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Use of Medical Care, Police Assistance, and Restraining Orders by Women Reporting Intimate Partner Violence — Massachusetts, 1996–1997

Approximately 1.5 million women in the United States are physically or sexually assaulted by an intimate partner (IP) each year (*1*). The Woman Abuse Tracking in Clinics and Hospitals (WATCH) Project at the Massachusetts Department of Public Health analyzed data from the 1996 and 1997 Behavioral Risk Factor Surveillance System (BRFSS) in Massachusetts to 1) estimate the percentage of women aged 18–59 years experiencing intimate partner violence (IPV) who used medical care, police assistance, and restraining orders during the preceding 5 years, 2) determine where women experiencing IPV went for medical care, and 3) examine the overlap in use of these three services. This report describes the results of these analyses, which indicate that a higher percentage of women aged 18–59 years use police assistance rather than obtain a restraining order or seek medical care.

BRFSS is an ongoing, state-based, random-digit-dialed telephone survey of the U.S. civilian, noninstitutionalized population aged ≥18 years. Questions on IPV developed by the WATCH Project were added to the Massachusetts BRFSS in 1996 and 1997. During the 2 years, 2940 women aged 18–59 years responded to the survey (response rate: 64.5%). Of these, 129 (5.5%) were excluded from analysis because they either refused or responded "don't know/not sure" to the initial questions about whether they had ever been physically or sexually hurt, and if so, if this was by an IP*. Women aged ≥60 years also were excluded from the analyses because of low levels of reporting recent IPV. Data were aggregated across the 2 years and weighted to reflect the probability of selection and the demographic distribution of the Massachusetts adult population. Estimated proportions and standard errors were calculated using SUDAAN (*2*).

Survey respondents were asked whether they had ever been physically or sexually hurt† by an IP and when this violence last occurred. Respondents who reported IPV during the preceding 5 years also were asked the following questions about service use: 1) "Did you see a doctor or nurse as a result of being hurt by any of these people in the past five years?"; 2) "In the past five years, were the police called about any of these incidents?"; and 3) "In the past five years, have you gotten a restraining order at a court

*Same or opposite sex, current or ex-husband/wife, partner, boyfriend, girlfriend, or date.
† Being physically or sexually hurt included being shoved, slapped, hit with an object, or forced into any sexual activity.

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against a current or ex-(husband/wife), partner, boyfriend, girlfriend, or date?"[§] Respondents who reported having seen a doctor or nurse were asked where they sought care most recently, and those who reported police assistance were asked how many times the police had come for incidents of IPV during the preceding 5 years.

Among women aged 18–59 years, 18.0% reported ever having experienced IPV, 6.6% reported IPV during the preceding 5 years, and 2.1% reported IPV during the preceding 12 months (Table 1). Among women reporting IPV during the preceding 5 years, 39.0% received police assistance, 33.8% obtained a restraining order, and 28.7% sought medical care as a result of IPV. Most women who received police assistance also reported obtaining a restraining order: 69.7%[¶] of women who received police assistance for IPV also obtained a restraining order against an IP. Among women reporting IPV, 11.1% sought medical care as a result of IPV but did not obtain police assistance or a restraining order. Approximately half (55.9%) of women reporting IPV received one or more of the three services.

Most women reporting IPV during the preceding 5 years were aged 18–29 years (64.0%), employed (69.8%), had some college education (60.3%), and had children in the household (52.5%). Half (50.1%) of women had never been married, 28.6% were divorced or separated, and 21.3% were married or cohabitating.

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Editorial Note: Federal, state, and local efforts are under way to establish surveillance systems for IPV. The WATCH Project, along with projects in Michigan and Rhode Island, have been funded by CDC to establish statewide tracking systems for IPV against women. IPV surveillance systems are frequently based on service provider data; however, these data represent only persons accessing that particular service. Service provider data are unable to provide estimates of the total number of women experiencing IPV in a population or the extent to which the same women may be represented in different service provider data sets. Surveillance data from the WATCH Project provide state-based estimates of the percentage of women experiencing IPV using three key types of services and the degree of overlap in service use.

Other population-based studies report similar findings regarding the frequency at which women experiencing IPV use services. Police assistance for IPV is received by 35%–56% of women reporting IPV (*3–5*). Of women physically abused by their partners, 22% seek restraining orders against an IP (*4*). Among women reporting IPV, 10%–21% receive medical care as a result of IPV, and approximately 70% of these women seek care at an emergency department (*3,4,6*). Finally, 16% of persons who experience family violence or IPV identified through police incident reports have violence-related contact with a regional hospital (*7*).

[§]Questions on medical care and restraining orders were revised during 1996–1997 for clarification. The question on medical care was reworded from "after being hurt" to "as a result of being hurt" and the question on restraining orders was reworded from "have you been to court to get a restraining order" to "have you gotten a restraining order at a court." Response frequencies for women aged 18–59 years did not vary significantly for each version of the question.

[¶]Calculated as the percentage of women who used police and restraining order and the percentage who used police, restraining order, and medical care divided by the percentage who used police with or without other services.

Intimate Partner Violence — Continued

TABLE 1. Number and percentage of women aged 18–59 years who reported intimate partner violence (IPV) and use of medical care, police assistance, or restraining orders as a result of IPV during the preceding 5 years — Massachusetts, Behavioral Risk Factor Surveillance System, 1996–1997*

Category	No.†	(%§)	(95% CI¶)
Incidence of IPV			
Ever	578	(18.0)	(16.0–19.9)
During preceding 5 years	*227*	*(6.6)*	*(5.3– 7.8)*
During preceding 12 months	*70*	*(2.1)*	*(1.3– 2.8)*
IPV not reported	2233	(82.0)	(80.0–84.0)
Services used for IPV during preceding 5 years**			
Medical care only	16	(11.1)	(3.7–18.4)
Police only	21	(7.4)	(3.1–11.6)
Restraining order only	16	(3.4)	(1.1– 5.7)
Medical care and police	9	(4.2)	(0.0– 8.3)
Medical care and restraining order	6	(2.8)	(0.1– 5.5)
Police and restraining order	49	(16.5)	(9.5–23.4)
All three services	33	(10.7)	(5.1–16.3)
None of three services	75	(44.1)	(34.0–54.1)
Where medical care for IPV was received during preceding 5 years††			
Hospital emergency department	44	(60.6)	(41.4–79.8)
Private doctor's office	12	(27.9)	(9.3–46.4)
Hospital walk-in clinic	6	(5.1)	(0–10.5)
Other	2	(6.5)	(0–16.0)
Number of times police came for IPV during preceding 5 years§§			
1 time	45	(47.2)	(32.6–61.8)
2–3 times	41	(29.9)	(17.3–42.5)
4–5 times	14	(19.3)	(6.2–32.4)
6–9 times	5	(2.3)	(0– 5.0)
≥10 times	4	(1.2)	(0– 2.6)

* n=2811; missing=129.
† Unweighted data.
§ Percentages calculated based on weighted data and may not total 100% because of rounding.
¶ Confidence interval.
** n=227; missing=2.
†† n=64; missing=0.
§§ n=113; missing=4.

The findings in this report are subject to at least three limitations. First, BRFSS is a retrospective self-report survey and may be subject to recall bias. Second, women experiencing IPV who were not eligible to be included in the phone survey, declined participation, or did not disclose IPV may have a different pattern of service use than respondents. Persons who were ineligible to participate included those who were homeless, lived in group housing, did not have a phone, or did not speak English, Spanish, or Portuguese. Finally, IPV may not have been reported because of mistrust, fear of reprisals, and feelings of shame and/or denial.

Intimate Partner Violence — Continued

These findings have implications for both IPV surveillance and medical practice. For surveillance, these results suggest that police data may capture a larger portion of women aged 18–59 years experiencing IPV than a medical care-based surveillance system. In Massachusetts, where police are directed to inform women reporting IPV about the availability of restraining orders, police and restraining order data appear to capture a similar demographic group. However, a medical care-based tracking system may capture a sizeable portion of women experiencing IPV who do not receive police or restraining order assistance. Emergency departments appear to provide the most efficient location within the medical system for tracking IPV-related injuries because most women who seek medical care following incidents of IPV are seen in emergency departments. However, a surveillance system designed to include police, restraining order, and medical care data may miss nearly half of women experiencing IPV.

Medical practitioners, particularly those in emergency departments, need to be prepared to identify and provide support, safety planning, and resources to those experiencing IPV (*8*). Because many women experiencing IPV do not disclose partner violence unless directly asked, some groups believe women patients whose conditions may be injury-related should be screened systematically for IPV (*9,10*). Because 38.7% of women who received medical care for IPV had not received police or restraining order assistance, medical practitioners may be a critical source of support and intervention to many women.

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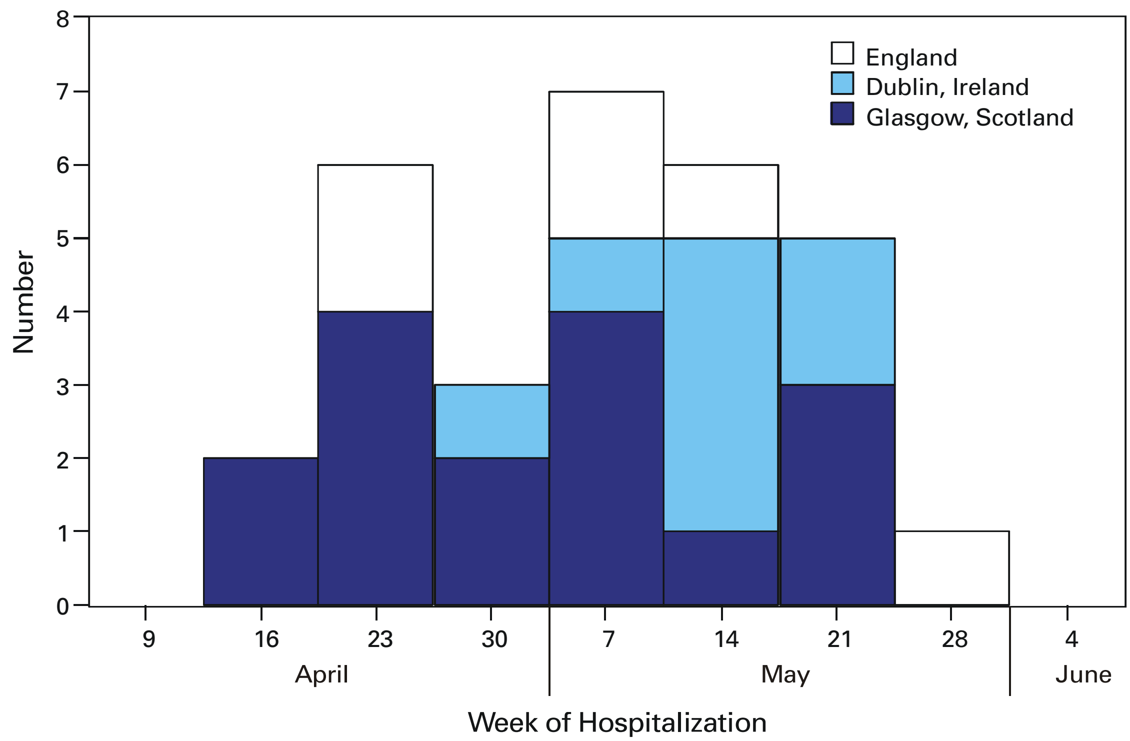
Unexplained Illness and Death Among Injecting-Drug Users — Glasgow, Scotland; Dublin, Ireland; and England, April–June 2000

Since April 19, 2000, 30 injecting-drug users (IDUs) died or were hospitalized with unexplained severe illness in Glasgow, Scotland. Illness was characterized by extensive local inflammation at a subcutaneous or intramuscular injection site often followed by hypotension and circulatory collapse. Since April 24, 2000, 15 IDUs in Dublin, Ireland, and 14 IDUs in England with similar illnesses have been identified. Despite debridement and broad spectrum antibiotics, 30 (51%) of the 59 patients in all three countries have died. This report further describes the clinical syndrome and key epidemiologic features of the illness as characterized by a preliminary investigation by health authorities in Scotland, Ireland, England, and the United States (*1*).

A case of unexplained illness was defined as soft tissue inflammation (i.e., abscess, cellulitis, fasciitis, or myositis) at an injection site, and either 1) severe systemic toxicity (i.e., sustained systolic blood pressure <90 mm Hg despite fluid resuscitation and total peripheral white blood cell count [WBC] >30,000 cells/mm^3), or 2) postmortem evidence of a diffuse toxic or infectious process including pleural effusions and soft tissue edema or necrosis, in an IDU admitted to a hospital or found dead since April 1, 2000. As of June 5, in Glasgow, 16 (53%) of 30 IDUs evaluated had illnesses that met the case definition (Figure 1). In Dublin, eight (53%) of 15 IDUs, and in England, six (42%) of 14 IDUs had illnesses that met the case definition (Figure 1). Demographic information, peripheral WBC, and case-fatality among IDUs were similar in all three countries (Table 1). Most cases had progressive symptoms with a median of 3 days (range: 0–14 days) between illness onset and hospitalization. Among persons who died while hospitalized, the median

FIGURE 1. Number of cases of unexplained severe illness and death among injecting-drug users — Glasgow, Scotland; Dublin, Ireland; and England, April–June 2000



Injecting-Drug Users — Continued

TABLE 1. Demographic characteristics, peripheral white blood cell count (WBC), and percentage case-fatality among injecting-drug users who had illnesses that met the case definition for unexplained severe illness and death — Glasgow, Scotland; Dublin, Ireland; and England, April–June 2000

Characteristic	Glasgow (n=16)	Dublin (n=8)	England (n=6)
Median age, yrs	29	34	34
(Range)	(20–48)	(22–51)	(30–48)
Women	56%	25%	33%
Median WBC, cells/mm^3	76,600	60,000	51,900
(Range)	(39,200–153,000)	(8,200*–96,500)	(39,700–82,000)
Case-fatality	94%	100%	83%

* One patient from Dublin with a WBC of 8,200 on admission to a hospital died 6 days later and had an illness that met the case definition based on findings at postmortem examination.

time from admission to death was 2 days (range: 0–13 days). Pleural effusion and extensive edema at an injection site were prominent features at postmortem examination.

Cultures of blood and tissue yielded multiple organisms from several patients including group A streptococcus, *Staphylococcus aureus*, *Clostridium* species, and *Bacillus* species. However, the variable and polymicrobial results and potential postmortem contamination complicate the interpretation of these findings and fail to reveal a definitive etiologic agent. Clinical and drug specimens are being evaluated at CDC, the Public Health Laboratory Service in England, and local laboratories in Glasgow and Dublin. Culture, serologic, molecular, immunopathologic, and histopathologic evaluation of blood and tissue from case-patients have revealed no evidence of *Bacillus anthracis. B. anthracis* was isolated from the cerebrospinal fluid of an IDU residing in Oslo, Norway, hospitalized in early April 2000 with a localized abscess, elevated WBC (45,000 cells/mm^3), and hemorrhagic meningitis resulting in death (*2*).

Investigations continue to characterize further the 29 reported unexplained illnesses among IDUs whose illnesses failed to meet the case definition but may be linked to this outbreak. Surveillance activities have been initiated in all hospitals in Scotland, Ireland, England, and Wales to identify additional cases. Information regarding these illnesses is being disseminated to medical practitioners and IDUs, and a case-control study is under way to identify risk factors for disease and to develop prevention strategies. As of June 5, no similar illnesses have been reported in the United States to CDC through the Council of State and Territorial Epidemiologists.

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Editorial Note: The localized inflammatory process affecting skin or muscle combined with systemic toxicity characterized by a leukemoid reaction suggests the role of a toxin-mediated cause of illness among IDUs in Scotland, Ireland, and England. Despite extensive microbiologic evaluation for several of these cases, no specific causative pathogen has been identified. Although the initial symptoms of anthrax can be nondescript before the onset of circulatory collapse and death (*3*), the absence of *B. anthracis* bacteremia or histologic or molecular evidence for *B. anthracis* suggests that anthrax-associated toxemia is not a cause of illness among these IDUs. Streptococcal toxic shock syndrome and staphylococcal toxic shock syndrome are both characterized by the sudden onset of shock and organ failure, often associated with skin and soft tissue damage (*4,5*). However, most cases in Scotland, Ireland, and England have not had group A streptococcus isolated (a required feature of streptococcal toxic shock syndrome), and none developed a rash or desquamation of the palms and soles (diagnostic criteria of staphylococcal toxic shock syndrome). Fastidious, anaerobic bacteria, such as *Clostridium* species, have caused a distinctive, toxin-mediated, often fatal infection characterized by sudden onset of shock with unrelenting hypotension, myonecrosis, generalized tissue edema, and a profound leukemoid reaction in the absence of high fever and rash (*6*)—a clinical course resembling that seen among cases in Scotland, Ireland, and England. Laboratory procedures have been enhanced for the identification of anaerobic bacteria and noninfectious toxins.

The emergence of a new illness among IDUs is possible because the injection of nonsterilized drugs into skin and soft tissue can provide a suitable environment for contaminating pathogens and their toxins or noninfectious toxins alone. Up to 32% of IDUs, particularly those who inject drugs subcutaneously or intramuscularly, have soft tissue abscesses or cellulitis at any given time (*7,8*). Unusual infections have been linked to subcutaneous or intramuscular drug use, including tetanus and wound botulism among heroin and black tar heroin users, respectively, in California (*9,10*), and group A streptococcal infections among cocaine users in Switzerland (*11*). Microbial or chemical contamination can occur at one of many steps, including production, mixing, dilution, or preparation of the drugs or at the time of injection through contaminated paraphernalia or skin.

Because the source of contamination remains unknown and may be common in these countries, this investigation highlights the importance of enhanced surveillance for syndrome-based illness across national boundaries. Health-care providers and public health personnel are encouraged to report persons with illnesses meeting the case definition to their designated public health authorities.

Injecting-Drug Users — Continued

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Illnesses Associated With Use of Automatic Insecticide Dispenser Units — Selected States and United States, 1986–1999

To control indoor flying insects, restaurants and other businesses commonly use pyrethrin and pyrethroid insecticides sprayed from automatic dispensing units. Usually placed near entrances, these units are designed to kill flying insects in food service or work areas. On May 18, 1999, the Florida Department of Health (FDH) was notified by the Florida Department of Business and Professional Regulation (DBPR) that during May 12–17, three persons developed pesticide-related illnesses associated with improperly placed automatic insecticide dispensers. After FDH conducted a follow-up investigation and notified CDC's National Institute for Occupational Safety and Health (NIOSH) of this event, surveillance data were reviewed to identify additional cases of pesticide-related illnesses associated with automatic insecticide dispensers. Data were provided by the Toxic Exposure Surveillance System (TESS), the California Department of Pesticide Regulation (CDPR), the Montana Department of Agriculture (MDA), the National Pesticide Telecommunications Network (NPTN), and the Washington State Department of Health (WSDH)*. This report describes cases, summarizes surveillance data for pesticide-

*The data from TESS, NPTN, and MDA were provided by the U.S. Environmental Protection Agency (EPA). EPA and several state health departments collaborate with NIOSH and CDC's National Center for Environmental Health to conduct surveillance of acute pesticide-related illness and injury.

related illnesses associated with automatic insecticide dispensers, and provides recommendations for safe dispenser use.

Case Reports

Cases 1–3. A 42-year-old cook working at a Florida restaurant developed a sore throat, dyspnea, headache, and dizziness on May 12, 1999, after a several-hour exposure to mist released from insecticide dispensers in the food preparation area. The insecticide dispensers had been installed on May 10, but it is unknown on what day the cook was first exposed. The cook removed the dispensers on May 12 and noted relief of his symptoms. However, the restaurant management reinstalled the dispensers on May 14, and on May 15, a 40-year-old male customer developed headache and shortness of breath within 1 hour of entering the restaurant. These symptoms lasted approximately 4 hours. On May 17, approximately 45 minutes after leaving this restaurant, a 47-year-old male customer experienced a sharp burning sensation in his left eye and noted swelling, redness, and irritation of the eyelid that persisted approximately 24 hours. The implicated pesticide dispenser was within 6 feet of the booth where this customer had been sitting, and it faced his left eye. This person reported his symptoms to DBPR on May 18. None of the three persons sought medical attention for their symptoms. The active ingredients released by these dispensers were pyrethrin and piperonyl butoxide.

Case 4. On August 20, 1995, a 17-year-old male restaurant employee in California was changing the cartridge of an automatic insecticide dispenser. When he closed the dispenser panel, the firing mechanism was activated and discharged a pyrethrin-containing mist into his right eye. The employee immediately experienced burning in the eye and promptly sought medical attention at the emergency department of a local hospital. He was diagnosed with chemical conjunctivitis and treated symptomatically.

Surveillance Data

TESS is maintained by the American Association of Poison Control Centers and collects poisoning reports submitted by approximately 85% of U.S. poison control centers (*1*). A review of TESS data from 1993 through 1996, the most recent years for which data are available, identified 54 cases of pesticide-related illnesses associated with automatic insecticide dispensers; suicides and intentional misuse/abuse were excluded. Among the 42 cases for which specific age information was available, the median age was 22.5 years (range: 3–73 years). Among the 53 cases for which sex was known, 27 (50%) were male. Twenty (37%) cases were work-related. In all cases, pyrethrin/piperonyl butoxide was the responsible insecticide.

During 1986–1999, 43 cases of acute pesticide-related illnesses associated with automatic insecticide dispensers were reported to CDPR (32 cases), MDA (four cases), FDH (three cases), NPTN (two cases), and WSDH (two cases). Age, sex, and state of occurrence for these cases were compared with those from the TESS database, and no overlap with TESS data was found. Thirty-five (81%) of these cases were in persons exposed while at work, including seven whose exposure occurred during dispenser cartridge replacement or attempts to service faulty dispensers. Seven (16%) cases were in persons exposed while they were customers in restaurants, and one was a movie theater customer. For the 27 with age data available, the median age was 40 years (range: 17–68 years); for the 38 with information on sex, 23 (61%) were women. Resmethrin, a pyrethroid insecticide, was implicated in three cases; the remaining

[†]Comparable information on the circumstances of incidents is not available in the TESS data.

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40 were exposed to pyrethrin/piperonyl butoxide. Most insecticide dispenser-related illnesses identified in the non-TESS data[†] occurred when the dispensers were improperly placed too close (i.e., <12 feet) to food handling, dining, or work areas; were placed where ventilation currents entrained the mist to such areas; and/or were serviced by persons unfamiliar with proper maintenance of these units.

Among the 94 pyrethrin/piperonyl butoxide-exposed cases in the combined surveillance data, signs and symptoms for 36 (38%) involved the eye; 34 (36%), the neurologic system; 26 (28%), the respiratory system; 23 (24%), the gastrointestinal system; 20 (21%), the nose and throat; 10 (11%), the skin; and eight (9%), the cardiovascular system. Some persons experienced signs and symptoms in more than one system. Among the three resmethrin-exposed cases, reported signs and symptoms included pruritus, throat irritation, nausea, vomiting, diarrhea, headache, burning sensation in the lungs, and cough.

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Editorial Note: This report is the first to document pesticide-related illnesses attributable to automatic insecticide dispensers. Automatic insecticide dispensers are registered by the U.S. Environmental Protection Agency (EPA) for use in the restaurant industry and in other public settings, including schools, hotels, offices, supermarkets, hospitals, day-care centers, and long-term–care facilities (e.g., nursing homes). When used properly, automatic insecticide dispensers reduce the number of flying insects. However, given the dispensers' widespread use and potential for malfunction and/or improper use or maintenance, these units may pose a public health hazard.

Insecticide dispensers of the type described in this report are typically calibrated to spray automatically a fine mist of 50–100 mg of insecticide (consisting of approximately 0.5%–1.85% pyrethrin or resmethrin, along with other active and inert ingredients) every 15 minutes, 24 hours per day. Pyrethrins are insecticides derived from the oleoresin extract of dried chrysanthemum flowers (pyrethrum) (*2*). Piperonyl butoxide (either alone or combined with n-octyl bicycloheptene dicarboximide) often is added to pyrethrin products to inhibit microsomal enzymes that detoxify pyrethrins (*2*). Although pyrethrins (classified by EPA as acute toxicity category III compounds[§]) have little systemic toxicity in mammals, they possess irritant and/or sensitizing properties that can induce contact dermatitis, conjunctivitis, and asthma (*2,3*). Anaphylactic reactions (*2*) and gastrointestinal symptoms (*4*) related to inhalation of and cutaneous exposure to pyrethrin also have been reported; however, no previously published reports were identified associating pyrethrin exposure with reported cardiovascular (i.e., tachycardia, chest pain, and palpitations) or neurologic (i.e., headache, dizziness, malaise, altered taste, and lip numbness/burning) signs and symptoms. Resmethrin is a pyrethroid, a class of synthetic insecticides chemically similar to natural pyrethrins (*2*) and is classified in acute toxicity category III. Pyrethroids are reported to induce abnormal skin sensation, dizziness, salivation, headache, fatigue, vomiting, diarrhea, irritability to sound and touch, and

[§] EPA classifies all pesticides into one of four acute toxicity categories based on established criteria (40 CFR Part 156). Pesticides with the greatest toxicity are in category I, and those with the least are in category IV.

Automatic Insecticide Dispenser Units — Continued

other central nervous system effects (*2,5*).

The findings in this report are subject to at least two limitations. First, the surveillance systems that identified cases are passive and may have missed some acute pesticide-related illnesses. Second, lack of detailed information on incidents recorded in the surveillance data may have precluded identification of additional risk factors for insecticide dispenser-related illnesses.

Effective flying insect control can be achieved through nonchemical integrated pest management practices (e.g., proper sanitation practices by employees and installation of air curtains and screens). However, if automatic insecticide dispensers are used, they should be installed according to manufacturer labeling instructions. Warning stickers on dispensers should be considered, installation near supplied-air ducts should be avoided, and timers should be set to dispense insecticide during nonbusiness hours (*6*). Dispensers used in locations frequented by the public should be installed and serviced by commercial pest control operators. Although they are not required by EPA, persons servicing these devices should use personal protective equipment (i.e., chemical-resistant gloves and goggles designed to provide splash protection).

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Probable Locally Acquired Mosquito-Transmitted *Plasmodium vivax* Infection — Suffolk County, New York, 1999

In the United States, malaria transmission was eliminated in the 1940s, and malaria eradication was certified in 1970 (*1*). Since then, 60 small localized outbreaks of probable mosquito-transmitted malaria have been reported to CDC (*2–6*). Before 1995, the number of imported malaria cases reported to the Suffolk County (New York) Department of Health Services ranged from zero to eight per year. Since 1995, seven to 17 cases per year have been reported. In all of these cases, a history of residing in or traveling to an area with endemic malaria outside the United States was confirmed. This report describes the investigation of two cases of *Plasmodium vivax* malaria that occurred in Suffolk County in August 1999; the patients had no history of travel outside of the United States.

Case Reports

Case 1. On August 18, an 11-year-old boy residing in Suffolk County was seen by his physician with a 5-day history of fever, rigors, abdominal pain, arthralgias, and vomiting.

Intracellular parasites consistent with *P. vivax* were noted on a complete blood count. The patient was admitted to a local hospital on August 21 with a temperature of 102.0 F (38.9 C), hepatosplenomegaly, and several healing maculopapular bite lesions. Initial laboratory examinations revealed leukopenia (white blood cell count: 2,800/mm^3 [normal: 4,500–13,500/mm^3]), anemia (hemoglobin: 9.8 g/dL [normal: 11.5–15.5 g/dL]), and severe thrombocytopenia (platelet count: 21,000/mm^3 [normal: 150,000–400,000/mm^3]). Serology was negative for Lyme disease and babesiosis. Serum electrolytes and chest radiograph were normal. Urinalysis demonstrated a slightly elevated urobilinogen. Examination of peripheral thick and thin blood smears at the New York State Department of Health (NYSDH) and CDC confirmed *P. vivax* infection. The patient was treated with chloroquine phosphate, quinine, clindamycin, and primaquine and was discharged from the hospital on August 25.

The patient's parents reported he had never traveled to a malarious area or had a history of a blood transfusion or organ transplantation. During August 1–7, the patient spent 1 week at a summer camp 20 miles from his hometown. He slept in a tent and went swimming in the camp pond. After his return home on August 7, the patient attended another camp in Massachusetts for 2 days.

Case 2. On August 22, an 11-year-old boy residing in Suffolk County was seen by his physician for a 12-day history of vomiting, diarrhea, fever, chills, and fatigue. On August 27, a complete blood count showed malarial ring forms; the boy was admitted to a hospital the following day. Physical examination on admission revealed a temperature of 100.0 F (37.8 C), no splenomegaly, and multiple healing maculopapular bite lesions. Initial laboratory examinations revealed leukopenia (white blood cell count: 4,300/mm^3), severe anemia (hemoglobin: 8 g/dL), and thrombocytopenia (platelet count: 134,000/mm^3). Routine blood and urine cultures were negative. Serology was negative for babesiosis. Urinalysis and chest radiograph were normal. Examination of peripheral thick and thin blood smears at NYSDH and CDC revealed intracellular parasites consistent with *P. vivax* (<1% parasitemia). The patient was treated with chloroquine phosphate and primaquine and was discharged from the hospital on August 29.

His parents reported he had never traveled to a malarious area or had a history of a blood transfusion or organ transplantation. The boy spent the same week at the same summer camp as case 1, which is 15 miles from his hometown. During the week he slept in a tent and participated in numerous outdoor activities. On August 10, he began having fevers ranging from 101.0 F to 104.0 F (38.3 C to 40.0 C) with rigors and sweats.

Epidemiologic Investigation

No other unexplained cases of malaria were reported to NYSDH during July 1–August 31, 1999. To identify potential unreported cases, a field investigation was conducted that included 1155 telephone interviews with boys who attended the camp, members of their families and the camp staff, and interviews with residents living within 1 mile of the camp. Sixty-three of 375 boys who attended the camp and members of their families who were interviewed reported having a fever during the defined time period. Fourteen of these persons had unexplained fevers; however, no malaria parasites were shown on peripheral blood smears on any of these persons. Two of the approximately 150 residents who lived within a 1-mile radius of the camp who were interviewed reported a fever during the specified time period. No malaria parasites were shown on their peripheral blood smears. Of 52 farm workers interviewed who had immigrated from Mexico, Guatemala, Honduras, El Salvador, and Bangladesh and who resided in three farms near the camp, three reported a recent history of fever; their blood smears did not reveal parasites.

Entomologic and Environmental Investigation

Routine mosquito trapping by the Suffolk County health department for eastern equine encephalitis during early August (the time these cases would have been transmitted) from sites 7 miles from the summer camp yielded *Anopheles quadrimaculatus* and *An. punctipennis*. Trapping from the campsite in eastern Long Island from August 24 to 31 yielded primarily *An. quadrimaculatus* and a few *An. punctipennis*. No mosquitoes (222 of 248 were tested) from the campsite or the boys' hometowns tested positive for *Plasmodium* species. Mosquito control measures to kill larvae and adults were performed at the camp. The adjacent state park was closed temporarily by the health department until surveillance indicated low numbers of mosquitoes.

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Editorial Note: The two cases presented in this report represent the third episode of possible mosquito-borne malaria in New York during the preceding 7 years (*4,5,7*) and the 24th episode in the United States since 1985. The possibility of autochthonous (i.e., locally acquired) mosquito-borne malaria transmission in the United States remains a concern because of the frequency of international travel, the presence of gametocytemic persons (i.e., persons with malaria parasites in the blood stream that can infect mosquitoes) in the United States, the presence of competent mosquito vectors, and the occurrence of environmental conditions that favor transmission. This investigation confirmed two epidemiologically linked cases of *P. vivax* infection in children residing and camping in Suffolk County, who probably acquired their infections in eastern Long Island through the bite of one or more locally infected *Anopheles* mosquitoes, a competent vector for malaria.

Neither patient had risk factors for the acquisition of malaria infection, such as travel to a disease-endemic area or history of intravenous drug use. Neither had ever had a blood transfusion or organ transplantation. Other potential sources of infective mosquitoes, such as international airports, were too distant from the presumed site of infection. However, *Anopheles* mosquitoes were identified in the recreational area that both patients had visited during the month of August 1999. In addition, potentially gametocytemic persons were living near this recreational area, and environmental conditions were suitable for the development of the parasite in the mosquito (sporogonic cycle) and larvae into adult mosquitoes. Although case finding and contact tracing activities did not identify persons with malaria who might have been the source of the infection, this does not preclude local transmission, which may have occurred weeks before the investigation.

Suffolk County is one of the most heavily mosquito-infested areas in the northeast. In 1999, the northeastern United States experienced one of the warmest and driest summers in history (*8*). However, heavy rainfall shortly before the two boys arrived at the

Acquired Mosquito-Transmitted Infection — Continued

camp may have resulted in a large population of adult female mosquitoes. Dry weather followed by heavy rains, in addition to resulting in conditions conducive for mosquito breeding, could have reduced the mosquito predator population.

Gametocytemic persons still may be present in the community and constitute a potential reservoir for future episodes of mosquito-borne malaria. Thousands of travelers return to the United States each year from areas where malaria is endemic, and many fail to take adequate chemoprophylaxis. Reintroducing malaria transmission on a small scale in selected areas in the United States is possible. This cluster underscores the need for ongoing surveillance for vector-borne diseases, including malaria. Prompt recognition and adequate treatment of malaria, including improved access to diagnosis and treatment for migrant populations, rapid reporting of malaria cases to public health authorities, and implementation of appropriate control measures, are indicated. Finally, malaria should be considered in the differential diagnosis of illness in any patient with unexplained fevers, regardless of travel history.

During the summer months, persons should follow personal protective measures that reduce contact with potentially infective mosquitoes. These include the use of protective clothing and insect repellants, and sleeping in screened or air-conditioned enclosures. Repellant products containing N,N-diethylmetatoluamide (DEET) are more effective than other compounds.

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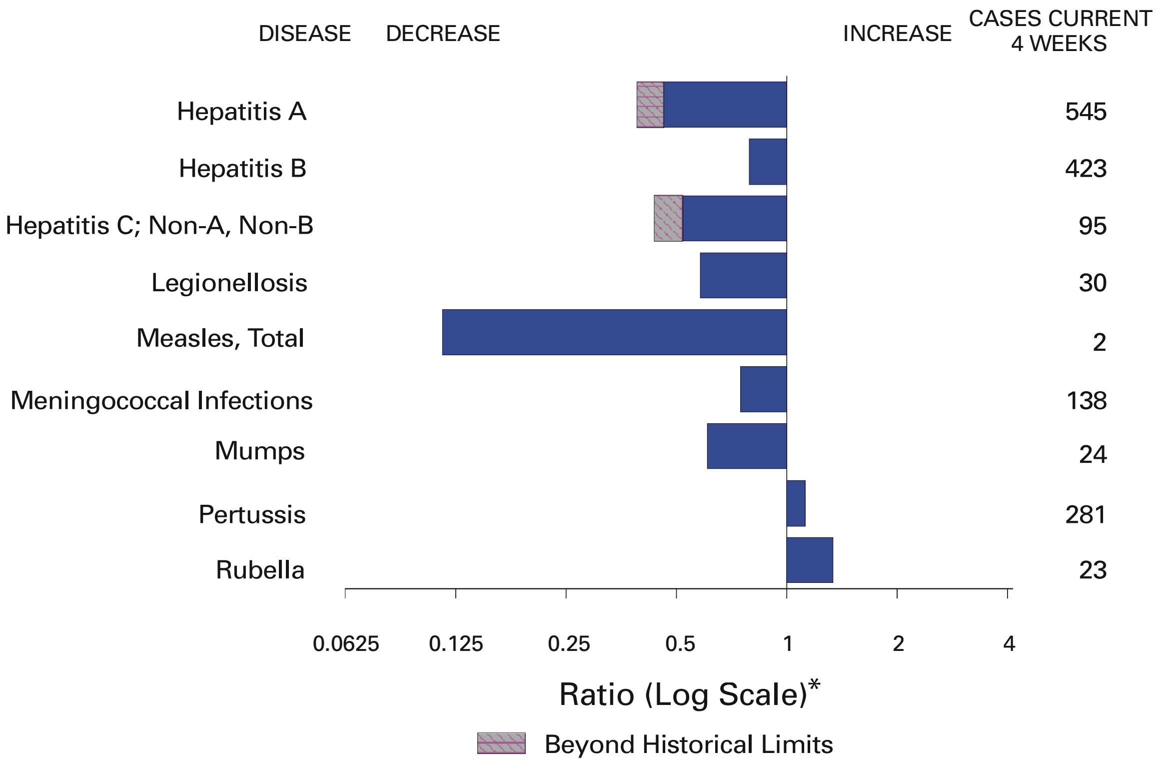
FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals ending June 3, 2000, with historical data



*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 June 3, 2000 (22nd Week)

		Cum. 2000		Cum. 2000
Anthrax		-	HIV infection, pediatric*§	85
Brucellosis*		16	Plague	3
Cholera		-	Poliomyelitis, paralytic	-
Congenital rubella syndrome		4	Psittacosis*	6
Cyclosporiasis*		7	Rabies, human	-
Diphtheria		1	Rocky Mountain spotted fever (RMSF)	63
Encephalitis:	California serogroup viral*	2	Streptococcal disease, invasive, group A	1,394
	eastern equine*	-	Streptococcal toxic-shock syndrome*	46
	St. Louis*	-	Syphilis, congenital¶	45
	western equine*	-	Tetanus	11
Ehrlichiosis	human granulocytic (HGE)*	31	Toxic-shock syndrome	62
	human monocytic (HME)*	7	Trichinosis	4
Hansen disease (leprosy)*		17	Typhoid fever	118
Hantavirus pulmonary syndrome*†		4	Yellow fever	-
Hemolytic uremic syndrome, postdiarrheal*		34		

-: No reported cases.
*Not notifiable in all states.
† Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§ Updated monthly from reports to the Division of HIV/AIDS Prevention — Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP). Last update April 30, 2000.
¶ Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending June 3, 2000, and June 5, 1999 (22nd Week)

	AIDS		Chlamydia[†]		Cryptosporidiosis		*Escherichia coli* O157:H7*			
							NETSS		PHLIS	
Reporting Area	Cum. 2000[§]	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999
UNITED STATES	13,355	18,500	235,842	289,298	486	682	685	557	409	492
NEW ENGLAND	802	940	8,783	8,852	27	36	79	88	63	81
Maine	14	22	563	366	6	7	6	5	6	-
N.H.	11	25	425	437	2	5	6	10	4	10
Vt.	2	6	223	214	11	6	3	8	2	2
Mass.	535	614	4,242	3,745	6	15	34	40	28	39
R.I.	34	61	1,009	997	2	-	3	4	-	6
Conn.	206	212	2,321	3,093	-	3	27	21	23	24
MID. ATLANTIC	3,280	4,449	14,453	32,768	45	154	85	36	57	31
Upstate N.Y.	186	529	N	N	32	45	78	26	38	-
N.Y. City	1,943	2,109	2,978	15,862	6	89	4	2	3	3
N.J.	703	957	2,511	5,272	1	12	3	8	8	28
Pa.	448	854	8,964	11,634	6	8	N	N	8	-
E.N. CENTRAL	1,310	1,280	39,037	50,430	93	117	118	104	43	81
Ohio	194	211	9,306	12,884	21	16	24	40	13	24
Ind.	100	167	4,893	4,991	9	8	21	15	9	12
Ill.	809	590	11,273	13,421	7	18	32	29	-	19
Mich.	153	248	9,791	9,452	16	17	24	20	14	16
Wis.	54	64	3,774	9,682	40	58	17	N	7	10
W.N. CENTRAL	299	389	13,817	15,950	45	38	126	91	79	98
Minn.	55	69	2,614	3,248	10	13	40	23	30	28
Iowa	26	46	1,786	1,746	12	8	19	12	8	6
Mo.	139	155	5,022	5,832	8	4	39	9	21	12
N. Dak.	-	4	196	369	3	4	7	3	5	2
S. Dak.	3	11	731	679	5	2	2	3	2	6
Nebr.	20	32	1,326	1,502	5	6	11	33	9	44
Kans.	56	72	2,142	2,574	2	1	8	8	4	-
S. ATLANTIC	3,641	5,168	48,871	59,438	98	130	58	68	34	44
Del.	65	72	1,259	1,201	2	-	-	3	-	-
Md.	392	561	4,943	5,545	7	6	8	4	1	-
D.C.	264	207	1,407	N	2	5	-	-	U	U
Va.	278	263	6,607	6,085	4	8	13	19	10	17
W. Va.	21	25	753	769	3	-	3	3	2	1
N.C.	195	358	8,676	9,662	9	3	9	15	3	12
S.C.	294	482	3,694	8,102	-	-	3	7	2	5
Ga.	357	827	8,695	15,047	53	74	7	5	7	U
Fla.	1,775	2,373	12,837	13,027	18	34	15	12	9	9
E.S. CENTRAL	639	840	20,116	18,472	20	8	33	41	22	31
Ky.	80	128	3,370	3,324	1	2	12	11	9	8
Tenn.	287	337	5,965	6,083	4	4	14	14	11	12
Ala.	169	212	6,554	3,893	9	1	1	11	-	10
Miss.	103	163	4,227	5,172	6	1	6	5	2	1
W.S. CENTRAL	1,128	2,077	39,147	37,730	21	49	23	27	44	34
Ark.	69	70	2,066	2,430	1	-	4	5	3	4
La.	232	409	7,879	6,463	5	21	-	4	13	5
Okla.	65	55	3,434	3,339	2	1	7	6	3	5
Tex.	762	1,543	25,768	25,498	13	27	12	12	25	20
MOUNTAIN	477	717	13,326	20,136	34	31	64	40	25	30
Mont.	6	4	601	559	4	4	9	3	-	-
Idaho	9	11	765	709	3	2	9	1	-	3
Wyo.	2	3	316	330	2	-	3	3	2	4
Colo.	99	143	2,488	3,682	9	4	21	15	7	9
N. Mex.	50	37	1,688	2,091	2	12	4	2	2	1
Ariz.	165	352	5,302	10,567	3	7	16	7	13	4
Utah	52	70	1,080	864	9	N	1	7	1	7
Nev.	94	97	1,086	1,334	2	2	1	2	-	2
PACIFIC	1,779	2,640	38,292	45,522	103	119	99	62	42	62
Wash.	202	151	5,442	5,129	N	N	23	20	22	26
Oreg.	47	63	2,230	2,674	3	11	14	14	14	12
Calif.	1,476	2,378	28,899	35,576	100	108	55	27	-	23
Alaska	5	6	1,052	807	-	-	1	-	-	-
Hawaii	49	42	669	1,336	-	-	6	1	6	1
Guam	13	1	-	196	-	-	N	N	U	U
P.R.	284	627	142	U	-	-	2	10	U	U
V.I.	18	13	-	U	-	U	-	U	U	U
Amer. Samoa	-	-	-	U	-	U	-	U	U	U
C.N.M.I.	-	-	-	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 April 30, 2000.

TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending June 3, 2000, and June 5, 1999 (22nd Week)

Reporting Area	Gonorrhea Cum. 2000	Gonorrhea Cum. 1999	Hepatitis C; Non-A, Non-B Cum. 2000	Hepatitis C; Non-A, Non-B Cum. 1999	Legionellosis Cum. 2000	Legionellosis Cum. 1999	Lyme Disease Cum. 2000	Lyme Disease Cum. 1999
UNITED STATES	123,123	149,729	1,061	1,617	270	353	1,532	2,413
NEW ENGLAND	2,346	2,698	23	9	19	22	245	555
Maine	34	22	-	1	2	3	-	1
N.H.	40	34	-	-	2	3	30	-
Vt.	26	25	3	3	1	3	1	1
Mass.	1,087	1,048	18	2	9	5	118	155
R.I.	258	244	2	3	2	2	-	16
Conn.	901	1,325	-	-	3	6	96	382
MID. ATLANTIC	9,401	17,477	24	60	53	95	981	1,334
Upstate N.Y.	2,507	2,530	24	30	21	25	417	504
N.Y. City	1,150	6,561	-	-	-	12	4	34
N.J.	1,347	3,050	-	-	2	8	114	263
Pa.	4,397	5,336	-	30	30	50	446	533
E.N. CENTRAL	24,104	28,926	101	924	68	108	19	119
Ohio	5,369	6,985	3	-	33	31	15	17
Ind.	2,222	2,698	1	-	13	12	3	5
Ill.	8,029	8,941	7	24	6	15	1	5
Mich.	6,936	6,452	90	326	11	28	-	1
Wis.	1,548	3,850	-	574	5	22	U	91
W.N. CENTRAL	5,886	6,652	270	67	20	17	53	51
Minn.	1,065	1,201	4	2	1	1	14	13
Iowa	375	400	1	-	3	6	2	4
Mo.	2,962	3,227	242	63	12	7	10	23
N. Dak.	6	37	-	-	-	-	-	1
S. Dak.	108	65	-	-	1	1	-	-
Nebr.	489	679	3	2	-	2	-	5
Kans.	881	1,043	20	-	3	-	27	5
S. ATLANTIC	35,004	43,143	40	90	54	39	189	255
Del.	703	709	-	-	4	3	23	16
Md.	3,400	5,023	5	24	16	4	112	183
D.C.	994	1,442	-	-	1	-	-	1
Va.	4,071	4,141	1	9	3	11	25	17
W. Va.	227	247	4	12	N	N	8	7
N.C.	7,141	8,314	12	20	6	7	8	28
S.C.	4,065	4,332	-	12	2	6	2	2
Ga.	5,510	9,805	1	1	4	-	-	-
Fla.	8,893	9,130	17	12	18	8	11	1
E.S. CENTRAL	14,347	14,296	172	118	7	18	5	30
Ky.	1,407	1,445	16	5	5	8	-	3
Tenn.	4,578	4,645	41	42	1	8	4	13
Ala.	5,033	3,716	6	1	1	2	1	6
Miss.	3,329	4,490	109	70	-	-	-	8
W.S. CENTRAL	20,342	21,395	271	203	9	1	1	6
Ark.	1,108	1,148	3	11	-	-	-	-
La.	5,580	5,514	168	138	7	1	1	3
Okla.	1,521	1,702	2	3	1	-	-	2
Tex.	12,133	13,031	98	51	1	-	-	1
MOUNTAIN	4,075	5,978	93	87	17	23	1	3
Mont.	20	17	1	4	-	-	-	-
Idaho	36	35	1	4	3	-	-	-
Wyo.	28	11	56	32	1	-	-	1
Colo.	1,302	1,013	13	11	7	4	1	-
N. Mex.	367	365	6	15	1	1	-	1
Ariz.	1,759	3,944	12	16	2	3	-	-
Utah	110	84	-	2	3	9	-	-
Nev.	453	509	4	3	-	6	-	1
PACIFIC	7,618	9,164	67	59	23	30	38	60
Wash.	955	901	8	7	9	7	-	1
Oreg.	283	382	16	7	N	N	2	3
Calif.	6,163	7,564	43	45	14	22	36	56
Alaska	134	138	-	-	-	1	-	-
Hawaii	83	179	-	-	-	-	N	N
Guam	-	27	-	-	-	-	-	-
P.R.	229	149	1	-	-	-	N	N
V.I.	-	U	-	U	-	U	-	U
Amer. Samoa	-	U	-	U	-	U	-	U
C.N.M.I.	-	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 June 3, 2000, and June 5, 1999 (22nd Week)

Reporting Area	Malaria		Rabies, Animal		Salmonellosis* NETSS		Salmonellosis* PHLIS	
	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999
UNITED STATES	376	481	2,100	2,440	10,439	11,478	7,034	10,392
NEW ENGLAND	17	16	269	370	647	663	618	688
Maine	3	1	61	67	55	45	33	33
N.H.	1	-	4	25	48	35	45	37
Vt.	2	1	24	56	48	24	49	27
Mass.	6	6	93	80	363	391	340	388
R.I.	3	-	6	45	25	32	36	53
Conn.	2	8	81	97	108	136	115	150
MID. ATLANTIC	58	138	399	452	1,357	1,568	1,427	1,324
Upstate N.Y.	19	30	280	307	369	350	378	387
N.Y. City	21	62	U	U	313	449	455	469
N.J.	7	31	67	88	348	367	215	356
Pa.	11	15	52	57	327	402	379	112
E.N. CENTRAL	36	57	17	25	1,539	1,729	906	1,520
Ohio	5	8	4	8	407	324	307	303
Ind.	3	8	-	-	178	152	150	140
Ill.	15	28	-	-	458	561	1	556
Mich.	11	9	13	17	322	369	348	354
Wis.	2	4	-	-	174	323	100	167
W.N. CENTRAL	18	19	205	328	676	689	729	783
Minn.	7	5	33	38	115	188	200	244
Iowa	-	5	31	53	104	70	76	63
Mo.	1	8	5	11	246	217	264	272
N. Dak.	2	-	57	71	15	15	25	22
S. Dak.	-	-	40	97	32	31	30	45
Nebr.	2	-	-	2	53	68	44	62
Kans.	6	1	39	56	111	100	90	75
S. ATLANTIC	103	119	922	877	2,002	2,067	1,159	1,920
Del.	2	1	18	26	32	48	30	53
Md.	38	36	166	194	286	277	223	309
D.C.	1	9	-	-	19	36	U	U
Va.	25	22	235	216	267	260	202	319
W. Va.	-	1	54	49	56	37	42	35
N.C.	10	10	231	185	281	348	171	379
S.C.	1	1	51	64	154	111	116	124
Ga.	4	12	109	73	346	361	329	504
Fla.	22	27	58	70	561	589	46	197
E.S. CENTRAL	16	10	75	115	501	614	368	412
Ky.	3	2	10	20	119	143	76	100
Tenn.	5	4	41	40	129	156	165	166
Ala.	7	3	24	55	157	182	111	125
Miss.	1	1	-	-	96	133	16	21
W.S. CENTRAL	4	11	30	52	838	1,307	775	857
Ark.	1	2	-	-	120	119	66	76
La.	2	7	-	-	105	163	118	187
Okla.	1	1	30	52	106	124	73	90
Tex.	-	1	-	-	507	901	518	504
MOUNTAIN	19	21	89	77	1,015	976	661	928
Mont.	1	3	24	29	42	21	-	1
Idaho	-	1	1	-	52	36	-	37
Wyo.	-	1	24	27	19	14	14	17
Colo.	10	8	-	1	308	313	246	326
N. Mex.	-	2	7	2	82	118	59	114
Ariz.	2	3	32	18	267	266	217	231
Utah	3	2	1	-	146	141	125	149
Nev.	3	1	-	-	99	67	-	53
PACIFIC	105	90	94	144	1,864	1,865	391	1,960
Wash.	8	5	-	-	171	166	157	273
Oreg.	21	11	-	1	132	151	157	191
Calif.	74	69	75	137	1,469	1,408	-	1,372
Alaska	-	-	19	6	24	17	18	8
Hawaii	2	5	-	-	68	123	59	116
Guam	-	-	-	-	-	20	U	U
P.R.	-	-	19	36	68	203	U	U
V.I.	-	U	-	U	-	U	U	U
Amer. Samoa	-	U	-	U	-	U	U	U
C.N.M.I.	-	U	-	U	-	U	U	U

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

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

TABLE II. (Cont'd) Provisional cases of selected notifiable diseases, United States, weeks ending June 3, 2000, and June 5, 1999 (22nd Week)

Reporting Area	Shigellosis* NETSS Cum. 2000	Shigellosis* NETSS Cum. 1999	Shigellosis* PHLIS Cum. 2000	Shigellosis* PHLIS Cum. 1999	Syphilis (Primary & Secondary) Cum. 2000	Syphilis (Primary & Secondary) Cum. 1999	Tuberculosis Cum. 2000	Tuberculosis Cum. 1999†
UNITED STATES	6,310	5,487	2,989	3,019	2,489	2,883	4,018	5,926
NEW ENGLAND	115	136	94	121	31	27	144	157
Maine	5	2	-	-	-	-	2	6
N.H.	1	7	4	6	-	-	2	1
Vt.	1	4	-	3	-	1	-	-
Mass.	78	86	62	76	27	17	95	86
R.I.	10	12	8	9	1	1	15	17
Conn.	20	25	20	27	3	8	30	47
MID. ATLANTIC	835	386	570	203	86	119	895	945
Upstate N.Y.	364	87	137	28	7	11	96	119
N.Y. City	329	129	296	92	28	47	515	479
N.J.	75	109	61	79	15	29	210	190
Pa.	67	61	76	4	36	32	74	157
E.N. CENTRAL	1,135	894	404	453	482	480	474	599
Ohio	101	235	58	47	30	38	108	81
Ind.	347	34	33	12	196	144	25	43
Ill.	296	342	2	286	117	180	255	320
Mich.	321	132	283	91	119	95	52	117
Wis.	70	151	28	17	20	23	34	38
W.N. CENTRAL	589	403	403	289	33	61	199	200
Minn.	103	51	103	64	2	7	63	78
Iowa	159	6	112	9	10	4	30	19
Mo.	255	294	151	184	16	42	76	74
N. Dak.	2	2	1	2	-	-	-	2
S. Dak.	2	8	1	5	-	-	9	3
Nebr.	19	23	9	12	2	4	6	9
Kans.	49	19	26	13	3	4	15	15
S. ATLANTIC	859	879	206	228	840	952	805	1,174
Del.	5	7	4	2	4	4	-	12
Md.	38	52	10	13	126	195	99	105
D.C.	8	25	U	U	24	19	1	20
Va.	91	32	53	11	54	67	57	104
W. Va.	3	4	2	2	1	2	15	19
N.C.	51	81	22	51	250	224	127	158
S.C.	27	39	34	16	84	119	30	139
Ga.	107	89	32	31	142	179	178	238
Fla.	529	550	49	102	155	143	298	379
E.S. CENTRAL	313	483	226	333	386	509	288	372
Ky.	69	61	36	51	42	45	47	70
Tenn.	167	332	176	257	246	271	114	109
Ala.	16	51	11	24	46	123	127	132
Miss.	61	39	3	1	52	70	-	61
W.S. CENTRAL	797	1,201	628	387	360	428	126	880
Ark.	83	42	24	21	44	27	78	70
La.	69	73	53	48	83	113	1	U
Okla.	25	249	8	74	68	95	47	48
Tex.	620	837	543	244	165	193	-	762
MOUNTAIN	400	277	168	176	93	165	169	172
Mont.	3	6	-	-	-	-	6	5
Idaho	29	4	-	3	-	-	5	-
Wyo.	1	2	2	1	1	-	1	1
Colo.	70	47	30	36	2	1	15	U
N. Mex.	41	37	20	22	11	6	19	21
Ariz.	157	142	81	86	77	154	75	95
Utah	33	19	35	22	-	2	20	18
Nev.	66	20	-	6	2	2	28	32
PACIFIC	1,267	828	290	829	178	142	918	1,427
Wash.	295	39	222	50	23	28	89	67
Oreg.	89	31	54	28	3	2	8	40
Calif.	860	737	-	732	152	110	736	1,227
Alaska	7	-	3	-	-	1	37	29
Hawaii	16	21	11	19	-	1	48	64
Guam	-	7	U	U	-	-	-	-
P.R.	1	33	U	U	56	80	-	73
V.I.	-	U	U	U	-	U	-	U
Amer. Samoa	-	U	U	U	-	U	-	U
C.N.M.I.	-	U	U	U	-	U	-	U

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

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

†Cumulative reports of provisional tuberculosis cases for 1999 are unavailable ("U") for some areas using the Tuberculosis Information System (TIMS).

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending June 3, 2000, and June 5, 1999 (22nd Week)

	H. influenzae, Invasive		Hepatitis (Viral), By Type				Measles (Rubeola)					
			A		B		Indigenous		Imported*		Total	
Reporting Area	Cum. 2000†	Cum. 1999	Cum. 2000	Cum. 1999	Cum. 2000	Cum. 1999	2000	Cum. 2000	2000	Cum. 2000	Cum. 2000	Cum. 1999
UNITED STATES	525	526	4,685	8,133	2,404	2,804	1	14	-	5	19	52
NEW ENGLAND	36	40	101	90	23	62	-	-	-	-	-	9
Maine	1	4	7	2	5	-	-	-	-	-	-	-
N.H.	6	7	11	7	9	6	-	-	-	-	-	1
Vt.	2	4	3	1	3	1	-	-	-	-	-	-
Mass.	20	17	46	30	4	27	-	-	-	-	-	6
R.I.	1	-	1	9	2	11	-	-	-	-	-	-
Conn.	6	8	33	41	-	17	U	-	U	-	-	2
MID. ATLANTIC	77	84	201	520	231	416	-	-	-	-	-	2
Upstate N.Y.	34	32	95	101	54	87	-	-	-	-	-	2
N.Y. City	18	27	106	136	177	128	-	-	-	-	-	-
N.J.	19	23	-	67	-	61	-	-	-	-	-	-
Pa.	6	2	-	216	-	140	-	-	-	-	-	-
E.N. CENTRAL	65	84	582	1,431	270	259	-	3	-	-	3	1
Ohio	28	31	131	331	48	43	-	2	-	-	2	-
Ind.	10	12	23	52	20	23	-	-	-	-	-	1
Ill.	22	34	206	287	43	-	-	-	-	-	-	-
Mich.	5	7	209	720	158	173	-	1	-	-	1	-
Wis.	-	-	13	41	1	20	-	-	-	-	-	-
W.N. CENTRAL	30	23	535	322	216	123	1	2	-	-	2	-
Minn.	15	12	115	25	15	16	-	-	-	-	-	-
Iowa	-	2	44	68	20	21	1	1	-	-	1	-
Mo.	5	2	260	191	139	71	-	-	-	-	-	-
N. Dak.	1	-	-	1	2	-	-	-	-	-	-	-
S. Dak.	-	1	-	8	-	1	-	-	-	-	-	-
Nebr.	3	3	17	21	18	11	-	-	-	-	-	-
Kans.	6	3	99	8	22	3	-	1	-	-	1	-
S. ATLANTIC	145	115	554	730	482	420	-	-	-	-	-	4
Del.	-	-	-	2	-	-	-	-	-	-	-	-
Md.	33	30	69	142	54	82	-	-	-	-	-	-
D.C.	-	3	3	33	5	11	-	-	-	-	-	-
Va.	28	10	65	63	66	41	-	-	-	-	-	3
W. Va.	5	4	39	14	4	11	-	-	-	-	-	-
N.C.	13	21	85	51	115	100	-	-	-	-	-	-
S.C.	6	2	16	16	3	37	U	-	U	-	-	-
Ga.	40	26	74	224	81	52	-	-	-	-	-	-
Fla.	20	19	203	185	154	86	-	-	-	-	-	1
E.S. CENTRAL	26	38	203	196	189	196	-	-	-	-	-	2
Ky.	9	5	21	36	37	15	-	-	-	-	-	2
Tenn.	14	19	80	79	85	85	-	-	-	-	-	-
Ala.	3	12	28	33	24	48	-	-	-	-	-	-
Miss.	-	2	74	48	43	48	-	-	-	-	-	-
W.S. CENTRAL	29	35	826	2,351	290	466	-	-	-	-	-	3
Ark.	-	1	79	21	43	36	-	-	-	-	-	-
La.	6	9	28	70	50	93	-	-	-	-	-	-
Okla.	21	23	135	248	56	53	-	-	-	-	-	-
Tex.	2	2	584	2,012	141	284	-	-	-	-	-	3
MOUNTAIN	60	51	396	627	195	256	-	8	-	1	9	1
Mont.	-	1	1	12	3	15	-	-	-	-	-	-
Idaho	2	1	14	26	4	14	-	-	-	-	-	-
Wyo.	-	1	6	4	-	5	U	-	U	-	-	-
Colo.	11	7	78	116	42	40	-	1	-	1	2	-
N. Mex.	12	11	38	21	44	88	-	-	-	-	-	-
Ariz.	30	27	201	372	73	57	-	-	-	-	-	1
Utah	4	2	30	23	12	13	-	3	-	-	3	-
Nev.	1	1	28	53	17	24	U	4	U	-	4	-
PACIFIC	57	56	1,287	1,866	508	606	-	1	-	4	5	30
Wash.	3	1	128	114	25	25	-	-	-	-	-	5
Oreg.	17	21	102	130	41	51	-	-	-	-	-	10
Calif.	22	28	1,052	1,609	433	516	-	-	-	3	3	15
Alaska	2	4	5	4	4	9	-	1	-	-	1	-
Hawaii	13	2	-	9	5	5	-	-	-	1	1	-
Guam	-	-	-	2	-	2	U	-	U	-	-	1
P.R.	-	1	50	128	33	120	-	-	-	-	-	-
V.I.	-	U	-	U	-	U	U	-	U	-	-	U
Amer. Samoa	-	U	-	U	-	U	U	-	U	-	-	U
C.N.M.I.	-	U	-	U	-	U	U	-	U	-	-	U

N: Not notifiable. U: Unavailable. - : No reported cases.
*For imported measles, cases include only those resulting from importation from other countries.
†Of 117 cases among children aged <5 years, serotype was reported for 51 and of those, 12 were type b.

TABLE III. (Cont'd) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending June 3, 2000, and June 5, 1999 (22nd Week)

Reporting Area	Meningococcal Disease Cum. 2000	Meningococcal Disease Cum. 1999	Mumps 2000	Mumps Cum. 2000	Mumps Cum. 1999	Pertussis 2000	Pertussis Cum. 2000	Pertussis Cum. 1999	Rubella 2000	Rubella Cum. 2000	Rubella Cum. 1999
UNITED STATES	1,054	1,217	3	168	170	80	1,951	2,550	3	55	89
NEW ENGLAND	60	63	-	2	3	10	477	259	-	5	7
Maine	5	4	-	-	-	-	12	-	-	-	-
N.H.	4	9	-	-	1	5	59	53	-	1	-
Vt.	2	4	-	-	-	5	107	9	-	-	-
Mass.	39	38	-	-	2	-	274	185	-	3	7
R.I.	3	2	-	1	-	-	7	3	-	-	-
Conn.	7	6	U	1	-	U	18	9	U	1	-
MID. ATLANTIC	101	120	-	9	20	7	155	558	-	2	13
Upstate N.Y.	27	32	-	6	4	7	87	484	-	2	9
N.Y. City	24	39	-	-	3	-	-	10	-	-	-
N.J.	21	21	-	-	1	-	-	15	-	-	1
Pa.	29	28	-	3	12	-	68	49	-	-	3
E.N. CENTRAL	190	206	1	18	23	5	229	201	-	-	-
Ohio	42	76	-	7	6	4	160	102	-	-	-
Ind.	27	23	-	-	2	-	22	10	-	-	-
Ill.	43	56	1	4	7	-	20	40	-	-	-
Mich.	60	27	-	7	7	1	17	18	-	-	-
Wis.	18	24	-	-	1	-	10	31	-	-	-
W.N. CENTRAL	84	123	-	12	6	11	97	76	-	2	43
Minn.	7	27	-	-	1	6	53	24	-	-	-
Iowa	16	23	-	5	3	4	15	16	-	-	8
Mo.	48	45	-	1	1	-	14	17	-	-	-
N. Dak.	2	3	-	-	-	-	1	-	-	-	-
S. Dak.	4	5	-	-	-	-	1	2	-	-	-
Nebr.	3	7	-	2	-	-	3	1	-	-	35
Kans.	4	13	-	4	1	1	10	16	-	2	-
S. ATLANTIC	173	183	1	28	30	7	163	118	3	32	2
Del.	-	3	-	-	-	-	4	-	-	-	-
Md.	16	30	-	6	4	1	40	38	-	-	1
D.C.	-	1	-	-	2	-	-	-	-	-	-
Va.	29	24	-	4	8	-	15	13	-	-	-
W. Va.	7	4	-	-	-	-	-	1	-	-	-
N.C.	28	25	1	4	5	5	44	27	3	23	1
S.C.	12	23	U	8	3	U	16	7	U	7	-
Ga.	27	30	-	2	1	1	20	15	-	-	-
Fla.	54	43	-	4	7	-	24	17	-	2	-
E.S. CENTRAL	76	91	-	5	3	2	33	51	-	4	2
Ky.	16	16	-	-	-	-	16	12	-	1	-
Tenn.	35	33	-	2	-	2	8	25	-	-	-
Ala.	21	25	-	2	1	-	8	12	-	3	2
Miss.	4	17	-	1	2	-	1	2	-	-	-
W.S. CENTRAL	82	121	-	18	22	2	66	71	-	4	4
Ark.	7	22	-	1	-	-	9	5	-	-	-
La.	25	40	-	3	3	-	3	3	-	-	-
Okla.	20	19	-	-	1	-	6	8	-	-	-
Tex.	30	40	-	14	18	2	48	55	-	4	4
MOUNTAIN	59	85	-	14	9	12	362	281	-	1	15
Mont.	1	2	-	1	-	-	7	2	-	-	-
Idaho	6	8	-	-	1	2	41	93	-	-	-
Wyo.	-	3	U	1	-	U	-	2	U	-	-
Colo.	18	23	-	1	3	7	201	78	-	1	-
N. Mex.	7	10	-	1	N	2	63	17	-	-	-
Ariz.	18	28	-	3	-	1	38	57	-	-	13
Utah	7	6	-	4	2	-	8	30	-	-	1
Nev.	2	5	U	3	3	U	4	2	U	-	1
PACIFIC	229	225	1	62	54	24	369	935	-	5	3
Wash.	24	34	-	3	1	17	121	472	-	-	-
Oreg.	31	40	N	N	N	3	41	19	-	-	-
Calif.	165	142	1	54	47	3	196	423	-	5	3
Alaska	3	5	-	4	1	1	7	3	-	-	-
Hawaii	6	4	-	1	5	-	4	18	-	-	-
Guam	-	1	U	-	1	U	-	1	U	-	-
P.R.	4	8	-	-	-	-	-	7	-	-	-
V.I.	-	U	U	-	U	U	-	U	U	-	U
Amer. Samoa	-	U	U	-	U	U	-	U	U	-	U
C.N.M.I.	-	U	U	-	U	U	-	U	U	-	U

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

TABLE IV. Deaths in 122 U.S. cities,* week ending June 3, 2000 (22nd Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	442	307	85	29	15	6	45
Boston, Mass.	139	82	32	12	10	3	12
Bridgeport, Conn.	50	44	6	-	-	-	8
Cambridge, Mass.	21	16	4	1	-	-	3
Fall River, Mass.	15	14	1	-	-	-	2
Hartford, Conn.	U	U	U	U	U	U	U
Lowell, Mass.	22	14	3	5	-	-	1
Lynn, Mass.	13	8	5	-	-	-	3
New Bedford, Mass.	31	26	3	1	1	-	4
New Haven, Conn.	26	16	9	-	-	1	1
Providence, R.I.	U	U	U	U	U	U	U
Somerville, Mass.	4	4	-	-	-	-	-
Springfield, Mass.	38	26	8	1	2	1	3
Waterbury, Conn.	28	19	5	2	2	-	-
Worcester, Mass.	55	38	9	7	-	1	8
MID. ATLANTIC	2,266	1,598	425	156	38	48	119
Albany, N.Y.	60	48	9	1	-	2	7
Allentown, Pa.	U	U	U	U	U	U	U
Buffalo, N.Y.	124	83	28	11	1	1	8
Camden, N.J.	26	17	4	3	2	-	2
Elizabeth, N.J.	22	14	3	5	-	-	-
Erie, Pa.§	45	32	7	4	1	1	3
Jersey City, N.J.	57	36	12	6	1	2	-
New York City, N.Y.	1,068	759	195	81	20	12	40
Newark, N.J.	42	21	13	4	4	-	4
Paterson, N.J.	42	33	4	1	-	4	1
Philadelphia, Pa.	370	249	73	21	7	20	23
Pittsburgh, Pa.§	44	33	8	3	-	-	6
Reading, Pa.	21	19	1	1	-	-	4
Rochester, N.Y.	136	99	24	8	2	3	10
Schenectady, N.Y.	14	9	4	1	-	-	-
Scranton, Pa.§	28	25	1	1	-	1	2
Syracuse, N.Y.	133	96	33	2	-	2	8
Trenton, N.J.	17	12	3	2	-	-	1
Utica, N.Y.	17	13	3	1	-	-	-
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	1,667	1,130	330	133	39	33	131
Akron, Ohio	51	37	7	4	2	1	7
Canton, Ohio	32	29	2	1	-	-	5
Chicago, Ill.	343	202	79	42	12	6	34
Cincinnati, Ohio	60	40	10	6	-	4	10
Cleveland, Ohio	111	75	26	6	2	2	3
Columbus, Ohio	170	114	36	12	3	5	9
Dayton, Ohio	101	78	18	5	-	-	9
Detroit, Mich.	125	74	25	17	6	3	13
Evansville, Ind.	38	29	7	2	-	-	-
Fort Wayne, Ind.	52	39	7	5	1	-	3
Gary, Ind.	23	8	9	1	3	2	1
Grand Rapids, Mich.	27	19	4	-	1	3	4
Indianapolis, Ind.	150	106	27	12	3	2	9
Lansing, Mich.	34	24	8	1	-	1	4
Milwaukee, Wis.	107	81	20	2	2	2	4
Peoria, Ill.	48	29	15	3	-	1	1
Rockford, Ill.	47	35	6	4	1	1	3
South Bend, Ind.	24	17	6	1	-	-	2
Toledo, Ohio	76	56	12	6	2	-	9
Youngstown, Ohio	48	38	6	3	1	-	1
W.N. CENTRAL	1,400	962	278	85	39	36	106
Des Moines, Iowa	78	58	11	6	-	3	9
Duluth, Minn.	30	22	7	-	1	-	2
Kansas City, Kans.	241	154	64	12	6	5	24
Kansas City, Mo.	90	60	19	3	6	2	4
Lincoln, Nebr.	23	12	7	1	2	1	2
Minneapolis, Minn.	131	88	29	5	4	5	8
Omaha, Nebr.	67	43	13	6	1	4	3
St. Louis, Mo.	97	59	23	10	3	2	-
St. Paul, Minn.	83	63	11	6	1	2	3
Wichita, Kans.	560	403	94	36	15	12	51

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	930	586	209	86	25	23	46
Atlanta, Ga.	U	U	U	U	U	U	U
Baltimore, Md.	279	169	74	25	6	4	15
Charlotte, N.C.	95	57	17	8	5	8	7
Jacksonville, Fla.	102	64	23	10	4	1	5
Miami, Fla.	U	U	U	U	U	U	U
Norfolk, Va.	42	28	2	7	1	4	3
Richmond, Va.	55	24	20	9	2	-	3
Savannah, Ga.	45	31	9	3	2	-	3
St. Petersburg, Fla.	50	39	8	3	-	-	2
Tampa, Fla.	141	92	29	12	4	4	6
Washington, D.C.	100	61	27	9	1	2	2
Wilmington, Del.	21	21	-	-	-	-	-
E.S. CENTRAL	721	455	168	66	14	15	67
Birmingham, Ala.	138	79	35	16	3	2	17
Chattanooga, Tenn.	85	55	20	4	6	-	7
Knoxville, Tenn.	75	50	15	10	-	-	3
Lexington, Ky.	66	34	19	7	1	5	8
Memphis, Tenn.	162	104	44	9	1	4	19
Mobile, Ala.	45	29	11	5	-	-	-
Montgomery, Ala.	32	28	4	-	-	-	5
Nashville, Tenn.	118	76	20	15	3	4	8
W.S. CENTRAL	1,225	815	234	105	35	36	73
Austin, Tex.	64	44	9	7	2	2	4
Baton Rouge, La.	51	39	5	2	1	4	3
Corpus Christi, Tex.	54	42	7	2	-	3	2
Dallas, Tex.	205	127	37	20	14	7	12
El Paso, Tex.	64	47	12	2	1	2	-
Ft. Worth, Tex.	93	65	13	10	2	3	4
Houston, Tex.	325	198	75	39	7	6	20
Little Rock, Ark.	45	28	10	4	3	-	3
New Orleans, La.	U	U	U	U	U	U	U
San Antonio, Tex.	161	114	27	14	5	1	9
Shreveport, La.	61	43	15	1	-	2	8
Tulsa, Okla.	102	68	24	4	-	6	8
MOUNTAIN	881	592	161	80	34	14	56
Albuquerque, N.M.	105	79	18	4	4	-	5
Boise, Idaho	33	29	2	2	-	-	3
Colo. Springs, Colo.	45	29	8	6	-	2	3
Denver, Colo.	81	52	13	8	5	3	8
Las Vegas, Nev.	205	132	45	22	5	1	11
Ogden, Utah	36	24	4	6	2	-	2
Phoenix, Ariz.	139	80	32	14	9	4	9
Pueblo, Colo.	29	22	2	4	1	-	2
Salt Lake City, Utah	103	65	21	11	3	3	9
Tucson, Ariz.	105	80	16	3	5	1	4
PACIFIC	1,328	895	246	124	41	20	111
Berkeley, Calif.	13	9	4	-	-	-	1
Fresno, Calif.	100	75	13	8	3	1	10
Glendale, Calif.	9	8	1	-	-	-	-
Honolulu, Hawaii	62	49	9	2	-	2	5
Long Beach, Calif.	54	33	11	7	2	1	10
Los Angeles, Calif.	303	164	65	58	12	4	19
Pasadena, Calif.	22	14	5	-	3	-	-
Portland, Oreg.	128	89	29	6	3	1	10
Sacramento, Calif.	113	77	22	7	3	3	11
San Diego, Calif.	144	98	25	12	3	6	17
San Francisco, Calif.	U	U	U	U	U	U	U
San Jose, Calif.	125	83	25	12	5	-	8
Santa Cruz, Calif.	41	31	4	2	4	-	2
Seattle, Wash.	88	61	20	6	-	1	5
Spokane, Wash.	53	38	7	4	3	1	5
Tacoma, Wash.	73	66	6	-	-	-	8
TOTAL	10,860¶	7,340	2,136	864	280	231	754

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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