona, California, Florida, Louisiana, Michigan, New York, Oregon, Texas, and Washington) (estimated 2000 population: 118 million). The findings indicate that application of certain insecticides posed a low risk for acute, temporary health effects among persons in areas that were sprayed and among workers handling and applying insecticides. To reduce the risk for negative health effects, public health authorities should 1) provide public notice of application times and locations and appropriate advice about preventing exposures, 2) ensure that insecticide handlers and applicators meet state-mandated training and experience requirements to prevent insecticide exposure to themselves and the public, and 3) implement integrated pest management control strategies that emphasize mosquito larval control, reduction of mosquito breeding sites, and judicious use of insecticides to control adult mosquito populations.

Staff in state-based pesticide poisoning surveillance programs identified patients who had been exposed to insecticides used in mosquito-control efforts in nine states during April 1999–September 2002. Information was gathered on persons who had illnesses consistent with the national case definition for pesticide poisoning, which requires the collection of data on pesticide exposure, health effects, and toxicologic evidence supporting an association between exposure and effect (*2,3*). Cases of insecticide-related illness or injury were classified as either definite, probable, or possible, depending on the certainty of exposure and whether health effects were signs observed by a health-care provider or symptoms reported by a patient (*2,3*).

Of the 133 cases of acute insecticide-related illness associated with mosquito control that were identified, two (1.5%) were classified as definite, 25 (18.8%) as probable, and 106 (79.7%) as possible. Of the 132 cases for which work-relatedness could be assessed, 36 (27.3%) were work-related and 96 (72.7%) were not work-related; 31 (86.1%) of the 36 work-related cases occurred among males, and 66 (68.8%) of the 96 cases that were not work-related occurred among females.

Of the 49 cases identified in 2001, a total of 29 (59.2%) were related to a single event at a softball game in which workers operating a mosquito-control truck inadvertently sprayed 29 persons (16 spectators, 12 players, and one coach) with Fyfanon ULV®, which contains malathion. All 29 persons were treated in emergency departments (EDs).

Of the 133 persons with acute insecticide-related illness associated with mosquito control, 35 (26.3%) were identified from monitoring media reports (including 34 reported subsequently by health-care providers), 32 (24.1%) were reported by poison-control centers, 27 (20.3%) were self-reported, and seven (5.3%) were reported by state health departments.

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Physicians and EDs were responsible for initial reporting of five and three cases, respectively. The remaining cases were reported initially by friends or relatives (n = seven), government agencies (n = five), employers (n = four), laboratories (n = two), and other sources (n = six).

Of the 85 persons with reported illness who were known to have sought medical care, 45 (52.9%) were treated in EDs, 35 (41.2%) were treated in physicians' offices, four (4.7%) were treated in employee health centers, and one (1.2%) was hospitalized. An additional 16 persons received advice from a poison-control center, and 15 did not seek medical care; information about medical treatment was not available for 17 persons.

Of the 133 reported cases of pesticide-related illness, 95 (71.4%) cases were associated with organophosphates, primarily malathion. Malathion alone was associated with 64 (67.4%) of the 95 cases; 37 (27.8%) cases were associated with pyrethoids, primarily sumithrin (24 cases) and resmethrin (10 cases) (Table 1).

Illness severity was categorized for all cases (*4*). One exposure was associated with illness of high severity (Table 2). When her neighborhood was sprayed, a woman aged 54 years was exposed to sumithrin, which passed through operating window fans and a window air conditioner. She had exacerbation of her asthma and chronic obstructive pulmonary disease. The majority of the remaining cases were of low (65.4%) or moderate (33.8%) severity.

The majority of cases were associated either with respiratory (66.2%) or neurologic (60.9%) dysfunction. Other systems affected were gastrointestinal (45.1%), ocular (36.1%), dermal (27.1%), cardiovascular (12.0%), renal-genitourinary (3.0%), and miscellaneous (28.6%).

Of 36 persons who were exposed at their workplaces (Table 1), 14 (38.9%) were insecticide applicators, and 22 (61.1%) were performing tasks that did not involve pesticide application. Seven (50.0%) of 14 applicators were exposed to sumithrin; of the other 22 workers, 11 (50%) were exposed to malathion, and five (22.7%) were exposed to resmethrin. Illness of moderate severity was more frequent among applicators (42.9%) than nonapplicators (27.3%).

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TABLE 1. Number and percentage of persons with mosquito-control insecticide–related illnesses, by type of insecticide exposure, state, sex, site of exposure, severity of illness, and year — nine states*, 1999–2002

Characteristic	1999		2000		2001		2002		Total	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Insecticide										
Malathion	22	(84.6)	1	(3.3)	31	(63.3)	10	(35.7)	**64**	**(48.1)**
Malathion + pyrethrin	0		0		0		2	(7.1)	**2**	**(1.5)**
Malathion + pyrethroid	0		0		0		2	(7.1)	**2**	**(1.5)**
Naled	0		4	(13.3)	15	(30.6)	4	(14.3)	**23**	**(17.3)**
Sumithrin	2	(7.7)	21	(70.0)	0		1	(3.6)	**24**	**(18.1)**
Resmethrin	0		2	(6.7)	1	(2.0)	7	(25.0)	**10**	**(7.5)**
Fenthion	1	(3.8)	0		0		1	(3.6)	**2**	**(1.5)**
Other†	1	(3.8)	2	(6.7)	2	(4.1)	1	(3.6)	**6**	**(4.5)**
State										
New York	10	(38.5)	22	(73.3)	29	(59.2)	1	(3.6)	**62**	**(46.6)**
Texas	9	(34.6)	5	(16.7)	2	(4.1)	15	(53.6)	**31**	**(23.3)**
Florida	7	(26.9)	1	(3.3)	15	(30.6)	5	(17.9)	**28**	**(21.1)**
Arizona	0		0		1	(2.0)	2	(7.1)	**3**	**(2.3)**
California	0		2	(6.7)	0		0		**2**	**(1.5)**
Oregon	0		0		0		2	(7.1)	**2**	**(1.5)**
Washington	0		0		0		2	(7.1)	**2**	**(1.5)**
Michigan	0		0		1	(2.0)	1	(3.6)	**2**	**(1.5)**
Louisiana	0		0		1	(2.0)	0		**1**	**(0.8)**
Sex										
Male	15	(57.7)	18	(60.0)	15	(30.6)	13	(46.4)	**61**	**(45.9)**
Female	11	(42.3)	12	(40.0)	34	(69.4)	15	(53.6)	**72**	**(54.1)**
Site of exposure										
Public area	8	(30.7)	6	(20.0)	35	(71.4)	11	(39.3)	**60**	**(45.1)**
Home	6	(23.1)	11	(36.7)	9	(18.4)	8	(28.6)	**34**	**(25.6)**
Workplace	12	(46.2)	12	(40.0)	3	(6.1)	9	(32.1)	**36**	**(27.1)**
Other	0		1	(3.3)	2	(4.1)	0		**3**	**(2.2)**
Severity§										
High	0		1	(3.3)	0		0		**1**	**(0.8)**
Moderate	11	(42.3)	18	(60.0)	11	(22.4)	5	(17.9)	**45**	**(33.8)**
Low	15	(57.7)	11	(36.7)	38	(77.6)	23	(82.1)	**87**	**(65.4)**
Total	**26**	**(19.6)**	**30**	**(22.6)**	**49**	**(36.8)**	**28**	**(21.0)**	**133**	**(100.0)**

* Arizona, California, Florida, Louisiana, Michigan, New York, Oregon, Texas, and Washington.
† Chlorpyrifos (n = one), permethrin (n = one), petroleum hydrocarbons (n = two), pyrethrins (n = one), and temephos (n = one).
§ Defined by using the Severity Index for Use in State-Based Surveillance of Acute Pesticide-Related Illness and Injury (*4*).

Editorial Note: The findings in this report indicate that serious adverse outcomes potentially related to public health insecticide application were uncommon. When administered properly in a mosquito-control program, insecticides pose a low risk for acute, temporary health effects among persons in areas that are being sprayed and among workers handling and applying insecticides. In this analysis, adverse health effects were identified in a small percentage of the population in the nine states. Data about the actual number of persons potentially or actually exposed were not available because insecticide applications were conducted only in certain areas of participating states, and the boundaries of these areas were not available.

Malathion, naled, sumithrin, and resmethrin were associated with the majority of reported cases of acute insecticide-related illness. Malathion is an organophosphate insecticide that is classified as an acute toxicity category III compound*. Although it is less acutely toxic than many other organophosphates, adverse health effects have been reported by exposed persons (*5*). Naled is an acute toxicity level I organophosphate. When combined with piperonyl butoxide, resmethrin and sumithrin are highly effective insecticides that are of low-order toxicity to mammals, including humans; these pyrethroid products are classified as acute toxicity category III compounds and have been associated with adverse health effects in humans (*6,7*).

These insecticide formulations are registered by the U.S. Environmental Protection Agency for use in urban areas for

* The U.S. Environmental Protection Agency classifies pesticide products into one of four acute toxicity categories on the basis of certain criteria, with category I comprising pesticides with the greatest toxicity and category IV those with the least toxicity.

TABLE 2. Number and percentage of persons with mosquito-control insecticide–related illnesses, by type of insecticide exposure, age group, and severity* of illness — nine states†, 1999–2002

Characteristic	High		Moderate		Low		Total	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Insecticide								
Malathion	0		18	(40.0)	46	(52.9)	**64**	**(48.1)**
Malathion + pyrethrin	0		0		2	(2.3)	**2**	**(1.5)**
Malathion + pyrethroid	0		1	(2.2)	1	(1.2)	**2**	**(1.5)**
Naled	0		4	(8.9)	19	(21.8)	**23**	**(17.3)**
Sumithrin	1	(100.0)	18	(40.0)	5	(5.8)	**24**	**(18.1)**
Resmethrin	0		4	(8.9)	6	(6.9)	**10**	**(7.5)**
Fenthion	0		0		2	(2.3)	**2**	**(1.5)**
Other§	0		0		6	(6.9)	**6**	**(4.5)**
Age group (yrs)								
0–5	0		1	(2.2)	0		**1**	**(0.8)**
6–19	0		7	(15.6)	22	(25.3)	**29**	**(21.8)**
20–39	0		13	(28.9)	21	(24.1)	**34**	**(25.6)**
40–59	1	(100.0)	22	(48.9)	33	(37.9)	**56**	**(42.1)**
≥60	0		2	(4.4)	6	(6.9)	**8**	**(6.0)**
Unknown	0		0		5	(5.8)	**5**	**(3.8)**
Total	**1**	**(0.8)**	**45**	**(33.8)**	**87**	**(65.4)**	**133**	**(100.0)**

* Defined by using the Severity Index for Use in State-Based Surveillance of Acute Pesticide-Related Illness and Injury (*4*).
† Arizona, California, Florida, Louisiana, Michigan, New York, Oregon, Texas, and Washington.
§ Chlorpyrifos (n = one), permethrin (n = one), petroleum hydrocarbons (n = two), pyrethrins (n = one), and temephos (n = one).

mosquito control and benefit the public by controlling populations of mosquitoes that transmit diseases that affect humans. Reported symptoms associated with these insecticides were temporary and included dermal, ocular, and upper and lower respiratory tract irritation and exacerbation of conditions such as asthma. These health effects might represent irritant or allergic responses, to either the insecticide or its carrier (*5,7,8*). Anxiety about insecticide use for mosquito control also might have been responsible for symptoms in some persons.

The findings in this report are subject to at least three limitations. First, the number of reported cases is probably an underestimate of the true magnitude of illnesses associated with mosquito-control efforts. Affected persons who did not seek medical care or whose symptoms were not reported to a surveillance system could not be identified; even if these persons had sought medical care, their illness might not have been recognized as insecticide-related, and even if they had received a proper diagnosis, their cases might not have been reported. Second, only nine states have pesticide poisoning surveillance systems, and the data in this report might not be representative of the 41 states without such surveillance systems. Finally, although all cases were consistent with case definition criteria, the possibility of false positives cannot be excluded. Because clinical findings of pesticide poisoning are nonspecific, especially when of mild severity, and no standard diagnostic test exists, some illnesses related temporally to insecticide exposures might be coincidental and not caused by the exposures.

To reduce potential risks from insecticide exposure, CDC recommends the use of integrated pest management strategies for mosquito-control programs that emphasize mosquito larval control, reduction of breeding sites (e.g., human-made collections of stagnant water such as unchlorinated swimming pools, discarded tires or other containers, and bird baths), and judicious use of insecticides to control adult mosquito populations when quantitative measures suggest an elevated risk for human infection or in community settings when extensive immature mosquito larval habitats cannot be controlled (*9,10*). When insecticides are used, public health agencies should inform the public when and where spraying will occur and communicate how to reduce the likelihood of exposure. To avoid direct exposure from passing spray trucks, public health agencies should ensure that visible and audible warnings are made before spraying. Persons with exposure-related health concerns should consult their health-care providers. To prevent exposures from improper application methods, insecticide handlers and applicators should be trained in proper insecticide handling and application methods and in the use of appropriate personal protective equipment.

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rec•om•men•da•tion: *n*

("rek-ə-mən-'dā-shən) 1 : something, such as a course of action, that is recommended; see also *MMWR*.

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Recommendations and Reports

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HIV Diagnoses Among Injection-Drug Users in States with HIV Surveillance — 25 States, 1994–2000

Injection-drug use is a risk factor for acquired immunodeficiency syndrome (AIDS) (*1*). Of the 765,559 cumulative AIDS cases diagnosed as of December 2000, a total of 193,527 (25%) occurred among injection-drug users (IDUs) (*2*). IDUs become infected with human immunodeficiency virus (HIV) through sharing injection-drug equipment with HIV-infected persons or by engaging in other risk behaviors such as having unprotected sex (*3*). Since 1995, AIDS incidence among IDUs has declined (*2,4*). This report presents data on initial HIV diagnoses among IDUs aged ≥13 years, with and without AIDS at the time of HIV diagnosis, by year, during 1994–2000. The findings indicate that HIV diagnoses among IDUs have leveled in the majority of demographic groups during this period in the 25 states for which HIV surveillance data are available*. Because IDUs and their sex partners represent approximately one third of persons infected in the HIV epidemic and continue to be at risk for transmitting HIV, prevention efforts targeting IDUs and their sex partners should be enhanced.

Data were available from health departments in 25 states that have had HIV-infection case reporting since 1993, the first year for which HIV surveillance data were available. During 1993–2000, these states accounted for 516,939 (24%) AIDS case reports and 35,548 (7%) cases reported among IDUs. Data were adjusted for reporting delays. Cases reported without risk information were reclassified based on a probability formula (*5*). Annual proportions of HIV diagnoses among IDUs during 1994–2000 were compared by age, sex, and race/ethnicity, and 95% confidence intervals were computed for percentage differences.

During 1994–2000, a total of 21,687 HIV diagnoses reported in the 25 states were among IDUs; males accounted for 14,252 (66%) cases. HIV diagnoses reported among IDUs declined 42% overall, compared with a 15% decrease among men who have sex with men (MSM) and a 9% increase among persons with heterosexual transmission during the same period. IDU-related HIV diagnoses declined from 4,226 cases in 1994 to 2,403 cases in 1999, and leveled to 2,514 from 1999 to 2000. Blacks continue to be represented disproportionately (65%) among IDU-related HIV cases diagnosed (Table 1).

During 1994–2000, IDU-related HIV diagnoses declined among persons aged 13–19 years and 30–39 years by 17% and 68%, respectively. Among persons aged 20–29 years and 40–49 years, diagnoses decreased 53% and 26%, respectively,

TABLE 1. Number of HIV cases among injection-drug users, by selected characteristics — 25 states*, 1994–2000

Characteristic	No.	(%)
Age group (yrs)		
13–19	422	(2)
20–29	3,994	(18)
30–39	9,061	(42)
40–49	6,478	(30)
≥50	1,730	(8)
Sex		
Male	14,252	(66)
Female	7,433	(34)
Race/Ethnicity		
White, non-Hispanic	5,050	(23)
Black, non-Hispanic	14,132	(65)
Hispanic	2,077	(10)
Other†	426	(2)
Race/Ethnicity (by sex)		
Male		
White, non-Hispanic	3,186	(22)
Black, non-Hispanic	9,191	(64)
Hispanic	1,587	(11)
Female		
White, non-Hispanic	1,863	(25)
Black, non-Hispanic	4,941	(66)
Hispanic	490	(7)

* Alabama, Arizona, Arkansas, Colorado, Idaho, Indiana, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nevada, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Utah, Virginia, West Virginia, Wisconsin, and Wyoming.
† Numbers for racial/ethnic groups other than white, black, and Hispanic were combined because, when analyzed separately, data were too small for meaningful analysis.

* Alabama, Arizona, Arkansas, Colorado, Idaho, Indiana, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nevada, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Utah, Virginia, West Virginia, Wisconsin, and Wyoming.

during 1994–1999, and leveled off during 1999–2000. IDU-related HIV diagnoses among persons aged ≥50 years were level during 1994–1999 and increased slightly during 1999–2000 (Table 2).

Among men, HIV diagnoses reported among IDUs declined 44%, from 2,819 in 1994 to 1,568 in 1999, and leveled to 1,628 in 2000. Among women, diagnoses declined 41%, from 1,407 in 1994 to 835 in 1999, and leveled to 886 in 2000 (Figure).

Trends were similar in all racial/ethnic groups. Among whites, IDU-related HIV diagnoses decreased 40%, from 941 in 1994 to 563 in 1999, and leveled to 590 in 2000. Among blacks, HIV diagnoses among IDUs decreased 46%, from 2,825 in 1994 to 1,535 in 1999, and leveled to 1,584 in 2000. Among Hispanics, IDU-related HIV diagnoses decreased 43%, from 409 in 1994 to 238 in 1999, and leveled to 243 in 2000 (Table 2). Asians/Pacific Islanders and American Indians/Alaska Natives accounted for 205 (1%) cases diagnosed during 1994–2000.

Sex partners of IDUs accounted for 5,117 (4%) HIV infections diagnosed in these 25 states during 1994–2000 (Figure). Heterosexual men and women who reported having sex with IDUs accounted for 1,849 (1%) and 3,268 (3%) cases, respectively. MSM/IDUs accounted for 4,626 (5%) HIV diagnoses. All IDU-related HIV diagnoses, including those among IDUs, sex partners of IDUs, and MSM/IDUs, accounted for 31,428 (32%) diagnoses, compared with MSM (not IDUs) (39,184 [42%]) and those reporting having heterosexual sex (not with an IDU) (23,674 [25%]) (Figure).

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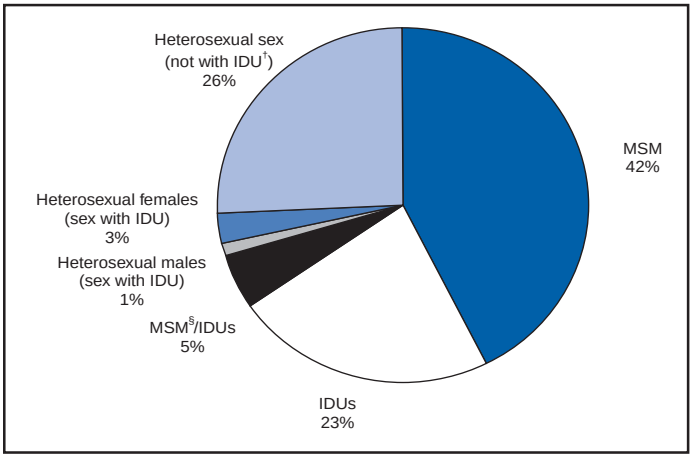
Editorial Note: The finding of overall declines in new HIV diagnoses among IDUs in the 25 states with HIV infection reporting is consistent with studies that suggest a decline in new HIV infections among IDUs in other areas of the United States (*6*). Several factors probably account for the decline. Because the peak of infections occurred in the early 1990s (*2*), the decline during the late 1990s might reflect the natural decline in the epidemiologic curve following the peak in the epidemic, which often is observed after the onset of a disease in a population. The decline also might be attributable in part to advances in antiretroviral therapy since 1995. In addition, the HIV epidemic among IDUs is closely related to other risk behaviors such as having unprotected sex, which

TABLE 2. Number of HIV cases among injection-drug users and percentage change, by selected characteristics — 25 states*, 1994–2000

Characteristic	1994–1999 No. 1994	1994–1999 No. 1999	1994–1999 % change 1994–1999	1994–1999 (95% CI†)	1999–2000 No. 2000	1999–2000 % change 1999–2000	1999–2000 (95% CI)
Age group (yrs)							
13–19	65	63	(-3)	(-31–37)	54	(-14)	(-40–23)
20–29	840	391	(-53)	(-59– -48)	417	(7)	(-7–22)
30–39	1,973	899	(-54)	(-58– -51)	636	(-29)	(-36– -22)
40–49	1,097	807	(-26)	(-33– -19)	831	(3)	(-7–13)
≥50	251	244	(-3)	(-18–16)	295	(21)	(2–43)
Sex							
Male	2,819	1,568	(-44)	(-48– -41)	1,628	(4)	(-3–11)
Female	1,407	835	(-41)	(-46– -35)	886	(6)	(-3–17)
Race/Ethnicity							
White, non-Hispanic	941	563	(-40)	(-46– -34)	590	(5)	(-7–18)
Black, non-Hispanic	2,825	1,535	(-46)	(-49– -42)	1,584	(3)	(-4–11)
Hispanic	409	238	(-42)	(-50– -32)	243	(2)	(-15–22)
Other§	51	67	(31)	(-9–90)	96	(43)	(5–96)
Race/Ethnicity (by sex)							
Male							
White, non-Hispanic	613	362	(-41)	(-48– -33)	368	(2)	(-12–18)
Black, non-Hispanic	1,856	982	(-47)	(-51– -43)	1,007	(3)	(-6–12)
Hispanic	313	179	(-43)	(-52– -31)	186	(4)	(-15–28)
Female							
White, non-Hispanic	328	201	(-39)	(-49– -27)	223	(1)	(-8–34)
Black, non-Hispanic	969	553	(-43)	(-49– -37)	577	(4)	(-7–17)
Hispanic	96	59	(-39)	(-56– -15)	57	(3)	(-33–39)
Total	**4,226**	**2,403**	**(-43)**	**(-46–22)**	**2,514**	**(5)**	**(-1–11)**

* Alabama, Arizona, Arkansas, Colorado, Idaho, Indiana, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nevada, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Utah, Virginia, West Virginia, Wisconsin, and Wyoming.
† Confidence interval.
§ Numbers for racial/ethnic groups other than white, black, and Hispanic were combined because, when analyzed separately, data were too small for meaningful analysis.

FIGURE. HIV diagnoses, by transmission risk — 25 states*, 1994–2000



* Alabama, Arizona, Arkansas, Colorado, Idaho, Indiana, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nevada, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee, Utah, Virginia, West Virginia, Wisconsin, and Wyoming.
† Injection-drug user.
§ Men who have sex with men.

frequently occurs in the context of illicit substance use (*7*). Changes in HIV prevalence among sex and needle-sharing partners or changes in risk behavior with such partners might lead to changes in the risk for new infections.

The finding that IDU-related HIV diagnoses occurred disproportionately in males and blacks is consistent with the disproportionate impact of the HIV/AIDS epidemic on minority communities and the concentration of IDUs among males (*2*). The leveling of IDU-related HIV diagnoses during 1999–2000 for the majority of demographic groups might represent a plateau in IDU-related HIV diagnoses or changes in testing behavior among IDUs (*6*). In addition, the increase in IDU-related HIV diagnoses among persons aged ≥50 years during 1999–2000 might represent the aging of a cohort of IDUs who continue risk behaviors, acquire new infections, or receive late testing and diagnosis.

IDUs who continue risk behaviors and sex partners of IDUs who contract the disease might represent missed opportunities for HIV prevention. Approximately 25% of the estimated 850,000–950,000 persons living in the United States with HIV are unaware of their infection (*8*), and some transmit HIV infections to others. In 2003, CDC launched a new strategy for prevention aimed at reducing the number of new infections in the United States by increasing the proportion of infected persons who know their status and by working with persons with HIV and their partners (*9*).

The findings in this report are subject to at least three limitations. First, the data are from 25 states with <10% of IDUs with AIDS and are not generalizable to other states. Second, redistribution of risk is derived by using an algorithm based on historical patterns of risk determination after additional information is gathered; the summary might not account for current patterns of risk redistribution. Finally, the data include new HIV diagnoses, not new infections. Although testing patterns can change the number and trends of new diagnoses, surveillance methods being developed by CDC will enable estimation of patterns in HIV-infection incidence (*10*).

CDC recommends that all states, especially those with high AIDS morbidity, implement HIV case surveillance. In addition, procedures to reassign cases reported without risk should be improved. CDC is piloting new methods to improve risk ascertainment, including statistical sampling and inference.

Despite overall decreases, IDUs and their sex partners bear a substantial burden of the disease. Expansion of efforts that include counseling and voluntary HIV testing for IDUs and their sex partners is encouraged. Persons with HIV should receive counseling to reduce risks associated with transmission to others through drug use and sexual behaviors. Prevention programs targeting minority communities should continue. Drug treatment for IDUs, medical treatment for HIV-positive IDUs, and programs to prevent initiation of injection-drug use should be enhanced to prevent HIV infection and transmission among IDUs and their sex and drug-sharing partners.

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Prevalence of Diabetes — U.S. Virgin Islands, 1999–2001

The U.S. Virgin Islands (USVI) comprises four islands (St. Croix, St. John, St. Thomas, and Water Island) (2000 population: 108,612) located 70 miles east of Puerto Rico. The median age of persons residing in USVI is 33.4 years (range: 0–110 years), and 87% are aged <60 years; the majority of the residents are either black (76.2%) or Hispanic (14.0%) (*1*). In 1997, diabetes was the fifth leading cause of death in USVI (*2*). Historically, the prevalence of diabetes has been lower among blacks in USVI than among blacks in the 50 states (*3*). To characterize the prevalence of diabetes in USVI, CDC analyzed data from the Behavioral Risk Factor Surveillance System (BRFSS) for 1999–2001 (*4*). This report summarizes the findings from the analysis, which indicate that approximately 8.0% of USVI residents aged ≥18 years have diagnosed diabetes, and the prevalence of diabetes among blacks and Hispanics in USVI is comparable to that among blacks and Hispanics in the 50 states. To prevent the burden of diabetes and diabetes-related complications in residents and to improve the quality of life for persons with diabetes, initiatives in USVI should target all persons with diabetes.

BRFSS is a state-based, random-digit–dialed telephone survey of the U.S. civilian, noninstitutionalized population aged ≥18 years in the 50 states, the District of Columbia, Guam, Puerto Rico, and USVI. Response rates ranged from 75.5% in 1999 to 57.5% in 2001. BRFSS data for 1999–2001 were combined to estimate diabetes prevalence. Persons were classified as having diabetes if they responded "yes" to the question, "Has a doctor ever told you that you have diabetes?" Women reporting gestational diabetes only (i.e., <1.5%) were excluded. Persons with missing, refused, or unknown responses were coded as "missing." Logistic regression analyses were used to assess the association of diabetes prevalence with USVI residents after controlling for age, sex, race/ethnicity, education level, and body mass index (BMI). Values for BMI, which is the ratio of weight in kilograms to height in meters squared (kg/m^2), were grouped in three categories (i.e., <25.0, 25–29.9, and ≥30.0). Race/ethnicity was categorized as black, Hispanic, or other (non-Hispanic white, Asian/Pacific Islander, American Indian/Alaska Native, and other). All analyses were conducted by using SAS (version 8) with SUDAAN to account for the complex survey design. The data were weighted to reflect the age, sex, and racial/ethnic distribution of noninstitutionalized adults in USVI. In addition to calculating crude estimates, age-standardized estimates were calculated by using direct standardization to the 2000 U.S. population. Multivariate-adjusted prevalence was computed as predicted marginal values from a logistic model that controlled for sex,

race/ethnicity, education, age group, and BMI, and the significance of differences was determined from t-tests.

During 1999–2001, the prevalence of diabetes in USVI was 7.6% (95% confidence interval [CI] = 6.8%–8.4%) (Table). The prevalence increased with age from 1.9% among persons aged <45 years to 11.6% among persons aged 45–64 years to 20.3% among persons aged ≥65 years (p<0.05). After standardizing for age, the prevalence of diabetes was higher among women (9.0%) than among men (6.7%) (p<0.05). Age-standardized prevalence did not differ statistically between blacks (9.5%) and Hispanics (7.3%). Among adults with less than a high school education, prevalence was approximately twice that of those with more than a high school education (11.0% versus 5.6%; p<0.05). Persons with BMI of ≥30.0 were approximately twice as likely to have diabetes as those with BMI of <25.0 (13.2% versus 7.2%; p<0.05). Health insurance was not significantly associated with diabetes (p>0.05), with rates of 9.0% for the uninsured and 7.0% for insured.

A multivariate analysis indicated that the excess risk for diabetes persisted for persons aged ≥65 years, compared with those aged <45 years (predicted marginal difference [PMD] = 18.0 percentage points; p<0.05). Persons with less than a high school education had an excess risk (PMD = 4.1 percentage points; p<0.05), compared with those with more than a high school education. Adults with a BMI of ≥30.0 also had excess risk, compared with those with a BMI of <25.0 (PMD = 6.0 percentage points [p<0.05]).

TABLE. Crude and age-standardized* prevalence of diabetes, by selected characteristics — Behavioral Risk Factor Surveillance System, U.S. Virgin Islands, 1999–2001

Characteristic	Crude %	Crude (95% CI†)	Age-standardized %	Age-standardized (95% CI)
Age group (yrs)				
<45	1.9	(1.3–2.5)	—	—
45–64§	11.6	(9.9–13.3)	—	—
≥65§	20.3	(16.8–23.8)	—	—
Sex				
Male	6.4	(5.2–7.6)	6.7	(5.5–7.9)
Female§	8.6	(7.5–9.7)	9.0	(7.9–10.2)
Race/Ethnicity				
Black	9.4	(8.0–10.8)	9.5	(8.1–10.9)
Hispanic	6.5	(4.1–8.8)	7.3	(4.6–10.0)
Other¶	4.4	(2.2–6.6)	4.2	(2.0–6.4)
Education level				
<High school§	13.7	(12.1–15.3)	11.0	(9.2–12.8)
High school	6.0	(4.8–7.2)	8.1	(6.4–9.8)
>High school	5.0	(3.9–6.1)	5.6	(4.4–6.8)
Body mass index (BMI)				
<25.0	6.7	(5.7–7.7)	7.2	(6.2–8.2)
25–29.9	7.4	(5.7–9.1)	6.9	(5.2–8.6)
≥30.0§	12.9	(10.2–15.6)	13.2	(10.3–16.1)
Health insurance				
Yes	8.3	(7.3–9.3)	7.8	(6.8–8.8)
No	6.3	(5.0–7.6)	9.0	(6.6–11.3)
Total	**7.6**	**(6.8–8.4)**	**7.9**	**(7.1–8.7)**

* Based on the 2000 U.S. standard population.
† Confidence interval.
§ p<0.05 for difference from the reference groups (aged <45 years, male, >high school, and BMI of <25.0).
¶ Data for racial/ethnic groups other than black and Hispanic were combined because, when analyzed separately, data were too small for meaningful analysis.

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Editorial Note: During 1999–2001, approximately 8.0% of USVI residents aged ≥18 years had diagnosed diabetes. Prevalence was highest among persons aged ≥65 years, persons with less than a high school education, and those with a BMI of ≥30. The estimated prevalence among USVI blacks (9.5%) and Hispanics (7.3%) is comparable to that of blacks (9.7%) and Hispanics (8.0%) in the 50 states (*4,5*).

The estimated prevalence of diabetes for USVI obtained in this analysis is approximately 4 percentage points lower than that obtained in a study conducted during 1995–1998 among adults aged ≥20 years residing on St. Croix (*6*). This difference might be explained by differences in the study design and study population (e.g., economic distribution).

To prevent the burden of diabetes and to improve the quality of life for persons with diabetes, initiatives in USVI should target all persons with diabetes, particularly the elderly and those with a low-level education. The USVI Diabetes Prevention and Control Program (USVIDPCP) is working with its local and national partners to increase diabetes awareness and to improve quality of diabetes care for all, with special focus on underserved and elderly population.

The findings in this report are subject to at least two limitations. First, BRFSS surveys reach only noninstitutionalized populations with telephones; therefore, these findings might not be generalizable to nursing home residents, other institutionalized populations, or persons without telephones. Second, BRFSS diabetes data are self-reported and are subject to recall bias; however, several validity studies indicate that persons with diabetes report their diabetes status accurately (*7*).

Further efforts are needed to educate USVI residents regarding the seriousness and management of diabetes. CDC provides resources and technical assistance to the USVIDPCP to define the burden of diabetes and its complications and to help improve access to quality diabetes care. USVIDPCP plans to incorporate primary prevention in their strategies. Continued surveillance through BRFSS will be an important tool in monitoring changes in diabetes prevalence in USVI.

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Update: Cardiac and Other Adverse Events Following Civilian Smallpox Vaccination — United States, 2003

During January 24–June 20, 2003, smallpox vaccine was administered to 37,802 civilian health-care and public health workers in 55 jurisdictions to prepare the United States for a possible terrorist attack using smallpox virus. This report updates information on vaccine-associated adverse events among civilians vaccinated since the beginning of the program and among contacts of vaccinees, received by CDC from the Vaccine Adverse Event Reporting System (VAERS) as of June 20. Two cases of dilated cardiomyopathy (DCM) were diagnosed 3 months after vaccination. For the potential relation between smallpox vaccine and DCM to be assessed, identification of additional cases of DCM among vaccinees will be essential. Physicians who treat smallpox vaccine recipients are encouraged to evaluate and report patients with symptoms compatible with DCM, including those that occur several months after vaccination.

In this vaccination program, CDC, the Food and Drug Administration, and state health departments are conducting surveillance for vaccine-associated adverse events among civilian vaccinees (*1*). As part of the vaccination program, civilian vaccinees receive routine follow-up, and persons reporting adverse events after vaccination receive follow-up as needed. The U.S. Department of Defense is conducting surveillance for vaccine-associated adverse events among military vaccinees and providing follow-up care to those persons with reported adverse events.

Adverse events that have been associated with smallpox vaccination are classified on the basis of evidence supporting the reported diagnoses. Cases verified by virologic testing (or in some instances by other diagnostic testing) are classified as confirmed (Table 1). Cases are classified as probable if possible alternative etiologies are investigated and excluded and supportive information for the diagnosis is found. Cases are classified as suspected if they have clinical features compatible with the diagnosis, but either further investigation is required or investigation of the case did not provide supporting evidence for the diagnosis. All reports of events that follow vaccination (i.e., events associated temporally) are accepted; however, reported adverse events are not necessarily associated

TABLE 1. Number of cases* of selected adverse events associated with smallpox vaccination among civilians, by type — United States, January 24–June 20, 2003

	No. new cases (May 10–June 20)			Total (January 24–June 20)		
Adverse events	Suspected†	Probable§	Confirmed¶	Suspected	Probable	Confirmed
Eczema vaccinatum	—**	—	—	—	—	—
Fetal vaccinia	—	—	—	—	—	—
Generalized vaccinia	1	—	—	**2**	—	**1**
Inadvertent inoculation, nonocular	1	—	3	**12**	—	**8**
Ocular vaccinia	—	—	—	**1**	—	**2**
Progressive vaccinia	—	—	—	—	—	—
Erythema multiforme major (Stevens-Johnson syndrome)	—	—	—	—	—	—
Myo/pericarditis	2	2	—	**17**	**4**	—
Post vaccinial encephalitis or encephalomyelitis	—	—	—	**1**	—	—
Pyogenic infection of vaccination site	—	—	—	—	—	—

* Under investigation or completed as of June 20, 2003; numbers and classifications of adverse events will be updated regularly in *MMWR* as more information becomes available.
† Events are classified as suspected if they have clinical features compatible with the diagnosis, but either further investigation is required or additional investigation of the case did not provide supporting evidence for the diagnosis and did not identify an alternative diagnosis.
§ Events are classified as probable if possible alternative etiologies are investigated and supportive information is found.
¶ The first six events listed are classified as confirmed if virologic tests are positive. The last four events are classified as confirmed on the basis of diagnostic testing (e.g., histopathology); confirmation of events thought to be immunologically mediated (i.e., erythema multiforme, myo/pericarditis, postvaccinial encephalitis, or encephalomyelitis) does not establish causality.
** No cases reported.

causally with vaccination, and some or all of these events might be coincidental. This report includes cases reported as of June 20 that either are under investigation or have a reported final diagnosis. Because discussions of final case definitions are ongoing, numbers and classifications of adverse events might change and will be updated regularly in *MMWR*.

As of June 20, a total of 21 cases of myo/pericarditis were reported among civilians. Four of these were new suspected cases reported during May 10–June 20, including two cases of pericarditis and two cases of myocarditis (Table 1). In addition, eight cases of ischemic heart disease have been reported since the beginning of the civilian vaccination program, including five cases of myocardial infarction (MI) and three cases of angina.

During May 10–June 20, one case of suspected generalized vaccinia was reported; no cases of eczema vaccinatum, erythema multiforme major, fetal vaccinia, or progressive vaccinia were reported (Table 1). In addition, 11 other serious adverse events were reported, including two cases of cardiomyopathy identified 3 months after smallpox vaccination in persons with no previous history of cardiomyopathy, coronary artery disease (CAD), or congestive heart failure. As of July 9, these cases were under investigation. Nine other serious events were reported, including three cases of chest pain, one case of gastro-esophageal reflux disease, one case of cholecystitis, one case of sudden death caused by atherosclerotic CAD 69 days postvaccination, and three neurologic cases were reported, including a central nervous system tumor diagnosed 28 days postvaccination, a headache evaluated for encephalitis, and a cerebral vascular accident. An additional 111 other nonserious events also were reported (Table 2). Among the 610 vaccinees with reported other nonserious adverse events during January 24–June 20, the most common signs and symptoms were fever (n = 121), rash (n = 114), headache (n = 103), pain (n = 95), and fatigue (n = 85) (Table 2). All of these commonly reported events are consistent with mild expected reactions following receipt of smallpox vaccine. Some vaccinees reported multiple signs and symptoms.

During May 10–June 20, no vaccinia immune globulin was released for civilian vaccinees in the pre-event vaccination program, excluding persons involved in investigational new drug studies. No cases of vaccine transmission from civilian vaccinees to their contacts have been reported during the vaccination program (Table 3). A total of 14 cases of transmission from military personnel to civilian contacts have been reported since the program began.

TABLE 2. Number of cases* of other adverse events reported after smallpox vaccination among civilians, by severity — United States, January 24–June 20, 2003

Adverse events	No. new cases (May 10–June 20)	Total (January 24–June 20)
Other serious adverse events†	11§	**71**
Other nonserious adverse events¶	111	**610**

* Under investigation or completed as of June 20, 2003; numbers and classifications of adverse events will be updated regularly in *MMWR* as more information becomes available.
† Events that result in hospitalization, permanent disability, life-threatening illness, or death. These events are temporally associated with vaccination but are not necessarily causally associated with vaccination.
§ Include two cases of dilated cardiomyopathy, three cases of chest pain, one case of gastro-esophageal reflux disease, one case of cholecystitis, one case of sudden death caused by atherosclerotic coronary artery disease 60 days postvaccination, and three neurologic cases (a central nervous system tumor diagnosed postvaccination, a headache evaluated for encephalitis, and a cerebral vascular accident).
¶ Include expected self-limited responses to smallpox vaccination (e.g., fatigue, headache, pruritis, local reaction at vaccination site, regional lymphadenopathy, lymphangitis, fever, myalgia and chills, and nausea); additional events are temporally associated with smallpox vaccination but are not necessarily causally associated with vaccination.

TABLE 3. Vaccinia immune globulin release and vaccinia transmission to contacts — United States, January 24–June 20, 2003

Events	No. new cases (May 10–June 20)	Total (January 24–June 20)
Vaccinia immune globulin release	0	**1**
Vaccinia transmission to contacts*		
Health-care settings	0	**0**
Other settings	0	**0**

* No cases of transmission from civilian vaccinees have been reported; 14 cases of transmission from military personnel to civilian contacts have been reported and are included in Table 1 (12 cases of inadvertent inoculation, nonocular, and two cases of ocular vaccinia).

Case Reports

Case 1. On February 25, a woman aged 53 years with a history of untreated borderline hypertension and obesity was revaccinated; 7 days later, she had fatigue. On March 18, she continued to have fatigue and dyspnea, and she had symptoms of an upper respiratory infection and sinusitis for which she was prescribed antibiotics. On April 16, she saw her physician for an unrelated problem and was noted to have elevated blood pressure (150/100 mm/Hg). She was started on hydrochlorthiazide; her fatigue continued, and she had increasing exertional dyspnea. Other medications included postmenopausal hormone replacement therapy and antihistamines for seasonal allergies. She had no history of ischemic or valvular heart disease, autoimmune or metabolic disorders, excessive alcohol consumption, or exposure to other known cardiotoxic agents.

On May 21, she had a routine scheduled physical examination performed by her regular physician. On cardiac examination, a murmur not detected previously was noted. An electrocardiogram (EKG) showed a left bundle branch block (LBBB), which was reported to be a new finding. On May 28, an echocardiogram showed normal left ventricular (LV) wall thickness, but mild dilatation with diffuse hypokinesis, moderate systolic function impairment, an ejection fraction (EF) of 35% (normal: >50%), and mild mitral regurgitation.

On May 30, she reported to the emergency department with nonradiating, burning chest pain without dizziness, dyspnea, or palpitations. She was evaluated and had a cardiac catheterization, which showed no significant CAD but moderate global hypokinesis and EF of 35%. The findings were indicative of a nonischemic dilated cardiomyopathy. She began treatment with ramipril and metoprolol and has continued working.

Case 2. On February 24, a woman aged 55 years with a history of obesity and moderately well-controlled hypertension, diabetes mellitus (DM), and hyperlipidemia was revaccinated. Nine days after vaccination, she had myalgias, arthralgias, and a temperature of 100° F (37.8° C) that resolved within 4 days; she reported no chest pain, dyspnea, or palpitations. On March 24, during a routine medical appointment, she reported continuing fatigue but no other symptoms. She had a family history of premature CAD but no history of angina, MI, congestive heart failure, autoimmune disease, excessive alcohol consumption, exposure to cardiotoxins, or metabolic disorders other than DM. Her medications included lisinopril, hydrochlorthiazide, atorvastatin, feofibrate, and metformin.

On May 17, she had two brief episodes of palpitations, which did not recur. On June 3, she saw her physician for a routine appointment and complained of periodic fatigue since receiving her smallpox vaccination. On examination, she was noted to have a cardiac murmur not detected previously. On June 11, an EKG showed an LBBB that was not present on her most recent previous EKG in 1996. An echocardiogram showed moderate LV dilatation with spherical loss of architecture, moderate-to-severe symmetrical hypokinesis of all regional wall areas, severe depression of systolic function, and EF of 25%–30%. On June 24, an adenosine sestamibi stress test showed no evidence of ischemia, moderate LV enlargement, and EF of 23%, consistent with a nonischemic DCM. Her baseline medications were adjusted, and she has continued working.

Reported by: *Smallpox vaccine adverse events coordinators. National Immunization Program, CDC.*

Editorial Note: Cardiac adverse events including myocarditis and pericarditis have been reported following smallpox vaccination (*2*). Evidence suggests that myocarditis and pericarditis might be associated causally with vaccination (*3*). The two cases of DCM described in this report represent the first known temporal, although not necessarily causal, association of smallpox vaccination and DCM. However, whether vaccine caused these illnesses or whether the two cases were coincidental and would have occurred anyway is unclear.

DCM is a syndrome characterized by cardiac enlargement and impaired systolic function of the left and/or right ventricle. Patients can have symptoms of congestive heart failure, syncope, arrhythmias, and systemic and pulmonary emboli; >40 causes of DCM have been described, including alcohol, toxins, infections, cytotoxic chemotherapy, and metabolic abnormalities (*4–6*). However, in approximately half of all cases, the cause is not identified; these are called idiopathic DCM (*5,6*). In a study of 673 patients admitted to a hospital with DCM, 81 (12%) had evidence of myocarditis on endomyocardial biopsy (*5*). Infectious causes of myocarditis include enteroviruses, adenoviruses, influenza, human immunodeficiency virus (HIV), and hepatitis C (*4,6,7*). Onset of viral-associated DCM can occur within 2–3 months of infection; however, many patients do not report previous viral symptoms or symptoms of myocarditis, and the time of onset of symptomatic DCM can be subtle and gradual. For these reasons, determining the timing of infection and attributing causality in many patients with viral-associated DCM is difficult. The mechanisms responsible for virus-related myocardial damage are not well understood; however, an autoimmune response is likely (*6,7*).

Patients with DCM generally have echocardiograms that demonstrate dilated LV end-diastolic diameter and global or regional wall dyskinesia with poor LV contractile function (ejection fraction of <45%), often with some compensatory increased wall thickness. Viral studies might indicate infection (*6*). The use of endomyocardial biopsy in patients with probable DCM is not recommended routinely because ≤5% of patients have a condition for which a specific therapy is indicated (*4–8*). In one study, one fourth of patients reporting to a major medical center with symptomatic DCM died within a year, and half died within 5 years (*6*). Among those with myocarditis, survival rates are somewhat better (75% survival at 5 years and approximately 55% at 10 years) (*9*).

Smallpox vaccination has not been associated previously with DCM. Because smallpox vaccination appears to be associated causally with myocarditis, which can cause DCM, further evaluation is warranted. DCM in either of the two cases described in this report could have been associated with other etiologies (e.g., preceding or interceding illnesses). As in other cases of DCM, attributing causality in these cases is difficult.

The expected rate of DCM in this population is being calculated to determine if the observed rate of DCM among civilian vaccinees (two per 38,000) is higher than expected. Surveillance and follow-up are ongoing to identify additional cases of DCM among vaccinees. Guidelines for evaluation of possible DCM cases following vaccination are being developed. Clinicians who treat smallpox vaccinees should report patients with clinical presentations compatible with DCM to their state health department and to VAERS (*1*).

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Update: Multistate Outbreak of Monkeypox — Illinois, Indiana, Kansas, Missouri, Ohio, and Wisconsin, 2003

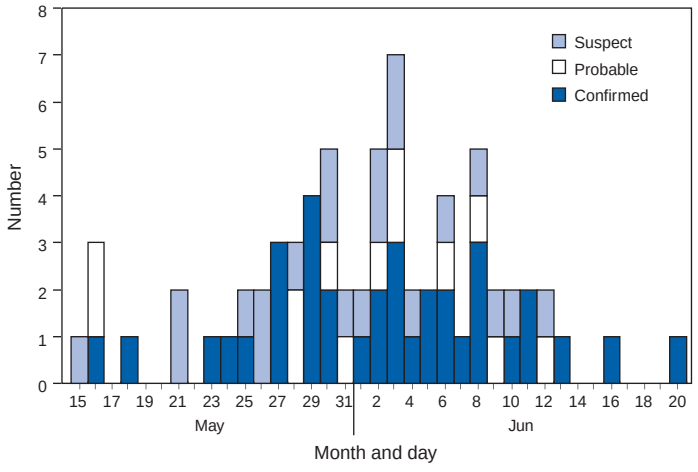
CDC and state and local health departments continue to investigate cases of monkeypox among persons in the United States who had contact with wild or exotic mammalian pets or with persons with monkeypox (*1–4*). This report updates results of the epidemiologic investigation, provides information on the use of smallpox vaccine during the outbreak, and summarizes the animal tracing activities to identify the origin and subsequent distribution of infected animals.

Epidemiologic Investigation

As of July 8, 2003, a total of 71 cases of monkeypox have been reported to CDC from Wisconsin (39), Indiana (16), Illinois (12), Missouri (two), Kansas (one), and Ohio (one); these include 35 (49%) cases laboratory-confirmed at CDC and 36 (51%) suspect and probable cases under investigation by state and local health departments (Figure 1). Eleven cases were excluded from those reported previously because they met the exclusion criteria outlined in the updated national case definition, and one new case was added (*1*). The number of cases increased from May 15 through the week ending June 8 and declined subsequently; the date of onset for the last case was June 20. Of the 71 cases, 39 (55%) occurred among females; the median age was 28 years (range: 1–51 years). Age data were unavailable for one patient. Among 69 patients for whom data were available, 18 (26%) were hospitalized; some patients were hospitalized for isolation precautions only. Two patients, both children, had serious clinical illness (*1–4*); both of these patients have recovered. The majority of patients were exposed to prairie dogs. Some patients were exposed in premises where prairie dogs were kept, and others were exposed to persons with monkeypox. No patients have been confirmed to have had exposure to persons with monkeypox as their only possible exposure.

Of the 35 laboratory-confirmed cases, 32 (91%) tested positive for monkeypox by polymerase chain reaction (PCR), culture, immunohistochemical testing (IHC), and/or electron microscopy in skin rash lesions; two tested positive by PCR and/or culture of an oropharyngeal or nasopharyngeal swab; and one tested positive by PCR and culture of a lymph node aspirate. For laboratory-confirmed cases, onset of illness ranged from May 16 to June 20. The majority of patients reported a clinical illness that included rash (one patient had a single,

FIGURE 1. Number of monkeypox cases*, by date of illness onset — Illinois, Indiana, Kansas, Missouri, Ohio, and Wisconsin, 2003†



* N = 69 of 71 cases with known date of illness onset.
† As of July 8, 2003.

atypical plaque-like skin lesion) and fever (Table 1). The median incubation period* was 12 days (range: 1–31 days).

Use of Smallpox Vaccine

To prevent transmission of monkeypox, 30 persons (28 adults and two children) in six states have received smallpox vaccine since June 13. Vaccine was administered pre-exposure to seven persons (three veterinarians, two laboratory workers, and two health-care workers) and post-exposure to 23 persons (10 health-care workers, seven household contacts, three laboratory workers, one public health veterinarian, one public health epidemiologist, and one work contact). No serious adverse events were reported following smallpox vaccination, and no requests for vaccinia immune globulin have been received. Among the 30 persons who received smallpox vaccine, three (10%) reported rash within 2 weeks of vaccination. One of the three was confirmed as having monkeypox; another person had two skin lesion specimens that tested negative for orthopoxvirus and varicella zoster virus at the state health laboratory; no specimens were obtained for the third person who reported a single, dime-sized, pruritic and erythematous skin lesion (not pustular) remote from the vaccination site that appeared 4 days after vaccination and faded within a week.

*Defined as first possible exposure date to illness onset date; however, some persons reported intermittent or continuous exposure.

TABLE 1. Number and percentage of laboratory-confirmed monkeypox cases, by selected characteristics — United States, 2003

Characteristic	No.	(%*)
State		
Illinois	8	(23)
Indiana	7	(20)
Kansas	1	(3)
Missouri	2	(6)
Wisconsin	17	(49)
Age group (yrs)		
6–18	11	(31)
19–51	24	(69)
Sex		
Female	18	(51)
Male	17	(49)
Possible sources of monkeypox exposure		
Prairie dog(s)	14	(40)
Prairie dog(s) and human case(s)	14	(40)
Premises housing prairie dogs	6	(17)
Premises housing prairie dog(s) and human case	1	(3)
Clinical features		
Rash†	34	(97)
Fever	29	(85)
Respiratory symptoms§	27	(77)
Lymphadenopathy	24	(69)
Hospitalized¶	16	(46)
Previous smallpox vaccination**	8	(33)

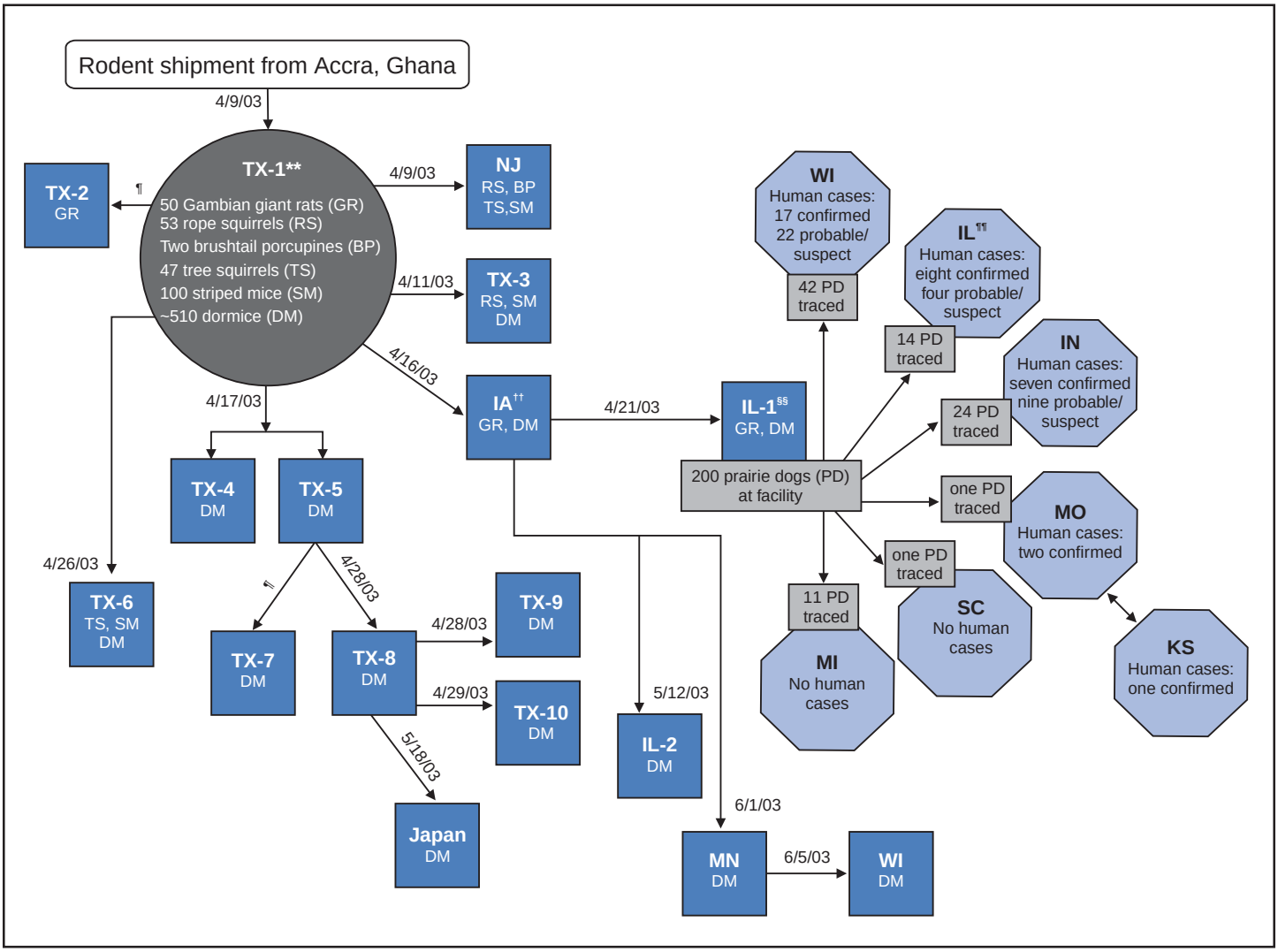
* Totals might not add to 100 because of rounding.
† Excludes one patient who had a single atypical, plaque-like skin lesion and no further lesions.
§ One or more of the following symptoms: cough, sore throat, shortness of breath, and nasal congestion.
¶ Some persons were hospitalized for isolation precautions and not because of severe illness.
** Information was available for 25 (71%) of the laboratory-confirmed cases.

Animal Traceback and Trace-Forward Investigations

Traceback investigations have determined that all 35 confirmed human cases of monkeypox were associated with prairie dogs obtained from an Illinois animal distributor (IL-1), or from animal distributors who purchased prairie dogs from IL-1 (Figure 2). Traceback of animal exposures are ongoing for other cases. Prairie dogs at IL-1 appear to have been infected through contact with Gambian giant rats and dormice that originated in Ghana and were purchased on April 21 by IL-1. Approximately 200 prairie dogs had been at the IL-1 facility during April–May; an unspecified number overlapped with the arrival of the imported African rodents on April 21 and probably were exposed to monkeypox. A total of 93 infected or potentially infected prairie dogs were traced from IL-1 to six states (Figure 2); in addition, an unknown number of prairie dogs died or were reportedly sold (as pets for sale or exchange) at animal swap meets for which no records were available for tracing. At CDC, laboratory testing of four prairie dogs originating from IL-1 confirmed the presence of monkeypox virus by PCR and IHC.

Traceback investigations to identify the source of introduction of monkeypox into the United States identified a Texas animal distributor (TX-1) that had imported a shipment of approximately 800 small mammals from Ghana on April 9 that contained 762 African rodents, including rope squirrels (*Funiscuirus* sp.), tree squirrels (*Heliosciurus* sp.), Gambian giant rats (*Cricetomys* sp.), brushtail porcupines (*Atherurus* sp.), dormice (*Graphiurus* sp.), and striped mice (*Hybomys* sp.). CDC laboratory testing of some animals from this shipment confirmed the presence of monkeypox by PCR and virus isolation in several rodent species, including one Gambian rat, three dormice, and two rope squirrels (*1*). Trace-forward investigations of the rodents on the shipment were initiated before the availability of laboratory results because of concerns that animals were a potential source of continued spread of monkeypox (Table 2; Figure 2). Of the 762 rodents from the original shipment, 584 (77%) have been traced to distributors in six states. A total of 178 (23%) African rodents could not be traced beyond the point of entry in Texas because records were not available. No suspect, probable, or

FIGURE 2. Movement of imported African rodents to animal distributors and distribution of prairie dogs from an animal distributor associated with human cases of monkeypox — 11 states*, 2003†§



* Illinois (IL), Indiana (IN), Iowa (IA), Kansas (KS), Michigan (MI), Minnesota (MN), Missouri (MO), New Jersey (NJ), South Carolina (SC), Texas (TX), and Wisconsin (WI). Japan is included among sites having received shipment of rodents implicated in this outbreak.
† As of July 8, 2003.
§ Does not include one probable human case from Ohio; investigation is ongoing.
¶ Date of shipment unknown.
** Identified as distributor C in *MMWR* 2003;52:561–4.
†† Identified as distributor D in *MMWR* 2003;52:561–4.
§§ Identified as distributor B in *MMWR* 2003;52:561–4.
¶¶ Includes two persons who were employees at IL-1.

TABLE 2. Disposition of African rodents* imported from Ghana to the United States on April 9, 2003, associated with monkeypox infection of prairie dogs

Rodents	Dead	Alive	Lost to follow-up	Total
Gambian giant rats	26	20	4	**50**
Dormice	~350	27	~135	**510**
Rope squirrels	49	4	—	**53**
Tree squirrels	24	20	3	**47**
Striped mice	14	50	36	**100**
Porcupines	2	—	—	**2**

* N = 762.

confirmed cases of human monkeypox have been associated with direct contact with the African rodents from the April 9 shipment. In addition, other than the prairie dogs traced from IL-1 to subsequent sites, no cases of monkeypox in other animals that had contact with the African rodents from the April 9 shipment have been reported.

Reported by: *State and local health departments. Monkeypox investigation team, CDC.*

Editorial Note: The outbreak described in this report highlights the public health threat posed by importation, for commercial purposes, of exotic pets into the United States. Epidemiologic and animal traceback investigations confirm that the first community-acquired human cases of monkeypox in the United States resulted from contact with infected prairie dogs that had been housed or transported with African rodents imported from Ghana.

Imported, exotic wild animals can carry nonindigenous, zoonotic pathogens, which can spread rapidly among indigenous susceptible animal populations in the United States, particularly when mixed together in close proximity. In addition, interspecies exchange of pathogens is possible because of close relations between humans and their pets. In this outbreak, the rapid and widespread distribution of monkeypox-infected and potentially infected imported wild animals to distributors and potential buyers in several settings (e.g., pet stores, swap meets, and wild animal trade centers) in the United States and to other countries enabled epizootic spread through multiple states before effective interventions could be implemented.

Public health strategies to control this outbreak, including the Food and Drug Administration-CDC joint order banning importation and prohibiting movement of the implicated animal species (http://www.cdc.gov/ncidod/monkeypox/pdf/embargo.pdf), state-enacted measures to further restrict intrastate animal shipment and trade (*4*), premise quarantine, and animal euthanasia, appear to have been effective in reducing exposure of humans to infected animals, with few cases reported since its implementation on June 11. Additional control measures have included pre- and post-exposure vaccination of potentially exposed persons with smallpox vaccine (*5*).

Laboratory tests have demonstrated the presence of monkeypox virus in several rodents from the original shipment from Ghana that died unexpectedly and did not exhibit characteristic signs of monkeypox in animals (e.g., conjunctivitis, lymphadenopathy, and skin lesions). For this reason, CDC guidance for premise quarantine and animal euthanasia (http://www.cdc.gov/ncidod/monkeypox/quarantineremoval.htm) is based on the possibility that infected rodents from the April 9 shipment could be asymptomatic, shed virus, and potentially cause infection in other susceptible animals or humans. Although no human monkeypox cases have been associated with contact with rodents from the April 9 shipment, these animals are considered to pose a continued risk for infection for other animals and humans. Euthanasia, following American Veterinary Medical Association guidelines (http://www.avma.org/noah/members/policy/default.asp), is recommended for all rodents from the April 9 shipment and for any prairie dogs that were on the premises at the same time as any of the African rodents. In addition, mammals in facilities that housed a rodent from the April 9 shipment should be placed under quarantine for 6 weeks following the last date a rodent of concern was present. Efforts are underway to collect additional epidemiologic and laboratory data on both human and animal cases and their contacts, including animal handlers who might have been exposed to infected rodents.

Importation of exotic animals and indigenous, wild animals harvested for the commercial pet trade have been associated with previous outbreaks of infectious diseases in humans, including salmonella associated with reptiles (e.g., lizards, snakes, and turtles) and tularemia associated with prairie dogs (*6,7*); prairie dogs also have been documented to be infected with other human pathogens (e.g., plague) (*8*). The Institute of Medicine recently highlighted the role of international travel and commerce in the emergence of infectious diseases through the dissemination of pathogens and their vectors throughout the world (*9*). CDC and other federal agencies, in collaboration with state and local health departments and professional organizations, are developing long-term strategies to coordinate the control of importation, exportation, interstate trade, and intrastate sale of exotic and native wild animals (*10*).

Health-care providers, veterinarians, and public health officials who suspect monkeypox in animals or humans should report such cases to their state and local health departments. State health departments should report suspect cases to CDC, telephone 770-488-7100. An updated case definition with revised case exclusion criteria is available at http://www.cdc.gov/ncidod/monkeypox/index.htm. Rash illnesses suspected to be monkeypox should be confirmed by laboratory evaluation. Clinical specimens should be submitted for testing after consultation with the state and local health departments. Protocols for specimen collection, including completion of specimen submission forms, should follow CDC guidance available at http://www.cdc.gov/ncidod/monkeypox/diagspecimens.htm. Because information included in the specimen-submission and case-reporting forms is essential for accurate interpretation of laboratory results, these forms should be completed by state health departments. Preferred specimens for testing are those from skin lesions. Because smallpox vaccine might modify monkeypox disease, evaluation of any rash post-vaccination in a person exposed to monkeypox should include laboratory testing for monkeypox virus.

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West Nile Virus Activity — United States, July 3–9, 2003

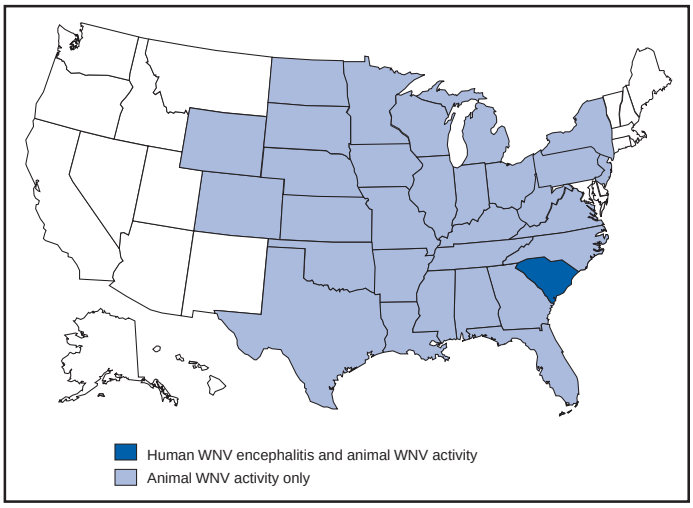
This report summarizes West Nile virus (WNV) surveillance data reported to CDC through ArboNET as of 8 a.m. Mountain Daylight Time, July 9, 2003.

During the reporting week of July 3–9, the first verified human case of WNV meningoencephalitis in 2003 was reported from South Carolina in a man aged 70 years. The date of onset of illness was May 29.

During 2003, in addition to the one human case of WNV meningoencephalitis, 130 corvids (crows and related species) and 63 other dead birds with WNV infection were reported from 28 states (Figure); 22 WNV infections were reported in horses from Texas (n = four), Minnesota (n = three), Oklahoma (n = three), Wyoming (n = three), Kentucky (n = two), Wisconsin (n = two), Alabama (n = one), Arkansas (n = one), Georgia (n = one), Missouri (n = one), and North Dakota (n = one). One canine infection was reported from South Dakota. WNV seroconversions were reported in 55 sentinel chicken flocks from Florida and North Carolina. South Dakota reported nine seropositive sentinel horses. Fifty-three WNV-positive mosquito pools were reported from eight states (Colorado, Georgia, Illinois, Indiana, Kansas, Michigan, New Jersey, and Texas).

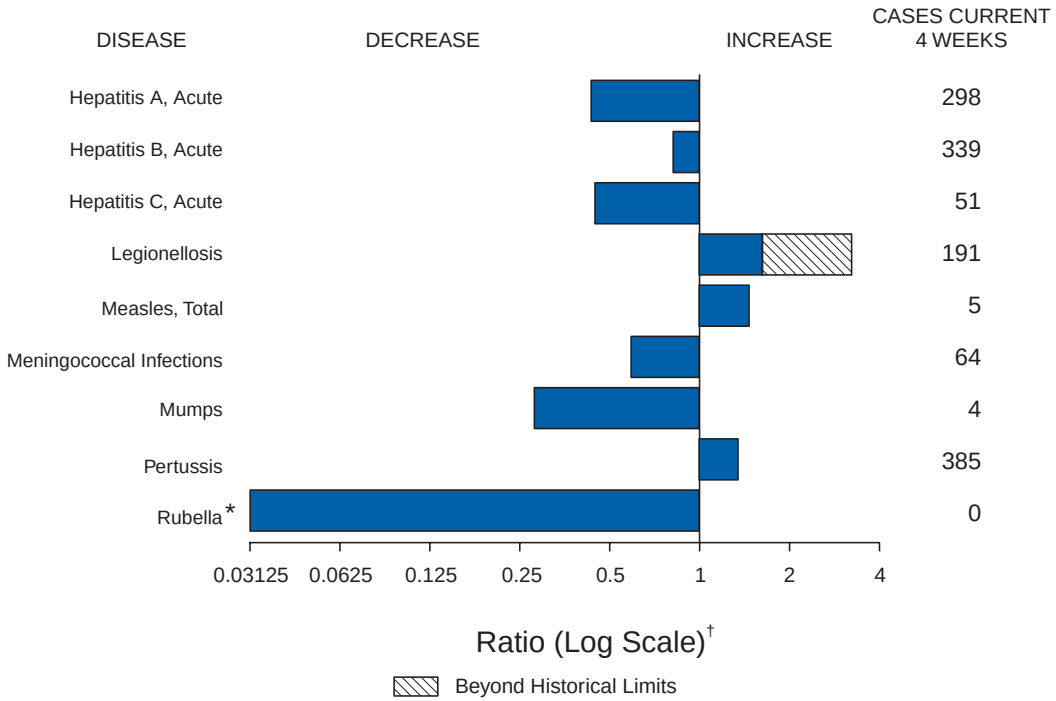
Additional information about WNV activity is available from CDC at http://www.cdc.gov/ncidod/dvbid/westnile/index.htm and http://www.cindi.usgs.gov/hazard/event/west_nile/west_nile.html.

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



* As of 8:00 a.m. Mountain Daylight Time, July 9, 2003.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals July 5, 2003, with historical data



* No rubella cases were reported for the current 4-week period yielding a ratio for week 27 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 July 5, 2003 (27th Week)*

	Cum. 2003	Cum. 2002		Cum. 2003	Cum. 2002
Anthrax	-	1	Hansen disease (leprosy)†	25	52
Botulism:	-	-	Hantavirus pulmonary syndrome†	10	12
foodborne	7	7	Hemolytic uremic syndrome, postdiarrheal†	51	80
infant	32	39	HIV infection, pediatric†§	108	89
other (wound & unspecified)	12	7	Measles, total	21¶	16**
Brucellosis†	33	60	Mumps	110	155
Chancroid	18	42	Plague	1	-
Cholera	1	1	Poliomyelitis, paralytic	-	-
Cyclosporiasis†	23	86	Psittacosis†	8	12
Diphtheria	-	1	Q fever†	35	26
Ehrlichiosis:	-	-	Rabies, human	-	1
human granulocytic (HGE)†	62	78	Rubella	4	9
human monocytic (HME)†	32	51	Rubella, congenital	-	1
other and unspecified	3	6	Streptococcal toxic-shock syndrome†	110	74
Encephalitis/Meningitis:	-	-	Tetanus	4	12
California serogroup viral†	-	-	Toxic-shock syndrome	69	63
eastern equine†	-	-	Trichinosis	1	10
Powassan†	-	-	Tularemia†	22	30
St. Louis†	-	-	Yellow fever	-	-
western equine†	-	-			

-: 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 (NCHSTP). Last update May 25, 2003.
¶ Of 21 cases reported, 19 were indigenous and two were imported from another country.
** Of 16 cases reported, eight were indigenous and eight were imported from another country.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending July 5, 2003, and July 6, 2002 (27th 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	19,482	20,774	407,274	415,336	1,550	2,278	950	1,079	-	-
NEW ENGLAND	654	795	13,279	13,795	-	-	59	63	-	-
Maine	27	19	929	750	N	N	6	2	-	-
N.H.	15	19	775	812	-	-	6	14	-	-
Vt.	6	8	515	401	-	-	13	14	-	-
Mass.	277	373	5,283	5,459	-	-	22	19	-	-
R.I.	51	61	1,420	1,426	-	-	9	9	-	-
Conn.	278	315	4,357	4,947	N	N	3	5	-	-
MID. ATLANTIC	4,098	4,738	42,668	46,037	-	-	132	153	-	-
Upstate N.Y.	274	421	9,812	8,263	N	N	39	33	-	-
N.Y. City	1,976	2,545	16,297	15,683	-	-	39	63	-	-
N.J.	787	809	6,074	6,334	-	-	5	11	-	-
Pa.	1,061	963	10,485	15,757	N	N	49	46	-	-
E.N. CENTRAL	1,982	2,238	71,758	76,352	3	15	223	303	-	-
Ohio	303	428	19,249	19,800	-	-	38	67	-	-
Ind.	259	304	8,425	8,446	N	N	26	21	-	-
Ill.	959	1,028	20,486	24,207	-	2	26	56	-	-
Mich.	359	369	15,857	15,348	3	13	45	54	-	-
Wis.	102	109	7,741	8,551	-	-	88	105	-	-
W.N. CENTRAL	358	328	23,726	23,247	1	1	108	110	-	-
Minn.	74	72	5,006	5,399	N	N	45	39	-	-
Iowa	41	46	2,676	2,721	N	N	18	11	-	-
Mo.	177	135	8,522	7,539	-	-	10	15	-	-
N. Dak.	-	1	700	645	N	N	8	10	-	-
S. Dak.	7	2	1,275	1,109	-	-	20	5	-	-
Nebr.¶	25	31	2,076	2,228	1	1	4	22	-	-
Kans.	34	41	3,471	3,606	N	N	3	8	-	-
S. ATLANTIC	5,488	6,359	80,457	77,782	3	2	146	143	-	-
Del.	106	113	1,587	1,363	N	N	3	1	-	-
Md.	558	954	8,522	7,818	3	2	8	7	-	-
D.C.	595	321	1,427	1,671	-	-	6	3	-	-
Va.	481	482	9,571	8,186	-	-	15	4	-	-
W. Va.	42	48	1,275	1,204	N	N	3	2	-	-
N.C.	581	438	13,283	12,618	N	N	18	21	-	-
S.C.	330	440	7,455	7,311	-	-	2	2	-	-
Ga.	736	1,087	17,215	16,121	-	-	53	54	-	-
Fla.	2,059	2,476	20,122	21,490	N	N	38	49	-	-
E.S. CENTRAL	841	903	27,370	26,879	N	N	54	70	-	-
Ky.	79	150	4,261	4,421	N	N	12	1	-	-
Tenn.	374	388	9,711	8,226	N	N	17	38	-	-
Ala.	185	172	7,171	8,473	-	-	22	27	-	-
Miss.	203	193	6,227	5,759	N	N	3	4	-	-
W.S. CENTRAL	2,125	2,164	52,672	55,060	-	5	11	32	-	-
Ark.	65	150	3,825	3,755	-	-	2	4	-	-
La.	368	498	8,734	9,546	N	N	1	8	-	-
Okla.	92	118	5,534	5,302	N	N	5	5	-	-
Tex.	1,600	1,398	34,579	36,457	-	5	3	15	-	-
MOUNTAIN	722	666	24,300	25,813	1,086	1,536	53	69	-	-
Mont.	10	6	989	1,092	N	N	12	4	-	-
Idaho	13	15	1,230	1,292	N	N	8	17	-	-
Wyo.	4	5	497	462	-	-	2	6	-	-
Colo.	159	132	5,559	7,220	N	N	11	18	-	-
N. Mex.	52	51	3,691	3,967	4	5	3	7	-	-
Ariz.	341	272	7,371	7,516	1,057	1,507	3	9	-	-
Utah	31	35	2,287	1,166	5	7	11	5	-	-
Nev.	112	150	2,676	3,098	20	17	3	3	-	-
PACIFIC	3,214	2,583	71,044	70,371	456	719	164	136	-	-
Wash.	214	256	8,076	7,514	N	N	14	9	-	-
Oreg.	126	193	3,872	3,407	-	-	23	20	-	-
Calif.	2,815	2,074	56,224	55,347	456	719	127	106	-	-
Alaska	12	12	1,935	1,846	-	-	-	-	-	-
Hawaii	47	48	937	2,257	-	-	-	1	-	-
Guam	2	1	-	343	-	-	-	-	-	-
P.R.	514	600	913	1,488	N	N	N	N	-	-
V.I.	15	56	-	100	-	-	-	-	-	-
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 May 25, 2003.

¶ For Nebraska, data for hepatitis A, B, and C; meningococcal disease; pertussis; streptococcal disease (invasive, group A); and *Streptococcus pneumoniae* (invasive) were collected by using the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending July 5, 2003, and July 6, 2002 (27th 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	670	1,004	81	56	58	13	7,347	8,861	153,769	175,720
NEW ENGLAND	39	78	14	13	7	2	508	803	3,251	3,952
Maine	4	4	1	-	-	-	60	80	105	54
N.H.	6	9	1	-	-	-	17	25	54	63
Vt.	2	3	-	-	-	-	43	60	40	53
Mass.	15	38	2	9	7	2	235	419	1,292	1,704
R.I.	1	5	-	-	-	-	55	61	424	460
Conn.	11	19	10	4	-	-	98	158	1,336	1,618
MID. ATLANTIC	79	113	3	-	19	2	1,484	1,907	17,234	21,056
Upstate N.Y.	33	46	1	-	10	-	421	513	3,747	4,238
N.Y. City	3	7	-	-	-	-	533	724	6,288	6,323
N.J.	5	20	-	-	-	-	112	228	3,552	3,746
Pa.	38	40	2	-	9	2	418	442	3,647	6,749
E.N. CENTRAL	167	245	10	12	9	2	1,204	1,491	32,229	36,685
Ohio	43	45	10	5	9	2	407	390	10,752	10,882
Ind.	29	20	-	-	-	-	-	-	3,218	3,662
Ill.	26	82	-	5	-	-	280	449	9,092	12,249
Mich.	30	36	-	2	-	-	312	398	6,545	6,900
Wis.	39	62	-	-	-	-	205	254	2,622	2,992
W.N. CENTRAL	107	127	13	7	13	1	772	830	7,892	8,924
Minn.	38	37	8	4	-	-	297	289	1,240	1,554
Iowa	16	29	-	-	-	-	109	113	607	602
Mo.	29	22	N	N	1	-	211	232	4,006	4,364
N. Dak.	4	4	-	-	5	-	16	13	30	33
S. Dak.	6	13	3	1	-	-	22	32	102	134
Nebr.	6	15	1	2	-	-	56	71	678	785
Kans.	8	7	-	-	7	1	61	80	1,229	1,452
S. ATLANTIC	58	98	28	12	-	-	1,234	1,312	39,166	44,980
Del.	-	5	N	N	N	N	18	25	600	830
Md.	2	7	-	-	-	-	55	48	3,987	4,388
D.C.	1	-	-	-	-	-	18	20	1,103	1,378
Va.	17	24	4	1	-	-	163	105	4,338	5,126
W. Va.	2	2	-	-	-	-	14	20	433	509
N.C.	5	17	8	-	-	-	N	N	7,478	8,413
S.C.	-	1	-	-	-	-	57	34	3,953	4,451
Ga.	12	28	1	6	-	-	470	413	8,449	8,647
Fla.	19	14	15	5	-	-	439	647	8,825	11,238
E.S. CENTRAL	30	42	-	-	4	2	164	157	13,212	15,208
Ky.	10	13	-	-	4	2	N	N	1,793	1,751
Tenn.	12	20	-	-	-	-	71	70	3,928	4,620
Ala.	6	4	-	-	-	-	93	87	4,351	5,406
Miss.	2	5	-	-	-	-	-	-	3,140	3,431
W.S. CENTRAL	17	46	1	-	2	2	132	77	21,602	24,471
Ark.	4	2	-	-	-	-	72	63	2,052	2,322
La.	1	1	-	-	-	-	4	1	5,470	5,921
Okla.	8	8	-	-	-	-	56	12	2,116	2,273
Tex.	4	35	1	-	2	2	-	1	11,964	13,955
MOUNTAIN	79	93	10	8	4	2	633	644	5,059	5,518
Mont.	2	9	-	-	-	-	35	35	55	54
Idaho	18	6	5	2	-	-	75	42	39	38
Wyo.	2	3	-	1	-	-	9	11	24	30
Colo.	24	34	1	4	4	2	182	219	1,315	1,736
N. Mex.	1	4	3	1	-	-	21	75	615	753
Ariz.	16	10	N	N	N	N	114	82	1,920	1,813
Utah	13	17	1	-	-	-	139	113	214	110
Nev.	3	10	-	-	-	-	58	67	877	984
PACIFIC	94	162	2	4	-	-	1,216	1,640	14,124	14,926
Wash.	25	17	1	-	-	-	108	196	1,456	1,497
Oreg.	20	40	1	4	-	-	158	180	511	413
Calif.	48	80	-	-	-	-	889	1,169	11,673	12,374
Alaska	1	4	-	-	-	-	40	45	274	323
Hawaii	-	21	-	-	-	-	21	50	210	319
Guam	N	N	-	-	-	-	-	6	-	32
P.R.	-	1	-	-	-	-	28	19	99	222
V.I.	-	-	-	-	-	-	-	-	-	26
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 July 5, 2003, and July 6, 2002 (27th 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	861	968	8	16	52	77	97	90	2,821	4,936
NEW ENGLAND	64	67	-	-	5	7	5	1	130	179
Maine	2	1	-	-	-	-	1	-	6	6
N.H.	8	5	-	-	-	-	-	-	8	10
Vt.	6	5	-	-	-	-	-	-	4	1
Mass.	33	29	-	-	5	3	3	1	68	80
R.I.	4	9	-	-	-	-	1	-	11	25
Conn.	11	18	-	-	-	4	-	-	33	57
MID. ATLANTIC	175	175	-	2	1	8	26	18	560	630
Upstate N.Y.	68	67	-	2	1	2	9	6	61	102
N.Y. City	24	38	-	-	-	-	6	7	173	217
N.J.	30	38	-	-	-	-	4	5	67	102
Pa.	53	32	-	-	-	6	7	-	259	209
E.N. CENTRAL	117	198	1	2	4	7	16	25	312	591
Ohio	43	53	-	-	-	1	7	4	63	159
Ind.	26	28	-	1	2	6	-	-	30	31
Ill.	34	73	-	-	-	-	8	13	92	162
Mich.	12	8	1	1	2	-	1	-	106	125
Wis.	2	36	-	-	-	-	-	8	21	114
W.N. CENTRAL	64	35	-	-	6	2	5	3	89	174
Minn.	24	18	-	-	6	2	1	1	20	26
Iowa	-	1	-	-	-	-	-	-	18	36
Mo.	25	9	-	-	-	-	4	2	30	50
N. Dak.	1	4	-	-	-	-	-	-	-	1
S. Dak.	1	1	-	-	-	-	-	-	-	3
Nebr.	1	-	-	-	-	-	-	-	5	7
Kans.	12	2	-	-	-	-	-	-	16	51
S. ATLANTIC	196	217	-	3	7	11	13	17	715	1,387
Del.	-	-	-	-	-	-	-	-	4	8
Md.	42	57	-	1	4	1	-	-	72	155
D.C.	-	-	-	-	-	-	-	-	24	49
Va.	23	16	-	-	-	-	4	2	42	49
W. Va.	7	7	-	-	-	-	-	1	11	10
N.C.	17	21	-	-	1	3	1	-	33	128
S.C.	2	7	-	-	-	-	-	2	18	42
Ga.	46	50	-	-	-	-	5	9	299	285
Fla.	59	59	-	2	2	7	3	3	212	661
E.S. CENTRAL	44	32	1	1	-	3	6	7	82	162
Ky.	2	3	-	-	-	-	-	-	16	37
Tenn.	24	15	-	-	-	-	4	5	42	65
Ala.	16	8	1	1	-	3	1	1	11	23
Miss.	2	6	-	-	-	-	1	1	13	37
W.S. CENTRAL	38	35	1	2	5	5	2	2	71	487
Ark.	5	1	-	-	1	-	-	-	14	25
La.	7	4	-	-	-	-	2	2	25	46
Okla.	24	28	-	-	4	5	-	-	8	23
Tex.	2	2	1	2	-	-	-	-	24	393
MOUNTAIN	112	117	4	3	14	19	18	9	235	307
Mont.	-	-	-	-	-	-	-	-	2	9
Idaho	3	2	-	-	-	-	1	1	-	20
Wyo.	1	2	-	-	-	-	-	-	1	2
Colo.	19	21	-	-	-	-	4	2	31	46
N. Mex.	13	19	-	-	3	4	2	1	8	9
Ariz.	60	52	4	1	6	12	7	3	141	168
Utah	10	14	-	1	2	3	4	-	20	23
Nev.	6	7	-	1	3	-	-	2	32	30
PACIFIC	51	92	1	3	10	15	6	8	627	1,019
Wash.	5	2	-	1	4	1	1	-	32	97
Oreg.	30	35	-	-	-	-	3	3	33	41
Calif.	11	30	1	2	6	14	2	2	554	859
Alaska	-	1	-	-	-	-	-	1	6	7
Hawaii	5	24	-	-	-	-	-	2	2	15
Guam	-	-	-	-	-	-	-	-	-	-
P.R.	-	-	-	-	-	-	-	-	19	112
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 July 5, 2003, and July 6, 2002 (27th 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	3,218	3,705	681	948	624	436	212	232	3,706	5,800
NEW ENGLAND	123	137	-	17	22	25	12	23	321	927
Maine	1	4	-	-	1	2	2	2	-	-
N.H.	11	10	-	-	3	2	2	2	15	50
Vt.	2	3	-	12	1	3	-	-	6	8
Mass.	97	77	-	5	7	14	6	14	34	810
R.I.	4	17	-	-	2	-	-	1	119	42
Conn.	8	26	U	U	8	4	2	4	147	17
MID. ATLANTIC	602	820	90	53	135	113	42	48	2,813	3,708
Upstate N.Y.	52	65	29	25	39	27	10	14	1,240	1,410
N.Y. City	203	438	-	-	10	21	9	14	2	42
N.J.	215	144	-	4	2	19	5	6	307	1,205
Pa.	132	173	61	24	84	46	18	14	1,264	1,051
E.N. CENTRAL	220	296	115	57	126	110	24	33	92	475
Ohio	78	46	5	-	77	39	7	9	22	23
Ind.	15	17	-	-	7	5	1	3	6	6
Ill.	1	53	7	12	3	14	5	9	-	20
Mich.	104	151	103	44	39	32	11	8	1	8
Wis.	22	29	-	1	-	20	-	4	63	418
W.N. CENTRAL	148	111	120	440	25	24	6	8	81	77
Minn.	19	8	3	-	3	2	2	-	53	41
Iowa	4	11	-	1	4	6	-	1	9	11
Mo.	97	59	116	431	12	8	1	5	13	19
N. Dak.	-	4	-	-	1	-	-	1	-	-
S. Dak.	2	-	-	-	1	1	-	-	-	-
Nebr.	13	16	1	8	2	7	3	-	2	2
Kans.	13	13	-	-	2	-	-	1	4	4
S. ATLANTIC	968	885	92	97	197	95	53	33	304	463
Del.	5	8	-	-	6	5	N	N	44	65
Md.	56	74	10	6	41	17	7	4	191	277
D.C.	1	9	-	-	1	5	-	-	5	12
Va.	79	108	1	1	37	8	6	3	15	24
W. Va.	10	13	1	1	3	-	2	-	3	5
N.C.	96	131	5	14	16	5	10	3	20	49
S.C.	74	60	19	4	4	6	1	3	1	3
Ga.	333	223	3	41	14	7	16	8	10	1
Fla.	314	259	53	30	75	42	11	12	15	27
E.S. CENTRAL	206	194	43	66	39	13	10	8	23	25
Ky.	40	32	7	2	13	7	1	2	5	9
Tenn.	92	75	8	16	16	1	1	3	9	5
Ala.	37	42	5	3	9	5	6	3	1	6
Miss.	37	45	23	45	1	-	2	-	8	5
W.S. CENTRAL	163	559	140	121	10	12	5	13	16	74
Ark.	29	69	3	9	1	-	1	-	-	-
La.	29	66	27	49	-	4	-	-	3	3
Okla.	26	18	1	4	4	2	1	3	-	-
Tex.	79	406	109	59	5	6	3	10	13	71
MOUNTAIN	326	263	33	32	33	15	16	18	6	7
Mont.	8	3	1	-	1	1	1	-	-	-
Idaho	-	5	-	-	3	-	-	2	2	2
Wyo.	18	12	-	5	2	1	-	-	-	-
Colo.	44	40	20	4	8	3	7	2	1	-
N. Mex.	16	60	-	2	2	1	2	2	-	1
Ariz.	173	89	4	3	9	3	5	9	-	2
Utah	28	21	-	2	6	5	-	3	2	1
Nev.	39	33	8	16	2	1	1	-	1	1
PACIFIC	462	440	48	65	37	29	44	48	50	44
Wash.	31	34	8	13	4	1	1	4	-	-
Oreg.	68	75	8	9	N	N	2	2	14	7
Calif.	352	322	31	43	33	28	40	37	35	36
Alaska	7	5	1	-	-	-	-	-	1	1
Hawaii	4	4	-	-	-	-	1	5	N	N
Guam	-	-	-	-	-	-	-	-	-	-
P.R.	33	90	-	-	-	-	-	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 July 5, 2003, and July 6, 2002 (27th 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	389	609	896	1,108	2,833	3,623	2,401	3,662	209	350
NEW ENGLAND	11	38	44	64	265	331	226	406	-	1
Maine	1	1	5	2	4	3	22	22	-	-
N.H.	1	5	3	8	20	7	5	16	-	-
Vt.	-	1	-	4	29	61	16	61	-	-
Mass.	9	16	28	33	205	239	91	134	-	1
R.I.	-	3	2	4	6	4	26	29	-	-
Conn.	-	12	6	13	1	17	66	144	-	-
MID. ATLANTIC	88	157	111	146	273	158	218	543	14	35
Upstate N.Y.	25	21	26	32	142	108	155	293	1	-
N.Y. City	43	96	23	23	-	9	1	10	4	8
N.J.	4	22	13	21	18	-	62	75	6	13
Pa.	16	18	49	70	113	41	-	165	3	14
E.N. CENTRAL	40	87	143	167	202	424	41	44	5	11
Ohio	10	11	44	53	114	215	16	10	3	4
Ind.	-	3	28	22	28	22	2	7	-	-
Ill.	15	40	33	37	-	63	6	8	-	6
Mich.	13	25	26	26	25	33	15	12	2	1
Wis.	2	8	12	29	35	91	2	7	-	-
W.N. CENTRAL	21	39	82	88	154	291	333	256	12	56
Minn.	12	14	17	20	56	99	16	16	-	-
Iowa	3	2	15	13	38	95	46	35	2	1
Mo.	1	9	36	35	31	58	5	19	9	53
N. Dak.	-	1	1	-	2	5	33	23	-	-
S. Dak.	1	-	1	2	2	5	58	52	-	-
Nebr.	-	5	5	13	2	3	60	-	1	2
Kans.	4	8	7	5	23	26	115	111	-	-
S. ATLANTIC	113	124	166	167	243	207	1,232	1,315	141	166
Del.	-	1	7	6	1	2	23	24	-	-
Md.	32	42	16	4	34	28	147	217	44	19
D.C.	7	8	-	-	-	1	-	-	-	-
Va.	7	11	17	26	58	88	284	286	2	7
W. Va.	4	2	1	-	5	7	45	92	3	1
N.C.	8	9	19	19	74	20	399	339	60	94
S.C.	3	5	9	15	13	26	74	47	10	29
Ga.	21	16	20	18	23	13	199	220	17	13
Fla.	31	30	77	79	35	22	61	90	5	3
E.S. CENTRAL	7	8	46	60	64	110	33	145	30	55
Ky.	1	2	8	10	15	45	21	16	-	2
Tenn.	4	2	12	23	34	40	-	108	22	26
Ala.	2	2	12	14	12	18	12	21	3	7
Miss.	-	2	14	13	3	7	-	-	5	20
W.S. CENTRAL	11	22	65	133	213	878	154	674	3	20
Ark.	4	1	10	20	6	412	25	-	-	-
La.	1	2	24	26	6	5	-	-	-	-
Okla.	2	-	10	16	12	34	129	58	2	13
Tex.	4	19	21	71	189	427	-	616	1	7
MOUNTAIN	16	27	46	63	539	435	69	132	4	5
Mont.	-	-	2	2	1	2	12	5	1	1
Idaho	1	-	6	3	33	46	3	6	1	-
Wyo.	-	-	2	-	118	7	1	13	1	2
Colo.	11	14	12	21	189	176	10	16	-	1
N. Mex.	-	1	6	3	28	68	5	5	-	-
Ariz.	2	5	14	19	104	90	33	83	1	-
Utah	1	4	-	1	53	27	4	2	-	-
Nev.	1	3	4	14	13	19	1	2	-	1
PACIFIC	82	107	193	220	880	789	95	147	-	1
Wash.	12	12	15	41	252	245	-	-	-	-
Oreg.	7	5	35	34	208	89	3	3	-	1
Calif.	59	82	139	138	412	442	89	118	-	-
Alaska	-	2	1	1	-	2	3	26	-	-
Hawaii	4	6	3	6	8	11	-	-	-	-
Guam	-	-	-	1	-	2	-	-	-	-
P.R.	-	1	2	4	-	2	36	46	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 July 5, 2003, and July 6, 2002 (27th Week)*

Reporting area	Salmonellosis		Shigellosis		Streptococcal disease, invasive, group A		*Streptococcus pneumoniae*, invasive			
							Drug resistant, all ages		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	14,153	16,842	9,406	7,945	3,116	2,860	1,289	1,588	232	177
NEW ENGLAND	792	913	132	130	182	216	16	70	5	1
Maine	57	68	6	3	19	16	-	-	-	-
N.H.	52	50	4	4	17	24	-	-	N	N
Vt.	30	34	5	-	16	9	6	3	2	1
Mass.	449	532	81	95	125	77	N	N	N	N
R.I.	39	54	4	6	5	12	10	6	3	-
Conn.	165	175	32	22	-	78	-	61	U	U
MID. ATLANTIC	1,627	2,392	1,017	646	534	490	82	76	59	50
Upstate N.Y.	415	636	157	88	246	203	41	67	47	42
N.Y. City	450	610	167	209	75	119	U	U	U	U
N.J.	116	516	122	233	29	99	N	N	N	N
Pa.	646	630	571	116	184	69	41	9	12	8
E.N. CENTRAL	2,032	2,619	879	813	735	614	282	120	90	61
Ohio	637	627	170	330	213	140	187	14	66	-
Ind.	245	185	65	37	68	30	95	104	19	23
Ill.	592	971	452	298	178	190	-	2	-	-
Mich.	327	421	133	74	259	182	N	N	N	N
Wis.	231	415	59	74	17	72	N	N	5	38
W.N. CENTRAL	1,040	1,082	391	610	218	167	114	320	38	33
Minn.	256	246	45	118	111	84	-	220	32	29
Iowa	164	173	23	62	N	N	N	N	N	N
Mo.	381	376	192	81	43	36	7	5	2	1
N. Dak.	22	24	2	16	8	-	3	1	4	3
S. Dak.	35	43	8	149	17	9	-	1	-	-
Nebr.	69	66	85	128	19	14	-	25	N	N
Kans.	113	154	36	56	20	24	104	68	N	N
S. ATLANTIC	3,744	3,759	3,820	2,589	591	468	659	736	8	16
Del.	32	31	136	9	6	1	1	3	N	N
Md.	368	346	278	437	183	73	-	-	-	13
D.C.	16	40	30	36	10	5	2	-	4	1
Va.	390	383	205	468	76	51	N	N	N	N
W. Va.	44	47	-	4	27	11	41	34	4	2
N.C.	509	504	449	146	66	92	N	N	U	U
S.C.	186	227	223	55	24	28	73	124	N	N
Ga.	706	657	1,123	644	77	92	179	190	N	N
Fla.	1,493	1,524	1,376	790	122	115	363	385	N	N
E.S. CENTRAL	971	1,046	485	652	127	68	86	93	-	-
Ky.	164	153	59	72	31	12	11	11	N	N
Tenn.	308	260	162	29	96	56	75	82	N	N
Ala.	261	276	162	311	-	-	-	-	N	N
Miss.	238	357	102	240	-	-	-	-	-	-
W.S. CENTRAL	865	1,658	1,203	1,240	109	183	30	142	29	14
Ark.	239	283	50	99	4	5	7	5	-	-
La.	123	346	107	262	1	1	23	137	10	4
Okla.	156	167	458	216	55	32	N	N	19	1
Tex.	347	862	588	663	49	145	N	N	-	9
MOUNTAIN	978	989	474	281	319	345	18	31	3	2
Mont.	48	44	2	2	2	-	-	-	-	-
Idaho	93	59	11	2	12	5	N	N	N	N
Wyo.	48	29	1	3	1	7	4	10	-	-
Colo.	239	260	71	58	87	73	-	-	-	-
N. Mex.	82	136	91	55	79	67	14	21	-	-
Ariz.	299	273	248	128	129	171	-	-	N	N
Utah	102	76	25	17	8	22	-	-	3	2
Nev.	67	112	25	16	1	-	-	-	-	-
PACIFIC	2,104	2,384	1,005	984	301	309	2	-	-	-
Wash.	238	222	75	63	26	18	-	-	N	N
Oreg.	193	192	52	42	N	N	N	N	N	N
Calif.	1,565	1,807	867	849	235	261	N	N	N	N
Alaska	48	35	4	2	-	-	-	-	N	N
Hawaii	60	128	7	28	40	30	2	-	-	-
Guam	-	25	-	17	-	-	-	3	-	-
P.R.	124	189	1	15	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 July 5, 2003, and July 6, 2002 (27th Week)*

Reporting area	Syphilis: Primary & secondary		Syphilis: Congenital		Tuberculosis		Typhoid fever		Varicella (Chickenpox)
	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003	Cum. 2002	Cum. 2003
UNITED STATES	3,398	3,340	176	214	4,859	6,263	122	159	7,157
NEW ENGLAND	103	63	1	-	146	215	12	8	1,216
Maine	4	1	1	-	5	9	-	-	626
N.H.	9	-	-	-	7	7	1	-	-
Vt.	-	1	-	-	3	4	-	-	483
Mass.	70	47	-	-	90	102	4	6	104
R.I.	10	1	-	-	19	31	2	-	3
Conn.	10	13	-	-	22	62	5	2	-
MID. ATLANTIC	390	381	35	29	977	1,079	17	44	13
Upstate N.Y.	17	19	7	1	120	154	3	3	N
N.Y. City	236	224	21	12	596	525	7	21	-
N.J.	67	72	7	15	153	234	6	13	-
Pa.	70	66	-	1	108	166	1	7	13
E.N. CENTRAL	475	641	38	33	563	604	9	17	3,555
Ohio	117	73	2	-	98	93	-	4	885
Ind.	25	34	7	1	65	56	4	2	-
Ill.	178	239	13	26	267	287	-	6	-
Mich.	147	284	16	6	112	132	5	3	2,183
Wis.	8	11	-	-	21	36	-	2	487
W.N. CENTRAL	81	68	2	-	191	279	2	6	37
Minn.	25	32	-	-	88	121	-	3	N
Iowa	4	2	-	-	11	14	1	-	N
Mo.	30	14	2	-	16	81	1	1	-
N. Dak.	-	-	-	-	-	4	-	-	37
S. Dak.	1	-	-	-	13	10	-	-	-
Nebr.	1	5	-	-	9	9	-	2	-
Kans.	20	15	-	-	54	40	-	-	-
S. ATLANTIC	914	801	32	52	934	1,281	27	17	1,384
Del.	4	8	-	-	-	7	-	-	15
Md.	158	94	4	9	113	136	6	4	-
D.C.	28	26	1	1	-	-	-	-	18
Va.	43	38	1	1	78	128	10	-	349
W. Va.	-	-	-	-	10	12	-	-	846
N.C.	87	158	9	13	145	159	5	-	N
S.C.	55	67	3	6	83	96	-	-	156
Ga.	215	149	3	9	133	248	3	4	-
Fla.	324	261	11	13	372	495	3	9	N
E.S. CENTRAL	158	280	12	15	318	393	3	4	-
Ky.	21	52	1	2	60	68	-	4	N
Tenn.	70	108	6	5	97	145	1	-	N
Ala.	57	89	4	5	117	116	2	-	-
Miss.	10	31	1	3	44	64	-	-	-
W.S. CENTRAL	420	421	28	48	595	976	-	17	605
Ark.	23	17	-	3	49	70	-	-	-
La.	56	65	-	-	-	-	-	-	3
Okla.	26	32	1	1	70	82	-	-	N
Tex.	315	307	27	44	476	824	-	17	602
MOUNTAIN	147	166	15	8	162	198	3	6	347
Mont.	-	-	-	-	-	6	-	-	N
Idaho	6	1	-	-	3	10	-	-	N
Wyo.	-	-	-	-	2	2	-	-	35
Colo.	12	33	3	1	42	37	3	3	-
N. Mex.	28	19	-	-	6	22	-	-	-
Ariz.	91	105	12	7	75	94	-	-	3
Utah	4	2	-	-	15	14	-	2	309
Nev.	6	6	-	-	19	13	-	1	-
PACIFIC	710	519	13	29	973	1,238	49	40	-
Wash.	38	24	-	1	102	119	2	3	-
Oreg.	23	5	-	-	47	49	3	2	-
Calif.	648	485	13	27	781	971	44	35	-
Alaska	-	-	-	-	26	29	-	-	-
Hawaii	1	5	-	1	17	70	-	-	-
Guam	-	6	-	-	-	36	-	-	-
P.R.	102	136	1	17	33	57	-	-	213
V.I.	-	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 July 5, 2003 (27th Week)

Reporting Area	All causes, by age (years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	438	304	90	31	10	3	46
Boston, Mass.	141	103	25	7	5	1	15
Bridgeport, Conn.	40	29	5	5	-	1	4
Cambridge, Mass.	12	9	3	-	-	-	-
Fall River, Mass.	25	17	6	2	-	-	-
Hartford, Conn.	37	22	11	3	1	-	3
Lowell, Mass.	21	10	6	4	1	-	2
Lynn, Mass.	14	12	1	1	-	-	2
New Bedford, Mass.	30	22	8	-	-	-	1
New Haven, Conn.	20	14	3	3	-	-	5
Providence, R.I.	U	U	U	U	U	U	U
Somerville, Mass.	4	2	2	-	-	-	-
Springfield, Mass.	28	18	7	2	-	1	4
Waterbury, Conn.	22	15	5	-	2	-	2
Worcester, Mass.	44	31	8	4	1	-	8
MID. ATLANTIC	2,052	1,421	425	139	37	30	118
Albany, N.Y.	57	41	8	1	5	2	4
Allentown, Pa.	18	14	3	1	-	-	-
Buffalo, N.Y.	86	64	14	4	1	3	6
Camden, N.J.	37	28	5	2	1	1	2
Elizabeth, N.J.	20	14	4	2	-	-	1
Erie, Pa.	50	39	11	-	-	-	2
Jersey City, N.J.	44	29	12	2	1	-	-
New York City, N.Y.	1,046	716	226	79	16	9	54
Newark, N.J.	48	21	13	11	-	3	5
Paterson, N.J.	16	8	4	3	1	-	2
Philadelphia, Pa.	300	201	67	18	6	8	17
Pittsburgh, Pa.§	26	17	8	1	-	-	2
Reading, Pa.	15	11	2	1	-	1	2
Rochester, N.Y.	109	78	21	6	2	2	4
Schenectady, N.Y.	17	12	3	1	1	-	1
Scranton, Pa.	25	22	1	1	1	-	3
Syracuse, N.Y.	77	58	12	4	2	1	5
Trenton, N.J.	19	13	4	2	-	-	2
Utica, N.Y.	22	18	4	-	-	-	3
Yonkers, N.Y.	20	17	3	-	-	-	3
E.N. CENTRAL	1,642	1,067	358	134	49	33	92
Akron, Ohio	32	24	7	1	-	-	1
Canton, Ohio	40	31	6	1	2	-	4
Chicago, Ill.	287	152	74	35	15	10	8
Cincinnati, Ohio	72	49	11	6	4	2	4
Cleveland, Ohio	90	57	22	7	2	2	2
Columbus, Ohio	151	93	37	13	6	2	9
Dayton, Ohio	108	83	18	4	3	-	5
Detroit, Mich.	129	54	43	19	5	8	7
Evansville, Ind.	41	26	11	1	2	1	2
Fort Wayne, Ind.	60	46	10	3	1	-	7
Gary, Ind.	22	11	3	6	2	-	1
Grand Rapids, Mich.	44	32	10	2	-	-	3
Indianapolis, Ind.	192	130	44	12	1	5	11
Lansing, Mich.	28	25	2	1	-	-	5
Milwaukee, Wis.	82	56	19	6	1	-	9
Peoria, Ill.	24	17	5	2	-	-	1
Rockford, Ill.	48	34	6	6	1	1	5
South Bend, Ind.	46	33	7	3	3	-	1
Toledo, Ohio	96	74	17	2	1	2	6
Youngstown, Ohio	50	40	6	4	-	-	1
W.N. CENTRAL	415	303	75	22	9	6	25
Des Moines, Iowa	73	53	15	4	1	-	8
Duluth, Minn.	15	11	4	-	-	-	-
Kansas City, Kans.	18	12	5	1	-	-	-
Kansas City, Mo.	49	37	5	1	3	3	1
Lincoln, Nebr.	34	26	6	2	-	-	1
Minneapolis, Minn.	63	42	14	6	-	1	3
Omaha, Nebr.	88	65	11	6	4	2	8
St. Louis, Mo.	U	U	U	U	U	U	U
St. Paul, Minn.	38	32	6	-	-	-	3
Wichita, Kans.	37	25	9	2	1	-	1
S. ATLANTIC	877	545	191	80	37	23	87
Atlanta, Ga.	U	U	U	U	U	U	U
Baltimore, Md.	171	91	44	23	9	4	12
Charlotte, N.C.	108	68	21	8	5	6	11
Jacksonville, Fla.	82	44	26	7	2	3	6
Miami, Fla.	44	35	7	1	1	-	32
Norfolk, Va.	43	25	6	4	3	5	2
Richmond, Va.	58	40	8	6	4	-	7
Savannah, Ga.	38	26	6	3	3	-	5
St. Petersburg, Fla.	47	35	9	3	-	-	-
Tampa, Fla.	176	119	38	14	2	3	6
Washington, D.C.	100	54	25	10	8	2	5
Wilmington, Del.	10	8	1	1	-	-	1
E.S. CENTRAL	823	539	189	55	21	19	55
Birmingham, Ala.	183	127	39	9	4	4	11
Chattanooga, Tenn.	53	44	6	2	-	1	5
Knoxville, Tenn.	78	52	17	6	-	3	3
Lexington, Ky.	52	37	10	4	1	-	6
Memphis, Tenn.	174	102	54	10	7	1	15
Mobile, Ala.	91	63	19	7	2	-	7
Montgomery, Ala.	43	24	8	9	1	1	3
Nashville, Tenn.	149	90	36	8	6	9	5
W.S. CENTRAL	1,177	682	254	122	87	32	63
Austin, Tex.	70	39	15	8	3	5	5
Baton Rouge, La.	24	13	9	2	-	-	-
Corpus Christi, Tex.	U	U	U	U	U	U	U
Dallas, Tex.	160	94	38	16	7	5	7
El Paso, Tex.	77	46	15	11	3	2	4
Ft. Worth, Tex.	90	55	18	12	4	1	4
Houston, Tex.	368	193	72	50	41	12	18
Little Rock, Ark.	48	33	8	3	2	2	1
New Orleans, La.	46	17	15	3	11	-	-
San Antonio, Tex.	226	147	48	14	13	4	15
Shreveport, La.	68	45	16	3	3	1	9
Tulsa, Okla.	U	U	U	U	U	U	U
MOUNTAIN	774	519	168	52	25	10	46
Albuquerque, N.M.	83	51	21	8	3	-	-
Boise, Idaho	42	20	17	1	3	1	2
Colo. Springs, Colo.	59	47	9	1	1	1	1
Denver, Colo.	91	56	19	10	3	3	7
Las Vegas, Nev.	232	151	58	15	7	1	17
Ogden, Utah	21	15	5	-	1	-	2
Phoenix, Ariz.	U	U	U	U	U	U	U
Pueblo, Colo.	21	13	5	2	1	-	-
Salt Lake City, Utah	110	79	17	8	3	3	10
Tucson, Ariz.	115	87	17	7	3	1	7
PACIFIC	1,001	719	189	52	25	16	98
Berkeley, Calif.	11	9	2	-	-	-	1
Fresno, Calif.	61	46	9	3	3	-	3
Glendale, Calif.	11	9	2	-	-	-	-
Honolulu, Hawaii	57	36	15	3	2	1	5
Long Beach, Calif.	76	49	21	3	3	-	10
Los Angeles, Calif.	123	89	27	3	3	1	12
Pasadena, Calif.	U	U	U	U	U	U	U
Portland, Oreg.	93	65	17	6	3	2	6
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	106	72	18	8	4	4	11
San Francisco, Calif.	U	U	U	U	U	U	U
San Jose, Calif.	179	140	25	9	1	4	23
Santa Cruz, Calif.	41	32	4	4	1	-	7
Seattle, Wash.	109	73	24	6	2	4	9
Spokane, Wash.	47	35	10	2	-	-	5
Tacoma, Wash.	87	64	15	5	3	-	6
TOTAL	9,199	¶6,099	1,939	687	300	172	630

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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