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Carbon Monoxide Poisoning Deaths Associated with Camping — Georgia, March 1999

Carbon monoxide (CO) is an odorless, colorless, nonirritating gas produced by the incomplete combustion of carbon-based fuels. CO exposure is responsible for more fatal unintentional poisonings in the United States than any other agent, with the highest incidence occurring during the cold-weather months (*1*). Although most of these deaths occur in residences or motor vehicles (*2*), two incidents among campers in Georgia illustrate the danger of CO in outdoor settings. This report describes the two incidents, which resulted in six deaths, and provides recommendations for avoiding CO poisoning in outdoor settings.

Cases 1–4. On the afternoon of March 14, 1999, a 51-year-old man, his 10-year-old son, a 9-year-old boy, and a 7-year-old girl were found dead inside a zipped-up, 10-foot by 14-foot, two-room tent at their campsite in southeast Georgia (a pet dog also died). A propane gas stove, still burning, was found inside the tent; the stove apparently had been brought inside to provide warmth. The occupants had died during the night. Postmortem carboxyhemoglobin (COHb) levels measured 50%, 63%, 69%, and 63%, respectively, in the four decedents (in the general U.S. population, COHb concentrations average 1% in nonsmokers and 4% in smokers [*3*]).

Cases 5 and 6. On March 27, 1999, a 34-year-old man and his 7-year-old son were found dead inside their zipped-up tent at a group camping site in central Georgia. They were discovered by other campers just before 9 a.m. A charcoal grill was found inside the tent; the grill apparently had been brought inside to provide warmth after it had been used outside for cooking. Postmortem COHb levels in the two campers measured 68% and 76%, respectively.

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Editorial Note: On respiration, CO binds to hemoglobin with an affinity 200–250 times greater than that of oxygen, forming a COHb complex (*4*). The principal toxic effect of CO exposure is tissue hypoxia because COHb is less efficient at transporting and de-

Carbon Monoxide Poisoning — Continued

livering oxygen. Poisoning symptoms, such as headache, dizziness, and nausea, usually are seen at COHb levels of >10% in otherwise healthy persons (*2*).

During 1979–1988 in the United States, from 878 to 1513 deaths per year were attributed to unintentional CO poisoning (*1*). CO poisoning has been reported in many different settings, including homes (*5*), automobiles (*6*), and indoor arenas (*7*). The findings in this report demonstrate the danger of CO from portable gas stoves and charcoal grills, specifically if placed inside a tent or other confined sleeping area. In the United States during 1990–1994, portable fuel-burning camp stoves and lanterns were involved in 10–17 CO poisoning deaths each year, and charcoal grills were involved in 15–27 deaths each year (*2*). During this same time, an annual average of 30 fatal CO poisonings occurred inside tents or campers (*2*).

Evening temperatures often drop unexpectedly, even during warmer months of the year. Campers who are unprepared for colder weather may overlook the danger of operating fuel-burning camping heaters, portable gas stoves, or charcoal grills inside tents and campers. Camping stoves and heaters are not designed to be used indoors and can emit hazardous amounts of CO, and smoldering charcoal emits large amounts of CO. Inside a tent or camper, these sources produce dangerous concentrations of CO, which becomes even more dangerous to sleeping persons who are unable to recognize the early symptoms of CO poisoning.

To avoid hazardous CO exposures, fuel-burning equipment such as camping stoves, camping heaters, lanterns, and charcoal grills should never be used inside a tent, camper, or other enclosed shelter. Opening tent flaps, doors, or windows is insufficient to prevent build-up of CO concentrations from these devices. When using fuel-burning devices outdoors, the exhaust should not vent into enclosed shelters. Warnings about the potential for CO poisoning should be stated clearly in the owner's manual and on labels permanently affixed to portable stoves. In 1997, changes made in the labeling requirements for retail charcoal containers* more clearly conveyed the danger of burning charcoal inside homes, tents, or campers. Rather than relying on fuel-burning appliances to supply heat, campers should leave home with adequate bedding and clothing and should consume extra calories and fluids during the outing to prevent hypothermia. Continuing efforts to educate the public by organizations that promote outdoor activities or operate camping areas also should decrease camping-associated CO poisoning.

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*16 CFR Part 1500.

Four Pediatric Deaths from Community-Acquired Methicillin-Resistant *Staphylococcus aureus* — Minnesota and North Dakota, 1997–1999

Methicillin-resistant *Staphylococcus aureus* (MRSA) is an emerging community-acquired pathogen among patients without established risk factors for MRSA infection (e.g., recent hospitalization, recent surgery, residence in a long-term–care facility [LTCF], or injecting-drug use [IDU]) (*1*). Since 1996, the Minnesota Department of Health (MDH) and the Indian Health Service (IHS) have investigated cases of community-acquired MRSA infection in patients without established risk factors. This report describes four fatal cases among children with community-acquired MRSA; the MRSA strains isolated from these patients appear to be different from typical nosocomial MRSA strains in antimicrobial susceptibility patterns and pulsed-field gel electrophoresis (PFGE) characteristics.

Case Reports

Case 1. In July 1997, a 7-year-old black girl from urban Minnesota was admitted to a tertiary-care hospital with a temperature of 103 F (39.5 C) and right groin pain. An infected right hip joint was diagnosed; she underwent surgical drainage and was treated with cefazolin. On the third day of her hospital stay, antimicrobial therapy was changed to vancomycin when cultures of blood and joint fluid grew MRSA. The same day, the patient had another hip drainage procedure, but had respiratory failure and was placed on mechanical ventilation. Her course was complicated by acute respiratory distress syndrome, pneumonia, and an empyema that required chest tube drainage. She died from a pulmonary hemorrhage after 5 weeks of hospitalization.

MRSA isolated from her blood, hip joint, and sputum was susceptible to multiple antibiotic classes (Table 1). An autopsy revealed bilateral bronchopneumonia with abscesses. The patient was previously healthy with no recent hospitalizations. No family members resided in LTCFs or worked in health-care settings.

Case 2. In January 1998, a 16-month-old American Indian girl from rural North Dakota was taken to a local hospital in shock and with a temperature of 105.2 F (40.6 C), seizures, a diffuse petechial rash, and irritability. She was treated with ceftriaxone but developed respiratory failure and cardiac arrest and died within 2 hours of arriving at

TABLE 1. Cases of community-acquired methicillin-resistant *Staphylococcus aureus,* by selected characteristics — Minnesota and North Dakota, 1997–1999

Characteristic	Case 1	Case 2	Case 3	Case 4
Age	7 years	16 months	13 years	12 months
Syndrome	septic arthritis, sepsis, pneumonia/ empyema	severe sepsis	necrotizing pneumonia, severe sepsis	necrotizing pneumonia, severe sepsis
Antimicrobial susceptibility*	t/s, tet, cip, gent, ery, clind, vanc	t/s, tet, cip, gent, ery, clind, vanc	t/s, cep, cip, gent, ery, clind, vanc	t/s, tet, cip, gent, ery, clind, vanc
Toxin test†	SEC positive	SEC positive	SEB positive	SEB positive

*t/s=trimethoprim-sulfamethoxazole, tet=tetracycline, cip=ciprofloxacin, gent=gentamicin, ery=erythromicin, clind=clindamycin, and vanc=vancomycin.
†SEB=staphylococcal enterotoxin B; SEC=staphylococcal enterotoxin C.

the hospital. Blood and cerebrospinal fluid cultures drawn immediately postmortem grew MRSA that was susceptible to multiple antibiotic classes (Table 1). An autopsy revealed multiple small abscesses of the brain, heart, liver, and kidneys; autopsy cultures of meninges, blood, and lung tissue grew MRSA. One month earlier, the patient had been treated with amoxicillin for otitis media. Neither the patient nor family members had been hospitalized during the previous year; no family members resided in LTCFs or worked in health-care settings.

Case 3. In January 1999, a 13-year-old white girl from rural Minnesota was brought to a local hospital with fever, hemoptysis, and respiratory distress. The day before admission she had a productive cough and a 2-cm papule on her lower lip. A chest radiograph revealed a left lower lobe infiltrate and a pleural effusion. She was treated with ceftriaxone and nafcillin. Within 5 hours of arriving at the hospital, she became hypotensive and was transferred to a pediatric hospital, intubated, and treated with vancomycin and cefotaxime. Despite pulmonary and hemodynamic support, the patient's respiratory status deteriorated, and she died on the seventh hospital day from progressive cerebral edema and multiorgan failure.

The patient's blood, sputum, and pleural fluid grew MRSA that was multidrug susceptible (Table 1). An autopsy revealed consolidated hemorrhagic necrosis of the left lung. The patient had no chronic medical conditions and no recent hospitalizations; no family members were health-care workers or employees of an LTCF or had a history of IDU.

Case 4. In February 1999, a 12-month-old white boy from rural North Dakota was admitted to a tertiary-care hospital with bronchiolitis, vomiting, and dehydration. He had a temperature of 105.2 F (40.6 C) and a petechial rash. Chest radiograph revealed an infiltrate in the right lung consistent with pneumonitis. On the second hospital day, the patient was diagnosed with a large right pleural effusion. He was transferred to the intensive-care unit, a chest tube was inserted, and treatment with vancomycin and cefuroxime was initiated. The patient developed severe respiratory distress and hypotension the following day and died.

The patient's admission blood culture was negative, but his pleural fluid and a postmortem blood culture grew multidrug-susceptible MRSA (Table 1). An autopsy revealed acute necrotizing pneumonia with extensive hemorrhage and numerous gram-positive cocci in the right lung. The patient had not been hospitalized since birth and had no known medical problems; no family members were health-care workers or employees of an LTCF or known to be IDUs. His 2-year-old sister had been treated for a culture-confirmed MRSA buttock infection 3 weeks earlier. MRSA isolates from the sister and the patient had identical antibiotic susceptibility profiles.

Laboratory Summary

MRSA isolates from these four cases were susceptible to all antimicrobial agents tested except beta-lactams (Table 1). All vancomycin minimum inhibitory concentrations were ≤2 μg/L. Isolates from all four cases had the *mec*A gene by PCR assay at MDH. Isolates from cases 1 and 4 shared an indistinguishable PFGE pattern; isolates from cases 2 and 3 differed by two and three bands, respectively, suggesting clonal relatedness among these cases (*2*). In comparison, these PFGE patterns differed by an average of >10 bands compared with PFGE patterns among nosocomial MRSA iso-

Methicillin-Resistant Staphylococcus aureus — *Continued*

lates from several Minnesota hospitals. *Sma* I was the restriction enzyme used for PFGE. No isolate produced toxic shock syndrome toxin-1.

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Editorial Note: Since the first case reports of MRSA infections in the United States in 1968 (*3*), MRSA has become an increasing problem. The percentage of nosocomial *S. aureus* isolates that were methicillin resistant increased from 2% in 1974 to approximately 50% in 1997 (*4,5*). Methicillin resistance is usually conferred by the chromosomal *mec*A gene, which encodes an altered penicillin-binding protein (PBP-2A) that causes resistance to all beta-lactam antibiotics, including cephalosporins. However, many nosocomial MRSA strains have acquired resistance to numerous other antibiotic classes through a variety of mechanisms. Approximately 50% of MRSA isolates identified at National Nosocomial Infection Surveillance (NNIS) system hospitals are susceptible only to vancomycin (*5*).

Most documented MRSA infections are acquired nosocomially; previously, community-acquired cases were restricted to patients residing in LTCFs and among IDUs (*6*). However, both of these groups have extensive exposure to hospitals, and their infections are generally caused by nosocomial MRSA strains. More recently, however, community-acquired MRSA infections have been identified at a Chicago pediatric hospital, in day care centers, and among minority communities in other countries (*1,7–9*). Unlike nosocomial MRSA isolates, community-acquired isolates from patients without known MRSA risk factors are generally multidrug susceptible (except to beta-lactams) and have distinctive molecular characteristics, as did the four isolates from the fatal cases presented in this report.

These four cases demonstrate the potential severity of community-acquired MRSA infections. Beta-lactam antibiotics (including cephalosporins) are used as empiric therapy for various adult and pediatric infections, but these agents are uniformly ineffective in treating MRSA infections. All patients in this report were initially treated with a cephalosporin antibiotic; the delayed use of antibiotics to which MRSA were susceptible may have contributed to the fatal outcomes. As a result, where such infections exist, obtaining appropriate cultures of infected sites is important. Clinicians should consider MRSA as a potential pathogen in severe pediatric pneumonia or sepsis syndromes in areas where community MRSA infections have been reported. In critically ill patients with invasive infections, empiric treatment with vancomycin (in addition to a third-generation cephalosporin) pending culture results may be necessary to treat cephalosporin-resistant *S. pneumoniae* (*10*) or MRSA.

The rural/urban and racial diversity among these cases suggest that MRSA colonization may be widespread, especially in this region of the United States. The extent of community-acquired MRSA infection in the United States is unknown. Few data are available to define the molecular characteristics of these strains. It is also unclear how to limit the spread of MRSA within the community and whether it is feasible to de-

Methicillin-Resistant Staphylococcus aureus — *Continued*

colonize selected high-risk persons. The role that increased antibiotic use in children—particularly beta-lactams and cephalosporins—has played in selecting for MRSA strains in the community also is unknown. Local or state-based surveillance is needed to characterize and monitor community-acquired MRSA infections and to develop strategies that will improve MRSA treatment and control.

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Gastrointestinal Basidiobolomycosis — Arizona, 1994–1999

In March 1999, the Arizona Department of Health Services (ADHS) notified CDC about six cases of gastrointestinal basidiobolomycosis (GIB), an invasive fungal infection. Three cases were reported during January–March 1999, compared with three cases reported during the previous 5 years. This report describes two persons who had representative clinical presentations and summarizes the findings of the investigation of these cases, which indicate that this unusual fungal infection causes severe illness and may be misdiagnosed initially.

Case Reports

Case 1. In November 1998, a 37-year-old woman sought medical care at an emergency department for abdominal pain of 1 weeks' duration. She had no physical signs of abdominal disease, but her medical history was notable for 1 year of pica. She was treated empirically with an H_2-antagonist agent and subsequently with omeprazole for presumed peptic ulcer disease (PUD), but she continued to have intermittent abdominal pain. In January 1999, a computerized tomography scan of her abdomen showed thickened gastric walls and enlarged intra-abdominal lymph nodes. She was hospitalized with a presumptive diagnosis of gastric cancer and underwent partial gastrectomy. Her preoperative white blood cell count (WBC) was 26.4×10^6 cells/mL (normal: $4–10 \times 10^6$ cells/mL), and absolute eosinophil count was 2.6×10^6 cells/mL (normal: 0.4–

Basidiobolomycosis — Continued

$0.5x10^6$ cells/mL). Pathologic examination revealed an inflammatory mass involving the stomach and extending to the pancreas. Microscopic examination of mass tissue showed a chronic inflammatory infiltrate with abundant eosinophils and broad, thin-walled, pleomorphic hyphae consistent with zygomycosis. On the basis of histologic examination, basidiobolomycosis was diagnosed and she received antifungal therapy with itraconazole. She is continuing her therapy and is recovering.

Case 2. In December 1998, a 59-year-old man sought medical care at an emergency department for abdominal pain and mucus in his stool for 3 weeks. He underwent colonoscopy and inflammatory bowel disease was diagnosed based on biopsies showing acute and chronic inflammation. He subsequently developed colonic obstruction; probable colon cancer was diagnosed using barium enema and he underwent rectosigmoid resection in February 1999. His WBC was $12.1x10^6$ cells/mL, and absolute eosinophil count was $0.7x10^6$ cells/mL. Pathologic examination of the colon mass showed a chronic inflammatory infiltrate with abundant eosinophils and occasional granulomas. Hyphae consistent with zygomycosis were observed in the tissues. Culture of surgical specimens grew *Basidiobolus ranarum*, and he was started on itraconazole. He is continuing his therapy and is recovering.

Epidemiologic Investigation

Because of the increased number of cases reported in 1999, ADHS and CDC conducted a case-control study to identify potential risk factors and to determine modes of acquisition. A case of GIB was defined as *B. ranarum* cultured from any surgical specimen from the GI tract, or if culture was not performed, pathologic examination revealing histology consistent with basidiobolomycosis. Investigators reviewed hospital records of all case-patients. To identify additional cases, a letter was sent to all pathologists in Arizona describing the typical pathologic findings of basidiobolomycosis and asking them to notify ADHS of any potential cases. Local dermatologists were asked about cases consistent with subcutaneous basidiobolomycosis. No additional cases were found. Four age-matched controls per case were selected—two clinic-based controls and two neighborhood controls. All case-patients and controls were interviewed using a standardized questionnaire about past medical history, daily activities, environmental exposures, and diet. Informed consent was obtained from all participants.

During April 1994–March 1999, six cases were identified. All case-patients underwent surgery with partial resection of the GI tract, and all received postsurgical treatment with itraconazole for a median of 7.5 months (range: 3–19 months); five had elevated eosinophil counts before surgery. Four case-patients had *B. ranarum* cultured from surgical specimens, and four had a positive serologic result using an immunodiffusion test at CDC (*1*). Four case-patients were men, and five were white; median age was 50 years (range: 37–59 years). The median length of time from onset of symptoms to diagnosis was 113 days (range: 15–243 days), and the median number of physicians consulted before diagnosis was six (range: three to eight). No patients died.

Because demographic, socioeconomic, or underlying illness data were similar for the two control groups, the control groups were combined for the analysis of the case-control study. Case-patients had lived in Arizona significantly longer than controls (odds ratio [OR]=1.1 per additional year of residence, p=0.03). Smoking more years

Basidiobolomycosis — Continued

(OR=1.2 per additional year of smoking, p=0.10) and using H_2-antagonists (OR=9.5, p=0.06) before onset of symptoms were of borderline significance. Case-patients were more likely than controls to have amphibians or reptiles outside their homes (five [83%] versus 16 [67%]), camped near a lake or river during the previous year (three [50%] versus eight [33%]), had previous steroid use (two [33%] versus two [8%]), and owned a dog (four [67%] versus eight [33%]); fewer case-patients washed vegetables before eating them (four [67%] versus 21 [88%]). However, these differences were not statistically significant.

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Editorial Note: *B. ranarum* rarely causes human disease in the United States. Basidiobolomycosis is a form of zygomycosis caused by the fungus *B. ranarum* (from the order Entomophthorales), which has been isolated throughout the world from decaying vegetation and soil and from the GI tracts of reptiles, amphibians, fish, and insectivorous bats (*1*). Basidiobolomycosis is most common in the tropical regions of eastern and western Africa, but cases also have occurred in southeast Asia and South America. The disease most commonly affects males aged <20 years and usually manifests as painless, subcutaneous nodules on the lower extremities and buttocks (*1*). Infection is secondary to traumatic inoculation. GIB is rare, with only six cases previously reported (three cases from Brazil, one from Kuwait, and two from the United States, including one case from the Arizona cluster described in this report) (*2–6*).

A definitive diagnosis of basidiobolomycosis requires culture of *B. ranarum* from clinical or surgical specimens, but a probable diagnosis can be made based on histopathologic appearance. The microscopic appearance of *B. ranarum* in tissues is characterized by scarce, broad, thin-walled, pleomorphic hyphae surrounded by a collar of eosinophilic material (known as the Splendore-Hoeppli phenomenon) (*7*). The host inflammatory reaction is composed mostly of mononuclear cells with abundant eosinophils and occasional granulomas (*7*). Typically, the muscular layer of the GI tract is thickened greatly and eosinophilic inflammation is present extending through the serosa into the perigastric or mesenteric fat; the GI mucosa is typically spared (*2,3,5,6*). The histopathologic appearance of GIB may be confused with *Conidiobolus coronatus*, another Entomophthorales, or mucormycosis (*7*). GIB has a nonspecific clinical presentation and may be diagnosed initially as cancer, PUD, gastroenteritis, diverticulitis, or inflammatory bowel disease (*1*). A specific serologic immunodiffusion test is available through CDC, but its sensitivity is unknown, and antibodies against *B. ranarum* appear to wane following effective treatment (*6,8*). The patients described in this report had peripheral eosinophilia, but this laboratory finding has not been reported previously as a feature of basidiobolomycosis.

Successful response to therapy has been reported with ketoconazole, itraconazole, and potassium iodide; however, response to amphotericin B is poor (*2–6,9*). In the six cases described in this report, the three case-patients in whom GIB was diagnosed before 1999 apparently have been cured following surgery and treatment with itraconazole. The other three patients remained clinically well while taking itraconazole postoperatively. Because all of the Arizona patients underwent surgical excision of the

Basidiobolomycosis — Continued

affected parts of their GI tracts, it is difficult to evaluate whether itraconazole therapy alone could have resulted in adequate clinical response.

Ecologic studies in the United States have identified *B. ranarum* in reptiles and amphibians (*10*). GIB presumably is acquired through ingestion. However, except for the patient with a history of pica, it is unclear how the other patients acquired the infection. Possible exposures include unintentional ingestion of contaminated soil, especially near rivers or lakes, or eating fruits or vegetables contaminated with soil or feces from reptiles or amphibians. The findings in this report indicate that decreased acidity and other host factors (e.g., underlying disease and use of medication) may increase the risk for acquiring GIB.

The findings in this report are subject to at least two limitations. First, despite active case finding, a small number of cases were available for analysis. Second, because of the extended time between exposure and initial interviews of patients, the findings are subject to recall bias. To minimize this problem, the questionnaire focused on daily activities and usual food preparation methods.

Increased awareness by clinicians and public health surveillance may help identify additional cases, determine the burden of disease, and lead to a better understanding of risk factors for GIB and possible prevention measures. Physicians caring for patients with suspected basidiobolomycosis should contact their state health departments or CDC's Mycotic Diseases Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, telephone (404) 639-2499.

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Iron Deficiency Anemia in Alaska Native Children — Hooper Bay, Alaska, 1999

During fall 1998, health-care providers in Hooper Bay, Alaska, reported that hemoglobin data from a local Head Start program indicated that 14 (31%) of the 45 children aged 2–4 years had anemia (hemoglobin <11.0 g/dL), with an overall mean hemoglobin of 11.2 g/dL (standard deviation [SD] ±1.3 g/dL) (CDC, unpublished data, 1996–1997). This proportion was substantially higher than the estimated prevalence in the United States of 8% among children aged 1–5 years (*1*). Because the region's economy is heavily dependent on fishing and the region experienced a poor salmon run in 1998, the Alaska State Health Department was concerned that economic hardships could exacerbate the anemia problem. In January 1999, CDC and the Yukon-Kuskokwim Health Corporation assessed the prevalence of anemia among Hooper Bay children aged 1–5.9 years to determine factors contributing to anemia in this population, and to identify recommendations for potential interventions. The findings indicated that the estimated prevalence of anemia among these children was more than twice the U.S. average.

Of the 128 children aged 1–5.9 years living in Hooper Bay, 86 (67%) participated in a cross-sectional survey. All the children were Alaska Natives, 44 (51%) were girls, and 73 (85%) were aged 2–5.9 years. Height, weight, general health, and nutrition variables were assessed, including parent reports of food frequency data for the previous month, household information (e.g., family composition and number of rooms in the house), and medical record review of infection (e.g., otitis media and pneumonia). Venous blood samples were collected to assess hemoglobin, blood lead, iron status (serum ferritin and transferrin receptor), C-reactive protein (CRP) (a nonspecific marker of inflammation or infection), and *Helicobacter pylori* infection (serum IgG antibody testing by enzyme-linked immunosorbent assay, which indicates current or past infection). Stool samples were collected from 53 children for fecal blood analysis. Informed consent for the children's participation was obtained from parents or guardians.

Using age-appropriate hemoglobin cutoffs (*2*), the prevalence of anemia was 17% (n=15), and the mean hemoglobin value was 11.9 g/dL (SD ±0.94 g/dL). None of the children had elevated blood lead levels (>10.0 μg/dL). Iron deficiency was associated strongly with anemia; 67% of the anemic children had low ferritin concentrations compared with 32% of the nonanemic children (p=0.01), and 60% of the anemic children had high transferrin receptor concentrations compared with 6% of the nonanemic children (p=0.001). After adjusting for age, sex, and inflammation using logistic regression, associations between iron deficiency and anemia became stronger.

Evaluation of a 1-month food history indicated that 54 children (63%) were not consuming the recommended dietary allowance of 10 mg of iron per day, but the mean amount of iron consumed each day (9.7 mg [SD ±6.7 mg]) was close to this allowance. Dietary iron intake was not significantly associated with anemia or iron deficiency in either crude or adjusted analyses. However, anemia was associated with lower intake of foods that enhance iron absorption such as citrus juices (p=0.04); these results were confirmed after adjusting for age, sex, dietary iron intake, and iron inhibitors.

Overall, 11 (14%)* of the children had elevated CRP levels; four (27%) of the anemic children had elevated CRP levels compared with seven (11%) of the nonanemic chil-

*Denominators may vary because of missing data on some of the variables.

Iron Deficiency Anemia — Continued

dren, but this difference was not statistically significant (p=0.10). Analyses with medical records of infections, such as otitis media and pneumonia, during the month preceding the investigation and during the previous 2 years did not show any association with anemia.

H. pylori-specific IgG antibodies were present in 34 (41%) of the children (optical density values: ≥1.30), absent in 30 (36%) (optical density values: <0.80), and indeterminate in 19 (23%) (optical density values: 0.80–1.29). Twelve (80%) of the anemic children and 22 (32%) of the nonanemic children were seropositive for *H. pylori* infection. *H. pylori* seropositivity was significantly associated with anemia (p=0.02) and with low ferritin (p=0.04) in this population. Children with indeterminate values were eliminated from these analyses. Of the 53 children for whom stool samples were available, three (6%) had an elevated stool heme content; testing positive for fecal heme was not associated with anemia.

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Editorial Note: The estimated prevalence of anemia among Alaska Native children in this study was more than twice the average in the United States (*1*). Results supported data from previous studies in this region, which indicated that anemia primarily was related to iron deficiency (*3*). Iron deficiency anemia in early childhood is associated with potentially permanent cognitive and developmental deficits (*2*).

Children with anemia in this population had a significantly lower intake of foods that enhance iron absorption than nonanemic children, which indicates that dietary iron absorption may be a problem. In addition, *H. pylori* seropositivity emerged as a risk factor for anemia. Studies of the association between *H. pylori* infection and anemia in children have produced conflicting results (*4,5*); in a study in Bangladesh of children aged 0.5–2 years, a positive association was found between *H. pylori* infection and anemia (*6*). Studies have suggested several possible mechanisms for the association between anemia and *H. pylori* infection, including *H. pylori*-induced gastric hypoacidity, or achlorhydria, which may contribute to poor iron absorption, and an increase in iron demand because of bacterial competition for iron (*7*). Gastrointestinal loss of blood and iron, as estimated by fecal heme, did not explain the association between *H. pylori* and anemia in this group of children, as has been suggested in earlier studies with adults (*8*); however, results were based on one stool sample, and the normal levels for fecal heme have not been validated in young children.

The prevalence of anemia found in this investigation was lower than previously reported by health-care providers in the region (CDC, unpublished data, 1996–1997). Lower prevalence may be related to the different methods used to determine hemo-

Iron Deficiency Anemia — Continued

globin levels. Venous blood, a more reliable specimen for hemoglobin analysis (*9*), was used in this investigation, whereas most anemia screening programs collect capillary blood by finger stick, often the most feasible method for small clinics. Capillary sampling generally results in higher hemoglobin values (*9*), but if performed improperly, this technique might lower the hemoglobin estimates (*10*). In areas where capillary sampling is relied on to assess hemoglobin levels, appropriate training and periodic follow-up may increase data reliability.

The findings in this report are subject to at least three limitations. First, small sample size may make it difficult to detect differences, and reliance on a cross-sectional design limits inferences about the directionality of associations and causality. Second, children who participated may not be representative of all of the children in the village. Third, although the food frequency questionnaire was piloted in Alaska, it was not specifically validated against 24-hour recalls with children in this village.

Given the potential association between *H. pylori* and anemia, and the role of *H. pylori* in the development of peptic ulcer disease, chronic gastritis, and gastric cancer, more research is needed to identify modes of transmission and appropriate interventions for *H. pylori* infection. Efforts are under way to ensure that anemic children are followed closely and to address issues related to anemia screening and surveillance. Prevention and control strategies for iron deficiency anemia should be implemented in this population of children in accordance with CDC recommendations (*2*).

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Public Health Dispatch

Potential Hepatitis A Exposure Among Interstate 95 Travelers — North Carolina, 1999

North Carolina health officials are advising persons who dined at the Texas Steakhouse in Smithfield (Johnston County), North Carolina, near Interstate 95 (exit 95) on July 24, July 25, July 26, July 31, August 1, August 2, August 7, or August 8 after 3 p.m. that they may have been exposed to hepatitis A. A worker at the restaurant during those times has had hepatitis A infection diagnosed. Potentially 3000 diners could have been exposed when the infected person was working.

Although local health officials think that many diners were from the Smithfield/Johnston County area, many of the exposed persons may be from other areas, particularly along the eastern seaboard. Additional information is available from the Johnston County Health Department, telephone (919) 989-5200.

Reported by: LS Woodall, MD, Johnston County Health Dept, Smithfield; JS Cline, DDS, Chief, Epidemiology and Communicable Diseases Section, Div of Public Health, North Carolina Dept of Health and Human Svcs.

Notice to Readers

Satellite Broadcast on Biological Warfare and Terrorism

CDC and the U.S. Army Medical Research Institute of Infectious Diseases will cosponsor a satellite broadcast on September 21, 22, and 23, 1999, from 12:30 p.m. to 4:30 p.m. eastern daylight time (EDT) and taped rebroadcast on October 2 and 3, from 11:30 a.m. to 5:30 p.m. EDT. The broadcast describing the military and public health response is intended for military, medical, and public health professionals, who will learn how to recognize a biological attack, investigate the event, treat casualties, prevent the spread of the agent, and manage the proper medical response.

Additional information about this broadcast, including registration, is available from the World-Wide Web, http://www.biomedtraining.org, or from Rick Stevens, telephone (301) 619-4880. Continuing education credit is available for a variety of professions.

Notice to Readers

Satellite Broadcast on Diagnostic and Therapeutic Dilemmas for Gonococcal and Chlamydial Infections

The CDC-sponsored National Network of STD/HIV Prevention Training Centers (PTC) will broadcast *STD Diagnostic and Therapeutic Dilemmas: Gonococcal and Chlamydial Infections*, an interactive satellite broadcast, in English and Spanish on October 14, 1999, from 1 p.m. to 2:30 p.m. eastern daylight time. The broadcast is intended for primary-care and managed-care providers and health-care clinicians caring for patients exposed to or infected with gonococcal and chlamydial infections. The

Notices to Readers — Continued

broadcast will cover state-of-the-art screening and diagnostic interpretations of chlamydial and gonococcal technologies. Continuing medical education credit is available.

Additional information is available from the STD/HIV PTC, Dallas County Health and Human Services, 2377 N. Stemmons Fwy., #430, Dallas, TX 75207-2710; telephone (214) 819-1947; or from the World-Wide Web, http://www.stdptc.uc.edu*.

*References to sites of nonfederal organizations on the World-Wide Web are provided as a service to *MMWR* readers and do not constitute or imply endorsement of these organizations or their programs by CDC or the U.S. Department of Health and Human Services. CDC is not responsible for the content of pages found at these sites.

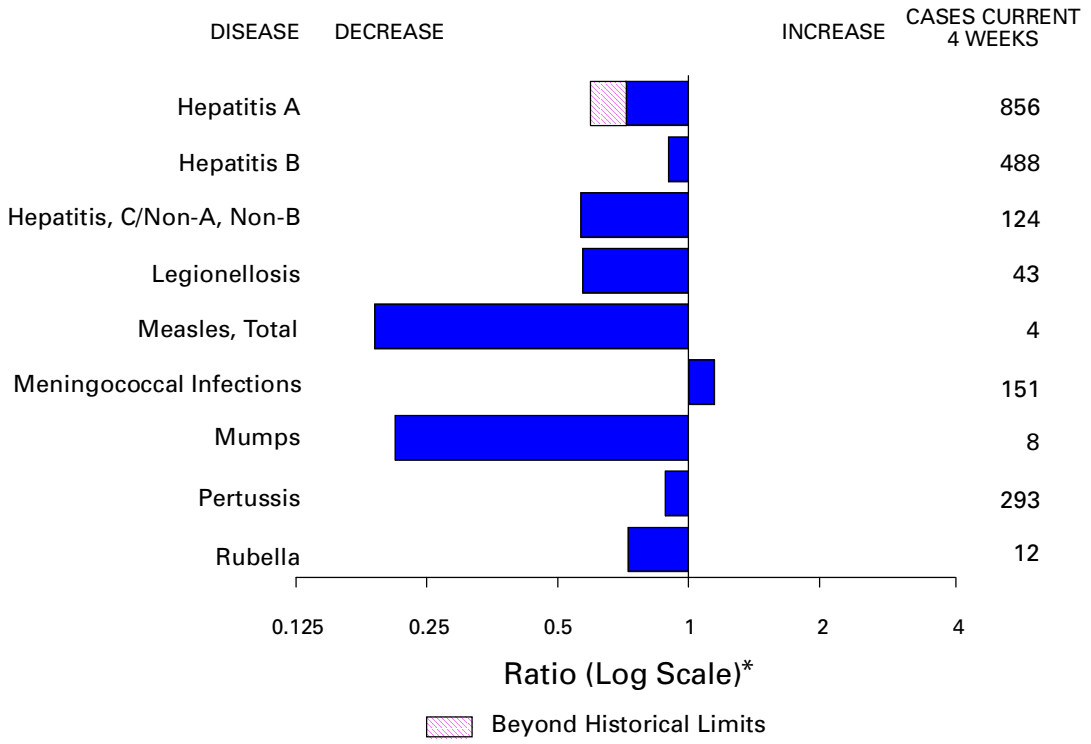
Erratum: Vol. 48, No. 31

In the report entitled "Radon Testing in Households with a Residential Smoker—United States, 1993–1994," the last sentence on page 685 should have read: "Finally, studies addressing the link between smoking and radon were limited to cigarette smokers (*5*), but the NHIS included smokers of all types of tobacco."

The accompanying reference 5, which was correct as published, is:

5. National Academy of Sciences. Biological effects of ionizing radiation (BEIR) VI report: the health effects of exposure to indoor radon. Executive summary. Available at http://www.epa.gov/iaq/radon/beiriv1.html. Accessed February 19, 1998.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending August 14, 1999, 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 14, 1999 (32nd Week)

	Cum. 1999		Cum. 1999
Anthrax	-	HIV infection, pediatric*§	86
Brucellosis*	26	Plague	2
Cholera	4	Poliomyelitis, paralytic	-
Congenital rubella syndrome	3	Psittacosis*	15
Cyclosporiasis*	25	Rabies, human	-
Diphtheria	2	Rocky Mountain spotted fever (RMSF)	300
Encephalitis: California*	9	Streptococcal disease, invasive Group A	1,400
eastern equine*	2	Streptococcal toxic-shock syndrome*	27
St. Louis*	-	Syphilis, congenital¶	109
western equine*	-	Tetanus	17
Ehrlichiosis human granulocytic (HGE)*	83	Toxic-shock syndrome	73
human monocytic (HME)*	20	Trichinosis	6
Hansen Disease*	53	Typhoid fever	181
Hantavirus pulmonary syndrome*†	11	Yellow fever	-
Hemolytic uremic syndrome, post-diarrheal*	44		

-: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 July 25, 1999.
¶ Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending August 14, 1999, and August 15, 1998 (32nd Week)

Reporting Area	AIDS		Chlamydia		Cryptosporidiosis		*Escherichia coli* O157:H7*			
							NETSS		PHLIS	
	Cum. 1999†	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998
UNITED STATES	26,427	27,571	361,764	355,683	945	1,556	1,378	1,478	761	1,271
NEW ENGLAND	1,298	1,007	11,964	12,488	55	99	163	193	119	180
Maine	43	21	193	620	16	21	17	21	-	-
N.H.	31	23	572	591	7	11	20	29	21	33
Vt.	6	14	292	258	14	15	18	10	7	7
Mass.	842	506	5,706	5,122	18	47	91	101	52	103
R.I.	70	81	1,421	1,447	-	5	17	5	6	1
Conn.	306	362	3,780	4,450	-	-	U	27	33	36
MID. ATLANTIC	6,746	7,661	44,376	37,170	204	346	93	162	31	56
Upstate N.Y.	846	984	N	N	78	202	82	108	-	-
N.Y. City	3,592	4,054	21,963	16,304	107	130	5	9	8	10
N.J.	1,278	1,556	6,300	7,165	9	14	6	45	23	34
Pa.	1,030	1,067	16,113	13,701	10	-	N	N	-	12
E.N. CENTRAL	1,719	2,157	51,101	60,509	89	415	282	250	152	218
Ohio	262	459	14,667	16,438	26	48	106	60	53	42
Ind.	224	376	6,667	6,468	17	30	41	59	22	33
Ill.	783	818	17,308	16,099	16	46	80	71	33	49
Mich.	360	389	12,459	13,174	30	22	55	60	17	38
Wis.	90	115	U	8,330	-	269	N	N	27	56
W.N. CENTRAL	611	528	19,388	20,987	80	173	275	224	141	208
Minn.	105	102	3,264	4,272	14	58	81	89	80	99
Iowa	55	49	1,448	2,410	24	41	60	57	26	36
Mo.	295	243	8,424	7,643	16	15	27	21	26	38
N. Dak.	4	4	325	597	12	18	8	6	1	12
S. Dak.	13	11	832	976	4	19	29	15	4	16
Nebr.	45	48	2,023	1,757	9	18	56	20	-	-
Kans.	94	71	3,072	3,332	1	4	14	16	4	7
S. ATLANTIC	7,281	6,838	85,736	67,484	196	146	173	104	91	105
Del.	95	90	1,667	1,512	-	1	3	-	1	1
Md.	793	824	6,679	4,880	10	12	11	19	-	10
D.C.	274	567	N	N	7	4	-	1	-	-
Va.	372	526	8,910	7,542	10	2	42	-	29	39
W. Va.	40	59	1,148	1,486	-	1	7	-	1	3
N.C.	482	459	14,053	13,025	5	-	32	23	27	34
S.C.	683	449	15,603	11,396	-	-	17	5	13	3
Ga.	1,091	727	19,150	13,969	94	56	18	44	-	-
Fla.	3,451	3,137	18,526	13,674	70	70	43	12	20	15
E.S. CENTRAL	1,145	1,152	25,411	24,753	15	18	72	78	34	45
Ky.	176	155	4,628	3,822	5	7	19	25	-	-
Tenn.	442	397	8,282	8,058	4	6	34	32	18	27
Ala.	287	329	7,290	6,346	4	-	15	18	13	17
Miss.	240	271	5,211	6,527	2	5	4	3	3	1
W.S. CENTRAL	2,858	3,331	50,499	53,417	35	49	44	59	47	67
Ark.	107	136	3,597	2,226	-	6	8	7	5	8
La.	541	581	7,726	8,556	21	10	3	3	6	2
Okla.	74	184	5,109	6,119	4	-	15	11	9	5
Tex.	2,136	2,430	34,067	36,516	10	33	18	38	27	52
MOUNTAIN	1,021	990	20,000	19,883	52	68	126	200	63	164
Mont.	5	18	887	739	8	6	8	10	-	2
Idaho	16	19	1,020	1,219	3	-	15	24	6	16
Wyo.	4	1	445	397	-	-	3	49	5	53
Colo.	197	186	4,295	4,963	5	8	47	38	28	33
N. Mex.	65	153	2,711	2,235	22	33	5	16	2	13
Ariz.	518	384	7,829	6,846	9	14	19	21	12	21
Utah	84	70	1,188	1,415	-	-	22	34	8	16
Nev.	132	159	1,625	2,069	5	7	7	8	2	10
PACIFIC	3,748	3,907	53,289	58,992	219	242	150	208	83	228
Wash.	218	266	7,179	6,823	-	-	41	32	26	66
Oreg.	118	117	3,632	3,201	79	25	36	63	23	64
Calif.	3,348	3,411	39,614	46,364	140	217	72	110	28	88
Alaska	13	17	1,131	1,160	-	-	-	3	-	-
Hawaii	51	96	1,733	1,444	-	-	1	-	6	10
Guam	5	-	226	242	-	-	N	N	-	-
P.R.	821	1,191	U	U	-	-	5	3	U	U
V.I.	19	18	N	N	-	-	N	N	U	U
Amer. Samoa	-	-	U	U	-	-	N	N	U	U
C.N.M.I.	-	-	N	N	-	-	N	N	U	U

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

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

†Updated monthly from reports to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update July 25, 1999.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending August 14, 1999, and August 15, 1998 (32nd Week)

Reporting Area	Gonorrhea		Hepatitis C/NA,NB		Legionellosis		Lyme Disease	
	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998
UNITED STATES	194,687	209,377	2,173	2,014	488	774	5,376	8,156
NEW ENGLAND	3,684	3,570	59	46	37	46	1,567	2,780
Maine	15	38	2	-	4	1	22	46
N.H.	62	55	-	-	3	3	3	25
Vt.	33	22	4	2	8	4	6	8
Mass.	1,592	1,269	50	41	13	22	509	576
R.I.	369	218	3	3	3	8	236	263
Conn.	1,613	1,968	-	-	6	8	791	1,862
MID. ATLANTIC	24,333	22,420	97	137	105	186	2,907	4,067
Upstate N.Y.	3,778	4,108	62	70	33	54	2,044	2,004
N.Y. City	9,463	7,305	-	-	9	28	25	138
N.J.	3,465	4,643	-	-	5	11	124	769
Pa.	7,627	6,364	35	67	58	93	714	1,156
E.N. CENTRAL	33,651	41,197	1,129	453	123	266	70	517
Ohio	8,947	10,466	1	7	52	93	50	24
Ind.	3,676	3,769	1	5	21	45	14	23
Ill.	12,302	13,243	22	30	10	33	5	11
Mich.	8,726	10,051	523	301	37	51	1	11
Wis.	U	3,668	582	110	3	44	U	448
W.N. CENTRAL	8,359	10,147	84	25	28	40	81	87
Minn.	1,208	1,569	4	7	1	3	37	52
Iowa	417	770	-	7	11	5	10	19
Mo.	4,377	5,436	71	8	11	10	16	9
N. Dak.	31	49	-	-	-	-	1	-
S. Dak.	83	152	-	-	2	3	-	-
Nebr.	928	707	3	2	3	15	6	3
Kans.	1,315	1,464	6	1	-	4	11	4
S. ATLANTIC	61,195	56,074	142	67	77	87	550	541
Del.	1,037	829	1	-	8	8	19	45
Md.	5,751	5,572	32	8	13	27	384	387
D.C.	1,642	2,763	-	-	1	6	3	4
Va.	6,013	4,577	10	9	17	10	58	38
W. Va.	311	505	13	4	N	N	14	8
N.C.	12,253	11,253	29	15	13	6	44	37
S.C.	8,345	7,369	15	3	7	7	5	3
Ga.	12,666	12,242	1	9	-	4	-	5
Fla.	13,177	10,964	41	19	18	19	23	14
E.S. CENTRAL	20,268	23,515	193	162	31	45	61	59
Ky.	2,028	2,189	10	16	14	22	4	13
Tenn.	6,649	6,935	84	87	14	11	30	25
Ala.	6,562	8,041	1	4	3	5	16	12
Miss.	5,029	6,350	98	55	-	7	11	9
W.S. CENTRAL	27,789	32,829	145	323	3	13	17	17
Ark.	1,808	2,493	11	12	-	1	2	6
La.	6,054	7,443	100	21	1	2	-	3
Okla.	2,508	3,338	12	8	2	8	4	2
Tex.	17,419	19,555	22	282	-	2	11	6
MOUNTAIN	5,509	5,437	91	281	32	45	10	8
Mont.	26	26	4	7	-	2	-	-
Idaho	49	117	4	85	-	2	1	3
Wyo.	14	18	30	64	-	1	3	1
Colo.	1,344	1,237	15	18	9	10	-	-
N. Mex.	553	550	7	66	1	2	1	2
Ariz.	2,758	2,460	21	4	5	9	-	-
Utah	109	153	5	19	11	16	3	-
Nev.	656	876	5	18	6	3	2	2
PACIFIC	9,899	14,188	233	520	52	46	113	80
Wash.	1,242	1,169	11	12	9	8	4	5
Oreg.	497	466	15	10	N	N	8	11
Calif.	7,737	12,061	207	444	42	36	101	63
Alaska	186	195	-	-	1	1	-	1
Hawaii	237	297	-	54	-	1	-	-
Guam	32	30	-	-	-	2	-	-
P.R.	176	241	-	-	-	-	-	-
V.I.	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	-	25	-	-	-	-	-	-

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

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending August 14, 1999, and August 15, 1998 (32nd Week)

Reporting Area	Malaria		Rabies, Animal		Salmonellosis*			
					NETSS		PHLIS	
	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998
UNITED STATES	722	799	3,428	4,533	18,708	22,126	13,933	19,646
NEW ENGLAND	28	42	514	865	962	1,425	951	1,373
Maine	2	3	96	142	85	104	53	42
N.H.	2	3	31	49	82	111	86	151
Vt.	3	-	66	38	50	80	37	58
Mass.	10	16	112	285	681	806	498	812
R.I.	3	2	62	52	64	83	48	31
Conn.	8	18	147	299	U	241	229	279
MID. ATLANTIC	166	227	657	988	2,274	3,834	1,601	3,663
Upstate N.Y.	46	51	471	693	705	893	580	871
N.Y. City	70	125	U	U	710	1,227	579	1,046
N.J.	29	29	113	121	332	799	442	752
Pa.	21	22	73	174	527	915	-	994
E.N. CENTRAL	70	87	70	69	2,529	3,743	1,853	2,789
Ohio	16	5	23	43	688	894	448	758
Ind.	10	7	-	5	286	411	201	354
Ill.	19	39	4	-	936	1,158	399	743
Mich.	23	31	40	19	581	725	534	623
Wis.	2	5	3	2	38	555	271	311
W.N. CENTRAL	33	53	405	506	1,268	1,352	1,062	1,414
Minn.	6	26	64	83	303	320	371	377
Iowa	11	5	84	109	157	232	71	188
Mo.	12	12	9	26	409	391	477	522
N. Dak.	-	2	88	98	32	36	4	51
S. Dak.	-	-	88	115	64	61	26	75
Nebr.	-	1	2	5	119	107	-	26
Kans.	4	7	70	70	184	205	113	175
S. ATLANTIC	217	161	1,278	1,524	4,302	3,944	2,876	3,225
Del.	1	1	29	26	58	42	91	81
Md.	64	51	249	314	480	520	421	514
D.C.	13	12	-	-	51	45	-	-
Va.	48	32	325	376	760	582	570	520
W. Va.	1	1	74	57	93	96	81	94
N.C.	12	12	260	398	615	552	589	726
S.C.	5	4	102	98	261	258	217	267
Ga.	19	20	122	136	632	685	651	727
Fla.	54	28	117	119	1,352	1,164	256	296
E.S. CENTRAL	15	18	179	189	1,042	1,120	508	969
Ky.	5	3	25	26	237	236	-	116
Tenn.	6	9	63	102	269	322	258	448
Ala.	3	4	91	59	322	318	217	335
Miss.	1	2	-	2	214	244	33	70
W.S. CENTRAL	10	15	75	25	1,241	1,979	1,353	1,650
Ark.	1	1	14	25	247	237	76	188
La.	6	6	-	-	159	245	220	412
Okla.	2	1	61	-	218	241	130	84
Tex.	1	7	-	-	617	1,256	927	966
MOUNTAIN	28	40	119	121	1,799	1,428	1,146	1,306
Mont.	4	-	41	35	38	55	1	35
Idaho	3	7	-	-	60	68	45	61
Wyo.	1	-	32	46	27	41	22	36
Colo.	10	10	1	4	468	345	454	332
N. Mex.	2	11	6	3	222	174	151	155
Ariz.	5	6	34	26	560	430	420	448
Utah	2	1	4	7	318	194	-	119
Nev.	1	5	1	-	106	121	53	120
PACIFIC	155	156	131	246	3,291	3,301	2,583	3,257
Wash.	13	14	-	-	384	267	279	407
Oreg.	15	13	1	1	297	183	327	219
Calif.	119	124	123	223	2,344	2,686	1,781	2,463
Alaska	1	1	7	22	26	25	6	18
Hawaii	7	4	-	-	240	140	190	150
Guam	-	2	-	-	20	15	-	-
P.R.	-	-	43	34	230	426	-	-
V.I.	U	U	U	U	-	-	-	-
Amer. Samoa	U	U	U	U	-	-	-	-
C.N.M.I.	-	-	-	-	-	18	-	-

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

*Individual cases may 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 August 14, 1999, and August 15, 1998 (32nd Week)

Reporting Area	Shigellosis*				Syphilis (Primary & Secondary)		Tuberculosis	
	NETSS		PHLIS					
	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999†	Cum. 1998†
UNITED STATES	7,619	11,451	3,209	6,381	3,928	4,301	8,259	9,807
NEW ENGLAND	257	269	145	240	33	45	250	263
Maine	4	8	-	-	-	1	12	6
N.H.	8	10	6	12	-	1	6	6
Vt.	4	4	3	-	3	4	1	3
Mass.	227	178	93	166	21	27	149	141
R.I.	14	21	9	12	1	1	26	34
Conn.	U	48	34	50	8	11	56	73
MID. ATLANTIC	492	1,574	213	1,265	136	182	1,487	1,795
Upstate N.Y.	159	320	34	105	21	23	173	224
N.Y. City	158	498	81	494	67	36	815	862
N.J.	103	484	98	460	27	66	320	381
Pa.	72	272	-	206	21	57	179	328
E.N. CENTRAL	1,239	1,697	612	872	734	623	696	998
Ohio	300	339	60	80	65	88	147	151
Ind.	125	112	28	31	247	119	U	100
Ill.	534	910	354	725	293	265	330	465
Mich.	232	161	120	4	129	104	180	213
Wis.	48	175	50	32	U	47	39	69
W.N. CENTRAL	653	564	445	306	85	89	276	271
Minn.	115	106	159	166	5	6	95	93
Iowa	15	44	15	33	7	-	29	20
Mo.	447	73	245	55	57	70	110	96
N. Dak.	2	4	-	3	-	-	2	3
S. Dak.	10	28	4	20	-	1	9	14
Nebr.	37	289	-	16	6	4	12	10
Kans.	27	20	22	13	10	8	19	35
S. ATLANTIC	1,437	2,453	312	795	1,385	1,588	1,841	1,655
Del.	8	14	4	10	6	16	12	24
Md.	86	123	23	41	237	443	165	181
D.C.	34	13	-	-	36	48	32	71
Va.	65	104	32	52	103	99	131	174
W. Va.	7	11	3	7	2	2	30	27
N.C.	133	189	60	95	316	460	236	263
S.C.	81	100	38	36	284	179	194	191
Ga.	131	677	37	179	206	177	395	308
Fla.	892	1,222	115	375	195	164	646	416
E.S. CENTRAL	765	531	374	335	683	750	360	724
Ky.	169	81	-	38	63	72	108	111
Tenn.	473	94	333	135	384	359	12	239
Ala.	68	320	37	160	143	169	184	236
Miss.	55	36	4	2	93	150	56	138
W.S. CENTRAL	1,029	2,226	754	696	545	623	965	1,402
Ark.	56	122	21	30	40	75	96	73
La.	76	147	53	184	121	255	U	75
Okla.	350	185	102	48	129	27	84	107
Tex.	547	1,772	578	434	255	266	785	1,147
MOUNTAIN	491	695	241	427	153	153	249	322
Mont.	7	7	-	3	-	-	10	12
Idaho	10	12	5	9	1	1	14	7
Wyo.	2	1	1	-	-	1	1	3
Colo.	82	102	60	85	1	8	U	38
N. Mex.	62	176	23	83	10	19	37	37
Ariz.	262	352	146	220	133	109	141	123
Utah	36	25	-	19	2	3	27	36
Nev.	30	20	6	8	6	12	19	66
PACIFIC	1,256	1,442	113	1,445	174	248	2,135	2,377
Wash.	58	79	51	85	46	23	113	158
Oreg.	45	86	40	82	5	2	64	71
Calif.	1,129	1,246	-	1,246	120	222	1,822	2,006
Alaska	-	4	-	2	1	-	35	33
Hawaii	24	27	22	30	2	1	101	109
Guam	7	26	-	-	1	1	-	56
P.R.	40	35	-	-	101	122	41	88
V.I.	-	-	-	-	U	U	U	U
Amer. Samoa	-	-	-	-	U	U	U	U
C.N.M.I.	-	15	-	-	-	156	-	71

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

*Individual cases may 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 August 14, 1999, and August 15, 1998 (32nd Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported*		Total	
	Cum. 1999†	Cum. 1998	Cum. 1999	Cum. 1998	Cum. 1999	Cum. 1998	1999	Cum. 1999	1999	Cum. 1999	Cum. 1999	Cum. 1998
UNITED STATES	764	729	9,273	13,939	3,861	6,008	1	36	-	17	53	47
NEW ENGLAND	56	49	123	180	64	124	-	6	-	4	10	3
Maine	5	2	5	13	1	2	-	-	-	-	-	-
N.H.	12	8	9	8	10	11	-	-	-	1	1	-
Vt.	5	5	3	13	1	4	-	-	-	-	-	1
Mass.	21	31	39	69	29	48	-	5	-	2	7	2
R.I.	1	2	13	11	23	40	-	-	-	-	-	-
Conn.	12	1	54	66	-	19	-	1	-	1	2	-
MID. ATLANTIC	121	113	621	1,079	460	803	-	-	-	2	2	13
Upstate N.Y.	60	36	160	215	126	149	-	-	-	2	2	2
N.Y. City	28	35	155	375	132	278	-	-	-	-	-	-
N.J.	32	35	57	219	40	141	U	-	U	-	-	8
Pa.	1	7	249	270	162	235	-	-	-	-	-	3
E.N. CENTRAL	118	124	1,767	2,076	390	905	-	1	-	1	2	15
Ohio	41	42	434	213	61	50	-	-	-	-	-	1
Ind.	20	27	74	99	32	70	-	1	-	-	1	3
Ill.	48	46	308	494	-	158	-	-	-	-	-	-
Mich.	9	4	925	1,124	296	277	-	-	-	1	1	10
Wis.	-	5	26	146	1	350	U	-	U	-	-	1
W.N. CENTRAL	53	63	484	1,028	202	249	-	-	-	-	-	-
Minn.	19	48	45	83	30	24	U	-	U	-	-	-
Iowa	6	2	89	364	25	42	-	-	-	-	-	-
Mo.	20	8	268	461	111	149	-	-	-	-	-	-
N. Dak.	-	-	1	3	-	4	-	-	-	-	-	-
S. Dak.	1	-	8	21	1	1	-	-	-	-	-	-
Nebr.	3	-	40	20	11	11	-	-	-	-	-	-
Kans.	4	5	33	76	24	18	-	-	-	-	-	-
S. ATLANTIC	183	133	1,228	1,133	734	626	-	1	-	4	5	7
Del.	-	-	2	3	-	-	-	-	-	-	-	1
Md.	48	43	231	250	109	90	-	-	-	-	-	1
D.C.	4	-	37	37	14	8	-	-	-	-	-	-
Va.	13	13	100	146	59	66	-	1	-	2	3	2
W. Va.	6	5	26	1	16	4	-	-	-	-	-	-
N.C.	26	21	94	67	142	139	-	-	-	-	-	-
S.C.	3	3	26	18	40	23	-	-	-	-	-	-
Ga.	48	28	312	336	96	118	-	-	-	-	-	2
Fla.	35	20	400	275	258	178	-	-	-	2	2	1
E.S. CENTRAL	51	42	271	266	289	308	-	-	-	-	-	2
Ky.	5	7	50	21	23	30	-	-	-	-	-	-
Tenn.	30	23	133	153	154	171	U	-	U	-	-	1
Ala.	14	10	39	48	54	45	-	-	-	-	-	1
Miss.	2	2	49	44	58	62	-	-	-	-	-	-
W.S. CENTRAL	40	36	1,573	2,466	398	1,318	1	5	-	3	8	-
Ark.	2	-	34	63	33	60	-	-	-	-	-	-
La.	7	16	59	45	72	63	U	-	U	-	-	-
Okla.	27	18	325	367	91	58	-	-	-	-	-	-
Tex.	4	2	1,155	1,991	202	1,137	1	5	-	3	8	-
MOUNTAIN	67	85	870	2,120	399	541	-	2	-	-	2	-
Mont.	1	-	16	67	16	5	-	-	-	-	-	-
Idaho	1	-	27	173	16	21	-	-	-	-	-	-
Wyo.	1	1	4	26	9	3	U	-	U	-	-	-
Colo.	10	17	152	169	55	66	-	-	-	-	-	-
N. Mex.	17	4	32	100	138	208	-	-	-	-	-	-
Ariz.	30	42	523	1,310	108	130	-	1	-	-	1	-
Utah	5	3	33	131	22	50	-	1	-	-	1	-
Nev.	2	18	83	144	35	58	U	-	U	-	-	-
PACIFIC	75	84	2,336	3,591	925	1,134	-	21	-	3	24	7
Wash.	3	6	202	722	41	63	-	-	-	-	-	1
Oreg.	30	34	163	276	57	117	-	9	-	-	9	-
Calif.	33	36	1,958	2,544	808	937	-	11	-	3	14	6
Alaska	5	1	4	14	12	9	-	-	-	-	-	-
Hawaii	4	7	9	35	7	8	-	1	-	-	1	-
Guam	-	-	2	1	2	2	U	1	U	-	1	-
P.R.	1	2	107	37	97	165	U	-	U	-	-	-
V.I.	U	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	-	1	-	43	U	-	U	-	-	-

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

*For imported measles, cases include only those resulting from importation from other countries.

†Of 152 cases among children aged <5 years, serotype was reported for 70 and of those, 16 were type b.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending August 14, 1999, and August 15, 1998 (32nd Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1999	Cum. 1998	1999	Cum. 1999	Cum. 1998	1999	Cum. 1999	Cum. 1998	1999	Cum. 1999	Cum. 1998
UNITED STATES	1,586	1,787	2	211	455	86	3,146	3,352	7	164	316
NEW ENGLAND	84	78	-	4	3	2	352	614	-	7	38
Maine	5	5	-	-	-	-	-	5	-	-	-
N.H.	12	9	-	1	-	-	54	48	-	-	-
Vt.	4	1	-	1	-	1	33	59	-	-	-
Mass.	47	35	-	2	2	-	235	468	-	7	8
R.I.	4	3	-	-	-	1	19	7	-	-	1
Conn.	12	25	-	-	1	-	11	27	-	-	29
MID. ATLANTIC	149	191	-	25	170	1	611	343	-	21	142
Upstate N.Y.	39	50	-	6	2	1	525	172	-	17	113
N.Y. City	40	23	-	3	153	-	10	22	-	-	15
N.J.	37	44	U	-	6	U	12	11	U	1	13
Pa.	33	74	-	16	9	-	64	138	-	3	1
E.N. CENTRAL	247	279	-	26	59	15	284	398	-	2	-
Ohio	107	98	-	10	21	7	143	127	-	-	-
Ind.	36	51	-	3	5	5	37	69	-	1	-
Ill.	70	75	-	6	9	-	46	41	-	1	-
Mich.	33	32	-	7	22	3	31	41	-	-	-
Wis.	1	23	U	-	2	U	27	120	U	-	-
W.N. CENTRAL	173	154	-	10	21	8	127	265	-	78	32
Minn.	34	25	U	1	10	U	38	159	U	-	-
Iowa	32	25	-	4	7	2	24	54	-	28	-
Mo.	67	59	-	2	3	2	36	17	-	2	2
N. Dak.	3	2	-	-	1	4	4	3	-	-	-
S. Dak.	10	6	-	-	-	-	5	7	-	-	-
Nebr.	9	11	-	-	-	-	1	8	-	48	-
Kans.	18	26	-	3	-	-	19	17	-	-	30
S. ATLANTIC	279	295	2	37	32	22	235	172	7	29	9
Del.	6	1	-	-	-	3	4	2	-	-	-
Md.	41	24	-	3	-	-	58	29	-	1	-
D.C.	1	-	-	2	-	-	-	1	-	-	-
Va.	33	24	-	8	5	-	13	8	-	-	-
W. Va.	4	12	-	-	-	-	1	1	-	-	-
N.C.	30	45	-	8	9	3	61	68	7	28	6
S.C.	33	44	-	3	5	3	11	22	-	-	-
Ga.	49	66	2	3	1	2	22	10	-	-	-
Fla.	82	79	-	10	12	11	65	31	-	-	3
E.S. CENTRAL	112	126	-	8	11	3	61	79	-	1	-
Ky.	21	20	-	-	-	1	16	33	-	-	-
Tenn.	45	46	U	-	1	U	27	23	U	-	-
Ala.	27	38	-	7	6	2	14	20	-	1	-
Miss.	19	22	-	1	4	-	4	3	-	-	-
W.S. CENTRAL	138	201	-	28	37	9	104	210	-	7	80
Ark.	29	26	-	-	-	1	12	26	-	-	-
La.	34	40	U	3	5	U	3	2	U	-	-
Okla.	25	29	-	1	-	-	12	20	-	-	-
Tex.	50	106	-	24	32	8	77	162	-	7	80
MOUNTAIN	100	102	-	12	27	14	327	613	-	15	5
Mont.	2	3	-	-	-	-	2	3	-	-	-
Idaho	8	7	-	1	3	-	93	168	-	-	-
Wyo.	3	5	U	-	1	U	2	8	U	-	-
Colo.	26	20	-	3	5	9	94	159	-	-	-
N. Mex.	13	17	N	N	N	3	59	74	-	-	1
Ariz.	29	35	-	-	5	-	29	137	-	13	1
Utah	13	10	-	5	3	2	45	35	-	1	2
Nev.	6	5	U	3	10	U	3	29	U	1	1
PACIFIC	304	361	-	61	95	12	1,045	658	-	4	10
Wash.	47	51	-	2	7	9	536	193	-	-	5
Oreg.	54	61	N	N	N	3	27	45	-	-	-
Calif.	193	243	-	51	68	-	468	401	-	4	3
Alaska	5	2	-	1	2	-	4	7	-	-	-
Hawaii	5	4	-	7	18	-	10	12	-	-	2
Guam	1	2	U	1	2	U	1	-	U	-	-
P.R.	5	8	U	-	2	U	15	3	U	-	-
V.I.	U	U	U	U	U	U	U	U	U	U	U
Amer. Samoa	U	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	-	-	U	-	2	U	-	1	U	-	-

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

TABLE IV. Deaths in 122 U.S. cities,* week ending August 14, 1999 (32nd Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	437	321	76	20	11	9	42
Boston, Mass.	U	U	U	U	U	U	U
Bridgeport, Conn.	34	24	9	-	1	-	6
Cambridge, Mass.	11	7	1	2	1	-	-
Fall River, Mass.	32	26	4	2	-	-	3
Hartford, Conn.	50	34	10	2	2	2	5
Lowell, Mass.	33	29	4	-	-	-	-
Lynn, Mass.	12	9	3	-	-	-	-
New Bedford, Mass.	19	17	2	-	-	-	-
New Haven, Conn.	37	26	4	3	3	1	3
Providence, R.I.	78	58	13	3	1	3	4
Somerville, Mass.	7	6	-	1	-	-	-
Springfield, Mass.	30	21	8	-	1	-	6
Waterbury, Conn.	36	23	5	4	1	3	8
Worcester, Mass.	58	41	13	3	1	-	7
MID. ATLANTIC	2,034	1,414	400	147	46	27	59
Albany, N.Y.	53	40	9	3	1	-	3
Allentown, Pa.	U	U	U	U	U	U	U
Buffalo, N.Y.	76	60	10	6	-	-	5
Camden, N.J.	24	14	4	4	1	1	3
Elizabeth, N.J.	U	U	U	U	U	U	U
Erie, Pa.	41	31	4	4	2	-	2
Jersey City, N.J.	30	21	6	2	-	1	-
New York City, N.Y.	1,104	746	235	79	27	17	17
Newark, N.J.	54	22	14	9	5	4	2
Paterson, N.J.	20	13	6	1	-	-	-
Philadelphia, Pa.	300	206	55	30	6	3	12
Pittsburgh, Pa.§	35	25	7	2	-	1	2
Reading, Pa.	27	19	5	2	1	-	-
Rochester, N.Y.	128	106	18	2	2	-	7
Schenectady, N.Y.	17	12	5	-	-	-	-
Scranton, Pa.	28	21	5	2	-	-	2
Syracuse, N.Y.	42	33	9	-	-	-	1
Trenton, N.J.	42	34	6	1	1	-	3
Utica, N.Y.	13	11	2	-	-	-	-
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	1,729	1,119	361	136	53	59	99
Akron, Ohio	42	22	13	5	1	1	-
Canton, Ohio	35	29	5	-	-	1	2
Chicago, Ill.	359	201	87	43	18	9	22
Cincinnati, Ohio	108	62	26	9	4	7	11
Cleveland, Ohio	127	88	26	6	1	6	2
Columbus, Ohio	162	103	33	17	4	5	10
Dayton, Ohio	102	70	20	9	1	2	5
Detroit, Mich.	U	U	U	U	U	U	U
Evansville, Ind.	45	31	7	1	2	4	3
Fort Wayne, Ind.	72	47	18	4	1	2	3
Gary, Ind.	19	11	2	3	3	-	2
Grand Rapids, Mich.	38	24	8	4	-	2	4
Indianapolis, Ind.	170	101	40	14	8	7	2
Lansing, Mich.	41	27	9	4	-	1	3
Milwaukee, Wis.	137	99	28	4	3	3	9
Peoria, Ill.	55	37	9	3	4	2	4
Rockford, Ill.	48	39	5	2	-	2	4
South Bend, Ind.	46	30	11	1	3	1	2
Toledo, Ohio	67	54	9	4	-	-	9
Youngstown, Ohio	56	44	5	3	-	4	2
W.N. CENTRAL	624	441	115	38	14	16	44
Des Moines, Iowa	55	36	16	3	-	-	7
Duluth, Minn.	39	32	7	-	-	-	2
Kansas City, Kans.	U	U	U	U	U	U	U
Kansas City, Mo.	78	55	11	5	3	4	9
Lincoln, Nebr.	44	37	6	1	-	-	4
Minneapolis, Minn.	164	116	29	10	3	6	18
Omaha, Nebr.	79	49	16	10	3	1	1
St. Louis, Mo.	96	65	18	6	3	4	1
St. Paul, Minn.	69	51	12	3	2	1	2
Wichita, Kans.	U	U	U	U	U	U	U

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,156	740	255	92	41	26	52
Atlanta, Ga.	U	U	U	U	U	U	U
Baltimore, Md.	226	147	41	23	11	3	17
Charlotte, N.C.	104	65	25	5	6	3	11
Jacksonville, Fla.	146	90	37	10	5	4	1
Miami, Fla.	96	57	23	11	3	2	-
Norfolk, Va.	50	31	10	3	3	3	1
Richmond, Va.	70	50	11	5	1	3	2
Savannah, Ga.	50	35	11	3	-	1	8
St. Petersburg, Fla.	74	55	14	3	1	1	6
Tampa, Fla.	171	107	39	14	7	3	3
Washington, D.C.	148	94	32	15	4	3	3
Wilmington, Del.	21	9	12	-	-	-	-
E.S. CENTRAL	612	428	115	41	13	15	32
Birmingham, Ala.	150	104	30	10	4	2	13
Chattanooga, Tenn.	60	48	6	4	2	-	4
Knoxville, Tenn.	98	71	18	6	2	1	1
Lexington, Ky.	91	58	18	6	1	8	3
Memphis, Tenn.	U	U	U	U	U	U	U
Mobile, Ala.	53	38	11	1	2	1	-
Montgomery, Ala.	36	28	5	1	1	1	4
Nashville, Tenn.	124	81	27	13	1	2	7
W.S. CENTRAL	1,154	765	223	108	29	29	66
Austin, Tex.	61	42	11	5	2	1	1
Baton Rouge, La.	U	U	U	U	U	U	U
Corpus Christi, Tex.	56	41	11	2	-	2	1
Dallas, Tex.	173	104	37	25	1	6	6
El Paso, Tex.	64	49	11	3	-	1	5
Ft. Worth, Tex.	88	61	14	5	3	5	3
Houston, Tex.	342	212	66	43	14	7	28
Little Rock, Ark.	54	34	14	4	2	-	2
New Orleans, La.	U	U	U	U	U	U	U
San Antonio, Tex.	212	159	36	11	5	1	17
Shreveport, La.	U	U	U	U	U	U	U
Tulsa, Okla.	104	63	23	10	2	6	3
MOUNTAIN	749	484	158	66	25	14	50
Albuquerque, N.M.	87	64	17	2	3	1	3
Boise, Idaho	35	31	3	-	1	-	3
Colo. Springs, Colo.	45	30	6	7	-	2	1
Denver, Colo.	105	60	28	5	6	6	6
Las Vegas, Nev.	159	93	45	12	6	1	8
Ogden, Utah	18	15	3	-	-	-	1
Phoenix, Ariz.	69	42	15	10	1	1	7
Pueblo, Colo.	16	11	4	1	-	-	2
Salt Lake City, Utah	102	62	15	15	7	3	9
Tucson, Ariz.	113	76	22	14	1	-	10
PACIFIC	1,438	975	287	115	36	21	97
Berkeley, Calif.	20	15	4	1	-	-	1
Fresno, Calif.	111	71	21	15	4	-	6
Glendale, Calif.	19	11	3	2	2	1	2
Honolulu, Hawaii	81	59	17	4	-	-	9
Long Beach, Calif.	60	47	8	3	1	1	7
Los Angeles, Calif.	286	196	63	22	3	2	12
Pasadena, Calif.	17	13	4	-	-	-	-
Portland, Oreg.	141	93	28	12	6	2	6
Sacramento, Calif.	149	100	30	10	6	3	18
San Diego, Calif.	121	86	21	8	3	3	11
San Francisco, Calif.	U	U	U	U	U	U	U
San Jose, Calif.	138	95	23	14	2	4	14
Santa Cruz, Calif.	33	25	4	4	-	-	2
Seattle, Wash.	130	73	33	14	7	3	2
Spokane, Wash.	57	45	10	1	1	-	3
Tacoma, Wash.	75	46	18	5	1	2	4
TOTAL	9,933¶	6,687	1,990	763	268	216	541

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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