CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

July 20, 2001 / Vol. 50 / No. 28

MMWR™
MORBIDITY AND MORTALITY
WEEKLY REPORT

Malaria Deaths Following Inappropriate Malaria Chemoprophylaxis — United States, 2001

During January–March 2001, two U.S. citizens died from malaria after taking chloroquine alone or with proguanil for malaria chemoprophylaxis in countries with known chloroquine-resistant *Plasmodium falciparum* malaria. Chloroquine-containing chemoprophylaxis regimens are not recommended by CDC for persons traveling to areas with known chloroquine-resistant *P. falciparum*. This report summarizes the investigation of the two cases and underscores the need for clinicians and travelers to know the recommended options for malaria chemoprophylaxis when traveling to locations with chloroquine-resistant malaria.

Case Reports

Case 1. On January 11, 2001, a 12-year-old resident of Michigan was taken to a clinic with a 2-day history of fever with chills, malaise, fatigue, cough, and one episode of vomiting. At the clinic, the patient had a temperature of 102 F (39 C). The clinician noted that the patient had returned from Africa on January 6. Upper respiratory tract infection was diagnosed with nausea and vomiting, and the patient was prescribed an oral cephalosporin antibiotic and an antiemetic agent. The symptoms continued, and on January 14, the patient collapsed, was transported to a local hospital, and died in the emergency department shortly thereafter. Examination of a peripheral blood film on stored blood from January 11 and a film from blood taken January 14 demonstrated *P. falciparum* parasites with 0.8% parasitemia and 14.0%, respectively.

The patient had been born in Nigeria, had emigrated to the United States in 1991, and had returned to Nigeria for 3 weeks during December 2000–January 2001. The patient and five other family members who had traveled to Nigeria had been prescribed weekly chloroquine for malaria chemoprophylaxis. On December 1, the patient had taken the initial 500 mg dose and subsequently had followed the weekly regimen; the last dose was taken January 11. A blood sample taken postmortem revealed a chloroquine level of 1782 ng/ml whole blood, a level consistent with recent ingestion of chloroquine and sufficient to inhibit *P. falciparum* parasites sensitive to the drug (*1,2*). The patient's mother also had taken chloroquine for chemoprophylaxis, had *P. falciparum* malaria diagnosed in January, and later recovered.

Case 2. On March 7, 2001, a 47-year-old resident of Minnesota returned to the United States after 11 days in east Africa. Chloroquine was taken before and during the trip and proguanil was added on arrival in Africa. On returning to the United States, proguanil was discontinued, and on March 11, the scheduled dose of chloroquine was taken. On

Malaria — Continued

March 17, the patient developed a persistent headache, and on March 19, sought care for headache and dark urine at a Florida hospital emergency department. On admission, the patient's temperature was 102 F (39 C); physical examination did not reveal any abnormalities. A thick blood film obtained on admission initially was read as *Plasmodium* species (*P. falciparum* versus *P. malariae*), and later was confirmed as *P. falciparum*. The patient was admitted and treated with oral quinine and doxycycline; however, the patient developed cerebral edema and respiratory failure and died 6 days after admission. The patient had traveled to Africa with a group of 13 persons; nine had taken mefloquine for prophylaxis and four had followed the same regimen as the patient. No other malaria cases were reported from the group.

Reported by: J Landgraf, Lakeland Hospital, Niles; MG Stobierski, G Stoltman, M Boulton, Michigan Dept of Community Health. S Wiersma, JR South, Florida Dept of Health. D Neitzel, H Hull, K Smith, Minnesota Dept of Health. Malaria Epidemiology Br and Entomology Br, Div of Parasitic Diseases, National Center for Infectious Diseases; and EIS officers, CDC.

Editorial Note: Seven malaria-related deaths among U.S. citizens who had traveled abroad following inappropriate chemoprophylaxis regimens have been reported to CDC since 1992. In all cases, the travelers received prescriptions for chloroquine compounds to be taken for travel to sub-Saharan Africa, where antimalarial resistance to this drug is widespread. The geographic spread of *P. falciparum* resistance to chloroquine is increasing. Chloroquine resistance exists throughout sub-Saharan Africa, southeast Asia, the Indian subcontinent, and over large portions of South America, including the Amazon basin (*3*). Among 4685 cases of imported malaria in U.S. civilian travelers during 1992–2001, 893 (19%) took an inappropriate chemoprophylaxis regimen and 2616 (56%) took no chemoprophylaxis. Among 505 persons who took an inappropriate chemoprophylaxis regimen during 1995–2001, 351 (70%) took chloroquine for travel to an area with known chloroquine resistance.

Since 1990, CDC has recommended mefloquine as antimalarial prophylaxis in regions with chloroquine-resistant malaria; doxycycline has been the recommended alternative (*4*). Chloroquine, ideally taken with daily proguanil (an antimalarial not marketed in the United States except in co-formulation with atovaquone), had been recommended only for persons unable to take mefloquine or doxycycline. In July 2000, Malarone* (Glaxo Wellcome Inc., Research Triangle Park, North Carolina), a combination of atovaquone and proguanil, was approved for use in the United States. Since November 2000, CDC has recommended Malarone, mefloquine, or doxycycline as options for malaria chemoprophylaxis in areas with chloroquine-resistant malaria and no longer recommends chloroquine combined with proguanil (*5*).

Travelers and health-care workers who provide medical advice to travelers should be aware that chloroquine is effective for malaria prophylaxis only in a few areas of the world. Recommending and prescribing inappropriate chemoprophylaxis can result in travelers becoming ill or dying from malaria. Information on malaria prevention and chemoprophylaxis is available in *Health Information for International Travel*, CDC's handbook for travelers, which is published biannually and is available and updated online at http://www.cdc.gov/travel. Information also is available by telephoning (877) FYI-TRIP ([877] 394-8747).

*Use of trade names is for identification only and does not imply endorsement by the Public Health Service or by the U.S. Department of Health and Human Services.

Malaria — Continued

References

1. Hellgren U, Kihamia CM, Mahikwano LF, Björkman A, Eriksson Ö, Rombo L. Response of *Plasmodium falciparum* to chloroquine treatment: relation to whole blood concentrations of chloroquine and desethylchloroquine. Bull World Health Organ 1989;67:197–202.
2. Krishna S, White NJ. Pharmacokinetics of quinine, chloroquine, and amodiaquine: clinical implications. Clin Pharmacokinet 1996;30:263–92.
3. CDC. Health information for international travel 1989. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service, 1989.
4. CDC. Information for health care providers: Malarone for malaria treatment and prophylaxis, October 2000. Available at http://www.cdc.gov/travel/diseases/malaria/malarone.htm. Accessed January 3, 2001.
5. CDC. Health information for international travel 2001–2002. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service, 2001.

Evaluation of a Regional Pilot Program to Prevent Mother-Infant HIV Transmission — Thailand, 1998–2000

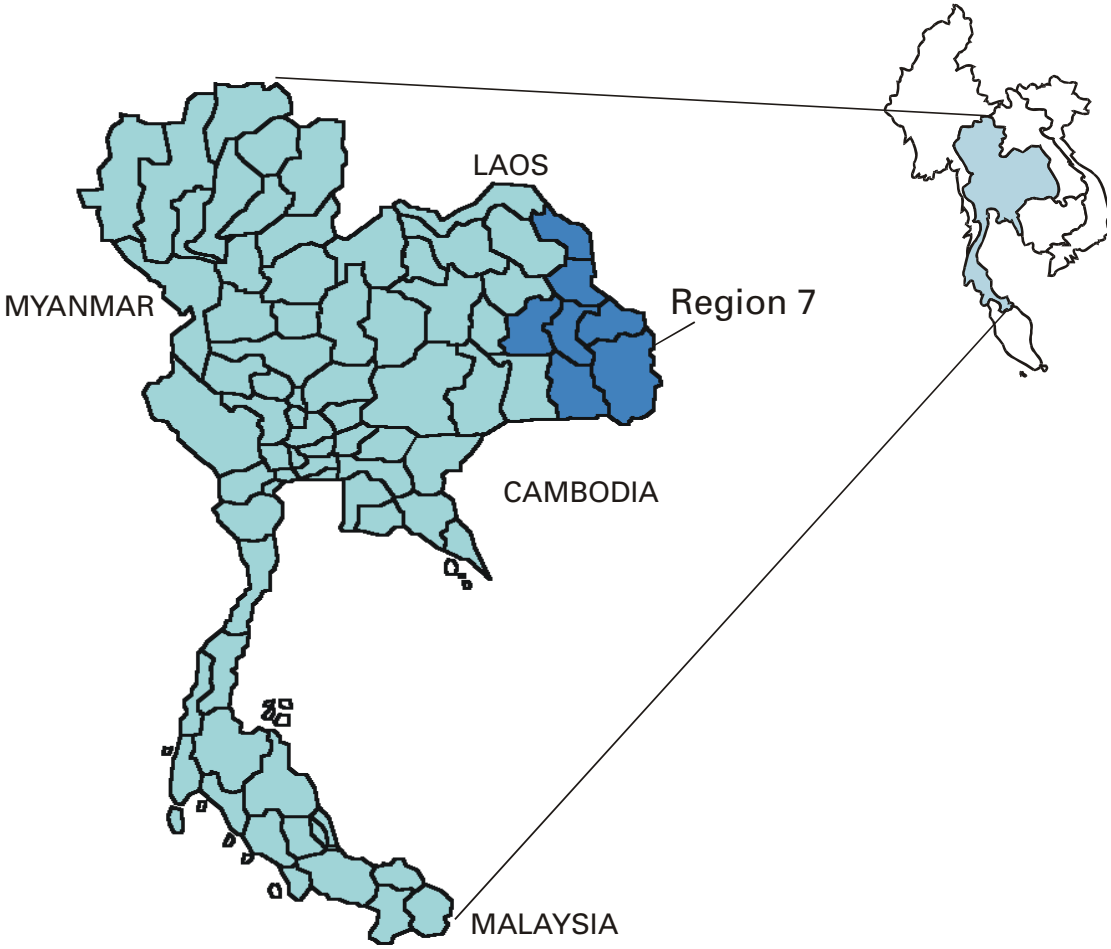
Worldwide, approximately 2.2 million women and 600,000 infants are infected with human immunodeficiency virus (HIV) each year (*1*). Extended zidovudine prophylaxis and other antiretroviral and obstetric interventions and the avoidance of breast-feeding have reduced dramatically mother-infant HIV transmission in countries with adequate health-care resources (*2,3*). However, in developing countries, where the impact of HIV is greatest, implementation has been limited by the complexity and expense of these interventions (*4*). In Thailand, where approximately 15,000 infants are born to HIV-infected women each year, the Ministry of Public Health (MOPH) has collaborated with other organizations to identify simpler and more cost-effective interventions to reduce mother-infant HIV transmission. In 1998, a placebo-controlled clinical trial in Thailand using a simplified zidovudine regimen from 36 weeks' gestation until delivery reduced the risk for mother-infant transmission by 50% (*5*). In 1998, MOPH initiated a pilot program to prevent mother-infant HIV transmission in region 7, a rural area in northeastern Thailand with an antenatal HIV prevalence of approximately 1%, to assess program feasibility, effectiveness, and acceptability (Figure 1) (*6*). This report summarizes an evaluation of the 2-year pilot program, which indicated that acceptance of HIV testing and adherence to zidovudine were high and HIV transmission was reduced. The findings demonstrate the feasibility of implementing programs to prevent mother-infant HIV transmission on a large scale in a developing country.

MOPH requested technical assistance from the HIV/AIDS Collaboration (a joint activity of MOPH and CDC) to monitor and evaluate the program. In region 7, routine antenatal counseling and voluntary confidential HIV testing were integrated into public antenatal clinic services by July 1998. HIV-infected pregnant women were offered zidovudine from 36 weeks' gestation and during labor and free powdered infant formula for 12 months. Program coverage was monitored through monthly reports collected from the antenatal and delivery departments in the 90 public hospitals in region 7, and summaries were disseminated regularly to participating hospitals, program staff, and policymakers.

During July 1998–June 2000, 104,393 (86%) of 122,094 new antenatal clinic clients were tested for HIV; 964 (1%) were HIV infected (Table 1). Of 153,598 women who gave birth in the 90 region 7 hospitals during the same period, 151,928 (99%) had received antenatal care, and HIV status was documented in the delivery records of 106,834 (70%).

Mother-Infant HIV Transmission — Continued

FIGURE 1. Location of pilot program to prevent mother-infant HIV transmission — Region 7, Thailand, July 1998–June 2000



At delivery, of 922 HIV-infected women, 640 (69%) had received antenatal zidovudine prophylaxis. Testing, documentation of HIV results at delivery, and zidovudine use increased significantly during the program period (Table 1).

To evaluate the program's coverage, acceptability, and impact, two groups of women were interviewed: those who had given birth within 2 months of the interview and whose delivery record lacked documentation of HIV status and HIV-infected women who had given birth during the 12 months preceding the interview. Women were identified from hospital logs from 11 hospitals where 44% of HIV-infected women had given birth during the preceding year. All HIV-infected women and a random sample of women whose HIV status was not documented were invited by letter to attend a health-care facility. Women who agreed to participate were interviewed during April–May 2000 by trained interviewers who used structured questionnaires.

Mother-Infant HIV Transmission — Continued

TABLE 1. Number and percentage of women reporting receipt of HIV testing and zidovudine prophylaxis, by location of receipt — Region 7, Thailand, July 1998–June 2000

	July–December 1998		January–June 1999		July–December 1999		January–June 2000		Total	
Location	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**
Antenatal clinic										
New clients	29,510		31,299		31,811		29,474		**122,094**	
Tested for HIV*	22,046	(75)	26,387	(84)	28,489	(90)	27,471	(93)	**104,393**	**(86)**
HIV positive	235	(1)	260	(1)	233	(1)	236	(1)	**964**	**(1)**
Delivery room										
Deliveries	38,682		37,062		40,816		37,038		**153,598**	
No antenatal care	405	(1)	397	(1)	449	(1)	419	(1)	**1,670**	**(1)**
HIV status recorded*	22,318	(58)	24,669	(67)	30,237	(74)	29,610	(80)	**106,834**	**(70)**
HIV positive	221	(1)	192	(1)	291	(1)	218	(1)	**922**	**(1)**
Maternal zidovudine†	132	(60)	134	(70)	213	(73)	161	(74)	**640**	**(69)**

* Chi-square for linear trend: p<0.00001.
† Chi-square for linear trend: p<0.001.

Of 215 women whose HIV status was not documented at delivery, 117 (54%) reported that they had had an HIV test during pregnancy. In addition, 83 (71%) of the 117 women tested knew their HIV result, and all reported a negative test result.

Of 162 HIV-infected women interviewed, 152 (94%) reported an HIV diagnosis before delivery, 159 (98%) reported that they had received posttest counseling, and 128 (79%) reported that they had taken zidovudine prophylaxis. Most women (89%) who had taken zidovudine reported not missing any doses of medication. Two (1%) women refused zidovudine prophylaxis. All HIV-infected women reported using infant formula, and 10 (6%) women reported breast-feeding for a short period. In comparison, 204 (95%) of the 215 women whose HIV status was not documented reported that they breast-fed. Of the 162 HIV-infected women, 146 (90%) reported not wanting another child, and 78 (48%) already had had a tubal ligation.

Results from HIV polymerase chain reaction (PCR) tests were used to assess the program's effectiveness in preventing HIV transmission; tests were provided as a service to children born to HIV-infected women during the latter part of the program period. One or more PCR tests were performed on 293 HIV-exposed infants after age 1 month. Of these, 19 (8%) of 229 (95% confidence interval [CI]=5%–13%) infants whose mothers had received zidovudine tested HIV positive, and nine (14%) of 64 (95% CI=7%–25%) infants whose mothers had not received zidovudine tested HIV positive and were considered infected. Overall, risk for mother-infant HIV transmission was estimated at 10% (95% CI=6%–14%).

Working groups periodically reviewed program data and developed strategies to strengthen program coverage, acceptability, and impact (*6*). On the basis of clinical trials and pilot projects in Thailand during 1996–1999, MOPH launched a national program to prevent mother-infant HIV transmission in Thailand in 2000 (*5–8*).

Mother-Infant HIV Transmission — Continued

Reported by: V Thaineua, S Kanshana, D Thewanda, P Amornwichet, N Kullerk, N Voramongkol, S Akksilp, V Sereesitipitak, A Pensiri, P Nimnakorn, K Chaisit, B Juengsmarn, P Phewruangnonta, S Loiha, S Piyapongkul, T Sarnthima, L Yampiwan, M Saenjai, C Paopha, Ministry of Public Health; A Teeraratkul, T Naiwatanakul, N Skunodom, K Limpakarnjanarat, The HIV/AIDS Collaboration, Nonthaburi, Thailand. Div of HIV/AIDS Prevention, National Center for HIV, STD, and TB Prevention; and an EIS Officer, CDC.

Editorial Note: The findings in this report indicate that interventions to reduce mother-infant HIV transmission can be implemented successfully on a large scale in Thailand. These interventions, integrated into existing maternal and child health-care services, were acceptable to most women and reduced mother-infant HIV transmission from an estimated 30% to approximately 10% (*4,8*). This report also highlights the rapid translation of research findings into a national public health prevention program in a developing country.

Despite the implementation of antenatal HIV testing, maternal zidovudine prophylaxis, and infant formula in Thailand, these interventions have not been widely implemented in countries with high HIV prevalence. Similar programs have been initiated in several sub-Saharan countries, but acceptance of HIV testing and zidovudine prophylaxis has been low. Limited access to antenatal and HIV-related health care and limited public health infrastructure represent major challenges to large-scale efforts in many countries. The nutritional, health, and social risks associated with the early use of formula also are potential threats to maternal and child health. In settings where breast-feeding is almost universal, women who do not breast-feed may be stigmatized as HIV infected. In poor, unsanitary environments, the use of formula is associated with increased morbidity and mortality from malnutrition, diarrhea, and respiratory infections (*9*).

In recent clinical trials, simpler, less expensive interventions using zidovudine with lamivudine or nevirapine also have prevented mother-infant HIV transmission, and these regimens might help overcome some of these barriers (*10*). Medications begun intrapartum, particularly nevirapine, have feasibility and cost advantages over more complex regimens and can be given to women who have received suboptimal antenatal care.

CDC and other organizations are working with many developing countries to implement simple interventions to prevent mother-infant HIV transmission in other large-scale programs. Such programs will be one component of a U.S. initiative to enhance HIV prevention and care in developing countries. The pilot program in Thailand underscores the importance of monitoring and evaluating to facilitate timely program improvements and optimize the impact and acceptability of these HIV-prevention programs. The simple, focused approach to monitoring and evaluating used in Thailand provides a useful model that minimizes the workload for limited public health personnel.

The findings in this report are subject to at least two limitations. First, estimates of program effectiveness are derived from the HIV test results of a nonrandom subset of infants who received tests as part of a clinical service. Second, HIV-infected women interviewed received care at large health-care facilities and responded to a general invitation letter; therefore, the results may not be generalizable to women attending smaller health-care facilities or to the 21% of HIV-infected women who did not respond to the invitation letter and attend an interview.

On the basis of the estimated 20% decrease in mother-infant HIV transmission among the 15,000 infants born to HIV-infected women, the Thai national program has the potential to prevent approximately 3000 infant HIV infections each year. If similar programs

Mother-Infant HIV Transmission — Continued

were implemented worldwide, hundreds of thousands of childhood HIV infections could be prevented. In addition to reducing mother-infant HIV transmission, such programs can improve voluntary counseling and testing services, reduce the sexual transmission of HIV, promote informed decisions about childbearing, and link HIV-infected persons to health and social services.

References

1. UNAIDS. UNAIDS epidemic update, December 2000. Available at http://www.unaids.org/wac/2000/wad00/files/WAD_epidemic_report.htm. Accessed July 18, 2001.
2. Connor EM, Sperling RS, Gelber R, et al. Reduction of maternal-infant transmission of human immunodeficiency virus type 1 with zidovudine treatment. N Engl J Med 1994;331:1173–80.
3. Cooper ER, Charurat M, Burns DN, Blattner W, Hoff R. Trends in antiretroviral therapy and mother-infant transmission of HIV: the Women and Infants Transmission Study Group. J Acquir Immune Defic Syndr 2000;24:45–7.
4. De Cock KM, Fowler MG, Mercier E, et al. Prevention of mother-to-child HIV transmission in resource-poor countries: translating research into policy and practice. JAMA 2000;283:1175–82.
5. Shaffer N, Chuachoowong R, Mock PA, et al. Short-course zidovudine for perinatal HIV-1 transmission in Bangkok, Thailand: a randomised controlled trial. Lancet 1999;353: 773–80.
6. Kanshana S, Thewanda D, Teeraratkul A, et al. Implementing short-course zidovudine to reduce mother-infant HIV transmission in a large regional pilot program in northeastern Thailand. AIDS 2000;14:1617–23.
7. Lallemant M, Jourdain G, Le Coeur S, et al. A trial of shortened zidovudine regimens to prevent mother-to-child transmission of human immunodeficiency virus type 1. N Engl J Med 2000;343:982–91.
8. Thaineua V, Sirinirund P, Tanbanjong A, Lallemant M, Soucat A, Lamboray JL. From research to practice: use of short course zidovudine to prevent mother-to-child HIV transmission in the context of routine health care in northern Thailand. Southeast Asian J Trop Med Public Health 1998;29:429–42.
9. World Health Organization. Effect of breastfeeding on infant and child mortality due to infectious diseases in less developed countries: a pooled analysis. Lancet 2000;355:451–5.
10. World Health Organization. New data on the prevention of mother-to-infant transmission of HIV and their policy implications: conclusions and recommendations. Geneva, Switzerland: World Health Organization, October 2000. Available at http://www.unaids.org/publications/documents/mtct/MTCT_Consultation_Report.doc. Accessed July 18, 2001.

Hantavirus Pulmonary Syndrome — Vermont, 2000

In 1993, an outbreak of an unexplained pulmonary illness occurred in the southwestern United States. This outbreak led to the first description of hantavirus pulmonary syndrome (HPS), a rodentborne hantaviral infection. Hantaviruses have been found in rodents in rural areas throughout the United States, but most infection has occurred in the southwest (*1,2*). This report describes the first HPS case in Vermont and underscores the importance of preventing exposure to peridomestic rodents and recognizing the signs and symptoms of HPS.

On February 17, 2000, a 61-year-old previously healthy Vermont resident was hospitalized following three syncopal episodes and 1 week of chills, fever (≤102 F ([≤39 C]),

Hantavirus Pulmonary Syndrome — Continued

nausea, vomiting, anorexia, and right knee pain. Upon admission, the patient's temperature was 99.3 F (37.4 C), pulse rate was 90 beats per minute, and blood pressure was 135/90 mm Hg. On examination, the lungs were clear to auscultation, a 2 x 2 cm nontender lymph node was identified at the angle of the left jaw, and a mild effusion was present in the right knee. A complete blood count included a hematocrit of 55.6% (normal: 36%–52%), a platelet count of 99,000/mm^3 (normal: 150,000–400,000/mm^3), and a white blood cell count of 6900/mm^3 (normal: 4,000–10,000/mm^3) with 83% granulocytes, 8.0% lymphocytes, and 8.0% monocytes. Chest radiographs were clear without infiltrates. However, 1 day after admission, the patient's condition deteriorated with onset of respiratory failure, profound hypoxemia, and hypotension requiring mechanical ventilation. Subsequent chest radiographs revealed bilateral interstitial edema consistent with acute respiratory distress syndrome (ARDS). The patient also developed disseminated intravascular coagulation and renal insufficiency (peak blood urea nitrogen: 62 mg/dL [normal: 7–18 mg/dL] and peak creatinine 2.9 mg/dL [normal: 0.5–1.4 mg/dL]). After 23 days in the hospital, including 16 days in intensive care, the patient was discharged with a diagnosis of ARDS and sepsis of uncertain etiology.

During the 2 months preceding hospitalization, the patient, who resided in a house on four rural acres, had cleaned a mouse nest from a woodpile, observed mice in the basement, and trapped two mice under the kitchen counters. The patient's reported symptoms and exposure to rodents led to the collection of two serum specimens on April 6 and 17, which were submitted to CDC for hantavirus diagnostic testing. Using an enzyme-linked immunosorbent assay, immunoglobin M (IgM), and immunoglobin G (IgG), antibodies to Sin Nombre virus were detected; these antibodies indicated recent hantavirus infection (*3*).

During an onsite investigation conducted April 21 by the Vermont Department of Health, mice droppings were observed under the kitchen counter and in the cellar. In April and May, the wildlife services program of the U.S. Department of Agriculture trapped rodents within a 5-mile radius of the patient's house to estimate the prevalence of hantavirus infection in local rodent populations. After 1632 trapnights (i.e., number of traps times the number of nights), 46 rodents were captured, including six deer mice (*Peromyscus maniculatus*), 13 white-footed mice (*P. leucopus*), 21 woodland jumping mice (*Napaeozapus insignis*), one meadow jumping mouse (*Zapus hudsonius*), four chipmunks (*Tamias striatus*), and one vole (*Microtus* sp.). Because cases of hantavirus infection are new among humans and the rodent reservoir is not well described, especially in the northeast, most of these rodents were tested serologically at CDC for hantaviral antibodies. Among 43 rodents tested, two of five deer mice were positive for hantaviral antibodies; all other rodents were negative.

Reported by: W Craig, MD, Plainfield Health Center, Plainfield; K Cook, MD, J Carney, MD, S Schoenfeld, MSPH, B Wilcke, PhD, Vermont Dept of Health. T Algeo, Wildlife Svcs Program, Animal and Plant Health Inspection Svc, US Dept of Agriculture. Special Pathogens Br, Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases, CDC.

Editorial Note: This report describes the first case of HPS acquired in New England; only 15 (5%) of the 284 cases confirmed by CDC have occurred east of the Mississippi River. Hantaviruses known to cause HPS in the United States include Sin Nombre, New York, Monongahela, Bayou, and Black Creek Canal viruses. Because rodent species that host one or more viruses are found throughout the contiguous United States, sporadic cases may occur anywhere on the mainland (*4*). Among approximately 115 (75%) of 153 patients with documented exposure to rodents or rodent droppings, exposure had

Hantavirus Pulmonary Syndrome — Continued

occurred in and around the house. In Vermont, the primary rodent reservoirs of these hantaviruses are likely to be the deer mouse (*P. maniculatus*) and the white-footed mouse (*P. leucopus*). Other rodent species known to carry HPS-associated hantaviruses include the rice rat (*Oryzomys palustris*) and cotton rat (*Sigmodon hispidus*) (*5,6*).

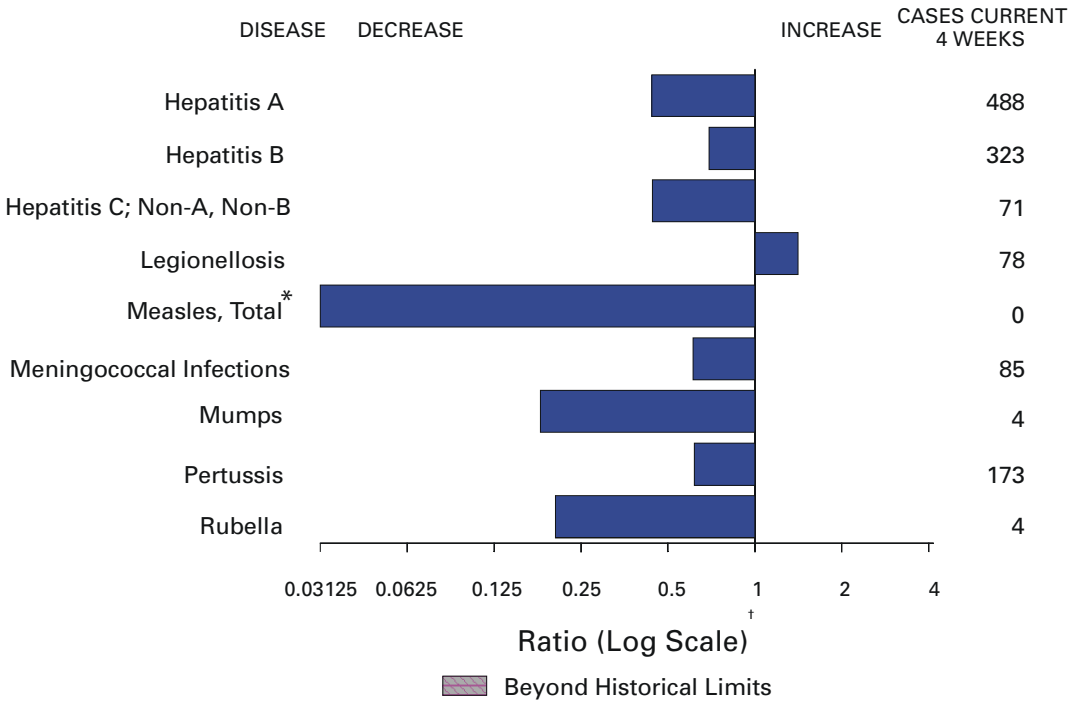
Although it was not reported in the 1993 outbreak (*2*), renal impairment is a component of disease associated with Sin Nombre viral infection and related viruses, as indicated in the case in this report. Renal impairment also has been predominant in disease caused by Black Creek Canal and Bayou viruses. Another component recognized since the first outbreak is disease accompanied by frank hemorrhage (*7*).

The case described in this report demonstrates the importance of considering hantavirus infection when diagnosing an unexplained acute respiratory distress syndrome or bilateral interstitial pulmonary infiltrates (*8*). Although the Vermont patient had symptoms unrelated to hantavirus infection (e.g., a nontender lymph node and knee pain), other signs, symptoms, and environmental circumstances suggested HPS. When patients may have been exposed to rodents or rodent droppings, especially in and around the house, clinicians should request serologic testing to detect hantavirus-specific IgM and IgG. Information about testing is available from local or state health departments, and testing is available at CDC. Additional information about hantaviruses and HPS is available at http://www.cdc.gov/ncidod/diseases/hanta/hantvrus.htm; telephone (877) 232-3322 or (404) 639-1115.

References

1. Nichol ST, Spiropoulou CF, Morzunov S, et al. Genetic identification of a hantavirus associated with an outbreak of acute respiratory illness. Science 1993;262:914–7.
2. Duchin JS, Koster FT, Peters CJ, et al. Hantavirus pulmonary syndrome: a clinical description of 17 patients with a newly recognized disease. N Engl J Med 1994;330:949–55.
3. Feldmann H, Sanchez A, Morzunov S, et al. Utilization of autopsy RNA for the synthesis of the nucleocapsid antigen of a newly recognized virus associated with hantavirus pulmonary syndrome. Virus Res 1993;30:351–67.
4. Wilson DE, Ruff S. Smithsonian book of North American mammals. Washington, DC: Smithsonian Institute, 1999.
5. Young JC, Mills JN, Enria DA, et al. New World hantaviruses. Br Med Bull 1998;54:659–73.
6. Rhodes LV, Huang C, Sanchez AJ, et al. Hantavirus pulmonary syndrome associated with Monongahela virus, Pennsylvania. Emerg Infect Dis 2000;6:616–21.
7. Shefer AM, Tappero JW, Bresee JS, et al. Hantavirus pulmonary syndrome in California: report of two cases and investigation. Clin Infect Dis 1994;19:1105–9.
8. CDC. Case definitions for infectious conditions under public health surveillance. MMWR 1997;46(no. RR-10):16.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals ending July 14, 2001, with historical data



* No measles cases were reported for the current 4-week period yielding a ratio for week 28 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 14, 2001 (28th Week)

	Cum. 2001		Cum. 2001
Anthrax	-	Poliomyelitis, paralytic	-
Brucellosis*	35	Psittacosis*	7
Cholera	3	Q fever*	10
Cyclosporiasis*	61	Rabies, human	1
Diphtheria	1	Rocky Mountain spotted fever (RMSF)	213
Ehrlichiosis: human granulocytic (HGE)*	45	Rubella, congenital syndrome	-
human monocytic (HME)*	25	Streptococcal disease, invasive, group A	2,111
Encephalitis: California serogroup viral*	1	Streptococcal toxic-shock syndrome*	33
eastern equine*	1	Syphilis, congenital¶	84
St. Louis*	-	Tetanus	12
western equine*	-	Toxic-shock syndrome	65
Hansen disease (leprosy)*	39	Trichinosis	11
Hantavirus pulmonary syndrome*†	4	Tularemia*	42
Hemolytic uremic syndrome, postdiarrheal*	47	Typhoid fever	131
HIV infection, pediatric*§	98	Yellow fever	-
Plague	2		

-: No reported cases.
*Not notifiable in all states.
† Updated monthly from reports to the Division of HIV/AIDS Prevention — Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP). Last update June 26, 2001.
§ Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending July 14, 2001, and July 15, 2000 (28th Week)

Reporting Area	AIDS		Chlamydia†		Cryptosporidiosis		*Escherichia coli* O157:H7*			
							NETSS		PHLIS	
	Cum. 2001§	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000
UNITED STATES	19,145	20,040	348,088	365,240	874	849	900	1,494	651	1,385
NEW ENGLAND	746	1,197	11,945	12,197	42	51	123	151	69	167
Maine	20	16	642	741	4	9	12	9	12	14
N.H.	17	17	675	545	2	5	14	10	10	15
Vt.	10	17	315	287	13	13	4	15	2	20
Mass.	411	763	5,573	5,179	12	14	47	70	28	67
R.I.	53	48	1,431	1,344	3	2	6	8	4	9
Conn.	235	336	3,309	4,101	8	8	40	39	13	42
MID. ATLANTIC	3,974	4,819	39,927	34,740	99	154	75	171	52	123
Upstate N.Y.	322	538	6,894	564	44	38	54	108	33	38
N.Y. City	1,996	2,608	15,718	14,756	47	87	4	12	6	8
N.J.	960	985	5,303	6,638	4	6	17	51	13	46
Pa.	696	688	12,012	12,782	4	23	N	N	-	31
E.N. CENTRAL	1,408	2,013	50,103	62,578	270	198	201	304	134	239
Ohio	237	289	7,148	16,650	55	23	55	50	40	64
Ind.	165	188	7,700	6,825	31	12	36	36	18	39
Ill.	665	1,191	13,597	18,071	1	31	44	85	28	63
Mich.	261	254	15,840	12,398	72	33	26	47	26	40
Wis.	80	91	5,818	8,634	111	99	40	86	22	33
W.N. CENTRAL	454	480	18,009	20,523	86	66	107	188	100	233
Minn.	85	86	3,412	4,189	32	11	30	40	47	73
Iowa	47	52	1,858	2,731	25	22	22	34	7	38
Mo.	218	225	6,616	7,012	9	10	21	54	26	52
N. Dak.	1	1	501	477	3	5	1	7	9	13
S. Dak.	18	4	957	950	5	5	8	10	5	17
Nebr.	39	31	1,681	1,971	12	10	15	29	-	30
Kans.	46	81	2,984	3,193	-	3	10	14	6	10
S. ATLANTIC	6,167	5,299	64,675	67,623	158	128	91	112	44	118
Del.	116	94	1,550	1,537	1	4	1	1	3	-
Md.	751	597	6,405	7,284	27	6	7	13	1	1
D.C.	465	388	1,663	1,728	9	5	-	-	U	U
Va.	501	358	9,386	8,493	9	4	23	24	18	28
W. Va.	49	31	1,249	1,128	1	3	3	8	-	4
N.C.	402	311	8,692	11,727	17	12	26	20	11	32
S.C.	350	409	5,896	5,037	-	-	2	6	2	7
Ga.	757	605	11,996	13,590	56	61	13	15	2	20
Fla.	2,776	2,506	17,838	17,099	38	33	16	25	7	26
E.S. CENTRAL	977	966	26,051	26,379	21	26	42	57	36	50
Ky.	201	113	4,730	4,306	3	2	15	19	20	17
Tenn.	293	381	7,752	7,608	4	6	18	21	14	25
Ala.	224	255	7,474	7,887	7	10	8	5	-	4
Miss.	259	217	6,095	6,578	7	8	1	12	2	4
W.S. CENTRAL	2,058	1,837	54,362	54,935	18	44	35	144	52	176
Ark.	104	101	3,942	3,392	3	1	4	36	-	30
La.	472	318	8,984	10,035	7	9	2	10	23	26
Okla.	107	161	5,815	4,496	6	4	12	9	14	7
Tex.	1,375	1,257	35,621	37,012	2	30	17	89	15	113
MOUNTAIN	714	725	19,074	21,391	60	42	104	151	55	121
Mont.	12	9	1,015	802	5	8	6	16	-	-
Idaho	15	13	890	1,002	7	3	14	19	-	14
Wyo.	1	6	432	410	1	5	6	9	1	6
Colo.	140	157	2,400	6,384	18	12	44	60	26	45
N. Mex.	56	86	3,066	2,662	12	2	7	4	5	5
Ariz.	295	224	7,769	6,777	3	2	12	25	9	21
Utah	63	62	906	1,322	12	8	9	15	13	24
Nev.	132	168	2,596	2,032	2	2	6	3	1	6
PACIFIC	2,647	2,704	63,942	64,874	120	140	122	216	109	158
Wash.	290	275	7,252	6,848	N	U	29	80	31	90
Oreg.	112	88	2,023	3,770	11	9	20	36	15	40
Calif.	2,204	2,252	51,273	51,067	106	131	64	90	60	20
Alaska	13	10	1,440	1,315	-	-	2	2	-	1
Hawaii	28	79	1,954	1,874	3	-	7	8	3	7
Guam	9	13	-	257	-	-	N	N	U	U
P.R.	580	516	1,540	U	-	-	-	5	U	U
V.I.	2	21	53	-	-	-	-	-	U	U
Amer. Samoa	-	-	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	68	U	-	U	-	U	U	U

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

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

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

§ Updated monthly from reports to the Division of HIV/AIDS Prevention — Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention. Last update June 26, 2001.

TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending July 14, 2001, and July 15, 2000 (28th Week)

Reporting Area	Gonorrhea		Hepatitis C; Non-A, Non-B		Legionellosis		Listeriosis	Lyme Disease	
	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2001	Cum. 2000
UNITED STATES	158,995	181,909	1,198	1,815	405	424	224	2,346	6,160
NEW ENGLAND	3,287	3,430	14	15	20	25	37	724	1,548
Maine	70	44	-	1	1	2	-	-	-
N.H.	84	58	-	-	5	2	1	66	36
Vt.	39	32	6	3	4	2	-	3	12
Mass.	1,707	1,373	8	8	5	11	14	149	645
R.I.	360	328	-	3	1	3	1	109	78
Conn.	1,027	1,595	-	-	4	5	21	397	777
MID. ATLANTIC	19,255	19,479	46	391	45	107	30	1,035	3,504
Upstate N.Y.	4,269	3,572	32	17	28	31	13	823	965
N.Y. City	6,603	6,149	-	-	6	16	5	1	141
N.J.	2,584	3,796	-	349	5	9	7	84	1,565
Pa.	5,799	5,962	14	25	6	51	5	127	833
E.N. CENTRAL	27,005	36,750	105	141	111	110	25	86	431
Ohio	4,254	9,668	7	4	56	39	6	43	23
Ind.	3,185	3,161	1	-	12	20	4	2	10
Ill.	8,414	11,015	10	15	-	11	-	-	24
Mich.	9,210	9,229	87	122	29	21	13	-	13
Wis.	1,942	3,677	-	-	14	19	2	41	361
W.N. CENTRAL	7,478	8,938	416	315	31	25	6	83	66
Minn.	1,091	1,684	2	5	7	1	-	49	26
Iowa	428	580	-	1	6	5	-	17	3
Mo.	3,962	4,361	409	302	10	13	3	12	22
N. Dak.	16	37	-	-	1	-	-	-	-
S. Dak.	144	145	-	-	2	1	-	-	-
Nebr.	555	746	1	2	4	1	1	2	2
Kans.	1,282	1,385	4	5	1	4	2	3	13
S. ATLANTIC	39,845	47,138	58	49	85	76	35	329	499
Del.	887	874	-	2	2	4	-	22	99
Md.	3,433	4,835	10	6	23	25	4	205	310
D.C.	1,468	1,228	-	2	2	-	-	7	2
Va.	5,010	5,171	-	2	11	12	5	61	57
W. Va.	327	359	6	9	N	N	4	8	10
N.C.	7,854	9,531	10	13	5	8	2	10	13
S.C.	4,229	4,807	4	1	3	2	3	2	2
Ga.	6,520	8,462	-	2	6	4	8	-	-
Fla.	10,117	11,871	28	12	33	21	9	14	6
E.S. CENTRAL	16,677	18,737	120	261	34	13	10	14	22
Ky.	1,835	1,816	4	18	8	6	4	5	5
Tenn.	5,128	5,939	37	58	16	4	3	6	13
Ala.	5,769	6,164	2	7	8	2	3	3	2
Miss.	3,945	4,818	77	178	2	1	-	-	2
W.S. CENTRAL	26,295	28,630	161	498	5	18	5	7	34
Ark.	2,438	1,821	3	4	-	-	1	-	2
La.	6,256	7,036	74	264	2	7	-	1	3
Okla.	2,609	1,949	3	4	3	1	1	-	-
Tex.	14,992	17,824	81	226	-	10	3	6	29
MOUNTAIN	5,448	5,532	199	38	31	19	23	8	4
Mont.	53	26	1	2	-	-	-	-	-
Idaho	39	49	1	3	1	4	1	3	1
Wyo.	32	30	159	2	3	-	1	3	2
Colo.	1,671	1,681	13	6	9	6	3	1	-
N. Mex.	487	560	10	10	1	1	6	-	-
Ariz.	2,152	2,302	9	11	11	3	6	-	-
Utah	79	136	1	-	4	5	1	-	-
Nev.	935	748	5	4	2	-	5	1	1
PACIFIC	13,705	13,275	79	107	43	31	53	60	52
Wash.	1,577	1,192	16	16	6	11	3	2	3
Oreg.	295	490	8	20	N	N	1	5	3
Calif.	11,309	11,167	55	69	33	20	48	51	45
Alaska	201	180	-	-	-	-	-	2	1
Hawaii	323	246	-	2	4	-	1	N	N
Guam	-	26	-	2	-	-	-	-	-
P.R.	423	283	1	1	2	-	-	N	N
V.I.	6	-	-	-	-	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	-	U	U
C.N.M.I.	5	U	-	U	-	U	-	-	U

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

TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending July 14, 2001, and July 15, 2000 (28th Week)

Reporting Area	Malaria		Rabies, Animal		Salmonellosis*			
					NETSS		PHLIS	
	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000
UNITED STATES	495	661	3,089	3,525	14,842	17,208	11,756	15,345
NEW ENGLAND	33	32	318	385	1,348	1,068	987	1,118
Maine	3	4	36	78	110	76	83	61
N.H.	2	1	7	8	97	69	103	75
Vt.	-	2	37	36	36	62	38	60
Mass.	10	11	110	122	627	634	460	626
R.I.	3	5	29	17	66	45	82	79
Conn.	15	9	99	124	412	182	221	217
MID. ATLANTIC	92	152	478	616	1,577	2,473	1,841	2,559
Upstate N.Y.	25	30	359	378	531	561	479	652
N.Y. City	42	81	11	5	442	639	597	661
N.J.	19	21	88	83	419	612	344	479
Pa.	6	20	20	150	185	661	421	767
E.N. CENTRAL	52	81	42	47	2,121	2,426	1,535	1,497
Ohio	12	12	14	11	661	562	483	548
Ind.	12	4	1	-	233	282	188	292
Ill.	1	41	4	4	548	784	302	1
Mich.	19	17	17	23	396	454	357	474
Wis.	8	7	6	9	283	344	205	182
W.N. CENTRAL	19	36	182	315	866	1,106	901	1,270
Minn.	6	13	19	49	211	242	306	342
Iowa	3	1	42	46	148	149	95	176
Mo.	6	9	16	17	253	364	325	424
N. Dak.	-	2	24	74	14	27	32	42
S. Dak.	-	-	21	62	70	37	50	53
Nebr.	2	5	4	-	60	102	-	81
Kans.	2	6	56	67	110	185	93	152
S. ATLANTIC	145	142	1,134	1,242	3,557	3,058	2,064	2,642
Del.	1	3	18	20	44	51	43	66
Md.	59	46	138	238	379	383	366	366
D.C.	9	12	-	-	39	31	U	U
Va.	30	30	228	321	589	413	495	440
W. Va.	1	2	69	66	53	74	59	75
N.C.	6	11	315	303	518	404	272	444
S.C.	4	1	73	71	368	292	291	245
Ga.	8	4	174	157	546	512	351	775
Fla.	27	33	119	66	1,021	898	187	231
E.S. CENTRAL	11	22	109	99	885	888	614	762
Ky.	2	6	11	14	160	181	101	132
Tenn.	6	5	71	53	248	207	242	352
Ala.	3	10	27	32	273	229	211	233
Miss.	-	1	-	-	204	271	60	45
W.S. CENTRAL	6	38	503	521	1,187	2,126	1,079	1,289
Ark.	3	1	19	-	254	252	92	207
La.	1	6	-	1	249	372	344	281
Okla.	1	4	42	35	138	166	132	134
Tex.	1	27	442	485	546	1,336	511	667
MOUNTAIN	27	24	126	132	1,000	1,326	705	1,246
Mont.	2	1	20	34	39	58	-	-
Idaho	3	2	2	1	71	75	4	66
Wyo.	-	-	20	34	32	37	22	31
Colo.	13	11	-	-	278	399	236	377
N. Mex.	1	-	5	13	123	118	100	114
Ariz.	3	3	76	47	279	307	216	321
Utah	3	3	2	2	110	199	104	204
Nev.	2	4	1	1	68	133	23	133
PACIFIC	110	134	197	168	2,301	2,737	2,030	2,962
Wash.	4	12	-	-	227	230	358	331
Oreg.	5	23	-	2	106	169	159	213
Calif.	93	92	161	142	1,754	2,209	1,332	2,285
Alaska	1	-	36	24	22	29	2	23
Hawaii	7	7	-	-	192	100	179	110
Guam	-	-	-	-	-	17	U	U
P.R.	3	4	61	41	302	299	U	U
V.I.	-	-	-	-	-	-	U	U
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	6	U	U	U

N: Not notifiable. U: Unavailable. -: No reported cases.
* Individual cases can be reported through both the National Electronic Telecommunications System for Surveillance (NETSS) and the Public Health Laboratory Information System (PHLIS).

TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending July 14, 2001, and July 15, 2000 (28th Week)

Reporting Area	Shigellosis* NETSS Cum. 2001	Shigellosis* NETSS Cum. 2000	Shigellosis* PHLIS Cum. 2001	Shigellosis* PHLIS Cum. 2000	Syphilis (Primary & Secondary) Cum. 2001	Syphilis (Primary & Secondary) Cum. 2000	Tuberculosis Cum. 2001	Tuberculosis Cum. 2000
UNITED STATES	7,040	10,682	3,349	5,907	2,870	3,241	6,102	7,314
NEW ENGLAND	133	187	102	184	27	48	222	209
Maine	5	5	1	-	-	1	7	8
N.H.	2	4	2	7	1	1	11	7
Vt.	3	2	2	-	2	-	2	3
Mass.	72	134	63	123	16	32	117	120
R.I.	8	12	12	18	3	3	21	23
Conn.	43	30	22	36	5	11	64	48
MID. ATLANTIC	595	1,501	461	937	260	161	1,173	1,198
Upstate N.Y.	321	431	64	156	19	6	164	142
N.Y. City	179	663	232	428	139	68	601	642
N.J.	40	274	100	229	51	36	269	286
Pa.	55	133	65	124	51	51	139	128
E.N. CENTRAL	1,215	2,263	535	670	480	669	627	693
Ohio	633	148	274	123	45	42	101	153
Ind.	126	837	20	100	99	219	49	74
Ill.	199	631	117	2	116	241	326	311
Mich.	155	453	109	409	204	136	116	106
Wis.	102	194	15	36	16	31	35	49
W.N. CENTRAL	776	1,038	514	862	34	42	213	258
Minn.	217	275	252	300	17	5	108	85
Iowa	239	239	85	192	1	10	18	23
Mo.	144	387	103	269	8	22	55	94
N. Dak.	13	4	6	4	-	-	3	2
S. Dak.	84	2	48	3	-	-	8	9
Nebr.	37	37	-	37	-	2	21	11
Kans.	42	94	20	57	8	3	-	34
S. ATLANTIC	1,113	1,300	301	497	1,056	1,067	1,283	1,485
Del.	5	8	4	10	7	5	9	7
Md.	58	71	33	37	125	156	109	137
D.C.	29	20	U	U	21	21	15	11
Va.	106	210	56	183	64	69	124	144
W. Va.	5	3	6	3	-	2	16	18
N.C.	203	65	78	43	243	305	185	206
S.C.	143	65	48	54	142	114	117	150
Ga.	121	125	57	104	158	199	235	305
Fla.	443	733	19	63	296	196	473	507
E.S. CENTRAL	747	499	315	310	325	483	385	495
Ky.	284	144	135	47	25	51	69	58
Tenn.	48	217	51	237	179	299	128	191
Ala.	146	29	113	23	64	64	140	165
Miss.	269	109	16	3	57	69	48	81
W.S. CENTRAL	991	1,741	683	513	361	433	660	1,095
Ark.	360	108	155	40	21	57	73	111
La.	108	162	106	92	69	105	-	71
Okla.	20	63	10	23	37	67	75	85
Tex.	503	1,408	412	358	234	204	512	828
MOUNTAIN	424	477	236	319	122	115	208	273
Mont.	-	4	-	-	-	-	-	6
Idaho	19	31	-	22	-	1	4	4
Wyo.	2	2	-	2	-	1	1	1
Colo.	82	86	65	42	23	5	60	39
N. Mex.	63	51	40	29	10	10	11	28
Ariz.	199	190	99	126	78	93	82	113
Utah	27	36	24	42	7	1	15	25
Nev.	32	77	8	56	4	4	35	57
PACIFIC	1,046	1,676	202	1,615	205	223	1,331	1,608
Wash.	97	320	119	289	32	35	119	135
Oreg.	34	102	55	64	4	8	48	47
Calif.	883	1,224	-	1,239	163	179	1,055	1,289
Alaska	4	6	1	3	-	-	25	64
Hawaii	28	24	27	20	6	1	84	73
Guam	-	24	U	U	-	2	-	32
P.R.	6	19	U	U	111	99	54	70
V.I.	-	-	U	U	-	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	4	U	U	U	-	U	19	U

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

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

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending July 14, 2001, and July 15, 2000 (28th Week)

Reporting Area	*H. influenzae*, Invasive		Hepatitis (Viral), By Type				Measles (Rubeola)					
			A		B		Indigenous		Imported*		Total	
	Cum. 2001†	Cum. 2000	Cum. 2001	Cum. 2000	Cum. 2001	Cum. 2000	2001	Cum. 2001	2001	Cum. 2001	Cum. 2001	Cum. 2000
UNITED STATES	772	738	4,799	6,785	3,247	3,677	-	43	-	27	70	55
NEW ENGLAND	42	59	223	190	57	60	-	4	-	1	5	3
Maine	1	1	5	10	5	5	-	-	-	-	-	-
N.H.	-	9	8	16	11	11	-	-	-	-	-	-
Vt.	1	4	6	5	2	5	-	1	-	-	1	3
Mass.	32	29	66	78	3	6	-	2	-	1	3	-
R.I.	2	1	11	7	12	9	-	-	-	-	-	-
Conn.	6	15	127	74	24	24	-	1	-	-	1	-
MID. ATLANTIC	93	136	415	724	441	631	-	2	-	5	7	20
Upstate N.Y.	40	50	144	124	76	64	-	1	-	4	5	9
N.Y. City	24	38	169	266	258	300	-	-	-	-	-	10
N.J.	26	28	70	123	64	104	-	-	-	1	1	-
Pa.	3	20	32	211	43	163	-	1	-	-	1	1
E.N. CENTRAL	100	111	534	876	406	390	-	-	-	10	10	6
Ohio	47	36	125	146	62	66	U	-	U	3	3	2
Ind.	28	12	50	29	23	28	-	-	-	4	4	-
Ill.	10	41	146	380	56	60	-	-	-	3	3	3
Mich.	5	7	175	271	265	218	-	-	-	-	-	1
Wis.	10	15	38	50	-	18	U	-	U	-	-	-
W.N. CENTRAL	36	34	211	461	111	167	-	4	-	-	4	1
Minn.	20	16	16	123	13	19	-	2	-	-	2	1
Iowa	-	-	18	46	13	16	-	-	-	-	-	-
Mo.	10	11	58	203	57	90	-	2	-	-	2	-
N. Dak.	4	2	2	2	-	2	U	-	U	-	-	-
S. Dak.	-	-	1	-	1	-	-	-	-	-	-	-
Nebr.	1	3	27	20	14	25	-	-	-	-	-	-
Kans.	1	2	89	67	13	15	U	-	U	-	-	-
S. ATLANTIC	236	173	1,089	690	706	623	-	3	-	1	4	-
Del.	-	-	-	10	-	8	-	-	-	-	-	-
Md.	55	50	146	81	85	75	-	2	-	1	3	-
D.C.	-	-	22	14	9	17	-	-	-	-	-	-
Va.	18	28	68	82	80	79	-	-	-	-	-	-
W. Va.	8	4	7	45	16	6	-	-	-	-	-	-
N.C.	31	15	77	92	110	141	-	-	-	-	-	-
S.C.	5	7	34	30	15	5	-	-	-	-	-	-
Ga.	60	47	444	112	176	98	-	1	-	-	1	-
Fla.	59	22	291	224	215	194	-	-	-	-	-	-
E.S. CENTRAL	56	33	177	260	215	254	-	2	-	-	2	-
Ky.	2	12	37	31	17	53	-	2	-	-	2	-
Tenn.	28	14	75	94	110	113	-	-	-	-	-	-
Ala.	25	5	57	33	49	26	-	-	-	-	-	-
Miss.	1	2	8	102	39	62	-	-	-	-	-	-
W.S. CENTRAL	29	42	604	1,243	354	565	-	1	-	-	1	-
Ark.	-	-	40	95	54	61	-	-	-	-	-	-
La.	3	12	46	45	28	83	-	-	-	-	-	-
Okla.	26	28	85	153	60	70	-	-	-	-	-	-
Tex.	-	2	433	950	212	351	U	1	U	-	1	-
MOUNTAIN	107	75	445	462	311	266	-	-	-	1	1	12
Mont.	-	-	6	2	2	3	-	-	-	-	-	-
Idaho	1	3	47	18	7	4	-	-	-	1	1	-
Wyo.	13	1	21	4	28	-	-	-	-	-	-	-
Colo.	23	15	40	110	62	46	-	-	-	-	-	2
N. Mex.	13	16	17	42	78	86	-	-	-	-	-	-
Ariz.	42	31	233	220	98	90	-	-	-	-	-	-
Utah	6	6	41	31	14	14	-	-	-	-	-	3
Nev.	9	3	40	35	22	23	-	-	-	-	-	7
PACIFIC	73	75	1,101	1,879	646	721	-	27	-	9	36	13
Wash.	1	3	55	159	67	44	-	13	-	2	15	3
Oreg.	16	21	46	123	42	59	-	3	-	-	3	-
Calif.	32	29	987	1,575	521	604	-	8	-	4	12	7
Alaska	3	4	12	11	4	6	-	-	-	-	-	1
Hawaii	21	18	1	11	12	8	-	3	-	3	6	2
Guam	-	1	-	1	-	9	U	-	U	-	-	-
P.R.	1	3	54	170	98	143	-	-	-	-	-	2
V.I.	-	-	-	-	-	-	U	-	U	-	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	U	20	U	-	-	-	-	-	U

N: Not notifiable. U: Unavailable. - : No reported cases.
*For imported measles, cases include only those resulting from importation from other countries.
† Of 157 cases among children aged <5 years, serotype was reported for 71, and of those, 11 were type b.

TABLE III. (Cont'd) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending July 14, 2001, and July 15, 2000 (28th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 2001	Cum. 2000	2001	Cum. 2001	Cum. 2000	2001	Cum. 2001	Cum. 2000	2001	Cum. 2001	Cum. 2000
UNITED STATES	1,367	1,373	1	101	203	40	2,297	3,039	2	15	95
NEW ENGLAND	78	83	-	-	3	4	246	835	-	-	11
Maine	1	6	-	-	-	-	-	14	-	-	-
N.H.	10	9	-	-	-	4	25	62	-	-	2
Vt.	4	2	-	-	-	-	24	157	-	-	-
Mass.	44	48	-	-	1	-	181	561	-	-	8
R.I.	2	6	-	-	1	-	2	11	-	-	-
Conn.	17	12	-	-	1	-	14	30	-	-	1
MID. ATLANTIC	114	152	-	5	13	4	146	255	-	4	8
Upstate N.Y.	43	40	-	1	5	4	106	136	-	1	1
N.Y. City	28	32	-	4	5	-	23	42	-	2	7
N.J.	33	27	-	-	-	-	8	-	-	1	-
Pa.	10	53	-	-	3	-	9	77	-	-	-
E.N. CENTRAL	168	237	-	12	17	2	271	346	-	3	1
Ohio	57	51	U	1	7	U	167	178	U	-	-
Ind.	27	30	-	1	-	1	24	36	-	1	-
Ill.	20	61	-	8	5	1	29	28	-	2	1
Mich.	33	71	-	2	4	-	27	39	-	-	-
Wis.	31	24	U	-	1	U	24	65	U	-	-
W.N. CENTRAL	100	91	-	5	10	1	117	147	-	2	1
Minn.	15	7	-	2	-	-	31	65	-	-	-
Iowa	20	21	-	-	5	-	16	23	-	1	-
Mo.	38	46	-	-	2	1	51	28	-	-	-
N. Dak.	5	2	U	-	-	U	-	1	U	-	-
S. Dak.	4	5	-	-	-	-	3	3	-	-	-
Nebr.	9	4	-	1	1	-	3	4	-	-	1
Kans.	9	6	U	2	2	U	13	23	U	1	-
S. ATLANTIC	262	195	-	18	29	5	119	219	-	3	50
Del.	2	-	-	-	-	-	-	5	-	-	-
Md.	31	19	-	4	6	-	18	55	-	-	-
D.C.	-	-	-	-	-	-	1	1	-	-	-
Va.	28	33	-	2	5	-	12	28	-	-	-
W. Va.	8	8	-	-	-	-	1	1	-	-	-
N.C.	55	29	-	1	4	-	40	51	-	-	42
S.C.	24	15	-	1	9	-	22	19	-	2	6
Ga.	36	36	-	7	2	1	7	20	-	-	-
Fla.	78	55	-	3	3	4	18	39	-	1	2
E.S. CENTRAL	94	98	-	3	4	6	54	61	1	1	4
Ky.	16	20	-	1	-	-	11	31	-	-	1
Tenn.	41	40	-	-	2	3	23	16	1	1	-
Ala.	29	28	-	-	2	3	17	11	-	-	3
Miss.	8	10	-	2	-	-	3	3	-	-	-
W.S. CENTRAL	165	147	-	7	22	-	157	138	-	-	6
Ark.	10	8	-	1	1	-	7	14	-	-	1
La.	54	34	-	2	4	-	2	8	-	-	1
Okla.	21	21	-	-	-	-	1	9	-	-	-
Tex.	80	84	U	4	17	U	147	107	U	-	4
MOUNTAIN	73	61	-	7	14	16	904	401	1	1	2
Mont.	3	1	-	-	1	-	10	11	-	-	-
Idaho	7	6	-	-	-	1	166	41	-	-	-
Wyo.	6	-	-	1	1	-	1	1	-	-	-
Colo.	25	20	-	1	-	1	160	223	1	1	1
N. Mex.	10	6	-	2	1	1	61	70	-	-	-
Ariz.	11	19	-	1	3	-	460	37	-	-	1
Utah	7	6	-	1	4	13	37	12	-	-	-
Nev.	4	3	-	1	4	-	9	6	-	-	-
PACIFIC	313	309	1	44	91	2	283	637	-	1	12
Wash.	45	33	-	1	3	-	79	197	-	-	7
Oreg.	21	36	N	N	N	2	27	60	-	-	-
Calif.	237	227	1	25	70	-	158	345	-	-	5
Alaska	2	5	-	1	7	-	2	11	-	-	-
Hawaii	8	8	-	17	11	-	17	24	-	1	-
Guam	-	-	U	-	10	U	-	3	U	-	1
P.R.	3	7	-	-	-	-	2	4	-	-	-
V.I.	-	-	U	-	-	U	-	-	U	-	-
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	U	-	-	U	-	-	U	-	-	U

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

TABLE IV. Deaths in 122 U.S. cities,* week ending July 14, 2001 (28th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	432	315	72	33	9	3	38
Boston, Mass.	144	89	33	14	8	-	18
Bridgeport, Conn.	35	26	5	4	-	-	1
Cambridge, Mass.	17	16	1	-	-	-	1
Fall River, Mass.	30	24	6	-	-	-	4
Hartford, Conn.	U	U	U	U	U	U	U
Lowell, Mass.	18	15	2	1	-	-	1
Lynn, Mass.	8	6	2	-	-	-	-
New Bedford, Mass.	24	15	5	3	-	1	2
New Haven, Conn.	25	21	1	1	-	2	2
Providence, R.I.	U	U	U	U	U	U	U
Somerville, Mass.	2	2	-	-	-	-	-
Springfield, Mass.	42	32	7	2	1	-	2
Waterbury, Conn.	27	23	2	2	-	-	3
Worcester, Mass.	60	46	8	6	-	-	4
MID. ATLANTIC	2,246	1,530	454	188	41	32	112
Albany, N.Y.	55	42	9	1	1	2	8
Allentown, Pa.	26	23	2	-	1	-	1
Buffalo, N.Y.	79	50	18	10	1	-	8
Camden, N.J.	32	15	12	2	1	2	2
Elizabeth, N.J.	14	9	4	-	1	-	1
Erie, Pa.§	46	32	8	-	2	4	2
Jersey City, N.J.	40	20	10	8	2	-	-
New York City, N.Y.	1,187	830	232	98	15	11	47
Newark, N.J.	U	U	U	U	U	U	U
Paterson, N.J.	21	11	6	1	1	2	-
Philadelphia, Pa.	376	229	90	44	8	5	18
Pittsburgh, Pa.§	41	27	8	3	1	2	2
Reading, Pa.	18	11	5	2	-	-	1
Rochester, N.Y.	112	79	22	8	2	1	8
Schenectady, N.Y.	22	19	2	1	-	-	2
Scranton, Pa.§	50	35	8	4	2	1	4
Syracuse, N.Y.	83	66	9	4	3	1	6
Trenton, N.J.	24	19	3	1	-	1	2
Utica, N.Y.	20	13	6	1	-	-	-
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	1,709	1,175	318	127	48	41	119
Akron, Ohio	31	23	7	-	1	-	2
Canton, Ohio	44	32	10	2	-	-	4
Chicago, Ill.	U	U	U	U	U	U	U
Cincinnati, Ohio	123	84	19	11	4	5	13
Cleveland, Ohio	137	92	32	9	3	1	7
Columbus, Ohio	194	120	44	23	6	1	16
Dayton, Ohio	117	88	17	7	4	1	11
Detroit, Mich.	214	127	55	17	5	10	13
Evansville, Ind.	47	34	9	3	1	-	3
Fort Wayne, Ind.	69	46	7	9	4	3	4
Gary, Ind.	18	9	2	6	1	-	-
Grand Rapids, Mich.	44	28	6	3	1	6	3
Indianapolis, Ind.	199	136	35	16	7	5	10
Lansing, Mich.	57	40	13	2	2	-	3
Milwaukee, Wis.	125	95	17	8	2	3	9
Peoria, Ill.	47	35	8	1	2	1	7
Rockford, Ill.	60	42	8	5	3	2	4
South Bend, Ind.	41	31	6	3	1	-	4
Toledo, Ohio	82	65	13	1	-	3	4
Youngstown, Ohio	60	48	10	1	1	-	2
W.N. CENTRAL	838	607	143	65	12	11	52
Des Moines, Iowa	41	30	6	4	1	-	2
Duluth, Minn.	41	33	7	1	-	-	1
Kansas City, Kans.	64	43	13	6	-	2	5
Kansas City, Mo.	U	U	U	U	U	U	U
Lincoln, Nebr.	32	22	8	2	-	-	5
Minneapolis, Minn.	202	150	29	21	1	1	17
Omaha, Nebr.	85	67	13	5	-	-	8
St. Louis, Mo.	124	74	26	13	5	6	-
St. Paul, Minn.	99	73	18	6	2	-	2
Wichita, Kans.	150	115	23	7	3	2	12
S. ATLANTIC	1,351	876	299	122	32	21	77
Atlanta, Ga.	141	96	21	15	7	2	-
Baltimore, Md.	224	132	54	31	5	2	17
Charlotte, N.C.	106	75	20	6	4	1	9
Jacksonville, Fla.	155	102	34	14	2	3	8
Miami, Fla.	80	43	22	11	3	1	12
Norfolk, Va.	58	35	16	5	1	1	3
Richmond, Va.	60	31	13	11	4	1	4
Savannah, Ga.	57	34	16	2	1	4	2
St. Petersburg, Fla.	69	55	12	2	-	-	5
Tampa, Fla.	192	142	32	13	1	3	11
Washington, D.C.	199	126	54	12	4	3	6
Wilmington, Del.	10	5	5	-	-	-	-
E.S. CENTRAL	780	527	160	54	25	14	65
Birmingham, Ala.	175	117	38	12	7	1	14
Chattanooga, Tenn.	79	53	17	5	3	1	8
Knoxville, Tenn.	110	79	22	5	2	2	14
Lexington, Ky.	58	35	12	7	3	1	4
Memphis, Tenn.	110	69	27	7	1	6	8
Mobile, Ala.	54	43	9	1	1	-	1
Montgomery, Ala.	53	37	9	5	2	-	1
Nashville, Tenn.	141	94	26	12	6	3	15
W.S. CENTRAL	1,460	882	324	137	77	40	70
Austin, Tex.	79	57	11	5	5	1	3
Baton Rouge, La.	42	21	11	5	2	3	-
Corpus Christi, Tex.	65	43	15	2	3	2	3
Dallas, Tex.	198	106	47	30	9	6	3
El Paso, Tex.	66	46	14	5	1	-	5
Ft. Worth, Tex.	117	70	31	9	4	3	9
Houston, Tex.	413	219	95	48	37	14	16
Little Rock, Ark.	51	28	11	5	2	5	-
New Orleans, La.	79	41	20	11	7	-	4
San Antonio, Tex.	235	164	51	9	7	4	16
Shreveport, La.	30	24	3	3	-	-	6
Tulsa, Okla.	85	63	15	5	-	2	5
MOUNTAIN	995	658	187	102	26	22	51
Albuquerque, N.M.	87	51	20	11	3	2	6
Boise, Idaho	46	32	6	5	3	-	-
Colo. Springs, Colo.	48	29	10	8	-	1	1
Denver, Colo.	119	79	21	15	2	2	8
Las Vegas, Nev.	181	124	38	13	1	5	13
Ogden, Utah	31	24	5	-	2	-	2
Phoenix, Ariz.	181	103	34	28	11	5	7
Pueblo, Colo.	26	21	5	-	-	-	2
Salt Lake City, Utah	99	65	18	10	2	4	5
Tucson, Ariz.	177	130	30	12	2	3	7
PACIFIC	1,555	1,054	304	120	42	30	123
Berkeley, Calif.	12	8	3	1	-	-	-
Fresno, Calif.	91	55	21	11	2	2	4
Glendale, Calif.	22	18	3	-	-	1	1
Honolulu, Hawaii	84	60	15	5	1	3	7
Long Beach, Calif.	50	36	10	1	3	-	5
Los Angeles, Calif.	398	279	67	34	10	8	28
Pasadena, Calif.	30	18	4	5	1	2	2
Portland, Oreg.	119	77	32	8	1	1	5
Sacramento, Calif.	210	131	54	15	5	5	27
San Diego, Calif.	201	137	32	18	9	5	19
San Francisco, Calif.	U	U	U	U	U	U	U
San Jose, Calif.	U	U	U	U	U	U	U
Santa Cruz, Calif.	45	32	8	5	-	-	4
Seattle, Wash.	136	88	33	7	5	3	6
Spokane, Wash.	43	37	1	1	4	-	6
Tacoma, Wash.	114	78	21	9	1	-	9
TOTAL	11,366¶	7,624	2,261	948	312	214	707

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.

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

Weekly Notifiable Disease Morbidity Data and 122 Cities Mortality Data

Samuel L. Groseclose, D.V.M., M.P.H.

State Support Team
Robert Fagan
Jose Aponte
Gerald Jones
David Nitschke
Scott Noldy
Jim Vaughan
Carol A. Worsham

CDC Operations Team
Carol M. Knowles
Deborah A. Adams
Willie J. Anderson
Patsy A. Hall
Mechele Hester
Felicia J. Perry
Pearl Sharp

Informatics

T. Demetri Vacalis, Ph.D.

Michele D. Renshaw Erica R. Shaver

The *Morbidity and Mortality Weekly Report (MMWR)* Series is prepared by the Centers for Disease Control and Prevention (CDC) and is available free of charge in electronic format and on a paid subscription basis for paper copy. To receive an electronic copy on Friday of each week, send an e-mail message to *listserv@listserv.cdc.gov*. The body content should read *SUBscribe mmwr-toc*. Electronic copy also is available from CDC's World-Wide Web server at *http://www.cdc.gov/mmwr* or from CDC's file transfer protocol server at *ftp://ftp.cdc.gov/pub/Publications/mmwr*. To subscribe for paper copy, contact Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; telephone (202) 512-1800.

Data in the weekly *MMWR* are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the following Friday. Address inquiries about the *MMWR* Series, including material to be considered for publication, to: Editor, *MMWR* Series, Mailstop C-08, CDC, 1600 Clifton Rd., N.E., Atlanta, GA 30333; telephone (888) 232-3228.

☆U.S. Government Printing Office: 2001-633-173/48245 Region IV