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Outbreaks of Hepatitis B Virus Infection Among Hemodialysis Patients — California, Nebraska, and Texas, 1994

From April through August 1994, outbreaks of hepatitis B virus (HBV) infection occurred in five chronic hemodialysis centers in California, Nebraska, and Texas. This report summarizes investigations by state and local public health officials and CDC, which suggest that transmission of HBV from hemodialysis patients with chronic HBV infection to susceptible patients resulted from failure to identify and isolate HBV-infected patients during hemodialysis; sharing of staff, equipment, and supplies among patients; and failure to vaccinate susceptible patients against hepatitis B.

In these investigations, a case of acute HBV infection was defined as seroconversion from hepatitis B surface antigen (HBsAg)-negative to HBsAg-positive in a hemodialysis patient during the exposure period defined in each investigation. A susceptible patient was defined as a hemodialysis patient who was negative for HBsAg, antibody to HBsAg (anti-HBs), and antibody to hepatitis B core antigen (anti-HBc). An immune patient was defined as a patient who was positive for anti-HBs as a result of vaccination or positive for anti-HBc and/or anti-HBs as a result of natural infection. A patient with chronic HBV infection was defined as any patient who was positive for HBsAg for >6 months or was positive for both HBsAg and anti-HBc (immunoglobulin M negative).

Hemodialysis Center A, Texas

From April 1 through May 18, 1994, cases of acute HBV infection were identified through routine seroscreening in 14 (70%) of 20 patients at center A, which opened in January 1994. In addition, a case of previously unrecognized chronic HBV infection was identified in a patient who had received hemodialysis nine times at center A from January 26 through February 9, but had not been isolated from other patients during these treatments. All case-patients had shared at least one shift with the patient with chronic infection; however, no single event, day, or shift was associated with transmission to all cases. The source-patient had been transferred from another center where he was known to have chronic infection, but his serologic status had not been reviewed on admission to center A. In addition, although all patients at center A were screened monthly for HBsAg, results were not reviewed routinely. The investigation also indicated that staff frequently handled blood-contaminated items without changing gloves or washing hands and that clean and contaminated supply areas were ad-

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jacent to each other. Less than 20% of the patients at center A had been vaccinated against hepatitis B; no cases were detected among those who had been vaccinated.

Hemodialysis Center B, California

From April 1 through June 1, 1994, cases of acute HBV infection were identified in seven (5.3%) of 131 susceptible patients in center B. Of the two patients with chronic infections, one was identified as the source of the transmission through genetic sequencing of virus isolates from all infected patients.

Staff frequently were assigned to provide simultaneous care for the source-patient with chronic infection and for susceptible patients. Common medication/supply carts were moved between stations, and medications and supplies were shared among infected and susceptible patients. Staff had been shared among the implicated source-patient, who received heparin, and two susceptible patients, of whom one received heparin and became infected; the other susceptible patient did not receive heparin and was uninfected. Partially used heparin vials routinely were returned to a common medication cart. A cohort study indicated that HBV infection was associated with a single shift (relative risk [RR]=7.0; 95% confidence interval [CI]=1.5–42.8)—the shift following that during which staff had been shared among susceptible patients and the source-patient. In addition, all of the infected patients on that shift had been at stations clustered in one area of the unit. Because one heparin vial probably had been shared among these patients, contamination of a shared multiple-dose vial was considered the most likely route of HBV transmission among patients in this outbreak. Of all patients in center B, none had been vaccinated against hepatitis B.

Hemodialysis Center C, California

Center C opened on April 6, 1994. Based on routine serologic screening during June 13–August 15, seroconversion to HBsAg positivity occurred in four (9.5%) of 42 susceptible patients, including two in June, one in July, and one in August. One patient known to have chronic infection had been dialyzed in an isolated area since the center opened. Although this patient had the same HBsAg subtype as the cases, he was hepatitis B e antigen (HBeAg)-negative, suggesting he had not been the source. Two patients with chronic infection had been admitted to center C on June 20 and 27 (following seroconversion in the first two cases). Risk for infection was not associated with a single event, day, shift, or geographic clustering, and infection-control practices were considered appropriate. All staff were negative for HBsAg, and no patients had been vaccinated against hepatitis B. Based on a cohort study, risk for acute infection was associated only with receipt of hemodialysis as a patient at a community hospital any time during April 1–21 (RR=9.0; 95% CI=1.1–76.0). Limited results of HBV testing of all patients receiving hemodialysis at that hospital precluded determining a source of infection in the hospital hemodialysis setting.

Hemodialysis Center D, California

From June through August 1994, cases of acute HBV infection were identified in 11 (14%) of 77 susceptible patients at center D. Monoclonal antibody subtyping of HBV isolates from two of three patients with chronic infections and seven of the 11 cases identified two distinct antigen subtypes (adw2 and adw4). Isolates from four cases were subtype adw2; stations at which these patients were treated were clustered geographically, and equipment, supplies, and hemodialysis staff had been

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shared among these patients and the two patients with chronic infections who also had subtype adw2 infections. The three other cases were infected with subtype adw4; although these patients were not treated at clustered stations, their care entailed shared equipment, supplies, and staff. One of these patients seroconverted 1–2 months before the others; however, the source of this patient's infection was unknown. No patients had been vaccinated against hepatitis B.

Hemodialysis Center E, Nebraska

From March through June 1994, cases of acute HBV infection were identified in two (0.7%) of 303 patients at center E. A patient known to have a chronic HBV infection had been admitted to center E in December 1993. The first case became HBsAg-positive in March 1994; this patient had been hemodialyzed on the same shift and shared staff with the patient with chronic infection on two occasions before seroconversion. The second case became HBsAg-positive in June 1994; this patient had been hemodialyzed on the same shift and had shared staff with the first case-patient on two occasions before seroconversion. The same HBsAg subtype (adw2) was present in the patient with chronic infection and two cases. None of the patients had been vaccinated against hepatitis B.

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Editorial Note: HBV is present in extraordinarily high titers in blood and other body fluids of infected patients ($\geq 10^9$ virus particles per milliliter). Because the virus survives well in the environment, blood-contaminated surfaces that are not routinely cleaned and disinfected represent a reservoir for transmission of HBV (*1*). Dialysis staff can transfer virus to patients from contaminated surfaces by their hands or through use of contaminated equipment and supplies.

All five outbreaks of HBV infection in chronic hemodialysis centers described in this report were associated with failure of the facilities to adhere to one or more of the recommended infection-control practices for preventing the transmission of HBV and other bloodborne pathogens in such settings. Previous reports consistently have indicated that risk factors associated with HBV transmission among patients in hemodialysis centers include the presence of a patient with chronic HBV infection and failure to isolate such patients by room, machine, and staff (*2–4*). These reports also have documented that physical separation of HBV-infected patients from susceptible patients substantially reduces the risk for HBV transmission.

Recommendations for infection-control practices were published and disseminated initially in 1977 (*5*); hepatitis B vaccination has been recommended for susceptible patients since 1982. In 1977, the national incidence of HBV infection among hemodialysis patients was 3.0%; by 1980, the national incidence had declined to 1.0%, and by 1989, to 0.1% (*2*).

To prevent transmission of bloodborne pathogens in general health-care settings, universal precautions were initially recommended in 1985 and updated in 1988 (*6*);

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the recommendations emphasized the use of barriers (e.g., gowns, gloves, and eyewear) and adherence to routine hand washing, appropriate disposal of needles and other sharp instruments, and disinfection and sterilization procedures. To prevent transmission of bloodborne pathogens in hemodialysis settings, both universal precautions and the following hemodialysis-specific infection-control practices recommended in 1977 should be used: 1) Serum specimens from all susceptible patients should be tested monthly for HBsAg, and these results should be reviewed promptly. 2) HBsAg-positive patients should be isolated by room, machine, instruments, medications, supplies, and staff. 3) Instruments, medications, and supplies should not be shared between any patients. When sharing of multidose medication vials is necessary, medications must be prepared in a clean centralized area separate from areas used for patient care, laboratory work, or refuse disposal. 4) Routine cleaning and disinfection procedures should be followed, including clear separation of areas established to handle clean and contaminated items. Blood specimens should be handled with gloved hands and stored in designated areas away from medication preparation or central supply areas.

Hepatitis B vaccine has been recommended for all susceptible hemodialysis patients since it became available in 1982 (*7*). However, by 1993 only 29% of hemodialysis patients in the United States had been vaccinated (*2*). In 1993, vaccination coverage among patients in the southern California region was 13%, lower than in northern California or any other state in the United States (*2*). Among immunocompetent persons, a protective antibody response develops in 90%–95% of vaccine recipients, protection against HBV infection persists even when antibody titers subsequently decline, and booster doses are unnecessary (*7*). In contrast, the proportion of vaccinated hemodialysis patients who develop a protective antibody response is lower (50%–60%), and booster doses are necessary to maintain protection against hepatitis B when antibody titers decline below protective levels (*7,8*). However, ≥50% of hemodialysis patients can be protected from hepatitis B by vaccination, and maintaining immunity among these patients will reduce the frequency and costs of serologic screening (*9,10*).

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Assessment of Testing for and Completeness of Reporting of Vancomycin-Resistant Enterococci — Connecticut, 1994

From 1989 through 1993, the proportion of enterococcal isolates resistant to vancomycin (VRE) reported to CDC's National Nosocomial Infections Surveillance (NNIS) system increased from 0.3% to 7.9% (*1*). Since January 1994, clinical laboratories in Connecticut have been required to report all sterile-site VRE isolates to the Connecticut Department of Public Health (CDPH) to determine the epidemiology of VRE infection in the state. In 1995, CDPH surveyed all clinical laboratories in the state to identify microbiologic methods used to determine antimicrobial susceptibility of enterococcal isolates and to assess the completeness of reporting in 1994. This report summarizes the survey findings and the assessment of reporting for VRE, which confirmed for the first time that VRE infections were occurring statewide in Connecticut.

During April 1995, CDPH mailed questionnaires to the laboratory directors at the 125 clinical laboratories in Connecticut and received completed questionnaires from the 46 (37%) laboratories with the capacity to identify enterococcal isolates and perform vancomycin-susceptibility testing of enterococci. A total of 37 laboratories were hospital-affiliated; nine were commercial. Of the 46 laboratories, 33 (72%) tested all enterococcal isolates for vancomycin resistance, and 13 (28%) tested isolates from sterile sites only.

In 1994, these 46 laboratories processed 11,290 enterococcal isolates from both sterile (e.g., blood) and nonsterile (e.g., stool) sites (median: 286 isolates, range: two–1109 isolates per laboratory); of these, 517 (5%) were reported to be vancomycin resistant. A total of 24 (52%) laboratories also performed speciation of enterococci. Of the 3202 isolates identified to species, 2556 (80%) were *Enterococcus faecalis*, and 646 (20%) were *E. faecium*; of these, 12 (<0.1%) and 120 (19%), respectively, were reported to be vancomycin resistant.

Methods of vancomycin-susceptibility testing varied among laboratories: 25 (54%) used the Kirby-Bauer method; 15 (33%), the automated Microscan (Dade International, West Sacramento, California)* system; nine (20%), the automated Vitek (bioMerieux, Hazlewood, Missouri) system; six (13%), vancomycin screen agar; four (9%), minimum inhibitory concentration panels; two (4%), the automated Sensititre (Accumed International, West Lake, Ohio) system; and two (4%), the automated Uniscept (bioMerieux, Hazlewood, Missouri) system. Nineteen (41%) laboratories used at least one duplicate test. Six laboratories using the Microscan and seven using the Vitek used a second method because of reports of failure to accurately detect antimicrobial resistance in enterococci with these systems (*2,3*).

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

Vancomycin-Resistant Enterococci — Continued

To assess completeness of VRE reporting to the state health department, during May–July 1995, CDPH contacted laboratory and infection-control personnel from the 37 hospital-affiliated laboratories to identify sterile-site VRE isolates not previously reported in 1994. Passive reporting identified 34 sterile-site VRE isolates in 1994; the CDPH survey identified an additional 27 isolates, indicating that passive laboratory reporting identified 34 (56%) of 61 sterile-site VRE isolates. Of the 61 sterile-site VRE isolates identified through passive surveillance and the CDPH survey, 47 (77%) were from blood, representing 0.02% of the 238,937 bloodstream pathogens isolated by these laboratories in 1994.

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Editorial Note: Because enterococci commonly are resistant to vancomycin and other widely used antimicrobials, infections with these organisms are virtually untreatable (*4*). Laboratory-based surveillance is critical in programs to detect, control, and prevent antimicrobial resistance in enterococci and other organisms (*5*). Connecticut is the first state to require statewide laboratory-based reporting of VRE isolates obtained from sterile sites.

During 1994, only 56% of all sterile-site VRE isolates initially were reported to CDPH. Efforts to increase laboratory reporting in Connecticut have included dissemination to all laboratory directors of CDPH publications that emphasize the importance of reporting and regular communication between CDPH and laboratory directors. These findings also underscore the importance of periodic validation of completeness of reporting of laboratory-based surveillance.

Since the first isolation of VRE in 1988, prevalence of infection has increased in both hospitalized patients and residents of long-term–care facilities (LTCFs), resulting in management and treatment problems (*6*). Although nosocomial transmission of VRE has been well documented, it is unclear whether the increase in the number of VRE isolates from patients of LTCFs (*7*) reflects changes in the epidemiology of VRE or increases in admission to LTCFs of patients who have been hospitalized in acute-care hospitals in which VRE is endemic. In response to concerns about admission of VRE-positive patients to LTCFs, CDPH has collaborated with infection-control personnel to develop guidelines for prevention of VRE infection and management of persons who are infected or colonized with VRE.

This report also highlights two issues for laboratories. First, because methods used to test vancomycin susceptibility in enterococci vary widely, as in Connecticut, and some methods fail to detect antimicrobial resistance (*2,3*), proficiency testing and standardization of acceptable methods may be appropriate for laboratories performing vancomycin-susceptibility testing of enterococci. Second, laboratories that test for vancomycin susceptibility should consider testing isolates to the species level. In Connecticut, only 52% of the laboratories surveyed performed species identification. Species identification is important in assessing the accuracy of susceptibility determinations, understanding the epidemiology of different enterococci strains, and measuring the prevalence of previously unknown clinical pathogens (e.g., *E. galinerum*, which is known to intrinsically have at least intermediate resistance to vancomycin [*2*]).

Vancomycin-Resistant Enterococci — Continued

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Hantavirus Pulmonary Syndrome — United States, 1995 and 1996

Sporadic cases of hantavirus pulmonary syndrome (HPS), a severe cardiopulmonary illness first identified in 1993, continue to be recognized in the United States (*1,2*). This report describes the investigation of two cases of Sin Nombre virus (SNV)-associated HPS involving feedlot workers in a single household during May–June 1995, and summarizes national reporting for HPS through March 21, 1996. The findings of this investigation and of other investigations suggest that, although domestic and occupational exposures to rodents have rarely resulted in infection, sporadic clusters of HPS probably will continue to occur even though individual cases will predominate.

Patient 1

On May 29, a 27-year-old South Dakota resident sought care at an emergency department because of a 2-day history of fever, chills, headache, myalgia, nausea, vomiting, and nonproductive cough. His temperature was 103 F (39 C) and pulse rate, 118/min. A complete blood count (CBC) included decreased platelets (117,000/mm^3 [normal: 130,000–400,000/mm^3]) and a white blood cell count (WBC) of 6560/mm^3 (normal: 4500–11,000/mm^3); chest radiographs were normal. An acute febrile illness was diagnosed, and he was discharged to outpatient follow-up. On June 1, he was admitted to the hospital because of persistent fever (101 F–104 F [38 C–40 C]), tachycardia (pulse rate 140/min), and hypotension (blood pressure 70/50 mm Hg). In addition to thrombocytopenia (platelet count 35,000/mm^3) and a mildly elevated WBC (11,470/mm^3 [18% segmented neutrophils, 54% banded neutrophils, 19% lymphocytes, 2% immature granulocytes]), other abnormal laboratory findings included mild azotemia (blood urea nitrogen 38 mg/dL [normal: 9–21 mg/dL] and creatinine 2.0 mg/dL [normal: 0.8–1.5 mg/dL]), hypoalbuminemia (3.3 g/dL [normal: 3.5–5.0 g/dL]), and elevated serum enzyme levels (lactic dehydrogenase [LDH] 2473 U/L [normal: 297–628 U/L]; aspartate aminotransferase [AST] 226 U/L [normal: 14–50 U/L]; and alanine aminotransferase [ALT] 138 U/L [normal: 7–56 U/L]). Although he reported no abdominal pain and the abdominal examination on admission was normal, serum amylase and lipase levels were elevated (amylase 226 U/L [normal: 30–110 U/L] and

Hantavirus Pulmonary Syndrome — Continued

lipase 771 U/L [normal: 23–300 U/L]). Chest radiographs at the time of admission demonstrated perihilar interstitial infiltrates. During June 1–4, he became progressively hypoxemic and developed pulmonary alveolar edema and oliguria. His status improved with supportive therapy, and he was discharged June 6 with a diagnosis of possible pancreatitis and/or hepatitis.

Patient 2

On June 27, the 24-year-old coworker and roommate of patient 1 sought care at an emergency clinic because of a 1-day history of fever, chills, headache, myalgia, sweating, and nonproductive cough. Physical examination, chest radiographs, serum chemistries, and CBC were normal. On June 28, because of worsening symptoms, he was admitted to a local hospital for observation and symptom-based therapy. On June 30, he was transferred to a regional hospital because of tachypnea (respiration rate 34–38/min), progressive thrombocytopenia (platelet count from 142,000/mm^3 to 24,000/mm^3), and a left shift in WBC (from 6% to 24% banded forms). He also had developed transient oliguria (no azotemia) during treatment with supplemental fluid therapy. Other laboratory abnormalities included hypoalbuminemia (2.0 g/dL), elevated serum enzymes (LDH 1541 U/L; AST 79 U/L; and creatine phosphokinase 719 U/L [normal: 55–170 U/L]), and hypoxia (80% O_2 saturation with no supplemental O_2). Initial chest radiographs demonstrated segmental alveolar consolidation; subsequent radiographs indicated generalized pulmonary edema. During July 1–4, he responded to continued supportive care and was discharged on July 5 with a diagnosis of suspected HPS.

Follow-Up Investigation

Acute- and convalescent-phase serum specimens from patient 2 were submitted to the South Dakota Public Health Laboratory and CDC for hantavirus diagnostic testing. Analysis using an enzyme-linked immunoglobulin capture immunosorbent assay detected immunoglobulin M (IgM) and immunoglobulin G (IgG) antibodies to SNV that indicated acute infection. After the diagnosis of SNV was confirmed in patient 2, serum specimens were obtained from patient 1 for testing and were positive for SNV IgM and IgG antibodies. Both ill persons resided in the same house, which was on the premises of a small cattle feedlot at which they were employed. There were no other members of the household, and the only other person who worked at the feedlot had no history of past or recent illness.

Investigation at the feedlot identified multiple potential exposures to rodents or rodent-infested environments (typical in such settings), including straw and hay piles stored in fields, abandoned farm buildings, open-access feed storage sites, and buildings with excess accumulations of dirt, debris, and spilled feed. The feedlot did not maintain a coordinated rodent-control program. In addition, the investigation identified opportunities for contact with potentially infected rodents or their excreta, including handling of dead rodents; feeding of the rodent carcasses to cats and dogs; and cleaning of food storage areas, animal-handling facilities, outbuildings, and living quarters in which evidence of rodent harborage was present. To characterize the local reservoir for SNV, rodent trapping surveys are planned for spring 1996.

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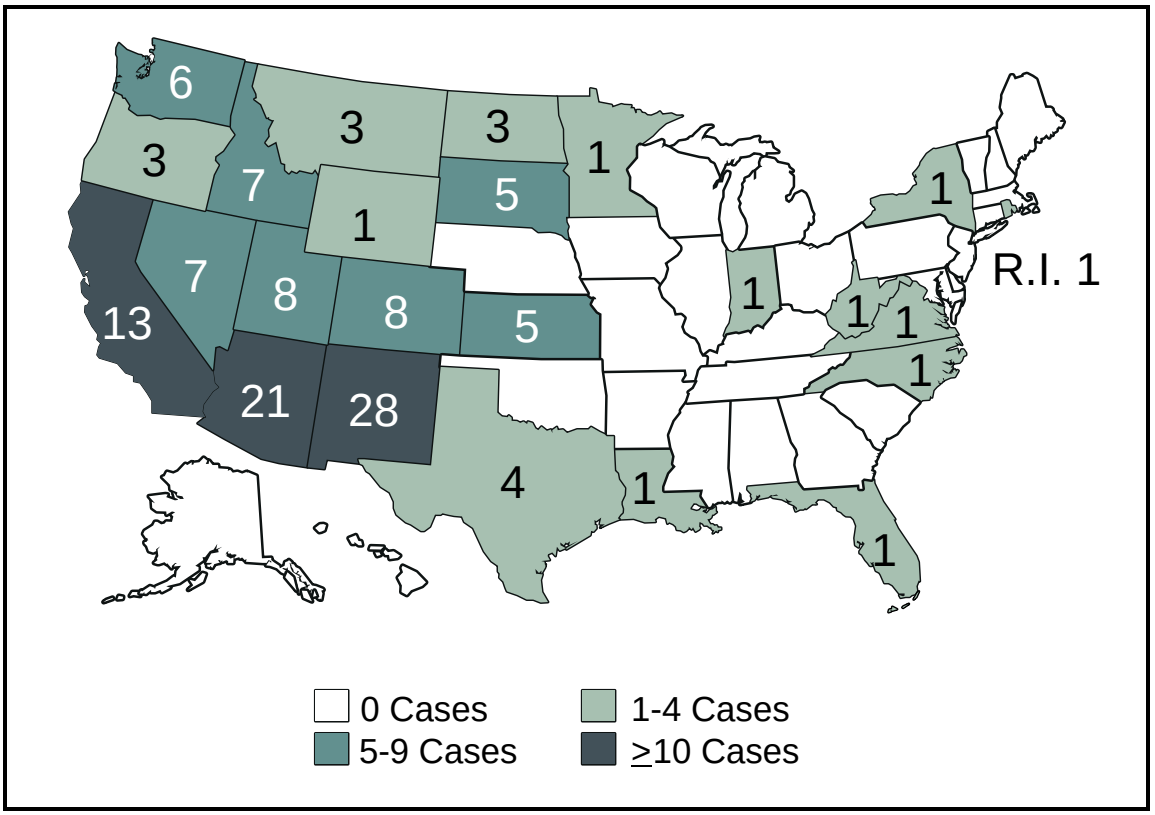
Editorial Note: HPS was first recognized in 1993 following the investigation of an outbreak of fatal acute respiratory illness in the southwestern United States (*3*). Since its initial identification, 131 cases have been confirmed in the United States through March 21, 1996. HPS cases have been recognized in 24 states; the largest numbers have occurred in New Mexico (28 cases), Arizona (21 cases), and California (13 cases) (Figure 1). Cases of HPS also have been confirmed in Argentina, Brazil, and Canada. The mean age of the 131 U.S. patients with HPS was 35 years (range: 11–69 years), and the overall case-fatality rate was 49.6%.

Most HPS cases in the United States are caused by SNV infection. The principal host for SNV is the deer mouse (*Peromyscus maniculatus*), which is widely distributed in North America (*4*). Other cases of HPS outside the ecologic range of *P. maniculatus* have been described and associated with other rodent reservoirs, including the cotton rat (*Sigmodon hispidus*)—associated with Black Creek Canal virus identified in south Florida (*1*); the rice rat (*Orysomys palustris*)—associated with Bayou virus in Louisiana (*2*); and the white-footed mouse (*P. leucopus*)—associated with a closely related variant of SNV in New York (*5*).

FIGURE 1. Number of confirmed cases of hantavirus pulmonary syndrome recorded in the Hantavirus Pulmonary Syndrome Registry, by state of residence — United States, 1996*



*Identified during May 1993–April 1996.

Hantavirus Pulmonary Syndrome — Continued

This report describes the fourth reported instance of multiple cases of SNV-associated illness (*3,6*; CDC, unpublished data, 1994). In the investigation described in this report, it was not possible to distinguish whether the infections were acquired occupationally or within the home because the persons lived and worked in the same location. The low frequency of case clustering with SNV also is characteristic of the other principal form of hantaviral disease, hemorrhagic fever with renal syndrome, which occurs primarily in Europe and Asia (*7*). Cases of potential occupationally related SNV infection have been recognized but are infrequent (*8,9*). Among the 131 documented HPS cases in the United States, the exposures related to these cases occurred among grain farmers; an extension livestock specialist; field biologists; and agricultural, mill, construction, utility, and feedlot workers. In addition, in a 1994 study, antibody to SNV was detected in six of 528 mammalogists and rodent workers with varying degrees of rodent exposure in the United States (*9*). In contrast, no serologic evidence of infection was detected during a seroprevalence study of selected occupational groups (e.g., farm workers, laborers, professionals, repairers, service industry workers, and technicians)* for which the primary jobs did not require rodent contact but whose work activities included potential contact with rodents and rodent excreta in the southwestern United States (*8*).

Recommendations to reduce the risk for exposure to hantavirus include precautions for persons involved in activities associated with exposure to rodents, rodent excreta, and contaminated dust (*10*). Through the HPS registry, CDC in collaboration with other state health departments is reviewing the utility and impact of these risk-reduction measures during such activities and in related vocations. Collaborative reporting by health-care providers and state health departments to the centralized surveillance system at CDC continues to be essential for characterizing the clinical spectrum of disease, refining the diagnostic criteria for HPS, identifying additional pathogenic hantaviruses and rodent hosts, and identifying additional risk factors for hantavirus infection.

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*Coded by CDC's National Institute for Occupational Safety and Health.

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World Health Organization Consultation on Public Health Issues Related to Bovine Spongiform Encephalopathy and the Emergence of a New Variant of Creutzfeldt-Jakob Disease

At a World Health Organization (WHO) Consultation organized in Geneva on April 2–3, 1996, a group of international experts reviewed the public health issues related to bovine spongiform encephalopathy (BSE) and the emergence of a new variant of Creutzfeldt-Jakob Disease (V-CJD), as officially reported by the United Kingdom on March 20, 1996.

The Consultation made recommendations, based on the latest scientific information, to minimize transmission of BSE among animals and to reduce as completely as possible any exposure of humans to the BSE agent.

FINDINGS

Bovine Spongiform Encephalopathy

BSE is a transmissible spongiform encephalopathy (TSE) in cattle, which was first identified in the United Kingdom in 1986. It is one of a group of similar degenerative diseases that occur in several animal species. Transmission of BSE to cattle appears to have occurred by contaminated meat and bone meal in concentrate feed, sheep or cattle being the original source. The United Kingdom is the only country with a high incidence of the disease, and the epidemic there appears to have been due mainly to recycling of affected bovine material back to cattle before the ruminant (cattle, sheep, and goats) feed ban in July 1988 took effect. There is no evidence of either maternal or horizontal transmission of BSE.

The incidence of the disease is declining significantly in the United Kingdom, although the measures introduced have not thus far halted the epidemic. The worldwide distribution of BSE is not known precisely, but it has been reported at a much lower incidence than in the United Kingdom in native cattle in other European countries. In these latter countries only part of the BSE cases could be related to consumption of feed that might have been contaminated with the BSE agent.

Variant of Creutzfeldt-Jakob Disease

The group reviewed the clinical and pathologic data from the 10 cases in the United Kingdom. The disease has occurred at younger ages than is usual for classical CJD and shows several clinical and pathologic differences. Based on findings in these 10 cases, the group established a case definition to facilitate better surveillance, which is necessary to determine the incidence and distribution of this syndrome.

The group concluded that there is no definite link between BSE and V-CJD but that circumstantial evidence suggests exposure to BSE may be the most likely explanation. Further research on both diseases is urgently required.

Exposure to BSE has already been greatly reduced by measures taken in the United Kingdom.

Bovine Spongiform Encephalopathy — Continued

RECOMMENDATIONS

Bovine Spongiform Encephalopathy

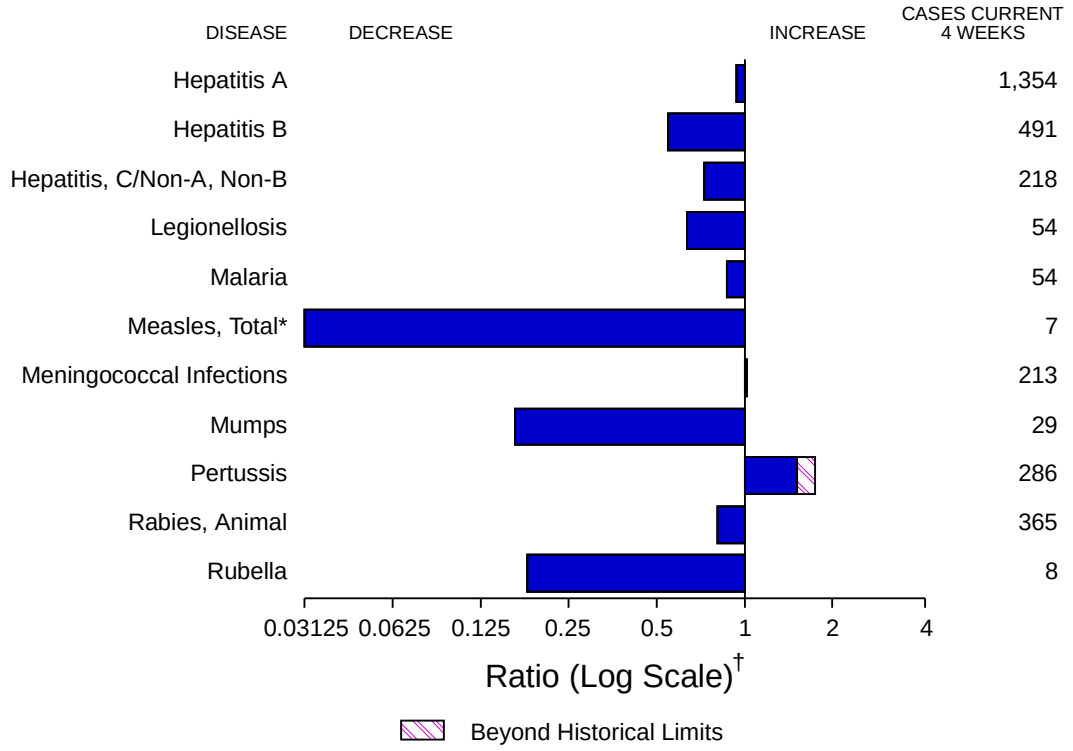
1. No part or product of any animal that has shown signs of TSE should enter any food chain, human or animal. All countries must ensure the slaughter and safe disposal of TSE-affected animals so that TSE infectivity cannot enter any food chain. All countries should review their rendering procedures to ensure that they effectively inactivate TSE agents.
2. All countries should establish continuous surveillance and compulsory notification for BSE according to recommendations established by the *Office international des Epizooties* in Paris. In the absence of surveillance data, the BSE status of a country must be considered as unknown.
3. Countries should not permit tissues that are likely to contain the BSE agent to enter any food chain, human or animal.
4. All countries should ban the use of ruminant tissues in ruminant feed.
5. With respect to specific products:
   - Tests on milk from BSE-infected animals have not shown any BSE infectivity, and there is evidence from other animal and human spongiform encephalopathies to suggest that milk will not transmit these diseases. Milk and milk products, even in countries with high incidence of BSE, are therefore considered safe.
   - Gelatin in the food chain is considered to be safe. The usually applied manufacturing process has been demonstrated to significantly inactivate any residual infective activity that may have been present in source tissues.
6. With respect to medicinal products:
   - Removal and inactivation procedures contribute to the reduction of the risk of infection, but it must be recognized that the BSE agent is remarkably resistant to physico-chemical procedures that destroy the infectivity of common microorganisms.
   - The importance of obtaining bovine materials destined for the pharmaceutical industry only from countries that have a surveillance system in place and that report either no or only sporadic cases of BSE is reiterated.
   - Measures recommended to national health authorities to minimize the risk of transmitting the agent causing BSE through medicinal products, in particular parenteral products, which were developed at a WHO Consultation in 1991 (*Bulletin of the World Health Organization* 1992;70:183–90), continue to be generally applicable.
   - It is recommended that these measures be reviewed and, if necessary, strengthened as more information become available.
7. Research on TSE should be promoted, especially on rapid diagnosis, agent characterization, and epidemiology of TSEs in humans and animals.

Variant of Creutzfeldt-Jakob Disease

1. The full geographic distribution of V-CJD, although reported at present only in the United Kingdom, needs to be further investigated.
2. While the most likely hypothesis at present for this newly recognized variant is exposure to the BSE agent, further data from scientific studies on these variant cases are urgently required. More monitoring and surveillance studies on all

(Continued on page 303)

FIGURE I. Selected notifiable disease reports, comparison of 4-week totals ending April 6, 1996, with historical data — United States



*The large apparent decrease in the number of reported cases of measles (total) reflects dramatic fluctuations in the historical baseline. (Ratio [log scale] for week 14 measles [total] is 0.026623.)
†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 — cases of selected notifiable diseases, United States, cumulative, week ending April 6, 1996 (14th Week)

	Cum. 1996		Cum. 1996
Anthrax	-	HIV infection, pediatric*§	76
Brucellosis	15	Plague	1
Cholera	1	Poliomyelitis, paralytic¶	-
Congenital rubella syndrome	-	Psittacosis	5
Cryptosporidiosis*	346	Rabies, human	-
Diphtheria	1	Rocky Mountain spotted fever (RMSF)	22
Encephalitis: California*	-	Streptococcal toxic-shock syndrome*	9
eastern equine*	1	Syphilis, congenital**	-
St. Louis*	-	Tetanus	3
western equine*	-	Toxic-shock syndrome	37
Hansen Disease	26	Trichinosis	8
Hantavirus pulmonary syndrome*†	1	Typhoid fever	66

*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, National Center for Prevention Services (NCPS), last update March 26, 1996.
¶No suspected cases of polio reported for 1996.
**Updated quarterly from reports to the Division of STD Prevention, NCPS. First quarter 1996 is not yet available.
-: no reported cases

TABLE II. Cases of selected notifiable diseases, United States, weeks ending April 6, 1996, and April 8, 1995 (14th Week)

Reporting Area	AIDS*		Chlamydia	*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB		Legionellosis	
				NETSS†	PHLIS§						
	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1996	Cum. 1996	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995
UNITED STATES	16,791	19,920	59,471	194	69	72,301	105,537	859	1,106	185	304
NEW ENGLAND	657	829	2,574	22	5	1,835	1,467	24	27	6	4
Maine	10	23	-	3	-	11	18	-	-	1	-
N.H.	23	37	191	1	1	36	30	1	2	-	-
Vt.	7	6	-	4	4	17	12	15	2	-	-
Mass.	392	447	1,797	10	-	614	847	5	22	4	3
R.I.	38	55	586	2	-	148	156	3	1	1	1
Conn.	187	261	-	2	-	1,009	404	-	-	N	N
MID. ATLANTIC	4,440	4,783	8,788	30	15	6,684	12,247	79	102	42	41
Upstate N.Y.	538	618	N	14	10	1,351	2,768	72	44	7	9
N.Y. City	2,443	2,331	2,288	-	-	1,785	4,245	1	1	-	1
N.J.	928	1,087	1,253	9	-	703	1,181	-	46	5	9
Pa.	531	747	5,247	N	5	2,845	4,053	6	11	30	22
E.N. CENTRAL	1,395	1,602	10,465	26	11	11,652	21,708	112	81	65	106
Ohio	300	404	2,594	16	8	1,410	6,880	4	4	31	42
Ind.	269	106	2,406	6	-	1,893	2,196	5	-	17	24
Ill.	518	732	-	2	1	4,694	5,565	8	30	2	13
Mich.	228	272	4,101	2	2	2,911	5,254	95	47	14	14
Wis.	80	88	1,364	N	-	744	1,813	-	-	1	13
W.N. CENTRAL	413	415	6,739	21	14	4,308	5,730	104	16	11	21
Minn.	84	92	-	3	9	U	834	-	-	-	-
Iowa	31	20	927	5	2	295	423	70	3	2	8
Mo.	175	146	3,920	2	-	2,217	3,296	30	6	1	7
N. Dak.	1	1	2	1	1	1	9	-	-	-	1
S. Dak.	5	1	329	1	-	48	62	-	1	2	-
Nebr.	32	43	388	4	-	57	299	1	4	6	3
Kans.	85	112	1,173	5	2	691	807	3	2	-	2
S. ATLANTIC	4,590	5,798	13,958	13	2	27,522	31,315	46	67	21	45
Del.	93	114	-	-	-	379	567	1	-	-	-
Md.	444	962	1,576	N	1	3,563	3,876	-	2	4	11
D.C.	225	369	N	-	-	1,180	1,619	-	-	1	3
Va.	224	369	3,067	N	1	2,565	3,150	3	1	6	2
W. Va.	24	21	-	N	-	99	192	4	19	1	3
N.C.	191	246	-	4	-	5,092	6,861	10	17	3	7
S.C.	229	270	-	1	-	2,923	3,235	11	1	1	6
Ga.	685	729	3,177	3	-	6,658	5,993	-	10	-	7
Fla.	2,475	2,718	6,138	2	-	5,063	5,822	17	17	5	6
E.S. CENTRAL	540	602	5,960	8	4	6,624	12,319	129	429	15	9
Ky.	86	63	1,940	-	-	1,097	1,236	6	8	2	2
Tenn.	201	263	1,666	N	4	1,644	3,428	122	420	7	4
Ala.	157	157	2,270	2	-	3,578	5,101	1	1	-	2
Miss.	96	119	84	2	-	305	2,554	-	-	6	1
W.S. CENTRAL	1,480	1,382	3,558	11	1	5,768	9,561	86	51	1	4
Ark.	70	64	-	5	-	749	1,265	1	-	-	-
La.	435	296	1,861	N	1	2,154	3,289	33	24	-	1
Okla.	54	83	1,697	1	-	1,037	1,087	35	21	1	3
Tex.	921	939	-	1	-	1,828	3,920	17	6	-	-
MOUNTAIN	469	640	4,452	23	9	2,025	2,435	152	129	6	39
Mont.	4	8	-	-	-	8	27	8	7	-	2
Idaho	7	17	422	7	4	25	39	38	14	-	1
Wyo.	2	4	186	-	-	10	13	47	53	-	1
Colo.	152	214	-	10	5	537	827	4	24	4	18
N. Mex.	25	69	-	-	-	254	307	26	18	-	3
Ariz.	136	135	2,984	N	-	972	780	20	5	1	5
Utah	64	37	254	4	-	49	57	7	3	-	2
Nev.	79	156	606	2	-	170	385	2	5	1	7
PACIFIC	2,807	3,869	2,977	40	8	5,883	8,755	127	204	18	35
Wash.	220	356	2,537	5	4	653	709	23	58	1	-
Oreg.	153	129	-	12	-	126	133	3	11	-	-
Calif.	2,394	3,277	-	18	-	4,888	7,485	58	126	17	30
Alaska	3	29	N	1	-	113	243	2	1	-	-
Hawaii	37	78	361	N	4	103	185	41	8	-	5
Guam	3	-	-	N	-	-	23	-	-	-	-
P.R.	420	852	N	N	U	60	163	20	49	-	-
V.I.	3	15	N	N	U	-	10	-	-	-	-
Amer. Samoa	-	-	-	N	U	-	8	-	-	-	-
C.N.M.I.	-	-	N	N	U	11	5	-	-	-	-

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, National Center for Prevention Services, last update March 26, 1996.

†National Electronic Telecommunications System for Surveillance.

§Public Health Laboratory Information System.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending April 6, 1996, and April 8, 1995 (14th Week)

Reporting Area	Lyme Disease		Malaria		Meningococcal Disease		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal	
	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995
UNITED STATES	901	1,185	233	256	1,012	975	2,901	4,424	3,436	4,016	1,136	1,764
NEW ENGLAND	44	79	8	13	25	55	49	62	91	79	132	496
Maine	-	1	2	1	7	3	-	2	4	-	-	-
N.H.	1	8	1	1	1	11	1	1	3	3	18	62
Vt.	-	1	1	-	1	5	-	-	-	1	37	67
Mass.	18	8	3	2	14	18	21	20	33	33	26	200
R.I.	20	9	1	2	-	-	-	1	16	10	16	64
Conn.	5	52	-	7	2	18	27	38	35	32	35	103
MID. ATLANTIC	756	916	57	60	80	102	110	277	541	808	171	445
Upstate N.Y.	324	466	13	10	22	34	11	26	77	79	81	187
N.Y. City	140	30	24	26	12	12	34	146	269	437	-	-
N.J.	41	122	17	17	21	28	35	57	132	142	40	81
Pa.	251	298	3	7	25	28	30	48	63	150	50	177
E.N. CENTRAL	11	12	26	32	132	145	481	768	467	440	8	2
Ohio	9	5	5	1	51	39	188	271	71	74	2	1
Ind.	2	5	3	3	14	25	68	65	45	23	1	-
Ill.	-	1	7	22	40	38	139	290	298	239	-	1
Mich.	-	1	8	2	11	24	41	86	39	93	1	-
Wis.	U	U	3	4	16	19	45	56	14	11	4	-
W.N. CENTRAL	32	20	4	7	82	57	132	233	101	134	104	75
Minn.	1	-	1	3	5	10	27	15	17	31	7	5
Iowa	16	1	1	-	19	9	6	19	12	22	52	25
Mo.	2	8	1	3	33	22	96	185	48	51	9	10
N. Dak.	-	-	-	-	2	-	-	-	1	-	8	7
S. Dak.	-	-	-	-	3	2	-	-	9	-	21	15
Nebr.	-	-	-	1	9	6	3	5	4	8	2	-
Kans.	13	11	1	-	11	8	-	9	10	22	5	13
S. ATLANTIC	31	115	41	52	195	156	934	1,162	538	615	576	507
Del.	1	11	2	1	2	2	11	7	-	14	16	28
Md.	21	80	13	18	20	8	156	104	68	115	149	115
D.C.	-	-	2	3	3	1	43	41	24	23	2	2
Va.	-	3	6	10	16	22	130	191	25	29	131	100
W. Va.	3	7	-	-	4	3	1	1	19	28	21	23
N.C.	4	6	5	4	28	23	276	302	83	60	139	113
S.C.	1	4	2	-	25	24	129	186	40	77	10	40
Ga.	-	4	7	6	60	42	83	207	156	2	73	77
Fla.	1	-	4	10	37	31	105	123	123	267	35	9
E.S. CENTRAL	6	7	3	3	69	61	703	999	310	335	36	74
Ky.	-	1	-	-	12	19	44	60	57	60	9	5
Tenn.	-	4	2	1	3	15	219	225	72	108	13	34
Ala.	-	-	1	2	28	14	160	171	107	106	14	34
Miss.	6	2	-	-	26	13	280	543	74	61	-	1
W.S. CENTRAL	3	19	6	5	109	105	349	656	206	428	15	39
Ark.	2	1	-	1	15	10	68	141	20	51	2	21
La.	-	-	-	1	23	14	162	299	-	-	8	9
Okla.	1	12	-	-	9	11	45	52	27	39	5	9
Tex.	-	6	6	3	62	70	74	164	159	338	-	-
MOUNTAIN	-	1	18	18	66	81	37	72	120	123	15	20
Mont.	-	-	1	1	1	2	-	3	-	3	-	9
Idaho	-	-	-	1	7	4	1	-	2	5	-	-
Wyo.	-	-	2	-	3	4	1	-	1	1	8	1
Colo.	-	-	10	9	9	21	13	42	21	5	-	-
N. Mex.	-	-	1	3	12	19	-	1	11	22	1	-
Ariz.	-	-	1	2	21	25	19	11	50	76	4	9
Utah	-	-	2	1	7	2	-	2	10	10	-	-
Nev.	-	1	1	1	6	4	3	13	25	1	2	1
PACIFIC	18	16	70	66	254	213	106	195	1,062	1,054	79	106
Wash.	-	-	2	6	31	32	1	5	55	63	-	-
Oreg.	5	1	5	4	42	37	3	4	30	16	-	-
Calif.	12	15	60	49	174	142	102	185	917	910	71	102
Alaska	-	-	-	1	5	-	-	1	18	19	8	4
Hawaii	1	-	3	6	2	2	-	-	42	46	-	-
Guam	-	-	-	-	-	1	-	1	-	4	-	-
P.R.	-	-	-	-	3	10	44	93	20	23	13	18
V.I.	-	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	2	-	-
C.N.M.I.	-	-	-	-	-	-	1	-	-	10	-	-

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

TABLE III. Cases of selected notifiable diseases preventable by vaccination, United States, weeks ending April 6, 1996, and April 8, 1995 (14th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (viral), by type				Measles (Rubeola)			
			A		B		Indigenous		Imported†	
	Cum. 1996*	Cum. 1995	Cum. 1996	Cum. 1995	Cum. 1996	Cum. 1995	1996	Cum. 1996	1996	Cum. 1996
UNITED STATES	379	374	6,168	6,638	1,851	2,368	2	45	-	3
NEW ENGLAND	9	18	67	45	36	63	-	5	-	1
Maine	-	1	8	6	2	2	-	-	-	-
N.H.	7	1	3	3	1	6	-	-	-	-
Vt.	-	1	1	3	2	1	-	1	-	-
Mass.	2	4	34	17	8	17	-	3	-	1
R.I.	-	-	3	8	4	7	-	-	-	-
Conn.	-	11	18	8	19	30	-	1	-	-
MID. ATLANTIC	51	40	388	352	260	279	-	1	-	1
Upstate N.Y.	13	13	88	82	76	83	-	-	-	-
N.Y. City	5	5	179	138	149	54	-	1	-	1
N.J.	17	8	75	66	4	96	U	-	U	-
Pa.	16	14	46	66	31	46	-	-	-	-
E.N. CENTRAL	56	70	559	961	222	326	-	2	-	-
Ohio	34	37	277	541	34	28	-	2	-	-
Ind.	2	10	100	48	38	74	-	-	-	-
Ill.	14	19	65	199	27	88	-	-	-	-
Mich.	2	4	90	106	117	114	-	-	-	-
Wis.	4	-	27	67	6	22	-	-	-	-
W.N. CENTRAL	16	16	509	305	139	169	2	2	-	-
Minn.	4	4	18	21	3	9	2	2	-	-
Iowa	6	1	137	15	57	14	-	-	-	-
Mo.	5	8	233	221	57	123	-	-	-	-
N. Dak.	-	-	5	4	-	1	-	-	-	-
S. Dak.	1	-	27	3	-	1	-	-	-	-
Nebr.	-	1	51	16	5	11	-	-	-	-
Kans.	-	2	38	25	17	10	-	-	-	-
S. ATLANTIC	94	93	228	275	313	330	-	2	-	-
Del.	1	-	5	3	1	3	-	1	-	-
Md.	20	33	53	57	81	68	-	1	-	-
D.C.	-	-	6	2	5	8	-	-	-	-
Va.	3	12	43	53	40	26	-	-	-	-
W. Va.	1	2	6	7	8	19	-	-	-	-
N.C.	13	11	26	24	103	93	-	-	-	-
S.C.	3	-	24	8	28	9	-	-	-	-
Ga.	52	21	2	37	3	33	-	-	-	-
Fla.	1	14	63	84	44	71	-	-	-	-
E.S. CENTRAL	7	4	270	368	68	258	-	-	-	-
Ky.	2	1	6	20	20	28	-	-	-	-
Tenn.	-	-	104	286	33	194	-	-	-	-
Ala.	4	3	76	36	15	36	-	-	-	-
Miss.	1	-	84	26	-	-	-	-	-	-
W.S. CENTRAL	11	16	1,020	606	145	211	-	1	-	-
Ark.	-	3	165	37	15	4	-	-	-	-
La.	-	1	20	18	13	24	-	-	-	-
Okla.	11	10	471	138	22	29	-	-	-	-
Tex.	-	2	364	413	95	154	-	1	-	-
MOUNTAIN	40	38	856	1,160	228	169	-	3	-	-
Mont.	-	-	22	19	2	6	-	-	-	-
Idaho	1	2	104	135	26	21	-	-	-	-
Wyo.	18	2	6	46	6	3	-	-	-	-
Colo.	4	6	22	149	8	34	-	-	-	-
N. Mex.	7	5	143	240	102	63	-	-	-	-
Ariz.	5	10	248	290	36	22	-	-	-	-
Utah	3	4	260	244	37	13	-	-	-	-
Nev.	2	9	51	37	11	7	-	3	-	-
PACIFIC	95	79	2,271	2,566	440	563	-	29	-	1
Wash.	1	4	139	151	25	45	-	4	-	-
Oreg.	12	9	328	517	22	29	-	-	-	-
Calif.	80	64	1,753	1,837	389	481	-	1	-	-
Alaska	-	-	27	15	2	3	-	24	-	-
Hawaii	2	2	24	46	2	5	-	-	-	1
Guam	-	-	-	1	-	-	U	-	U	-
P.R.	-	3	25	11	90	84	-	-	-	-
V.I.	-	-	-	-	-	1	U	-	U	-
Amer. Samoa	-	-	-	5	-	-	U	-	U	-
C.N.M.I.	10	-	1	10	5	1	U	-	U	-

*Of 83 cases among children aged <5 years, serotype was reported for 22 and of those, 5 were type B.
†For imported measles, cases include only those resulting from importation from other countries.
N: Not notifiable U: Unavailable -: no reported cases

TABLE III. (Cont'd.) Cases of selected notifiable diseases preventable by vaccination, United States, weeks ending April 6, 1996, and April 8, 1995 (14th Week)

Reporting Area	Measles (Rubeola), cont'd. Total		Mumps			Pertussis			Rubella		
	Cum. 1996	Cum. 1995	1996	Cum. 1996	Cum. 1995	1996	Cum. 1996	Cum. 1995	1996	Cum. 1996	Cum. 1995
UNITED STATES	48	168	6	155	222	68	639	711	2	41	19
NEW ENGLAND	6	3	-	-	3	3	118	112	-	3	2
Maine	-	-	-	-	2	2	7	11	-	-	-
N.H.	-	-	-	-	-	1	15	5	-	-	1
Vt.	1	-	-	-	-	-	6	2	-	-	-
Mass.	4	1	-	-	-	-	87	88	-	1	1
R.I.	-	2	-	-	-	-	-	-	-	-	-
Conn.	1	-	-	-	1	-	3	6	-	2	-
MID. ATLANTIC	2	2	1	20	33	4	67	63	-	3	2
Upstate N.Y.	-	-	-	6	9	-	38	34	-	2	-
N.Y. City	2	-	-	4	4	1	11	12	-	1	1
N.J.	-	2	U	-	6	U	-	6	U	-	1
Pa.	-	-	1	10	14	3	18	11	-	-	-
E.N. CENTRAL	2	-	1	42	30	5	114	73	-	1	-
Ohio	2	-	1	17	15	5	51	31	-	-	-
Ind.	-	-	-	5	5	-	9	7	-	-	-
Ill.	-	-	-	9	-	-	43	-	-	1	-
Mich.	-	-	-	11	10	-	9	26	-	-	-
Wis.	-	-	-	-	-	-	2	9	-	-	-
W.N. CENTRAL	2	1	-	2	14	22	25	34	1	1	-
Minn.	2	-	-	-	2	21	22	5	-	-	-
Iowa	-	-	-	-	3	-	2	1	1	1	-
Mo.	-	1	-	-	7	-	-	7	-	-	-
N. Dak.	-	-	-	2	-	-	-	5	-	-	-
S. Dak.	-	-	-	-	-	1	1	6	-	-	-
Nebr.	-	-	-	-	2	-	-	3	-	-	-
Kans.	-	-	-	-	-	-	-	7	-	-	-
S. ATLANTIC	2	-	-	14	39	8	53	71	-	-	1
Del.	1	-	-	-	-	-	7	4	-	-	-
Md.	1	-	-	7	8	3	25	-	-	-	-
D.C.	-	-	-	-	-	-	-	1	-	-	-
Va.	-	-	-	3	9	3	3	7	-	-	-
W. Va.	-	-	-	-	-	2	2	-	-	-	-
N.C.	-	-	-	-	16	-	-	49	-	-	-
S.C.	-	-	-	3	3	-	3	8	-	-	-
Ga.	-	-	-	1	-	-	2	-	-	-	-
Fla.	-	-	-	-	3	-	11	2	-	-	1
E.S. CENTRAL	-	-	-	6	6	-	10	20	-	2	-
Ky.	-	-	-	-	-	-	5	1	-	-	-
Tenn.	-	-	-	-	-	-	1	4	-	-	-
Ala.	-	-	-	3	2	-	1	15	-	-	-
Miss.	-	-	-	3	4	-	3	-	N	N	N
W.S. CENTRAL	1	2	1	7	12	2	8	29	-	-	1
Ark.	-	2	-	-	3	-	2	3	-	-	-
La.	-	-	1	7	2	-	2	1	-	-	-
Okla.	-	-	-	-	-	-	1	1	-	-	-
Tex.	1	-	-	-	7	2	3	24	-	-	1
MOUNTAIN	3	56	1	13	10	10	94	191	1	1	2
Mont.	-	-	-	-	-	-	3	3	-	-	-
Idaho	-	-	-	-	2	1	40	57	-	-	-
Wyo.	-	-	-	-	-	-	-	-	-	-	-
Colo.	-	17	-	-	-	6	14	32	-	-	-
N. Mex.	-	28	N	N	N	-	18	14	-	-	-
Ariz.	-	10	-	1	1	2	4	82	1	1	2
Utah	-	-	1	1	1	1	2	2	-	-	-
Nev.	3	1	-	11	6	-	13	1	-	-	-
PACIFIC	30	104	2	51	75	14	150	118	-	30	11
Wash.	4	14	-	5	4	1	35	20	-	1	-
Oreg.	-	1	N	N	N	4	20	5	-	-	1
Calif.	1	88	1	37	62	6	87	90	-	27	9
Alaska	24	-	-	1	8	-	-	-	-	-	-
Hawaii	1	1	1	8	1	3	8	3	-	2	1
Guam	-	-	U	-	2	U	-	-	U	-	-
P.R.	-	3	-	1	1	-	-	4	-	-	-
V.I.	-	-	U	-	1	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	-	-	U	-	-	U	-	-

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

TABLE IV. Deaths in 121 U.S. cities,* week ending April 6, 1996 (14th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	569	404	107	34	11	11	34
Boston, Mass.	151	104	32	9	2	3	7
Bridgeport, Conn.	49	40	3	4	1	1	-
Cambridge, Mass.	24	18	6	-	-	-	1
Fall River, Mass.	27	23	4	-	-	-	-
Hartford, Conn.	42	24	13	3	2	-	3
Lowell, Mass.	17	12	4	-	1	-	2
Lynn, Mass.	11	9	1	1	-	-	-
New Bedford, Mass.	30	25	2	2	-	1	2
New Haven, Conn.	39	17	8	7	5	2	-
Providence, R.I.	41	30	7	2	-	1	7
Somerville, Mass.	7	5	2	-	-	-	-
Springfield, Mass.	30	24	4	1	-	1	-
Waterbury, Conn.	38	32	5	1	-	-	5
Worcester, Mass.	63	41	16	4	-	2	7
MID. ATLANTIC	2,515	1,722	460	234	44	55	129
Albany, N.Y.	47	30	11	5	-	1	5
Allentown, Pa.	25	19	6	-	-	-	-
Buffalo, N.Y.	95	78	10	5	-	2	2
Camden, N.J.	29	19	6	1	1	2	2
Elizabeth, N.J.	18	11	5	1	1	-	1
Erie, Pa.§	61	51	6	4	-	-	7
Jersey City, N.J.	37	24	8	5	-	-	-
New York City, N.Y.	1,294	846	251	146	20	31	64
Newark, N.J.	59	21	15	14	4	5	6
Paterson, N.J.	15	8	5	2	-	-	1
Philadelphia, Pa.	400	286	70	26	11	7	22
Pittsburgh, Pa.§	45	29	10	5	-	1	-
Reading, Pa.	12	9	1	-	2	-	2
Rochester, N.Y.	139	112	18	5	3	1	6
Schenectady, N.Y.	31	23	7	1	-	-	1
Scranton, Pa.§	31	29	1	-	-	1	1
Syracuse, N.Y.	100	72	18	6	1	3	7
Trenton, N.J.	32	23	4	3	1	1	2
Utica, N.Y.	16	10	3	3	-	-	-
Yonkers, N.Y.	29	22	5	2	-	-	-
E.N. CENTRAL	2,193	1,493	411	174	54	61	140
Akron, Ohio	57	46	7	1	1	2	-
Canton, Ohio	50	42	6	2	-	-	4
Chicago, Ill.	456	277	93	56	12	18	37
Cincinnati, Ohio	107	68	28	5	3	3	9
Cleveland, Ohio	118	83	19	10	1	5	2
Columbus, Ohio	211	157	32	9	9	4	22
Dayton, Ohio	125	100	16	4	2	3	13
Detroit, Mich.	263	159	59	26	10	9	10
Evansville, Ind.	38	34	4	-	-	-	4
Fort Wayne, Ind.	42	32	6	1	3	-	5
Gary, Ind.	9	7	1	1	-	-	-
Grand Rapids, Mich.	71	52	12	3	-	4	7
Indianapolis, Ind.	192	123	43	16	6	4	6
Madison, Wis.	61	43	11	7	-	-	3
Milwaukee, Wis.	121	63	34	17	3	4	7
Peoria, Ill.	38	32	5	-	-	1	1
Rockford, Ill.	42	26	8	7	-	1	4
South Bend, Ind.	32	28	3	-	1	-	1
Toledo, Ohio	100	78	12	5	3	2	4
Youngstown, Ohio	60	43	12	4	-	1	1
W.N. CENTRAL	1,273	906	219	87	31	20	79
Des Moines, Iowa	149	111	26	11	-	1	15
Duluth, Minn.	27	19	5	3	-	-	-
Kansas City, Kans.	146	107	24	11	4	-	5
Kansas City, Mo.	137	74	30	8	13	2	8
Lincoln, Nebr.	35	26	6	1	-	2	2
Minneapolis, Minn.	200	149	33	12	1	5	15
Omaha, Nebr.	74	51	14	6	-	3	5
St. Louis, Mo.	125	89	21	9	4	2	10
St. Paul, Minn.	71	58	8	2	1	2	9
Wichita, Kans.	309	222	52	24	8	3	10
S. ATLANTIC	1,086	695	239	91	31	30	45
Atlanta, Ga.	178	101	41	19	8	9	3
Baltimore, Md.	129	84	28	13	1	3	15
Charlotte, N.C.	87	64	18	2	2	1	4
Jacksonville, Fla.	134	89	31	6	4	4	3
Miami, Fla.	108	60	28	11	7	2	2
Norfolk, Va.	46	36	5	4	-	1	1
Richmond, Va.	64	37	19	5	3	-	-
Savannah, Ga.	49	32	11	4	1	1	5
St. Petersburg, Fla.	58	45	7	4	1	1	1
Tampa, Fla.	217	141	41	23	4	8	11
Washington, D.C.	U	U	U	U	U	U	U
Wilmington, Del.	16	6	10	-	-	-	-
E.S. CENTRAL	534	334	121	52	13	12	42
Birmingham, Ala.	115	68	22	16	2	5	3
Chattanooga, Tenn.	41	27	12	1	1	-	2
Knoxville, Tenn.	90	63	19	6	1	1	14
Lexington, Ky.	53	36	15	2	-	-	8
Memphis, Tenn.	U	U	U	U	U	U	U
Mobile, Ala.	89	55	16	11	4	3	3
Montgomery, Ala.	43	27	14	1	-	1	3
Nashville, Tenn.	103	58	23	15	5	2	9
W.S. CENTRAL	1,556	998	324	160	41	33	105
Austin, Tex.	79	46	17	12	3	1	12
Baton Rouge, La.	24	17	4	1	1	1	-
Corpus Christi, Tex.	49	37	10	1	1	-	4
Dallas, Tex.	210	125	54	19	5	7	6
El Paso, Tex.	115	77	24	7	3	4	12
Ft. Worth, Tex.	138	75	32	24	4	3	9
Houston, Tex.	394	242	79	55	15	3	32
Little Rock, Ark.	75	42	22	8	1	2	4
New Orleans, La.	57	38	5	10	2	2	-
San Antonio, Tex.	243	164	48	17	4	10	10
Shreveport, La.	71	54	13	2	2	-	5
Tulsa, Okla.	101	81	16	4	-	-	11
MOUNTAIN	690	469	115	64	29	13	54
Albuquerque, N.M.	73	50	10	9	4	-	2
Colo. Springs, Colo.	52	40	6	2	2	2	5
Denver, Colo.	96	66	19	7	4	-	10
Las Vegas, Nev.	U	U	U	U	U	U	U
Ogden, Utah	15	10	4	-	1	-	2
Phoenix, Ariz.	197	128	31	22	11	5	17
Pueblo, Colo.	28	21	4	2	1	-	1
Salt Lake City, Utah	92	53	20	9	4	6	5
Tucson, Ariz.	137	101	21	13	2	-	12
PACIFIC	1,263	873	228	110	22	30	118
Berkeley, Calif.	13	9	3	1	-	-	1
Fresno, Calif.	71	50	7	10	1	3	8
Glendale, Calif.	U	U	U	U	U	U	U
Honolulu, Hawaii	93	73	14	4	-	2	3
Long Beach, Calif.	77	44	20	9	1	3	14
Los Angeles, Calif.	U	U	U	U	U	U	U
Pasadena, Calif.	27	20	4	1	1	1	2
Portland, Oreg.	126	93	16	11	3	3	9
Sacramento, Calif.	145	103	25	13	2	2	12
San Diego, Calif.	131	97	17	12	4	1	20
San Francisco, Calif.	129	79	26	19	3	2	18
San Jose, Calif.	172	110	38	14	2	8	12
Santa Cruz, Calif.	30	23	4	3	-	-	3
Seattle, Wash.	121	85	27	5	2	2	3
Spokane, Wash.	65	44	15	3	2	1	6
Tacoma, Wash.	63	43	12	5	1	2	7
TOTAL	11,679¶	7,894	2,224	1,006	276	265	746

*Mortality data in this table are voluntarily reported from 121 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 these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.
¶Total includes unknown ages.
U: Unavailable -: no reported cases

Bovine Spongiform Encephalopathy — Continued

forms of CJD are required throughout the world, modeled on current European collaborative studies.

3. Exposure to BSE from beef and beef products has already been substantially reduced by the measures taken in the United Kingdom. Exposure to BSE is considered lower in other countries. The group considered that implementation of their recommendations will ensure that any continuing risk of exposure to BSE in beef and beef products will be reduced to a minimum.

As surveillance worldwide is increased for both BSE and V-CJD, more information will become available in the coming months. WHO will keep these developments under review and update the recommendations as appropriate.

Adapted from Weekly Epidemiological Record *1996;71(no.15) (in press). Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases, CDC.*

Editorial Note: In the United States, the U.S. Department of Agriculture (USDA) has conducted active surveillance for BSE in cattle since 1990 and has not detected any cases. Nonetheless, because of the concern that V-CJD in the United Kingdom might possibly be linked to BSE, additional safety measures are being instituted, including discontinuation of the use of ruminant tissue in ruminant feeds.

CDC conducts surveillance for CJD through examination of death certificate data for U.S. residents for whom CJD was listed as one of the multiple causes of death (*1*). Based on this surveillance, during 1979–1993, the annual incidence of CJD remained stable at approximately one case per million persons. In the United Kingdom, five of eight patients who died with V-CJD since May 1995 were aged <30 years; in comparison, in the United States, CJD deaths in this age group remain extremely rare (<5 cases per billion per year).

CDC is working with the Council of State and Territorial Epidemiologists to consider expansion of current CJD surveillance. On April 8, an interagency meeting including representatives from CDC, the National Institutes of Health, the Food and Drug Administration, USDA, and the U.S. Department of Defense was held to disseminate conclusions from the WHO consultation and to coordinate preventive activities for BSE and CJD. CDC is working with its four established Emerging Infections Disease Programs (Minnesota; Oregon; New Haven, Connecticut; and the San Francisco Bay area, California), the Georgia Department of Human Resources, and the Atlanta Metropolitan Active Surveillance Program to pilot enhanced surveillance efforts for CJD, including an active search for V-CJD as described in the United Kingdom (*2*).

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2. Will RG, Ironside JW, Zeibler M, et al. A new variant of Creutzfeldt-Jakob disease in the UK. Lancet 1996;347:921–5.

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