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Staphylococcus aureus with Reduced Susceptibility to Vancomycin — United States, 1997

Staphylococcus aureus is one of the most common causes of both hospital- and community-acquired infections worldwide, and the antimicrobial agent vancomycin has been used to treat many *S. aureus* infections, particularly those caused by methicillin-resistant *S. aureus* (MRSA). In 1996, the first documented case of infection caused by a strain of *S. aureus* with intermediate levels of resistance to vancomycin (VISA; minimum inhibitory concentration [MIC]=8 µg/mL) was reported from Japan (*1*). This report describes the first isolation of VISA from a patient in the United States, which may be an early warning that *S. aureus* strains with full resistance to vancomycin will emerge.

In July 1997, VISA-associated peritonitis was diagnosed in a patient who was being treated with long-term ambulatory peritoneal dialysis. During January 1996–June 1997, the patient had been treated with multiple courses of both intraperitoneal and intravenous vancomycin for repeated episodes of MRSA-associated peritonitis. The patient received medical care primarily at home; when hospitalized, the patient had been placed on contact isolation precautions because of known MRSA.

Six isolates of *S. aureus* obtained from one specimen from this patient in July were sent to CDC for species confirmation and antimicrobial susceptibility testing. The identity of these isolates was confirmed, and of the six, one demonstrated a vancomycin MIC of 8 µg/mL (National Committee for Clinical Laboratory Standards breakpoints for susceptibility: susceptible, ≤4 µg/mL; intermediate, 8–16 µg/mL; and resistant, ≥32 µg/mL) (*2*). The VISA isolate was susceptible to rifampin, chloramphenicol, trimethoprim-sulfamethoxazole, and tetracycline. The patient is continuing to receive antimicrobial therapy. Epidemiologic and laboratory investigations are under way to assess the risk for person-to-person transmission of VISA and to determine the mechanism(s) by which these strains develop resistance.

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Editorial Note: Since the 1980s, when MRSA emerged in the United States, vancomycin has been the last uniformly effective antimicrobial available for treatment of serious *S. aureus* infections. This report documents the emergence of VISA in the United States and may signal the eventual emergence of *S. aureus* strains with full resistance to vancomycin. Widespread use of antimicrobials, such as vancomycin, is a major contributing factor for the emergence of vancomycin-resistant organisms, including vancomycin-resistant enterococci.

To accurately detect staphylococci with reduced susceptibility to vancomycin, antimicrobial susceptibility should be determined with a quantitative method (broth dilution, agar dilution, or agar gradient diffusion) using a full 24 hours of incubation at 95 F (35 C). Strains of staphylococci with vancomycin MICs of 8 µg/mL were not detected using disk-diffusion procedures.

To prevent the spread of these organisms within and between facilities, health-care providers and facilities are advised to 1) ensure the appropriate use of vancomycin (*3*); 2) educate those personnel who provide direct patient care about the epidemiologic implications of such strains and the infection-control precautions necessary for containment; 3) strictly adhere to and monitor compliance with contact isolation precautions and other recommended infection-control practices, and 4) conduct surveillance to monitor the emergence of resistant strains. Detailed recommendations for the prevention, detection, and control of *S. aureus* strains with reduced susceptibility to vancomycin are outlined in "Interim Guidelines for Prevention and Control of Staphylococcal Infection Associated with Reduced Susceptibility to Vancomycin," published previously in *MMWR* (*4*).

The isolation of *S. aureus* with confirmed or "presumptive" reduced vancomycin susceptibility should be reported through state and local health departments to CDC's Investigation and Prevention Branch, Hospital Infections Program, National Center for Infectious Diseases, Mailstop E69, 1600 Clifton Road, NE, Atlanta, GA 30333; telephone (404) 639-6413. Physicians treating patients with infections caused by staphylococci with reduced susceptibility to vancomycin can obtain information about investigational drug therapies from the Food and Drug Administration's Division of Anti-Infective Drug Products, telephone (301) 827-2120.

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Measles Outbreak — Southwestern Utah, 1996

During April 9–July 7, 1996, a total of 107 confirmed measles cases were reported from Washington County, Utah—one of five counties in the Utah Southwest Health District (USHD). Fourteen cases associated with this outbreak were reported from other counties in Utah and from Arizona, California, and Nevada. This report summarizes the epidemiologic investigation of the outbreak in Washington County (1995 population: 65,885) and demonstrates the potential for measles to spread in a

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school-aged population despite a high coverage rate for at least one dose of measles vaccine.

The index case was diagnosed in an unvaccinated 17-year-old high school student on April 10 (Figure 1). By April 25, seven additional cases had been reported from the same school. During April 26–July 1, a total of 99 additional cases were reported from Washington County. The source of infection for the index case could not be identified.

Case-patients ranged in age from 6 months to 45 years (median: 14 years). Sixty-six (62%) cases occurred among children in grades 5–12, and four (4%) cases (including three in persons with philosophic objections to vaccination) occurred among children in grades K–4 (Figure 2). Six (6%) cases occurred among infants (aged <12 months) who were too young to have received measles vaccination (*1*). Of the 99 case-patients eligible for measles vaccination*, 64 (64%) had not been vaccinated, 34 (34%) had received one dose of a measles-containing vaccine (MCV), and one (1%) had received two doses of an MCV. From 1975 to 1992, Utah required documentation of receipt of one dose of an MCV for every child entering kindergarten or first grade; since 1992, two doses have been required. Children in grades K–4 at the time of the outbreak were covered by the requirement for two doses, and children in grades 5–12 were covered by the one-dose requirement. However, exemptions for medical, philosophic, or religious reasons are permitted.

Probable sites of exposure to measles for confirmed cases were schools (59 cases) and day care centers (five cases), home (27 cases), and other settings (11 cases); the probable site of exposure was unknown for five cases. No deaths, hospitalizations, or other major complications were reported among the case-patients in this outbreak.

*Persons aged ≥12 months born during or after 1957.

FIGURE 1. Number of measles cases, by week of rash onset — southwestern Utah, 1996

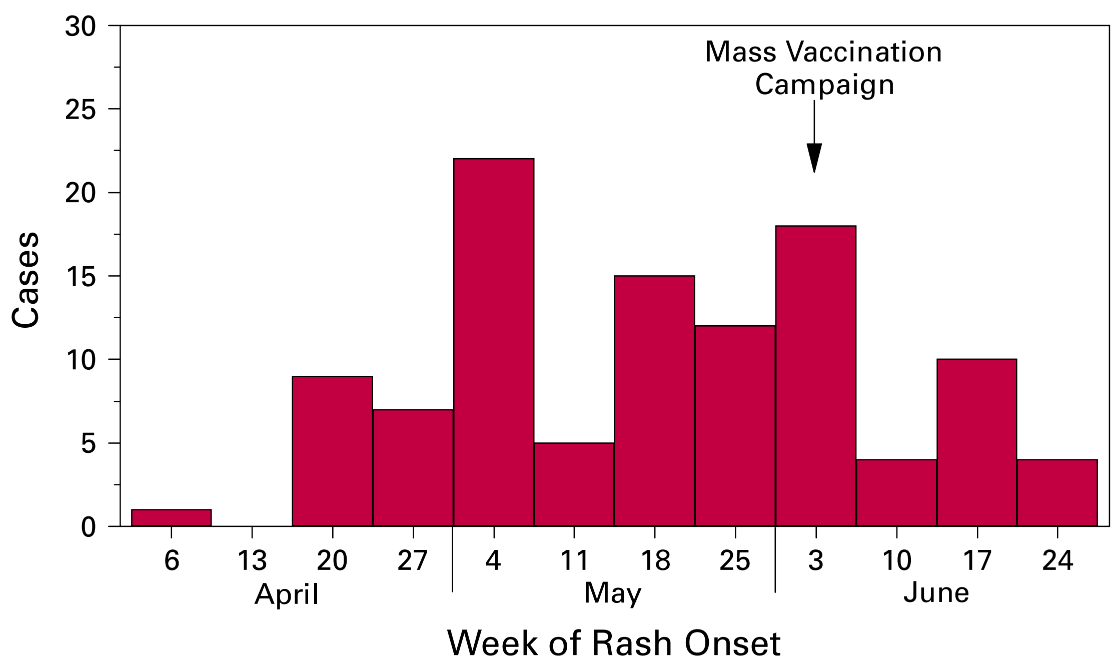

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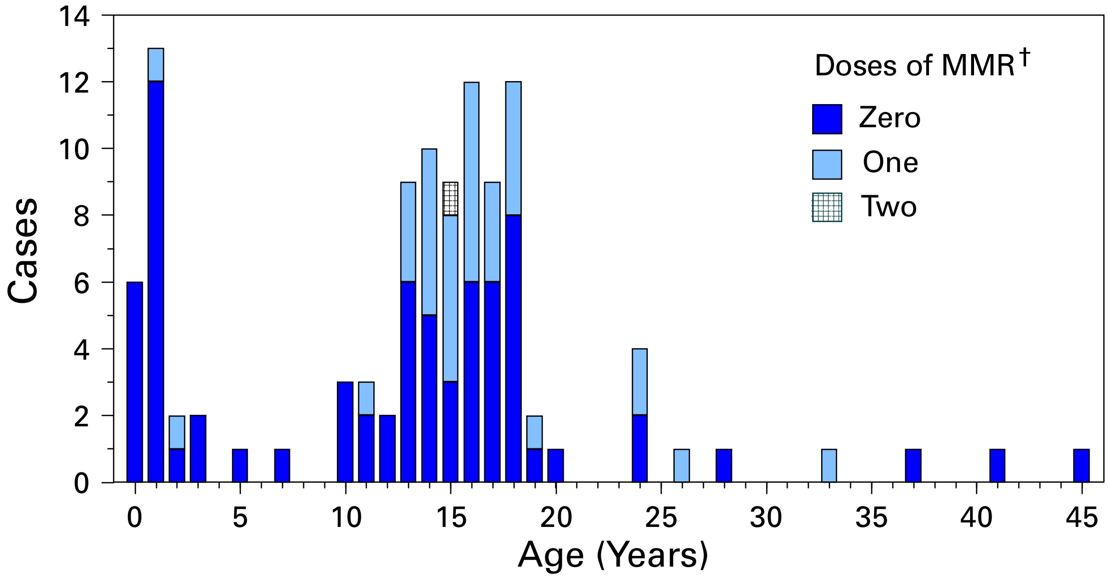
FIGURE 2. Age distribution of persons with measles* — southwestern Utah, 1996



*n=107.
†Measles-mumps-rubella vaccine.

A vaccine effectiveness study was conducted at the high school where the outbreak was initially reported. Review of school vaccination records of the 879 students attending the school at the time of the outbreak indicated that 780 (89%) students had received one dose of measles-mumps-rubella vaccine (MMR), 72 (8%) had received two doses of MMR, and 27 (3%) were unvaccinated. Seventeen unvaccinated students had philosophic exemptions, and 10 had no record of measles vaccination in their school health files. The measles attack rate among unvaccinated students was 33% (nine cases) and among recipients of one dose of MMR was 1% (eight cases). No cases of measles were diagnosed among any of the recipients of two doses of MMR in this high school. Vaccine effectiveness (VE) was calculated using the following formula: VE (%)=[(ARU – ARV) / ARU] X 100, where ARU is the attack rate for the unvaccinated students and ARV is the attack rate for the vaccinated students (*2*). Based on this approach, VE was estimated to be 97% among students with a documented history of receipt of one dose of MMR vaccine and 100% in students with two doses of MMR.

Three control measures were instituted to prevent spread of the outbreak. First, because cases were occurring among infants, the age for vaccination eligibility was lowered to 6 months. Second, children in Washington County for whom proof of vaccination or immunity could not be established were excluded from schools and day care centers. Third, a mass vaccination campaign was initiated on June 10. Approximately 20,000 doses of MMR were administered throughout the USHD (with almost 90% of doses administered in Washington County). Among 10,800 children in grades 5–12 in Washington County, an estimated 56% received one dose of MMR during the vaccination campaign. Two-dose MMR vaccination coverage among children in grades 5–12 is estimated to have improved from 10% before the campaign to 65%.

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Editorial Note: The measles outbreak in southwestern Utah was the largest such outbreak in the United States in 1996 and accounted for approximately 25% of all measles cases reported to CDC during 1996 (*3*). The next largest outbreak in 1996, which occurred in Juneau, Alaska, included 63 cases and affected school-aged children who had not received two doses of an MCV (*4*). The outbreak in Utah began in a high school in which most (97%) students had previously received at least one dose of an MCV and only a small percentage (8%) had received two doses. Measles outbreaks in schools with high one-dose coverage with a highly effective vaccine highlight the contagiousness of measles and the necessity for routine vaccination with two doses of an MCV (*5,6*).

In Utah, the school requirement for two doses of an MCV covered grades K–4 and probably prevented measles transmission among children in those grades. The potential impact of a second dose of an MCV is illustrated by the occurrence of only one case among recipients of two doses in the Utah outbreak and the estimated 100% vaccine effectiveness among two-dose recipients in the high school based on the vaccine effectiveness study. The vaccination campaign in southwestern Utah rapidly improved two-dose MMR coverage and may have helped to control the outbreak. During measles outbreaks in schools, coverage with two doses of MMR should be accelerated in school populations.

The national goal for measles vaccination is that all school-aged children will have received two doses of an MCV by 2001 (*7*). In June 1997, the Vaccines for Children (VFC) program, a national program making federally purchased vaccines available at no cost to health-care providers for administration to eligible children, began covering the cost of a second dose of MMR for VFC-eligible children in every grade. Full coverage with the second dose of MMR for all schoolchildren is needed to assure the elimination of measles in the United States.

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Human Rabies — Montana and Washington, 1997

On January 5 and January 18, 1997, respectively, a man in Montana and a man in Washington died of neurologic illnesses initially suspected to be Creutzfeldt-Jakob disease (CJD) but diagnosed as rabies encephalitis during subsequent histologic examination on autopsy. The cases were not linked epidemiologically, and no secondary cases occurred. Postexposure prophylaxis (PEP) was administered to 113 potential contacts. This report summarizes the clinical presentations of the cases and the epidemiologic investigations by the Montana Department of Public Health and Human Services and the Washington State Department of Health; nucleic acid sequencing indicated that the silver-haired bat (*Lasionycteris noctivagans*) and the big brown bat (*Eptesicus fuscus*), respectively, were the probable sources of exposure.

Case 1

On December 20, 1996, family members of a 65-year-old male resident of Blaine County, Montana, observed him experiencing apparent visual hallucinations. This behavior recurred, and he subsequently had slurred speech and complained of diffuse left-arm pain and weakness. He was admitted to a northern Montana hospital on December 23 and was evaluated for a possible transient ischemic attack or worsening of pre-existing Parkinson's disease. A computerized tomography (CT) scan of the brain was normal. On December 24, he developed respiratory arrest and was intubated and mechanically ventilated. During the following 2 days, he developed increased myoclonic activity of his left leg and trunk and was transferred to a second hospital for further evaluation.

On admission to the second hospital, he had diffuse total body myoclonic spasms. However, an electroencephalogram (EEG) was negative for epileptiform discharges suggestive of seizure activity, and a magnetic resonance imaging study of the brain was normal. He developed fever, and treatment with antibiotics was initiated for diagnoses of parasinusitis and left lower lobe pneumonitis. Sustained diffuse myoclonic activity persisted, and complete muscle paralysis was maintained with medication until January 3, 1997, when poorly reactive pupils and absent corneal reflexes were noted. When cerebrospinal fluid (CSF) was obtained on January 3, the opening pressure was 46 cm of H_2O (normal: 10–20 cm of H_2O). CSF analysis indicated a glucose level of 211 mg/dL, total protein level of 67 mg/dL (normal: <40 mg/dL), a red blood cell (RBC) count of 30 cells/mm^3 (normal: 0 cells/mm^3), and a white blood cell (WBC) count of 10 cells/mm^3 (normal: 0–5 cells/mm^3) with a differential of 50% polymorphonuclear neutrophils (PMNs) (normal: 0 PMNs). All subsequent viral and bacterial cultures of the CSF were negative. Laboratory findings on January 4 included a blood urea nitrogen of 28 mg/dL (normal: 9–19 mg/dL), a serum creatinine of 1.8 mg/dL (normal: 0.3–1.3 mg/dL), peripheral WBC count of 15,500 cells/mm^3 (normal: 4800–10,800 cells/mm^3), a hematocrit of 27% (normal: 42%–52%), platelets of 264,000/mm^3 (normal: 150,000–450,000/mm^3), and a negative serum rapid plasmin reagin test.

On January 5, the myoclonic spasms ceased spontaneously, cranial nerve reflexes were absent, and the patient could not breathe without the aid of a ventilator. The family elected to discontinue mechanical ventilation, and he died. An autopsy was performed to confirm the suspected diagnosis of spongiform encephalopathy, or CJD. Microscopic examination of brain tissue was delayed until February 10 because of a prolonged formalin fixation and decontamination protocol required in the preparation

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of specimens suspected to contain elements capable of transmitting spongiform encephalopathy.

Gross examination of the brain initially was negative for areas of focal necrosis, tumor, and hemorrhage. However, microscopic examination revealed diffuse panencephalitis with neuronal necrosis and mononuclear infiltration of the meninges, and Negri bodies throughout the brain tissue with highest density in the cerebellum and hippocampus. No findings were consistent with spongiform encephalopathy.

Paraffin-blocked brain tissues and formalin-fixed hippocampus were sent to CDC for confirmation and on February 14 tested positive for rabies by the direct fluorescent antibody (DFA) test and reverse transcriptase polymerase chain reaction (RT-PCR). Nucleotide sequence analysis of the viral nucleic acid implicated a variant associated with the silver-haired bat, with 99% homology with a variant identified in a previous case of human rabies in Montana in 1996 (*1*).

The patient had been retired for several years but performed odd jobs around the area where he lived. His main hobbies included hunting and trapping. His family could not recall any history of contact with ill animals during these activities but reported that he baited traps with decayed animals he had collected from roadsides, often removing meat from the carcasses without wearing gloves. They also recalled that a bat had entered their home through the bedroom window in late summer 1996. On subsequent days, the bat was observed to be roosting during the daytime and flying around the house at dusk, and the patient eventually forced the bat out of the house with a broom. The patient's wife denied known contact with the bat and did not recall her husband having reported direct contact with the animal at any time. The bat had been driven from the house approximately 4 months before the onset of the patient's illness.

Sixty persons (two family members and 58 health-care workers) received PEP because of possible percutaneous or mucous membrane exposure to the patient's saliva.

Case 2

On December 30, 1996, a 64-year-old man from Mason County, Washington, was hospitalized because of an exacerbation of chronic back pain and new onset of weakness and numbness of his left arm. He had a history of atrial fibrillation, cardiomyopathy, and hypertension. The initial diagnosis was possible myocardial infarction (MI) or cerebrovascular accident. On admission, a CT scan of the head revealed mild brain atrophy, and diagnostic tests for acute MI were negative. On December 31, he developed profound generalized myoclonus that began in his left arm. Anticonvulsive medications were administered without effect, and he was intubated for airway control. A neuromuscular blocking agent was administered to control the diffuse myoclonus after an EEG revealed no seizure activity and CSF analysis was reported as normal. He developed increased lacrimation and hypersalivation requiring constant oropharyngeal suctioning. On January 5, 1997, he was transferred to a hospital in Seattle for further evaluation. A repeat CSF analysis revealed a glucose level of 85 mg/dL and a protein level of 93 mg/dL; WBCs and bacteria were not detected in the CSF. PCR evaluations of the CSF for herpes simplex virus and enterovirus were negative. Acute tetanus was considered as a diagnosis because of the intractable

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myoclonus and a history of hand wounds the patient had sustained while gardening, and tetanus immune globulin was administered.

On January 15, all antiseizure medications and neuromuscular blocking agents were discontinued. He remained obtunded, and a repeat CT of the head remained unchanged. At that time, a diagnosis of rapidly progressive CJD was suspected. His condition deteriorated to profound autonomic instability, and he died on January 18. On autopsy, brain tissue was collected for evaluation for CJD.

In late February 1997, examination of brain tissue showed round, eosinophilic, cytoplasmic inclusion (Negri) bodies, and a provisional diagnosis of rabies was made. Additional brain tissue sent to CDC for confirmation tested positive on February 28 for rabies antigen by the DFA test. Analysis of the viral RT-PCR sequence isolated from the brain tissue was consistent with a variant previously identified from the big brown bat in the western United States.

The patient lived in a heavily wooded rural area adjacent to a large lake. Although bats were common in the area, none were reported in the house or other buildings on the property. Inspections of the buildings on the premises after his death revealed no evidence of bat infestation. Before his illness, the patient's outdoor activities included landscaping, gardening, and cleaning out a well house; he often engaged in these activities after dark. Family members reported that the patient had no known history of exposure to bats or other animals during the months before his illness or during trips to Mazatlán, Mexico, in February 1996, or Missoula, Montana, in September 1996.

PEP was administered to 53 persons at the two hospitals (34 nurses, nine physicians, nine respiratory technicians, and one laboratory worker), one family member, and one emergency medical technician working on the ambulance transport.

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Editorial Note: This report describes the first two cases of human rabies documented in the United States during 1997 and the second case of human rabies in both Washington and Montana since 1995. Before 1995, neither state had had a reported case of human rabies for several decades. Before examination of tissue obtained on autopsy, the diagnosis initially suspected for both of these cases was CJD. However, illness for both patients was subsequently related to infection with variants of rabies virus associated with bats; since 1980, a total of 19 (56%) of the 34 cases of rabies diagnosed in the United States have been associated with these variants, and the silver-haired bat variant has accounted for 13 (68%) of the 19 bat-related rabies cases. Case 2 in this report is the first human rabies fatality in the United States ever to have been documented involving a rabies virus variant associated with the big brown bat species.

A definite history of animal bite could not be documented in either case in this report and has been documented for only one of the 19 bat-related cases of human rabies since 1980. Of the remaining 18 such cases, physical contact with a bat without an evident bite or other potential exposing event was reported for eight. A history of

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bat contact could not be established or excluded for the remaining 10 bat-related cases, including both cases in this report.

These data suggest that seemingly insignificant physical contact with bats may result in viral transmission, even without a clear history of animal bite (*1*). In all instances of bat-human contact in which rabies transmission is under consideration, the bat in question should be collected, if possible, and submitted for rabies testing. Rabies PEP is recommended for all persons with bite, scratch, or mucous membrane exposure to a bat unless the bat is available for testing and is negative for evidence of rabies. The inability of health-care providers to elicit information surrounding potential exposures may be influenced by the limited injury inflicted by a bat bite (in comparison with lesions inflicted by terrestrial carnivores) or by circumstances that hinder accurate recall of events. Therefore, PEP is also appropriate even in the absence of a demonstrable bite or scratch, in situations in which there is reasonable probability that such contact occurred (e.g., a sleeping person awakes to find a bat in the room or an adult witnesses a bat in the room with a previously unattended child, mentally disabled person, or intoxicated person). This recommendation used in conjunction with current Advisory Committee for Immunization Practices guidelines (*2*) should maximize a health-care provider's ability to respond to situations where accurate exposure histories may not be obtainable and minimize inappropriate PEP.

Although human rabies is rare in the United States, this infection should be considered in the differential diagnosis of persons presenting with unexplained rapidly progressive encephalitis. In both of the cases in this report, rabies was not suspected before death and, therefore, was not diagnosed until histologic examination of the brain tissue on autopsy. Because CJD was suspected in both cases, the process required to prepare histologic specimens (*3*) further delayed diagnosis and prophylaxis of health-care workers and family members who had had mucous membrane exposure to the patients' saliva. In both of these cases, the presence of myoclonus suggested the possibility of CJD; however, this feature is only rarely a presenting clinical sign and is less likely to be generalized as was reported in both cases. An elevated CSF protein also was present in both of these cases, suggesting a diagnosis other than CJD, which usually is not associated with CSF abnormalities. The progression of illness from onset of clinical symptoms to death also was more rapid (16 and 18 days) than that characterizing CJD (months) (*4,5*).

Bat rabies is enzootic in the contiguous United States (*6*); however, the reduction of bat populations is not a feasible or desirable strategy for rabies control in this reservoir. To minimize human and animal contact with bats, these animals should be physically excluded from houses and surrounding structures by sealing potential entrances (*7*). In addition, because of the risk for rabies associated with bats, they should never be handled by the public or kept as pets. Finally, rabies vaccination for dogs and cats should be kept current to provide a barrier to indirect human exposures to wildlife rabies through infected domestic animals.

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Behavioral Risk Factor Survey of Korean Americans — Alameda County, California, 1994

Asians/Pacific Islanders (APIs) account for an increasing proportion of all racial/ ethnic minority groups in the United States: during 1980–1990, the number of persons in this group increased approximately 99% (*1*). Among APIs in the United States, Korean Americans are the fifth largest subgroup (*2*). In Alameda County, California, APIs comprise 15% of the population, and Korean Americans account for 5% of that group (*3*). To assess behavioral risk factors among Korean Americans in Alameda County, Asian Health Services (a nonprofit community clinic) and the Center for Family and Community Health at the University of California, Berkeley, conducted a household telephone survey from August 1994 through February 1995. This report summarizes findings from that survey, which indicate significant differences in the prevalences of some behavioral risk factors and preventive health practices between men and women and between Korean Americans and the total California population.

The survey was adapted from the 1993 California Behavioral Risk Factor Survey (BRFS) and modified for cultural sensitivity and appropriateness. The survey questionnaire was developed in English, translated into Korean, back-translated, and pretested. The project team identified approximately 500 Korean surnames, and Korean surname-based telephone lists were purchased from commercial sources. All 4955 identified telephone numbers in Alameda County were sampled, and 52 were resampled. Of these, 856 (17%) were eligible, 3968 (79%) were ineligible; and 183 (4%) were of unknown eligibility. Most ineligible telephone numbers were incorrect, disconnected, or nonworking (21%), or represented households without an eligible Korean adult (74%). Within each eligible household, Korean persons aged ≥18 years were randomly selected (*4*). A total of 676 interviews were completed (response rate: 79%). Results were weighted to account for different selection probabilities and to adjust the sample to the 1990 Census for the Korean population in Alameda County.

An estimated 55% of participants were women, 36% were aged 18–29 years, and 20% were aged ≥50 years (mean: 37 years); 63% were married; 52% were employed; 52% were college graduates; and 48% had a household income of ≥$35,000. In addition, 91% were born in Korea, and 13% immigrated to the United States after 1989; 54% spoke little or no English.

An estimated 12% of participants reported having been told by a health professional that they had high blood pressure, 12% that they had high blood cholesterol, and 4% that they had diabetes. Overall, 39% reported they had smoked >100 cigarettes during their lifetimes, and 21% currently smoked cigarettes. In addition, 85% reported

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having ever drunk alcohol, and 47% reported currently drinking alcohol; 31% had not exercised during the preceding month; 15% did not always use safety belts; 13% of current drinkers had driven after drinking during the preceding month; and 18% had never had a routine physical examination.

Men were significantly more likely than women to report having smoked, to currently smoke, to currently drink, or among current drinkers, to have ever driven after drinking (Table 1). Women were significantly more likely to report not having exercised during the preceding month.

Compared with 1995 BRFS estimates for the total California population, the prevalences of two risk factors were lower among Korean Americans: high blood pressure (12% of Korean Americans versus 21% of all California adults) and high blood cholesterol (12% versus 19%) (Table 1). Risk factors more prevalent among Korean Americans included no exercise (31% versus 21%) and no routine physical examination (18% versus 7%) (Table 1). In addition, 40% of Korean American women reported never having had a Papanicolaou test, compared with 8% of California women; 57% of Korean American women aged ≥50 years reported never having had a clinical breast examination, compared with 10% of all California women aged ≥50 years; and 45% aged ≥50 years reported never having had a mammogram, compared with 10% of all California women aged ≥50 years.

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Editorial Note: The findings in this report indicate that, among Korean American adults residing in Alameda County, the prevalences of many health risk factors were higher than those among the total population of adults in California. Specifically, of the 10 health practices or behaviors, prevalences of five were significantly higher among Korean American adults than among the total adult population in California, and the prevalences of three other health conditions or behaviors were similar to those of the total adult population; the prevalences of only two health conditions were significantly lower among Korean Americans. Among Korean Americans, the prevalence of smoking varied significantly by sex. Previous BRFSs of Chinese and Vietnamese adults in California also documented high prevalences of smoking among men and low use of breast and cervical cancer screening among women, compared with the total California population (*5,6*).

Factors accounting for these differences may include cultural, linguistic, and financial factors. For example, Korean American women may be uncomfortable seeking health care from non-Korean–speaking providers and, as a result, have lower levels of breast and cervical cancer sceening. In addition, Korean Americans may not have routine health examinations if they are not able to participate in employer-sponsored health insurance plans. Further analysis is being conducted to determine correlates of breast and cervical cancer screening and tobacco use in this community.

This assessment was possible because of the unique methodology and collaborative approach involving academic and community representatives. Community members participated in each phase of the study, and the community agency collaborated with the academic center in survey design, methodology, implementation, and data analysis. Despite these strengths, the findings in this report are subject to at least one

TABLE 1. Percentage distribution of risk factors/preventive health practices among Korean Americans and total California population, by sex — Alameda County, California, August 1994–February 1995

Risk factor/ Preventive health practice	Korean Americans						Total California population*					
	Men		Women		Total		Men		Women		Total	
	%	(95% CI†)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
High blood pressure§	11	(8%–15%)	12	(9%–15%)	**12**	**(9%–14%)**	19	(17%–21%)	22	(21%–24%)	**21**	**(19%–22%)**
High blood cholesterol¶	14	(9%–18%)	11	(9%–14%)	**12**	**(10%–15%)**	17	(16%–19%)	20	(18%–22%)	**19**	**(17%–20%)**
Diabetes	5	(2%– 8%)	4	(2%– 5%)	**4**	**(3%– 6%)**	4	(4%– 4%)	6	(5%– 8%)	**5**	**(5%– 6%)**
Ever smoked (>100 cigarettes)	70	(65%–76%)	13	(9%–17%)	**39**	**(35%–43%)**	50	(47%–52%)	38	(36%–40%)	**44**	**(42%–46%)**
Current smoker	39	(32%–45%)	6	(3%– 9%)	**21**	**(17%–24%)**	19	(17%–21%)	14	(12%–16%)	**16**	**(15%–18%)**
Current drinker**	65	(59%–72%)	31	(26%–37%)	**47**	**(42%–51%)**	—	—	—	—	**—**	**—**
No exercise	26	(20%–31%)	36	(31%–41%)	**31**	**(27%–35%)**	20	(18%–22%)	22	(20%–24%)	**21**	**(19%–22%)**
Safety-belt nonuse (not always)	19	(14%–24%)	13	(9%–17%)	**15**	**(12%–19%)**	17	(16%–19%)	11	(10%–13%)	**14**	**(13%–15%)**
Ever drink and drive††	18	(12%–24%)	6	(1%–12%)	**13**	**(9%–18%)**	—	—	—	—	**—**	**—**
Never had routine physical examination	17	(12%–22%)	19	(14%–23%)	**18**	**(15%–21%)**	8	(6%– 9%)	6	(4%– 7%)	**7**	**(6%– 7%)**
Never had Papanicolaou smear	—	—	40	(35%–46%)	**—**	**—**	—	—	8	(6%– 9%)	**—**	**—**
Never did breast self-examination	—	—	43	(37%–48%)	**—**	**—**	—	—	—	—	**—**	**—**
Never had clinical breast examination§§	—	—	57	(49%–64%)	**—**	**—**	—	—	10	(8%–13%)	**—**	**—**
Never had mammogram§§	—	—	45	(38%–53%)	**—**	**—**	—	—	10	(8%–12%)	**—**	**—**

* Source for all variables: California Behavioral Risk Factor Survey (BRFS), 1995. Results were weighted to account for different probabilities of selection and to adjust to the age, sex, and race distribution for the 1990 census for Californians.

† Confidence interval.

§ Persons who had ever been told by a health professional that they had high blood pressure.

¶ Persons who had ever been told by a health professional that they had high blood cholesterol.

** Ever drinkers who currently drink alcoholic beverages. Numbers for the total California population were not included because questions on the BRFS were not comparable with those used for this survey.

†† Only asked for persons who reported that they were current drinkers. Numbers for the total California population were not included because questions on the BRFS were not comparable with those used for this survey.

§§ Women aged ≥50 years.

Risk Factor Survey — Continued

important limitation. The use of Korean surname-based telephone lists for the sampling frame may have biased the sample: Korean Americans who resided in households without telephones, who did not list their telephone numbers, or who did not have Korean surnames were excluded from the sample.

Community-sensitive approaches such as this can assist in characterizing health needs and strategies in ethnic-minority communities. Based on the findings in this report, Asian Health Services and the Center for Family and Community Health are collaborating on a community intervention to improve breast and cervical cancer screening among Korean American women.

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Escherichia coli O157:H7 Infections Associated with Eating a Nationally Distributed Commercial Brand of Frozen Ground Beef Patties and Burgers — Colorado, 1997

The Colorado Department of Public Health and Environment (CDPHE) recently identified an outbreak of *Escherichia coli* O157:H7 infections associated with eating a nationally distributed commercial brand of frozen beef patties and burgers. This report describes the preliminary findings of the ongoing investigation of this outbreak and the product recall of six lots of Hudson Foods frozen ground beef patties and burgers.

On August 7, 1997, CDPHE's state public health laboratory reported that 15 (56%) of 27 *E. coli* O157:H7 isolates submitted for routine molecular subtyping since June 1 were characterized by highly related pulsed-field gel electrophoresis (PFGE) patterns; the PFGE patterns of 13 (87%) of 15 isolates were indistinguishable (outbreak strain). The patterns of the remaining two isolates were indistinguishable from each other and differed from the outbreak strain by only one band. These isolates were cultured from stool specimens obtained from 15 patients who had onsets of illness during June 14–July 14. The median age of these patients was 13 years (range: 3–76 years); 11 (73%) were male. Five patients were hospitalized, but none developed hemolytic uremic syndrome or died. Eleven (79%) of 14 patients reported eating frozen pre-formed ground beef patties or burgers at least once during the 7-day period preceding illness onset; eight specifically recalled eating Hudson Foods brand product, and three, who could not recall a specific brand name, identified package labeling consistent with Hudson Foods brand. Hudson Foods beef burgers collected from the freezers of two of the 15 patients bore the identical lot number (156A7); both yielded *E. coli* O157:H7 when cultured at the U.S. Department of Agriculture's (USDA's) Food Safety and Inspection Service Laboratory in Athens, Georgia. The PFGE pattern from one isolate cultured from ground beef was indistinguishable from the outbreak strain; PFGE analysis of the second isolate is pending.

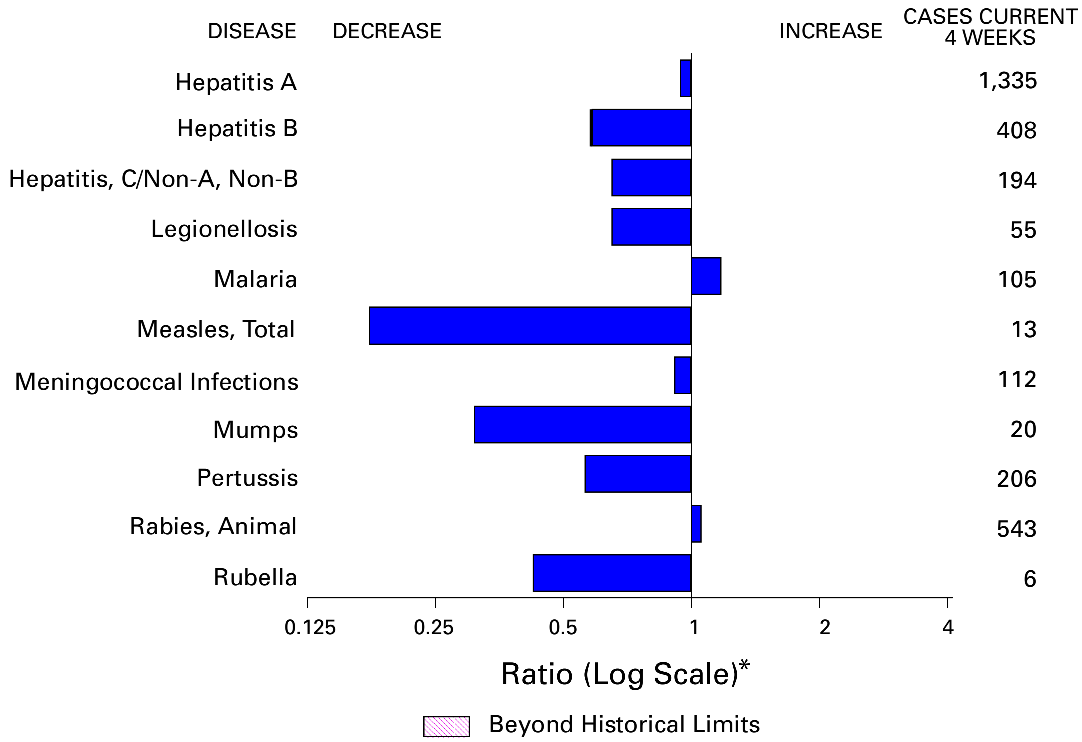
In cooperation with USDA, Hudson Foods recalled from retail stores three potentially contaminated lots of Hudson beef burgers on August 12 (Lots: 156A7, 156B7, and 155B7), and three additional lots on August 15 (Lots: 155A7, 160A7, and 160B7). As of August 20, no additional lots had been recalled. Preliminary findings suggest that these lots could have been distributed to at least all 48 contiguous states. USDA is continuing efforts to assure that all suspect product is recalled and to determine potential contamination points during the manufacturing process. In addition, CDC is working with state health departments to determine whether other cases of *E. coli* O157:H7 infection are associated with exposure to Hudson Foods products.

Reported by: El Paso County Dept of Health and Environment, Colorado Springs; Larimer County Dept of Health and Environment, Ft. Collins; Mesa County Health Dept, Grand Junction; Pueblo City-County Health Dept, Pueblo; Tri-County District Health Dept, Englewood; P Shillam, MSPH, D Heltzel, J Beebe, PhD, R Hoffman, MD, State Epidemiologist, Colorado Dept of Public Health and Environment. State public health laboratories of Minnesota, Oregon, Texas, Utah, Virginia, and Washington. Food Safety and Inspection Svc, US Dept of Agriculture. Foodborne and Diarrheal Diseases Br, Div of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, CDC.

Editorial Note: Illness caused by *E. coli* O157:H7 infection usually is characterized by abdominal cramping, diarrhea, and bloody stools and can be complicated by hemolytic uremic syndrome and death. Persons with illness meeting this description (i.e., abdominal cramping, diarrhea, and bloody stools) should contact their physicians. Additional information about the product recall is available from the USDA Meat and Poultry Hotline, telephone (800) 535-4555.

The investigation of this outbreak illustrates the value of molecular subtyping in enhancing surveillance for *E. coli* O157:H7 infections. The National Molecular Subtyping Network for Foodborne Pathogenic Bacteria has enabled CDPHE's laboratory and 14 other state public health laboratories to subtype *E. coli* O157:H7 isolates. Four of these laboratories, designated as area laboratories, also can subtype isolates from surrounding states. As of August 19, none of 340 *E. coli* O157:H7 isolates subtyped at six other network laboratories matched the outbreak strain.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending August 16, 1997, with historical data — United States



*Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — provisional cases of selected notifiable diseases, United States, cumulative, week ending August 16, 1997 (33rd Week)

	Cum. 1997		Cum. 1997
Anthrax	-	Plague	1
Brucellosis	44	Poliomyelitis, paralytic	-
Cholera	4	Psittacosis	27
Congenital rubella syndrome	2	Rabies, human	2
Cryptosporidiosis*	842	Rocky Mountain spotted fever (RMSF)	219
Diphtheria	5	Streptococcal disease, invasive Group A	1,008
Encephalitis: California*	24	Streptococcal toxic-shock syndrome*	23
eastern equine*	1	Syphilis, congenital¶	190
St. Louis*	1	Tetanus	27
western equine*	1	Toxic-shock syndrome	77
Hansen Disease	66	Trichinosis	6
Hantavirus pulmonary syndrome*†	14	Typhoid fever	192
Hemolytic uremic syndrome, post-diarrheal*	29	Yellow fever	-
HIV infection, pediatric*§	150		

-:no reported cases
*Not notifiable in all states.
†Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update July 29, 1997.
¶Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending August 16, 1997, and August 17, 1996 (33rd Week)

Reporting Area	AIDS		Chlamydia		*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB	
					NETSS[†]	PHLIS[§]				
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1997	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996
UNITED STATES	34,732	42,682	263,272	271,670	1,230	715	164,516	198,498	1,979	2,245
NEW ENGLAND	1,478	1,732	10,810	10,721	106	52	3,631	4,055	44	63
Maine	36	29	638	577	8	-	36	31	-	-
N.H.	19	58	474	450	4	7	63	99	8	6
Vt.	23	14	244	259	5	1	35	37	2	17
Mass.	533	871	4,498	4,153	64	44	1,386	1,359	27	34
R.I.	99	122	1,232	1,272	3	-	278	325	7	6
Conn.	768	638	3,724	4,010	22	-	1,833	2,204	-	-
MID. ATLANTIC	11,041	12,193	36,977	40,760	62	27	21,941	26,380	220	182
Upstate N.Y.	1,754	1,479	N	N	43	5	3,457	4,562	166	144
N.Y. City	5,750	7,038	19,124	21,423	8	-	8,503	9,887	-	3
N.J.	2,211	2,269	5,583	7,739	11	16	4,112	5,400	-	-
Pa.	1,326	1,407	12,270	11,598	N	6	5,869	6,531	54	35
E.N. CENTRAL	2,441	3,328	36,341	54,419	237	140	22,914	36,127	350	328
Ohio	525	754	7,291	13,055	53	22	5,009	9,236	12	24
Ind.	396	430	5,500	6,039	40	21	3,632	3,880	10	7
Ill.	899	1,398	6,708	15,502	43	-	3,274	10,725	50	63
Mich.	460	565	11,582	13,113	101	70	8,727	9,241	278	234
Wis.	161	181	5,260	6,710	N	27	2,272	3,045	-	-
W.N. CENTRAL	650	937	14,837	19,604	272	181	6,974	9,289	109	65
Minn.	128	169	U	3,128	132	119	U	1,381	3	1
Iowa	75	63	2,857	2,643	57	9	758	668	22	30
Mo.	275	464	7,241	8,114	30	40	4,655	5,325	71	16
N. Dak.	9	11	473	559	8	6	35	17	2	-
S. Dak.	4	8	796	886	16	-	90	114	-	-
Nebr.	67	65	1,122	1,458	18	-	422	488	2	6
Kans.	92	157	2,348	2,816	11	7	1,014	1,296	9	12
S. ATLANTIC	8,425	10,436	56,431	31,605	122	80	53,929	59,579	185	112
Del.	159	189	1,276	1,148	3	3	745	913	-	-
Md.	1,075	1,315	4,489	U	11	3	8,288	6,492	11	2
D.C.	598	727	N	N	1	-	2,600	2,893	-	-
Va.	719	750	7,248	6,708	N	18	4,985	5,994	18	9
W. Va.	62	74	1,851	1,369	N	-	588	476	13	8
N.C.	503	541	11,709	U	40	24	11,363	11,785	38	30
S.C.	484	525	7,461	U	4	5	6,651	6,962	27	19
Ga.	1,064	1,416	7,666	7,626	28	-	8,445	12,708	U	-
Fla.	3,761	4,899	14,731	14,754	34	27	10,264	11,356	78	44
E.S. CENTRAL	1,193	1,409	20,510	19,191	64	26	20,288	20,414	227	395
Ky.	211	268	4,117	4,278	21	-	2,607	2,607	11	25
Tenn.	501	534	8,006	8,343	33	26	6,735	7,264	156	296
Ala.	285	364	4,888	5,304	7	-	6,940	8,513	6	3
Miss.	196	243	3,499	1,266	3	-	4,006	2,030	54	71
W.S. CENTRAL	3,615	4,481	35,187	34,077	41	5	22,125	23,537	279	234
Ark.	131	185	844	1,111	7	1	1,750	2,640	-	4
La.	622	993	5,849	4,466	4	3	5,438	4,697	137	134
Okla.	188	187	4,727	4,855	3	1	2,994	3,012	6	1
Tex.	2,674	3,116	23,767	23,645	27	-	11,943	13,188	136	95
MOUNTAIN	1,022	1,306	14,405	15,948	139	80	4,507	4,993	259	388
Mont.	26	23	661	785	14	-	27	24	15	11
Idaho	34	25	946	978	15	8	73	68	35	91
Wyo.	13	4	365	402	9	-	35	24	111	120
Colo.	250	360	1,896	1,389	55	39	1,289	1,098	26	36
N. Mex.	104	111	2,081	2,541	5	4	706	522	33	51
Ariz.	255	370	5,974	7,026	N	23	1,796	2,423	24	44
Utah	82	124	954	962	33	-	140	198	3	18
Nev.	258	289	1,528	1,865	8	6	441	636	12	17
PACIFIC	4,867	6,859	37,774	45,345	187	121	8,207	14,124	306	478
Wash.	421	445	5,715	6,222	45	22	1,198	1,344	19	37
Oreg.	188	312	3,041	3,487	54	61	471	534	2	6
Calif.	4,187	5,952	27,108	33,823	79	31	5,999	11,673	186	299
Alaska	36	16	926	714	9	1	244	271	-	2
Hawaii	35	134	984	1,099	N	6	295	302	99	134
Guam	2	4	31	252	N	-	3	43	-	6
P.R.	1,199	1,337	U	U	28	U	395	419	79	113
V.I.	71	16	N	N	N	U	-	-	-	-
Amer. Samoa	-	-	-	-	N	U	-	-	-	-
C.N.M.I.	1	-	N	N	N	U	17	11	2	-

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

*Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update July 29, 1997.

[†]National Electronic Telecommunications System for Surveillance.

[§]Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending August 16, 1997, and August 17, 1996 (33rd Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997
UNITED STATES	529	541	3,937	7,803	958	930	4,983	7,572	10,648	11,880	4,716
NEW ENGLAND	40	28	886	2,287	41	34	97	108	269	259	715
Maine	2	1	8	18	1	6	-	-	11	16	135
N.H.	4	1	9	30	1	1	-	1	10	8	25
Vt.	9	4	6	10	2	2	-	-	4	1	93
Mass.	9	15	145	110	18	12	46	50	155	115	145
R.I.	5	7	221	271	5	5	2	1	20	24	16
Conn.	11	N	497	1,848	14	8	49	56	69	95	301
MID. ATLANTIC	94	125	2,352	4,586	238	275	242	324	2,004	2,124	968
Upstate N.Y.	26	42	931	2,277	44	54	21	49	258	255	727
N.Y. City	4	9	28	236	127	158	56	97	1,043	1,126	U
N.J.	12	9	670	969	49	47	94	112	404	458	105
Pa.	52	65	723	1,104	18	16	71	66	299	285	136
E.N. CENTRAL	161	178	52	299	85	117	406	1,168	1,041	1,250	100
Ohio	80	57	33	15	13	9	121	447	180	191	68
Ind.	29	37	16	14	10	9	90	149	91	114	8
Ill.	5	24	3	8	29	60	39	323	521	675	7
Mich.	40	30	-	6	25	25	93	122	176	204	15
Wis.	7	30	U	256	8	14	63	127	73	66	2
W.N. CENTRAL	45	26	49	94	31	24	99	231	342	307	301
Minn.	1	3	32	18	10	7	U	26	89	70	29
Iowa	12	4	5	13	10	2	6	15	40	43	111
Mo.	12	5	7	34	6	8	67	165	139	130	15
N. Dak.	2	-	-	-	2	1	-	-	8	3	44
S. Dak.	2	2	1	-	-	-	-	-	7	14	40
Nebr.	12	9	2	2	1	2	5	8	14	14	1
Kans.	4	3	2	27	2	4	21	17	45	33	61
S. ATLANTIC	77	73	378	348	207	152	2,096	2,433	1,979	2,144	1,924
Del.	7	9	30	130	3	3	16	23	11	28	43
Md.	17	15	262	122	59	44	576	430	197	188	347
D.C.	3	6	7	2	10	7	77	91	60	86	4
Va.	14	13	29	26	47	25	157	283	194	178	383
W. Va.	N	N	3	9	-	3	3	2	37	41	59
N.C.	10	6	23	49	10	17	475	652	251	305	589
S.C.	3	4	1	3	10	9	237	265	199	220	103
Ga.	-	3	1	1	21	16	342	437	370	409	200
Fla.	23	17	22	6	47	28	213	250	660	689	196
E.S. CENTRAL	33	31	46	53	20	23	1,118	1,650	772	889	201
Ky.	5	2	7	18	4	6	92	87	115	153	21
Tenn.	22	15	24	16	6	10	504	541	254	304	125
Ala.	2	3	4	6	7	3	277	366	251	280	55
Miss.	4	11	11	13	3	4	245	656	152	152	-
W.S. CENTRAL	13	16	55	73	13	23	695	1,176	1,497	1,438	225
Ark.	-	1	15	20	4	-	70	166	124	121	27
La.	2	1	2	1	8	3	234	342	136	10	2
Okla.	3	4	11	7	1	-	79	127	112	111	72
Tex.	8	10	27	45	-	20	312	541	1,125	1,196	124
MOUNTAIN	34	31	12	6	51	37	99	97	315	403	100
Mont.	1	1	-	-	2	5	-	-	7	14	29
Idaho	2	-	2	-	-	-	-	4	8	6	-
Wyo.	1	3	2	3	2	3	-	2	2	4	20
Colo.	10	7	4	-	25	16	8	24	60	51	-
N. Mex.	2	1	1	1	7	2	8	4	18	57	9
Ariz.	8	12	1	-	7	4	72	49	161	154	36
Utah	6	2	-	1	3	4	4	2	13	39	2
Nev.	4	5	2	1	5	3	7	12	46	78	4
PACIFIC	32	33	107	57	272	245	131	385	2,429	3,066	182
Wash.	6	3	5	5	13	13	7	7	190	167	-
Oreg.	-	-	11	12	15	16	5	5	107	111	8
Calif.	25	27	91	39	239	206	117	371	1,969	2,625	153
Alaska	-	1	-	-	3	3	1	-	55	50	21
Hawaii	1	2	-	1	2	7	1	2	108	113	-
Guam	-	1	-	-	-	-	-	3	5	55	-
P.R.	-	-	-	-	5	1	161	153	129	105	42
V.I.	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	9	1	2	-	-

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

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending August 16, 1997, and August 17, 1996 (33rd Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported[†]		Total	
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	1997	Cum. 1997	1997	Cum. 1997	Cum. 1997	Cum. 1996
UNITED STATES	698	729	17,028	17,247	5,377	6,078	3	58	2	42	100	412
NEW ENGLAND	38	25	417	214	95	138	-	10	-	6	16	13
Maine	3	-	46	13	6	2	-	-	-	1	1	-
N.H.	5	10	21	9	7	8	-	1	-	-	1	-
Vt.	3	1	8	4	5	10	-	-	-	-	-	2
Mass.	23	13	160	111	38	46	-	9	-	4	13	10
R.I.	2	1	101	9	11	7	-	-	-	-	-	-
Conn.	2	-	81	68	28	65	-	-	-	1	1	1
MID. ATLANTIC	80	152	1,244	1,158	795	939	-	13	1	8	21	33
Upstate N.Y.	16	37	188	268	171	226	-	2	-	3	5	7
N.Y. City	22	41	467	357	276	339	-	5	-	2	7	11
N.J.	32	39	193	234	155	180	-	1	-	-	1	3
Pa.	10	35	396	299	193	194	-	5	1	3	8	12
E.N. CENTRAL	114	125	1,615	1,586	572	702	1	6	-	3	9	17
Ohio	68	72	221	547	57	86	-	-	-	-	-	2
Ind.	11	7	189	207	68	93	-	-	-	-	-	-
Ill.	24	33	362	414	137	209	1	6	-	1	7	3
Mich.	10	8	750	278	286	252	-	-	-	2	2	3
Wis.	1	5	93	140	24	62	U	-	U	-	-	9
W.N. CENTRAL	37	30	1,323	1,390	313	305	-	9	-	3	12	19
Minn.	25	18	111	76	23	35	-	-	-	3	3	16
Iowa	5	3	264	232	35	41	-	-	-	-	-	-
Mo.	3	6	671	710	219	183	-	1	-	-	1	2
N. Dak.	-	-	10	28	3	-	U	-	U	-	-	-
S. Dak.	2	1	17	39	1	2	-	8	-	-	8	-
Nebr.	1	1	61	101	10	21	U	-	U	-	-	-
Kans.	1	1	189	204	22	23	-	-	-	-	-	1
S. ATLANTIC	124	132	1,102	726	800	811	-	2	1	9	11	9
Del.	-	2	24	10	4	6	-	-	-	-	-	1
Md.	46	44	161	123	115	107	-	-	-	2	2	1
D.C.	2	5	17	20	25	26	-	-	-	1	1	-
Va.	10	6	139	98	80	91	-	-	-	1	1	2
W. Va.	3	6	8	12	9	16	-	-	-	-	-	-
N.C.	17	20	123	92	162	231	-	1	-	1	2	2
S.C.	3	4	71	40	62	50	U	-	U	1	1	-
Ga.	23	31	230	85	83	8	U	-	U	1	1	2
Fla.	20	14	329	246	260	276	-	1	1	2	3	1
E.S. CENTRAL	37	22	410	930	427	524	-	-	-	-	-	1
Ky.	5	5	51	27	26	48	-	-	-	-	-	-
Tenn.	24	8	260	619	287	288	-	-	-	-	-	1
Ala.	8	8	59	129	41	42	U	-	U	-	-	-
Miss.	-	1	40	155	73	146	U	-	U	-	-	-
W.S. CENTRAL	33	30	3,647	3,382	702	738	-	3	-	4	7	23
Ark.	1	-	164	297	41	55	-	-	-	-	-	-
La.	7	3	142	106	94	77	-	-	-	-	-	-
Okla.	22	23	1,030	1,448	25	24	-	-	-	-	-	-
Tex.	3	4	2,311	1,531	542	582	-	3	-	4	7	23
MOUNTAIN	75	39	2,817	2,794	590	737	1	8	-	1	9	152
Mont.	-	-	58	81	6	7	-	-	-	-	-	-
Idaho	1	1	94	149	18	67	-	-	-	-	-	1
Wyo.	2	-	23	26	25	30	-	-	-	-	-	-
Colo.	11	11	289	283	112	82	-	-	-	-	-	7
N. Mex.	8	9	216	276	190	262	1	1	-	-	1	13
Ariz.	29	12	1,438	1,085	133	167	-	5	-	-	5	8
Utah	3	6	419	640	66	68	-	1	-	-	1	118
Nev.	21	-	280	254	40	54	-	1	-	1	2	5
PACIFIC	160	174	4,453	5,067	1,083	1,184	1	7	-	8	15	145
Wash.	3	2	328	322	48	59	-	1	-	-	1	38
Oreg.	26	24	245	613	65	75	-	-	-	-	-	8
Calif.	121	142	3,772	4,046	948	1,036	1	4	-	7	11	34
Alaska	3	4	24	32	14	6	-	-	-	-	-	63
Hawaii	7	2	84	54	8	8	-	2	-	1	3	2
Guam	-	-	-	6	1	-	U	-	U	-	-	-
P.R.	-	1	205	138	940	652	-	-	-	-	-	2
V.I.	-	-	-	27	-	25	U	-	U	-	-	-
Amer. Samoa	-	-	-	-	-	-	U	-	U	-	-	-
C.N.M.I.	6	10	1	1	34	5	U	1	U	-	1	-

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

*Of 151 cases among children aged <5 years, serotype was reported for 81 and of those, 32 were type b.

[†]For imported measles, cases include only those resulting from importation from other countries.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending August 16, 1997, and August 17, 1996 (33rd Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996
UNITED STATES	2,230	2,194	4	370	457	51	3,031	2,818	3	125	206
NEW ENGLAND	138	94	-	8	1	6	590	620	-	-	24
Maine	15	10	-	-	-	-	6	22	-	-	-
N.H.	13	3	-	-	-	-	67	47	-	-	-
Vt.	3	3	-	-	-	1	182	26	-	-	2
Mass.	69	36	-	2	1	3	309	509	-	-	20
R.I.	12	10	-	5	-	-	12	-	-	-	-
Conn.	26	32	-	1	-	2	14	16	-	-	2
MID. ATLANTIC	207	237	-	35	56	2	203	192	2	27	10
Upstate N.Y.	52	60	-	7	17	-	59	96	-	1	4
N.Y. City	38	35	-	3	13	2	54	22	2	26	4
N.J.	44	52	-	-	2	-	5	12	-	-	2
Pa.	73	90	-	25	24	-	85	62	-	-	-
E.N. CENTRAL	314	315	-	40	95	6	239	356	-	4	3
Ohio	123	116	-	18	33	5	100	123	-	-	-
Ind.	35	46	-	6	5	-	35	21	-	-	-
Ill.	94	87	-	7	18	-	37	79	-	1	1
Mich.	37	31	-	9	37	1	32	27	-	-	2
Wis.	25	35	U	-	2	U	35	106	U	3	-
W.N. CENTRAL	165	176	-	13	11	5	199	138	-	-	-
Minn.	24	23	-	5	3	2	134	98	-	-	-
Iowa	38	38	-	6	1	3	22	3	-	-	-
Mo.	76	65	-	-	4	-	29	20	-	-	-
N. Dak.	1	3	U	-	2	U	2	1	U	-	-
S. Dak.	4	9	-	-	-	-	3	3	-	-	-
Nebr.	6	16	U	2	-	U	4	5	U	-	-
Kans.	16	22	-	-	1	-	5	8	-	-	-
S. ATLANTIC	401	341	1	52	75	6	307	306	1	63	91
Del.	5	2	-	-	-	-	-	17	-	-	-
Md.	36	39	-	4	25	-	92	121	-	-	-
D.C.	1	5	-	-	-	-	3	-	-	-	1
Va.	37	36	-	9	10	-	34	31	-	1	2
W. Va.	14	13	-	-	-	-	5	2	-	-	-
N.C.	75	59	1	8	17	5	85	52	1	51	77
S.C.	44	41	U	10	5	U	14	18	U	9	1
Ga.	75	102	U	5	2	U	9	16	U	-	-
Fla.	114	44	-	16	16	1	65	49	-	2	10
E.S. CENTRAL	176	158	-	18	19	-	67	164	-	-	2
Ky.	38	20	-	3	-	-	15	131	-	-	-
Tenn.	70	47	-	3	1	-	27	15	-	-	-
Ala.	52	52	U	6	3	U	16	11	U	-	2
Miss.	16	39	U	6	15	U	9	7	U	-	N
W.S. CENTRAL	219	240	-	34	32	6	82	81	-	3	7
Ark.	26	27	-	1	1	2	16	3	-	-	-
La.	45	46	-	11	11	-	13	6	-	-	1
Okla.	24	23	-	-	-	-	14	8	-	-	-
Tex.	124	144	-	22	20	4	39	64	-	3	6
MOUNTAIN	133	132	1	50	19	11	838	271	-	5	6
Mont.	8	6	-	-	-	-	16	13	-	-	-
Idaho	8	20	-	2	-	7	534	83	-	1	2
Wyo.	1	3	-	1	-	-	6	2	-	-	-
Colo.	36	25	-	3	3	-	180	82	-	-	2
N. Mex.	22	21	N	N	N	3	56	37	-	-	-
Ariz.	37	30	-	31	1	1	24	16	-	4	1
Utah	11	12	1	7	3	-	10	10	-	-	-
Nev.	10	15	-	6	12	-	12	28	-	-	1
PACIFIC	477	501	2	120	149	9	506	690	-	23	63
Wash.	59	67	-	14	18	-	224	229	-	5	13
Oreg.	95	88	N	N	N	-	17	39	-	-	1
Calif.	318	338	1	87	108	-	241	401	-	10	46
Alaska	1	5	1	3	2	9	13	1	-	-	-
Hawaii	4	3	-	16	21	-	11	20	-	8	3
Guam	-	4	U	1	4	U	-	-	U	-	-
P.R.	9	10	-	5	1	-	-	2	-	-	-
V.I.	-	-	U	-	1	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	4	-	U	-	-	U	-	-

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

TABLE IV. Deaths in 122 U.S. cities,* week ending August 16, 1997 (33rd Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	553	363	95	61	20	14	40
Boston, Mass.	136	60	27	33	12	4	11
Bridgeport, Conn.	30	26	2	1	-	1	3
Cambridge, Mass.	22	16	6	-	-	-	1
Fall River, Mass.	24	21	2	1	-	-	1
Hartford, Conn.	48	30	7	7	2	2	2
Lowell, Mass.	37	26	6	4	1	-	5
Lynn, Mass.	11	8	-	3	-	-	-
New Bedford, Mass.	22	17	4	1	-	-	2
New Haven, Conn.	36	21	8	4	1	2	4
Providence, R.I.	57	39	12	2	2	2	-
Somerville, Mass.	4	3	-	1	-	-	-
Springfield, Mass.	42	30	9	1	1	1	2
Waterbury, Conn.	29	26	3	-	-	-	1
Worcester, Mass.	55	40	9	3	1	2	8
MID. ATLANTIC	2,284	1,545	438	216	45	39	97
Albany, N.Y.	59	48	6	1	3	1	3
Allentown, Pa.	23	21	1	1	-	-	2
Buffalo, N.Y.	77	51	18	6	-	2	1
Camden, N.J.	29	20	5	3	-	1	5
Elizabeth, N.J.	24	16	4	3	-	1	-
Erie, Pa.	52	37	10	3	2	-	-
Jersey City, N.J.	45	31	4	6	1	3	2
New York City, N.Y.	1,096	732	210	116	20	18	33
Newark, N.J.	71	26	20	17	5	2	8
Paterson, N.J.	23	14	3	5	1	-	-
Philadelphia, Pa.	401	266	86	35	8	6	13
Pittsburgh, Pa.§	44	28	13	2	-	1	4
Reading, Pa.	11	7	4	-	-	-	4
Rochester, N.Y.	111	84	21	4	2	-	11
Schenectady, N.Y.	30	24	3	2	-	1	1
Scranton, Pa.	31	24	6	-	-	1	-
Syracuse, N.Y.	94	71	12	8	3	-	8
Trenton, N.J.	24	15	5	2	-	2	2
Utica, N.Y.	13	10	3	-	-	-	-
Yonkers, N.Y.	26	20	4	2	-	-	-
E.N. CENTRAL	1,938	1,282	383	151	65	55	99
Akron, Ohio	49	31	13	2	2	1	-
Canton, Ohio	44	38	4	1	-	1	6
Chicago, Ill.	394	223	92	38	27	12	20
Cincinnati, Ohio	117	78	21	8	3	7	8
Cleveland, Ohio	137	88	23	13	6	7	1
Columbus, Ohio	149	95	34	11	4	5	8
Dayton, Ohio	116	82	21	10	1	2	8
Detroit, Mich.	195	113	51	22	3	6	13
Evansville, Ind.	24	17	7	-	-	-	1
Fort Wayne, Ind.	43	33	6	2	2	-	2
Gary, Ind.	U	U	U	U	U	U	U
Grand Rapids, Mich.	43	32	6	2	1	2	1
Indianapolis, Ind.	177	114	38	14	6	5	10
Lansing, Mich.	35	29	3	2	-	1	-
Milwaukee, Wis.	118	89	17	8	3	1	11
Peoria, Ill.	37	30	4	-	1	2	2
Rockford, Ill.	54	35	11	6	1	1	-
South Bend, Ind.	64	51	8	4	1	-	2
Toledo, Ohio	93	66	19	5	3	-	6
Youngstown, Ohio	49	38	5	3	1	2	-
W.N. CENTRAL	708	489	117	57	26	12	43
Des Moines, Iowa	53	40	9	2	2	-	4
Duluth, Minn.	29	25	2	2	-	-	3
Kansas City, Kans.	26	20	4	2	-	-	1
Kansas City, Mo.	76	47	12	3	6	1	3
Lincoln, Nebr.	35	22	9	3	1	-	1
Minneapolis, Minn.	168	121	28	12	4	3	8
Omaha, Nebr.	81	54	13	9	2	3	4
St. Louis, Mo.	110	70	16	15	7	2	15
St. Paul, Minn.	62	43	11	4	3	1	2
Wichita, Kans.	68	47	13	5	1	2	2

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,095	680	239	110	31	33	58
Atlanta, Ga.	123	80	23	16	3	1	4
Baltimore, Md.	188	99	41	36	6	5	14
Charlotte, N.C.	75	52	17	4	1	1	3
Jacksonville, Fla.	126	80	32	9	3	2	1
Miami, Fla.	85	49	20	10	6	-	-
Norfolk, Va.	64	41	11	5	1	6	-
Richmond, Va.	54	34	9	5	4	2	1
Savannah, Ga.	68	41	22	2	1	1	6
St. Petersburg, Fla.	79	56	13	5	1	4	4
Tampa, Fla.	174	118	35	10	4	7	23
Washington, D.C.	49	27	11	6	1	4	2
Wilmington, Del.	10	3	5	2	-	-	-
E.S. CENTRAL	797	522	166	59	29	18	52
Birmingham, Ala.	147	106	22	8	4	4	11
Chattanooga, Tenn.	70	49	12	5	2	2	6
Knoxville, Tenn.	58	40	15	3	-	-	3
Lexington, Ky.	71	46	19	4	2	-	8
Memphis, Tenn.	165	107	31	14	8	5	11
Mobile, Ala.	75	47	15	8	3	2	2
Montgomery, Ala.	60	39	13	4	1	3	5
Nashville, Tenn.	151	88	39	13	9	2	6
W.S. CENTRAL	1,409	918	290	110	59	32	78
Austin, Tex.	66	46	13	4	2	1	3
Baton Rouge, La.	56	43	4	5	3	1	5
Corpus Christi, Tex.	62	45	9	2	2	4	4
Dallas, Tex.	188	121	36	15	10	6	7
El Paso, Tex.	64	39	17	5	3	-	6
Ft. Worth, Tex.	105	69	18	7	4	7	3
Houston, Tex.	321	189	82	30	13	7	27
Little Rock, Ark.	70	54	12	-	4	-	-
New Orleans, La.	100	57	20	9	9	5	-
San Antonio, Tex.	205	135	45	19	6	-	10
Shreveport, La.	52	42	7	3	-	-	5
Tulsa, Okla.	120	78	27	11	3	1	8
MOUNTAIN	810	502	178	73	29	26	38
Albuquerque, N.M.	100	60	25	9	3	3	5
Boise, Idaho	U	U	U	U	U	U	U
Colo. Springs, Colo.	45	28	8	6	3	-	3
Denver, Colo.	118	74	28	10	3	3	9
Las Vegas, Nev.	124	70	36	10	3	3	5
Ogden, Utah	26	22	1	1	-	2	4
Phoenix, Ariz.	170	93	42	20	8	7	8
Pueblo, Colo.	33	25	4	3	-	1	1
Salt Lake City, Utah	84	53	17	5	4	5	1
Tucson, Ariz.	110	77	17	9	5	2	2
PACIFIC	1,619	1,148	290	108	38	35	96
Berkeley, Calif.	18	14	3	-	-	1	1
Fresno, Calif.	95	65	17	10	2	1	9
Glendale, Calif.	27	19	6	1	1	-	2
Honolulu, Hawaii	44	31	10	2	-	1	5
Long Beach, Calif.	80	59	11	5	3	2	11
Los Angeles, Calif.	647	457	120	41	12	17	26
Pasadena, Calif.	28	20	5	1	1	1	4
Portland, Oreg.	55	39	11	3	2	-	-
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	141	97	24	12	4	4	11
San Francisco, Calif.	107	63	30	12	1	1	11
San Jose, Calif.	185	140	24	14	3	4	14
Santa Cruz, Calif.	18	15	3	-	-	-	-
Seattle, Wash.	124	84	22	6	9	3	-
Spokane, Wash.	50	45	4	1	-	-	2
Tacoma, Wash.	U	U	U	U	U	U	U
TOTAL	11,213¶	7,449	2,196	945	342	264	601

U: Unavailable -: no reported cases

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

†Pneumonia and influenza.

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

¶Total includes unknown ages.

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