MMWR™
Morbidity and Mortality Weekly Report
Weekly June 3, 2005 / Vol. 54 / No. 21

Human Exposure to Mosquito-Control Pesticides — Mississippi, North Carolina, and Virginia, 2002 and 2003

Public health officials weigh the risk for mosquito-borne diseases against the risk for human exposure to pesticides sprayed to control mosquitoes (*1*). Response to outbreaks of mosquito-borne diseases has focused on vector control through habitat reduction and application of pesticides that kill mosquito larvae. However, in certain situations, public health officials control adult mosquito populations by spraying ultra-low volume (ULV) (<3 fluid ounces per acre [oz/acre]) mosquito-control (MC) pesticides, such as naled, permethrin, and d-phenothrin. These ULV applications generate aerosols of fine droplets of pesticides that stay aloft and kill mosquitoes on contact while minimizing the risk for exposure to persons, wildlife, and the environment (*2*). This report summarizes the results of studies in Mississippi, North Carolina, and Virginia that assessed human exposure to ULV naled, permethrin, and d-phenothrin used in emergency, large-scale MC activities. The findings indicated ULV application in MC activities did not result in substantial pesticide exposure to humans; however, public health interventions should focus on the reduction of home and workplace exposure to pesticides.

FIGURE. Ultra-low volume, truck-mounted spraying for mosquito control — Mississippi, 2002

Photo/CDC

Mississippi, 2002

The 2002 West Nile virus (WNV) epidemic in Mississippi prompted an increase in MC activities, including application of ULV permethrin by truck-mounted foggers (Figure). Because of concerns about potential health effects from pesticides, the Mississippi Department of Health and CDC assessed whether MC activities increased individual urine pesticide metabolite concentrations. During September 8–19, 2002, investigators selected a geographically-random sample of 125 persons by using maps of two regions where public health officials applied MC pesticides and 67 persons from

INSIDE

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

The *MMWR* series of publications is published by the Coordinating Center for Health Information and Service, Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, Atlanta, GA 30333.

SUGGESTED CITATION
Centers for Disease Control and Prevention. [Article Title]. MMWR 2005;54:[inclusive page numbers].

two control regions. Each participant completed a questionnaire describing home and occupational use of pesticides and provided a spot urine sample for analysis of pesticide metabolites 1–4 days after MC (i.e., within 5 half-lives). By using a cross-sectional design, investigators compared urine pesticide metabolite concentrations of exposed and unexposed study participants. Exposure to permethrin was verified by cross-referencing the global positioning systems location of participants with local MC spray routes. Permethrin was applied in MC regions at a concentration of 0.032 oz/acre.

Urine samples were analyzed at CDC by using tandem mass spectrometry (*3*). Urinary metabolite concentrations of 3-phenoxybenzoic acid (3pba), a metabolite of synthetic pyrethroid pesticides such as permethrin, did not differ significantly between MC and non-MC regions (geometric mean [GM] = 1.25 μg/L versus 1.13 μg/L, respectively). Although 3pba concentrations did not differ between participants who used pesticides at home or at work and those who did not, participants who used pesticides on pets (n = 17) had significantly higher (p = 0.02) mean 3pba concentrations than those who did not (n = 174) (4.27 μg/L versus 1.07 μg/L, respectively). These findings indicated that local MC activities did not lead to increased pesticide metabolite concentrations in the urine of participants.

North Carolina, 2003

Hurricane Isabel made landfall in North Carolina on September 18, 2003. Because of ensuing rains and flooding, mosquito populations were expected to surge. To control mosquitoes and prevent transmission of WNV and other arboviruses, the North Carolina Department of Environmental and Natural Resources (NCDENR) sprayed ULV naled and permethrin.

The North Carolina Department of Health and Human Services, NCDENR, and CDC conducted a prospective exposure assessment of ULV spraying of pesticides. Investigators recruited 90 persons from a random sample of census blocks (that accounted for the population density) marked for spraying. Participants then completed a pre-spray questionnaire about household and occupational exposure to pesticides and provided urine samples to quantify concentrations of pesticide metabolites. On September 30, aircraft in North Carolina sprayed ULV naled at 0.7 oz/acre. In addition, trucks sprayed ULV permethrin (Biomist 30+30®) at 0.0014 lbs/acre. Eighteen hours after aerial spraying (approximately one half-life), each participant completed a post-spray questionnaire about household and occupational exposure to pesticides and provided a second urine sample. Urine samples were analyzed at CDC by using tandem mass spectrometry (*3*).

Of the 90 persons recruited to participate in this exposure assessment, 75 (83%) provided pre-spray and post-spray questionnaires and urine samples. The concentrations of all pre- and post-spray pesticide metabolites measured in participant urine samples were low (Table). Dimethylphosphate (DMP), a metabolite of organophosphate pesticides such as naled, was detected in 46% of pre-spray and 49% of post-spray urine samples (limit of detection [LOD] = 0.5 μg/L). The GM 3pba concentration from post-spray urine sampled was 0.2 μg/L. Generalized estimating equations (GEE) indicated no statistically significant differences in the urine concentrations of naled and permethrin metabolites before and after spraying. Participants who ate fresh fruits or vegetables ≤3 days before completing the pre-spray (n = 58) or post-spray (n = 37) questionnaires had significantly higher urine concentrations of dimethylthiophosphate than participants who did not pre-spray (n = 16) or post-spray (n = 37) (pre-spray: 3.2 μg/L versus 1.4 μg/L; GEE p = 0.02) (post-spray: 3.3 μg/L versus 1.2 μg/L; GEE p = 0.01). Two participants who worked on farms and/or handled pesticides had significantly higher urine concentrations of nonspecific organophosphorus pesticide metabolites (e.g., dimethyldithiophosphate, diethylthiophosphate, and diethylphosphate) than participants who did not work on farms (n = 73) or handle pesticides (n = 72).

Virginia, 2003

To control mosquitoes and prevent transmission of arboviruses after Hurricane Isabel, the Virginia Department of Health (VDH) decided to spray ULV naled and d-phenothrin. VDH and CDC assessed exposure to ULV spraying of pesticides by randomly selecting 95 residents of high population-density census blocks marked for spraying. Participants then completed pre-spray questionnaires about household and occupational exposure to pesticides and provided urine samples to quantify concentrations of pesticide metabolites.

On September 30, aircraft sprayed ULV naled at 0.5 oz/acre while trucks sprayed ULV of d-phenothrin (Anvil 10+10®) at 0.0036 lbs/acre. Eighteen hours after spraying (approximately one half-life), each participant completed a post-spray questionnaire about household and occupational exposure to pesticides and provided a second urine sample. Urine samples were analyzed at CDC by using tandem mass spectrometry (*3*).

Of the 95 persons recruited for the assessment, 83 (87%) provided pre-spray and post-spray exposure questionnaires and urine samples. The concentrations of all pesticide metabolites measured in participants' urine samples were low (Table). DMP was detected in 42% of pre-spray and 48% of post-spray urine samples (LOD = 0.5 μg/L). The geometric mean 3pba concentration from post-spray urine samples was 0.6 μg/L. GEEs indicated no overall difference in the urine concentrations of naled and d-phenothrin metabolites before and after spraying.

Reported by: *M Currier, MD, Univ of Mississippi Medical Center; M McNeill, MD, Mississippi Dept of Health. D Campbell, MD, North Carolina Dept of Health and Human Svcs; N Newton, PhD, North Carolina Dept of Environment and Natural Resources. JS Marr, MD, E Perry, MD, SW Berg, MD, Virginia Dept of Health. DB Barr, PhD, Div of Laboratory Sciences, GE Luber, PhD, SM Kieszak, MA, HS Rogers, PhD, LC Backer, PhD, MG Belson, MD, C Rubin, DVM, Div of Environmental Hazards and Health Effects, National Center for Environmental Health; E Azziz-Baumgartner, MD, ZH Duprey, DVM, EIS officers, CDC.*

Editorial Note: Although ULV applications of naled and synthetic pyrethroids have a low toxicity to humans, occupational

TABLE. Pre-spray and post-spray geometric mean concentrations (μg/L) of urine pesticide metabolites — North Carolina and Virginia, 2002 and 2003

Metabolite	North Carolina (n = 75)		Virginia (n = 83)		95th percentile
	Pre-spray	Post-spray	Pre-spray	Post-spray	
Dimethylphosphate*	†	†	†	†	13.0
Dimethylthiophosphate§	2.7	1.9	2.5	2.0	46.0
Dimethyldithiophosphate§	0.6	0.9	0.7	0.8	19.0
Diethylphosphate§	0.6	1.3	0.8	1.6	13.0
Diethylthiophosphate§	1.6	0.5	1.7	0.5	2.2
Diethyldithiophosphate§	†	†	†	†	0.9
3-Phenoxybenzoic acid¶	†	0.2	0.3	0.6	3.4
4-Fluoro-3-phenoxybenzoic acid	†	†	†	†	0.3
cis-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylic acid**	†	†	†	†	0.5
trans-3-(2,2-dichlorovinyl) 2,2-dimethylcyclopropanecarboxylic acid**	0.5	0.5	0.5	0.7	1.4
cis-3-(2,2-dibromovinyl)-2,2-dimethylcyclopropanecarboxylic acid**	†	†	†	†	0.3

* Nonspecific metabolite of naled and other organophosphate pesticides.
† Metabolite concentrations were quantitated in <50% of samples.
§ Nonspecific metabolite of organophosphate pesticides (excluding naled).
¶ Nonspecific metabolite of permethrin/d-phenothrin and other synthetic pyrethroid pesticides.
** Nonspecific metabolite of synthetic pyrethroid pesticides (excluding permethrin/d-phenothrin).

studies suggest that excessive exposure to these pesticides can cause serious health effects (*4*). Prolonged exposure to high concentrations of naled and synthetic pyrethroids can cause dermatitis, reactive airway disease, gastrointestinal distress, central nervous system depression, paralysis, and death (*5*). Exposure often results from use of these pesticides in food production, treatment of wool, wood products, and pest-control efforts; however, few studies have quantitated the level of human exposure to MC pesticides in nonoccupational settings (*6*).

The studies described in this report represent the first efforts to quantitate human exposure to MC pesticides during large-scale MC activities. Two of these studies used a prospective crossover design that compared urine metabolite concentrations after ULV spraying of pesticides with baseline concentrations. Use of sensitive analytic methods in these studies indicated that the urine pesticide metabolite concentrations measured were low (parts per billion). The concentration of urine metabolites in these studies are comparable with those measured in the general population (*6,7*). In addition, these three studies did not indicate an overall increase of pesticide metabolite concentrations in the urine of participants after spraying during MC activities. The concentrations of naled, permethrin, and d-phenothrin during emergency ULV applications might be too low to cause important human exposure.

In certain participants, investigators found an association between home and/or work application of pesticides and pesticide metabolite concentrations. The concentrations in participants who had histories of exposure were within the range of the general U.S. population (*8*). These findings are consistent with occupational studies in which prolonged exposure to pesticides through several hours of work in plant nurseries and greenhouses was associated with low but measurable concentrations of urine pesticide metabolites (*9*). These findings also are compatible with a prospective study that quantitated higher 3pba concentrations in the urine of pest-control operators 1 day after spraying pyrethroids (*10*).

The findings in this report are subject to at least three limitations. First, although naled, permethrin, and d-phenothrin remain in the environment for a short period (e.g., naled has a 1-day half-life), CDC did not conduct environmental sampling to confirm the presence of pesticide on the ground after spraying. Second, the study did not quantify the effects of synergists such as piperonyl butoxide in Anvil 10+10®, which help increase the efficacy of synthetic pyrethroids. Finally, the use of self-reported questionnaire data limits the ability to quantify actual home or occupational pesticide exposure.

Aerial spraying with ULV naled and truck-mounted spraying with permethrin/d-phenothrin were not associated with an increase in urine pesticide metabolite concentrations among residents of these rural, suburban, and urban communities. These findings suggest that ULV application of naled, permethrin, and d-phenothrin is safe to humans as part of integrated vector control. The findings are noteworthy because ULV applications of pesticides that kill adult mosquitoes are an important tool in the public health response to WNV. Future studies should address the long-term safety of low-concentration exposure to naled and synthetic pyrethroid applications. In addition, public health interventions might be needed to reduce home and workplace exposure to pesticides.

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Acknowledgments

The findings in this report are based, in part, on contributions by W Rayburn, Albemarle Regional Health Svcs, Elizabeth City; J Engel, North Carolina Dept of Health and Human Svcs; M Tolliver, North Carolina Dept of Environment and Natural Resources. Z Kazzi, Office of Director, Agency for Toxic Substances and Disease Registry. K Johnson, C Sanchez, A Holmes, R Sabogal, M Patel, A Funk, C Bell, S Young, A Greiling, D Burmeister, Div of Environmental Hazards and Health Effects, C Dodson, Div of Laboratory Sciences, J Mason, E Hansen, J Shughart, Div of Emergency and Environmental Health Svcs, National Center for Environmental Health; A Hedley, Div of Health Examination Statistics, National Center for Health Statistics; G Shaughnessy, G Han, A Terranella, Epidemiology Program Office, CDC.

Unintentional Topical Lindane Ingestions — United States, 1998–2003

Lindane* is an organochlorine pesticide found in certain prescription-only shampoos and topical lotions used to treat pediculosis (i.e., lice infestation) and scabies; lindane has been associated with human neurologic toxicity (*1,2*). In 2004, CDC was alerted to cases of illness caused by unintentional ingestion of lindane by persons mistaking the product for a liquid oral medication (e.g., cough syrup). To assess the extent of illness from ingestion of lindane, CDC, with assistance from the U.S. Environmental Protection Agency, Food and Drug Administration (FDA), and state health departments, collected case reports and analyzed data from the Sentinel Event Notification System for Occupational Risks-Pesticides (SENSOR-Pesticides) program and the Toxic Exposure Surveillance System (TESS). This report summarizes the results of that analysis, which identified 870 cases of unintentional lindane ingestion during 1998–2003, and describes two examples of lindane ingestions. To reduce the risk of lindane ingestion, public health authorities should alert clinicians to the hazards of lindane and the importance of following FDA usage guidelines, which include dispensing lindane in manufacturer-produced, 1- or 2-ounce single-use containers.

Case Reports

Case 1. In November 2004, the Washington State Department of Health reported that a boy aged 3 years ingested approximately 1 teaspoon of 1% lindane shampoo from a previously used 2-ounce bottle. Subsequently, the mother induced vomiting in the boy twice; 1 hour later the boy collapsed and experienced a tonic-clonic seizure lasting 4–5 minutes. After 3 hours, the child was discharged from the emergency department in stable condition.

Case 2. In December 2003, a man aged 47 years in Texas mistakenly ingested 1 ounce of lindane (percentage concentration unknown) from a bottle he believed to be cough syrup. The man vomited; he contacted the poison control center the following morning. He did not seek clinical evaluation.

Surveillance Data

Data were analyzed from pesticide poisoning surveillance systems participating in the SENSOR-Pesticides program† to identify symptomatic cases involving unintentional topical lindane ingestions during 1998–2003. Cases were classified as definite, probable, possible, or suspicious based on the clinical interpretation of signs or symptoms reported by a physician or patient, and evidence of lindane ingestion (*3,4*). Cases were also obtained from TESS§, which is maintained by the American Association of Poison Control Centers; poison information specialists determined which cases had signs and symptoms consistent with lindane exposure. Illness severity was categorized for all cases. Excluded were cases involving ingestion of veterinary and agricultural pesticide products that contained lindane.

During 1998–2003, TESS reported 857 symptomatic cases of unintentional lindane ingestion (Figure); none of the cases were reported as resulting in death. Severity was low in 778 cases (91%), moderate in 71 cases (8%), and high in eight cases (1%) (*4*). Among 823 patients with known ages, median age was 13 years (range: <1–86 years); 53% were female. Signs and symptoms included vomiting (59%), nausea (18%), oral irritation (19%), abdominal cramping (4%), cough (4%), and seizure (3%).

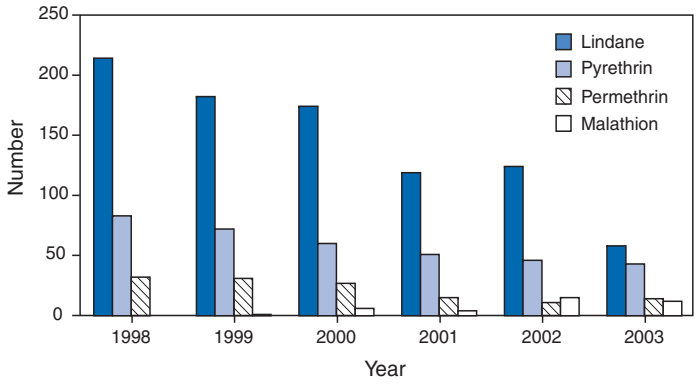
During 1998–2003, SENSOR-Pesticides identified a total of 13 symptomatic cases of unintentional lindane ingestion. Four cases (31%) were classified as definite, two (15%) as probable, six (46%) as possible, and one (8%) as suspicious. Severity was low in eight cases (62%), moderate in three cases (23%), and high in two cases (15%) (*3*). Median age was 7 years (range: <1–58 years), and 69% were male. Signs and symptoms included vomiting (69%), nausea (46%), headache (23%), seizure (23%), abdominal cramping (8%), and confusion (8%). Six (46%) cases in children and four (31%) cases

*Lindane is also referred to as gamma-hexachlorocyclohexane.

†SENSOR-Pesticides is a surveillance program coordinated by the National Institute for Occupational Safety and Health (NIOSH) at CDC and conducted by health departments in nine states. Most participating states collect information on both nonoccupational and occupational pesticide poisonings from various sources (e.g., poison control centers, workers' compensation agencies, or state departments of agriculture). However, priority is given to occupational cases; therefore, the number of nonoccupational poisoning cases is limited.

§TESS receives reports from nearly all poison control centers nationwide.

FIGURE. Number of symptomatic cases from unintentional ingestion of medication for pediculosis and scabies, by medication and year of exposure — Toxic Exposure Surveillance System and the Sentinel Event Notification System for Occupational Risks-Pesticides program, 1998–2003.



in adults were the result of mistaking lindane for cough syrup; two (15%) cases were in unsupervised children who drank lindane, and one (8%) case was the result of pharmacy error (i.e., lindane was recovered from a bottle labeled albuterol).

In addition to lindane, FDA-approved treatments for pediculosis include two over-the-counter medications (pyrethrin/piperonyl butoxide and permethrin) and malathion, a prescription-only therapy. During 1998–2003, TESS identified 523 symptomatic cases of unintentional ingestion of these alternative medications (Figure). Median age was 9 years (range: <1–67 years). Among TESS reports, unintentional lindane ingestions were more likely to produce illness (857 illnesses of 1,463 ingestions [58%]) than unintentional ingestions of each of three other medications, and more likely to produce illness than all three of those medications combined (523 illnesses of 1,691 ingestions [31%]; odds ratio = 3.16, 95% confidence interval = 2.72–3.67).

Reported by: *J Sievert, Texas Dept of State Health Svcs. M Lackovic, MPH, Louisiana Dept of Health and Hospitals. A Becker, PhD, Florida Dept of Health. DH Lew, Oregon Dept of Human Svcs. B Morrissey, Washington State Dept of Health. J Blondell, PhD, Office of Pesticide Programs, US Environmental Protection Agency. LY Kim-Jung, PharmD, MR Pitts, PharmD, CA Holquist RPh, Food and Drug Admin. AM Petersen, MPH, JS Alonso-Katzowitz, GM Calvert, MD, Div of Surveillance, Hazard Evaluations, and Field Studies, National Institute for Occupational Safety and Health, CDC.*

Editorial Note: Pediculosis and scabies are common human parasitic infestations. This report indicates that when lindane, a treatment for pediculosis and scabies, is unintentionally ingested, illness can occur, including vomiting and seizures. In 1995, lindane was changed to a second-line therapy for pediculosis because safer alternatives existed (*5*). Lindane also had the slowest pediculicidal and least effective ovicidal activity compared with three other approved pediculicides (i.e., 1% permethrin, 0.3% pyrethrin, and 0.5% malathion) (*6*). In 2003, in light of continued postmarketing surveillance reports of toxicity, FDA revised product labeling guidelines to limit the amount of lindane dispensed to 1- or 2-ounce single-use containers and to require providing patients with a Medication Guide warning of risks from inappropriate use. In addition, FDA issued a Public Health Advisory with these changes (*7*). The new advisory, along with a substantial increase in retail price for lindane, appear to have resulted in a declining number of cases of lindane ingestion (Figure). This decline is similar to the 67% decrease in lindane prescriptions from 1998 to 2003 (*8*).

Before the advisory, bottles of bulk lindane were sometimes repackaged by pharmacies into smaller bottles resembling those used for liquid oral medications (e.g., cough syrup). This resemblance likely contributed to many unintentional ingestions. Subsequent to the advisory, bottles of bulk lindane still in use were not recalled from pharmacies. Therefore, some repackaging might still occur. In addition, consumers might have repackaged lindane in their homes.

In September 2004, the North American Task Force on Lindane drafted an action plan for future use. On January 1, 2005, Canada withdrew registration of lindane for agricultural pest control; Mexico is working on a plan to phase out all uses of lindane. However, with the exception of California, which banned lindane for medicinal use on January 1, 2002, U.S. representatives to the North American Commission for Environmental Cooperation announced that the United States will continue to allow use of lindane as both a pesticide and pharmaceutical (*9*).

The findings in this report are subject to at least three limitations. First, because of the passive surveillance methodology of TESS and SENSOR, the number of reported cases is likely fewer than the number of actual cases. Second, certain eligible cases might have been inadvertently excluded because of erroneous information that suggested exposure to lindane in a veterinary or agricultural product. Finally, although all cases were symptomatic, the possibility of false positives cannot be excluded. Because clinical findings of lindane poisoning are nonspecific and no standard diagnostic test exists, certain illnesses related temporally to lindane exposure might not have been caused by the exposure.

Lindane use in shampoos and lotions for treatment of pediculosis and scabies is declining. However, because of the toxicity of lindane and the potential for illness from unintentional ingestion, health-care providers should be educated regarding appropriate use and packaging. Lindane is a second-line therapy for both scabies and lice and should not be tried unless other treatments have failed or are intolerable; use of lindane also should be avoided for persons weighing less than 110 pounds (50 kg). Because of the risk for toxicity, treatment should not be repeated, even if itching persists; itching can occur, even after successful treatment (especially for scabies) and can be treated symptomatically. In addition, pharmacists should not transfer lindane to other containers and should only dispense lindane in manufacturer-provided 1- or 2-ounce containers. Finally, periodic educational outreach programs can help increase awareness among health-care providers of the new lindane use guidelines.

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Surveillance for Laboratory-Confirmed, Influenza-Associated Hospitalizations — Colorado, 2004–05 Influenza Season

The number of annual hospitalizations for influenza and pneumonia associated with influenza viruses in the United States is estimated at 95,000 (*1*); however, no state-based or national surveillance system exists to monitor these events in all age groups, and population-based numbers of laboratory-confirmed, influenza hospitalizations are unknown. Certain existing surveillance systems provide population-based national estimates of influenza-related hospitalizations based on sampling methodology (i.e., the National Hospital Discharge Survey) or sentinel surveillance; however, these systems are not timely, population-based for all ages, and available at the state level. The Emerging Infections Program (EIP) conducts population-based surveillance for laboratory-confirmed, influenza-related hospitalizations of persons aged <18 years in 11 metropolitan areas, and the New Vaccine Surveillance Network (NVSN) provides population-based estimates of laboratory-confirmed influenza hospitalization rates among children aged <5 years who were prospectively enrolled and tested for influenza in three sentinel counties. The U.S. Department of Health and Human Services recommends that states develop strategies to monitor influenza-related hospitalizations (*2*). This report describes a surveillance system for laboratory-confirmed, influenza-associated hospitalizations in all age groups in Colorado that was implemented for the 2004–05 influenza season. The findings indicate that implementation of statewide, population-based surveillance for influenza-associated hospitalizations is feasible and useful for assessing the age-specific burden of serious influenza-associated morbidity and the relative severity of influenza seasons.

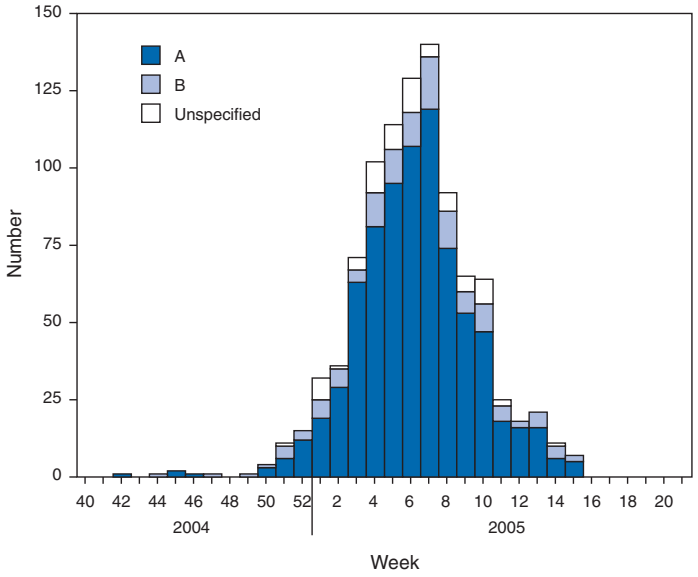
On September 30, 2004, influenza-ssociated hospitalizations became a condition reportable by Colorado health-care providers. An influenza-associated hospitalization was defined for surveillance purposes as a hospital admission accompanied by an appropriate laboratory test result for influenza, including results from rapid diagnostic tests. Population estimates for 2003 (overall 4.6 million) by age group were obtained from the Colorado Department of Local Affairs and used to compute annual age-specific rates of influenza-associated hospitalization. Case reports of influenza-associated hospitalization contained the same core variables that are collected for all reportable diseases in Colorado, including patient identifying, locating, and demographic information; name of reporting agency; physician name and contact information; specimen collection date, specimen type, and test type; test result and date, and report date,

Reporting of notifiable diseases by 68 hospitals in Colorado is performed primarily by infection-control practitioners (ICPs). Many ICPs enter data directly into the state's web-based disease reporting system; however, others fax reports to the Colorado Department of Public Health and Environment (CDPHE) or report directly to local health departments. During the 2004–05 influenza season, ICPs ascertained cases of influenza-associated hospitalization by reviewing clinical laboratory and admission information routinely available to them. ICPs entered 74% of reported influenza-associated hospitalizations directly into the state's reporting system; state or local health department staff members entered the remaining 26%.

Since the 1999–00 influenza season in Colorado, influenza surveillance data have been compiled weekly from multiple sources (e.g., influenza-like illness [ILI] reported by sentinel providers and one health maintenance organization; outbreaks of influenza in nursing homes; absenteeism reported by sentinel schools; and influenza virus typing and subtyping data from state and clinical laboratories) and disseminated via an electronic summary to local health departments. However, none of these influenza surveillance methods are population-based, and none focus on hospitalization.

As of April 16, 2005, a total of 964 influenza-associated hospitalizations had been reported by 50 hospitals, producing a rate of 21.0 per 100,000 persons during the 2004–05 influenza season. Reported cases peaked during the week ending February 19, 2005 (Figure), which was also the peak week for the percentage of patient visits for ILI reported by sentinel health-care providers in Colorado (CDPHE, unpublished data, 2005). Influenza virus type–specific testing results were available for 896 (92.9%) reported cases, of which 86.3% were influenza A and 13.7% were influenza B. The most frequently

FIGURE. Number* of laboratory-confirmed, influenza-associated hospitalizations reported† by 50 hospitals, by influenza virus type and week of diagnosis — Colorado, 2004–05 influenza season



* N = 964.
† As of April 16, 2005 (week 15).

reported test type was rapid influenza testing (88.0%), followed by direct fluorescent antibody (5.8%) and viral culture (5.6%). The highest influenza-associated hospitalization rates were in persons aged ≥80 years (207.3 per 100,000 population) and children aged <6 months (183.0 per 100,000), followed by persons aged 70–79 years (78.0 per 100,000) and children aged 6–23 months (66.3 per 100,000) (Table). Persons aged ≥60 years accounted for 51.4% of reported cases. The median time from specimen collection to disease report was 2 days, with 86% of cases reported within 7 days.

TABLE . Number, percentage, and rate* of laboratory-confirmed, influenza-associated hospitalizations reported† by 50 hospitals, by age group — Colorado, 2004–05 influenza season

Age group	No.	(%)	Rate
<6 mos	63	(6.5)	183.0
6–23 mos	68	(7.1)	66.3
2–4 years	56	(5.8)	28.9
5–17 years	51	(5.3)	6.1
18–39 years	87	(9.0)	5.8
40–49 years	51	(5.3)	6.8
50–59 years	92	(9.5)	16.4
60–69 years	101	(10.5)	33.5
70–79 years	157	(16.3)	78.0
≥80 years	238	(24.7)	207.3
Total	**964**	**(100)**	**21.0**

* Per 100,000 population.
† As of April 16, 2005 (week 15).

Reported by: *K Gershman, MD, Colorado Dept of Public Health and Environment.*

Editorial Note: Previous efforts to determine the impact of influenza on hospitalizations were based on statistical modeling methods (e.g., using national hospital discharge survey data) (*1,3–6*). The overall rate of influenza-associated hospitalizations (21.0 per 100,000 population) reported in Colorado during the 2004–05 influenza season through the new statewide notifiable disease surveillance is similar to published estimates based on national hospital discharge data. These estimates include a mean of 36.8 per 100,000 population (range: 7.8–71.4) for primary listed pneumonia and influenza hospitalizations for influenza seasons 1979–80 through 2000–01 (*1*) and a mean of 49 per 100,000 population (range: 8–102) for excess pneumonia and influenza hospitalizations for influenza seasons 1969–70 through 1994–95 (*3*). Estimates based on hospital discharge data are not available nationally for at least 12 months and on the state level for several months; however, statewide surveillance for influenza-associated hospitalizations in Colorado provided real-time, population-based incidence of influenza-associated hospitalization. Surveillance also confirmed the high risk for hospitalization among the youngest and oldest populations.

The findings in this report are subject to at least four limitations. First, influenza testing is not likely to be performed on all persons hospitalized with acute respiratory illness or with exacerbations of chronic respiratory or cardiovascular disease resulting from influenza infection. Therefore, surveillance for hospitalizations based on positive influenza testing underestimates the number of influenza-associated hospitalizations. Second, the sensitivity of rapid influenza tests is lower than that of viral culture and varies by test (*7*), which also contributes to underestimates of influenza-related illness. Third, rapid influenza tests can have low positive predictive value both early and late in the influenza season, when the prevalence of circulating influenza viruses is low (*7*). Finally, the data in this report are from one influenza season; the incidence of influenza-associated hospitalization and possibly the resources needed to conduct surveillance will vary depending on the severity of the influenza season.

CDC maintains and coordinates a national influenza surveillance system that allows public health officials to know when and where influenza activity is occurring, determine what types of influenza viruses are circulating, detect changes in the influenza viruses, track influenza-related illness, and measure the impact of influenza on overall mortality in the United States (*8*). However, none of these national components provide population-based influenza-related hospitalization rates for all age groups.

Surveillance for influenza-associated hospitalizations can provide multiple benefits to Colorado and other states that might adopt similar systems. The system provides improved ability to assess the severity of influenza seasons, track the time course of the season, determine which populations are most affected by severe influenza-related illness, and focus prevention and control efforts on those populations.

A national surveillance system similar to the one implemented in Colorado could provide data to 1) monitor and describe the incidence, distribution, and basic epidemiologic characteristics of hospitalizations related to influenza virus infection; 2) guide future influenza immunization policy (e.g., expansion of immunization recommendations for children); 3) rapidly recognize influenza seasons in which the number of hospitalizations appears unusually high; and 4) help identify an influenza pandemic and direct public health response. The recent development and widespread use of rapid influenza testing makes it feasible and desirable to use case reporting based on positive laboratory testing to monitor influenza-associated hospitalizations.

Acknowledgments

The findings in this report are based, in part, on contributions by M Evdemon-Hogan, MSPH, B Stone, MSPH, Colorado Dept of Public Health and Environment. A Postema, MPH, L Brammer, MPH, T Uyeki, MD, Influenza Br, National Center for Infectious Diseases, CDC.

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Lymphocytic Choriomeningitis Virus Infection in Organ Transplant Recipients — Massachusetts, Rhode Island, 2005

On May 26, this report was posted as an MMWR Dispatch *on the* MMWR *website* (http://www.cdc.gov/mmwr).

On May 3, 2005, CDC received a report of severe illness in four patients who had received solid organ transplants from a common donor. All four organ recipients subsequently were found to have evidence of infection with lymphocytic choriomeningitis virus (LCMV), a rodent-borne Old World arenavirus. Preliminary findings from the ensuing investigation indicate the source of infection likely was an infected hamster in the donor's home. This report summarizes the ongoing investigation and provides information on exposure risks and possible prevention measures.

In early April, in Rhode Island, a woman with a medical history remarkable only for hypertension and 1 week of headache had sudden onset of hemiplegia caused by a stroke, followed by brainstem herniation and brain death within 3 days. A thorough evaluation was not suggestive of infection.

Family members of the woman consented to donation; organs and tissues were recovered, including the liver, the lungs, both kidneys, both corneas, and skin. Within 3 weeks after transplantation, the four persons who received the liver, lungs, and two kidneys had abnormalities of liver function and blood coagulation, and dysfunction of the transplanted organ. Signs, symptoms, and clinical laboratory test results varied in these patients and included fever, localized rash, diarrhea, hyponatremia, thrombocytopenia, hypoxia, and kidney failure. Three of the four organ recipients died, 23–27 days after transplantation. The fourth patient, a kidney recipient, survived. Histopathologic findings varied in the four cases, but hepatocellular necrosis was common to all three decedents on autopsy. The two cornea recipients were asymptomatic. Skin was not transplanted.

When the cause of illness among the recipients was not identified through extensive diagnostic testing and suspicion of transplant-transmitted infection arose, tissue and blood samples from the donor and recipients were sent from the Rhode Island Department of Health and the Massachusetts Department of Public Health to CDC. LCMV was identified as the cause of illness in all four organ recipients; diagnosis was made in tissues from multiple organs through immunohistochemical staining, reverse transcriptase-polymerase chain reaction (RT-PCR), enzyme-linked immunosorbent assays (i.e., IgM capture and indirect IgG), and viral culture on Vero E6 cells. Sequencing of the virus genome confirmed its identity as LCMV. Based on the diagnosis of LCMV infection,

the surviving kidney transplant recipient was treated with intravenous ribavirin and reduction in his immunosuppressive drug regimen; the patient improved clinically.

Epidemiologic Investigation

To determine the source of LCMV infection, investigations were conducted at the hospitals involved in organ recovery and transplantation and at the coordinating organ procurement organization. Interviews also were conducted at locations where the donor had spent substantial time in the month preceding her death.

Interviews with hospital and organ bank staff members revealed no likely sources of LCMV infection in the hospital or organ-recovery settings. Environmental assessment at locations the donor frequented (e.g., home and work) revealed limited opportunities for exposure to wild rodents; the sole location noted with rodent infestation was a garden shed at her home. Interviews with family members of the donor determined that a pet hamster had been acquired recently. The hamster was cared for primarily by another family member. No illnesses compatible with LCMV had been reported in the donor or family members during the month preceding the donor's death. Further investigation of the source of infection, including rodent traceback, is ongoing.

Laboratory Investigation

Family members of the donor were tested for LCMV antibodies. The family member who cared for the hamster had specific IgM and IgG antibodies to LCMV. No other family member had detectable IgG or IgM antibodies to LCMV. All available donor tissues were tested, and no evidence of LCMV was determined by serology, immunohistochemistry, RT-PCR, or viral culture. However, the pet hamster was determined positive for LCMV by virus isolation, RT-PCR, and immunohistochemistry. Genetic sequencing to enable comparison of patient and rodent virus isolates is planned.

Reported by: *Rhode Island Hospital, Providence; Rhode Island Dept of Health. New England Organ Bank, Newton; Massachusetts General Hospital, Brigham and Women's Hospital, Boston; Massachusetts Dept of Public Health. Infectious Disease Pathology Activity, Special Pathogens Br, Div of Viral and Rickettsial Diseases, Div of Healthcare Quality Promotion, National Center for Infectious Diseases; EIS officers, CDC.*

Editorial Note: LCMV infection usually is either asymptomatic or causes mild self-limited illness in otherwise healthy persons. LCMV can cause aseptic meningitis, but the infection is rarely fatal (*1*). Infection during pregnancy can result in vertical transmission of the virus from mother to fetus; LCMV infection during the first or second trimesters can lead to severe illness in the fetus (*2*). Serologic studies conducted in urban areas of the United States have indicated that prevalence of LCMV infection among humans is approximately 5% (*3,4*). The house mouse (*Mus musculus*) is the primary reservoir for LCMV, with a prevalence of infection of 3%–40%; a high degree of focality often is noted (*3,5,6*). However, other types of rodents (e.g., hamsters or guinea pigs) can be infected after contact with infected house mice (*7*); these rodents also have been implicated in human infection. Animals can become ill or can be asymptomatic. Infection in humans occurs primarily through exposure to secretions or excretions of infected animals (*8*).

Human-to-human transmission of LCMV has not been reported, with the exception of vertical transmission from an infected mother to fetus (*2*). A large outbreak associated with pet hamsters sold by a single distributor was reported in 1975, when 181 symptomatic cases among persons with hamster contact were identified in 12 states; no deaths occurred (*9*). In 2003, a cluster of solid organ transplant-associated meningoencephalitis deaths in Wisconsin was investigated and determined to be associated with LCMV infection. In that investigation, testing of donor tissues did not reveal any evidence of infection (*10*), and no exposures to rodents were found. Acute LCMV infection in an organ donor is thought to be a rare event.

In the case described in this report, neither the donor nor the infected family member had illness characteristic of LCMV infection. In the organ recipients, transplantation of LCMV-infected organs in the setting of immunosuppression likely increased disease severity. Although most persons infected with LCMV do not exhibit symptoms and the risk for LCMV infection from pet rodents is considered low, persons (especially pregnant women) should be aware of the possible risks associated with LCMV infection. Persons can minimize risk of LCMV infection from pet rodents by being attentive to proper hand hygiene and environmental cleaning. Additional information on handling pet rodents is available at http://www.cdc.gov/healthypets/animals/pocket_pets.htm. Additional information on LCMV is available at http://www.cdc.gov/ncidod/dvrd/spb/mnpages/dispages/lcmv.htm.

Health-care providers should be aware that LCMV can be transmitted through organ transplantation. Any unexpected infectious syndromes in recipients after solid organ or tissue transplantation should trigger concern about the possibility of transplant-associated transmission of an infectious agent. Although such instances are rare, providers should alert the associated organ procurement organization, tissue bank, and public health authorities when such events are suspected. The lifesaving benefits from transplanted organs outweigh the potential risk for unidentified infectious diseases; opportunities to increase donation should be encouraged.

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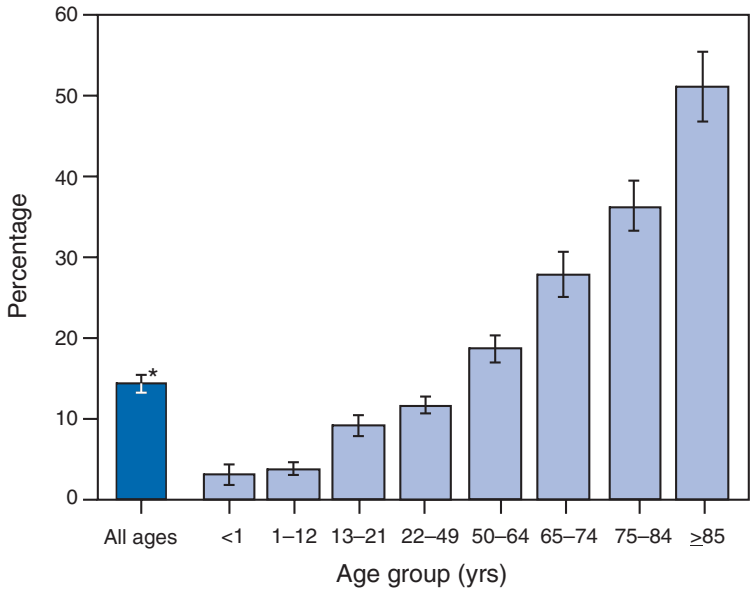
QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Patient Arrivals by Ambulance at Emergency Departments, by Age Group — United States, 2003



* 95% confidence interval.

Overall, arrivals by ambulance accounted for 14.2% (approximately 16 million) of visits to emergency departments (EDs) in 2003. The proportion arriving by ambulance increased with age. Approximately 50% of adults aged ≥85 years arrived at EDs by ambulance, compared with 4% of children aged ≤12 years.

SOURCE: 2003 National Hospital Ambulatory Medical Care Survey. Available at http://www.cdc.gov/nchs/data/ad/ad358.pdf.

Notice to Readers

World Environment Day — June 5, 2005

"Green Cities" is the theme of World Environment Day, June 5, 2005. This annual event, established by the United Nations General Assembly in 1972, highlights environmental issues, encourages persons worldwide to participate in sustainable and equitable development, and promotes awareness of the importance of communities in changing attitudes toward environmental concerns. San Francisco is the host city for World Environment Day 2005.

When roads and buildings replace natural land cover, urban air temperatures can exceed those of the surrounding countryside by as much as 41°F (5°C) (*1*). Creation or preservation of green spaces in cities can mitigate this so-called heat-island effect. Green areas in urban settings also produce oxygen, absorb carbon dioxide, and enhance air quality; provide storm water control; and provide habitat for urban wildlife. Well-managed urban settlements can support growing urban populations by limiting their impact on the environment and improving their health. National and local policies can discourage waste, encourage conservation, and promote sustainable solutions.

Ongoing activities at CDC contribute to best practices for environmental public health nationally and internationally. CDC aims to protect all communities from environmental threats and to promote health in places where persons live, work, learn, and play. These activities include preventing lead poisoning, controlling asthma, reducing the health impact of natural and technological disasters, reducing exposure to toxic substances, preparing for emergencies involving radiation or radioactive materials, environmental public health tracking (*2*), and using laboratory testing to determine exposures to chemicals in the environment. CDC also provides information about environmental toxins and hazards (*3,4*). CDC's environmental health activities are detailed at http://www.atsdr.cdc.gov and http://www.cdc.gov/nceh. Additional information about World Environment Day 2005 is available at http://www.wed2005.org.

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Notice to Readers

Assessment of the Distinctions Between Public Health Practice and Research

The Council of State and Territorial Epidemiologists (CSTE) has released a report, *Public Health Practice vs. Research: A Report for Public Health Practitioners Including Cases and Guidance for Making Distinctions*. This collaborative work of CSTE, Johns Hopkins Bloomberg School of Public Health, and Georgetown University Law Center may help public health officials, researchers, institutional review board (IRB) members, and their staffs distinguish between practice and research. Existing research, concepts, criteria, and cases are provided in the report to guide such distinctions. The CSTE report is available at http://www.cste.org/pdffiles/newpdffiles/cstephresrpthodgefinal.5.24.04.pdf.

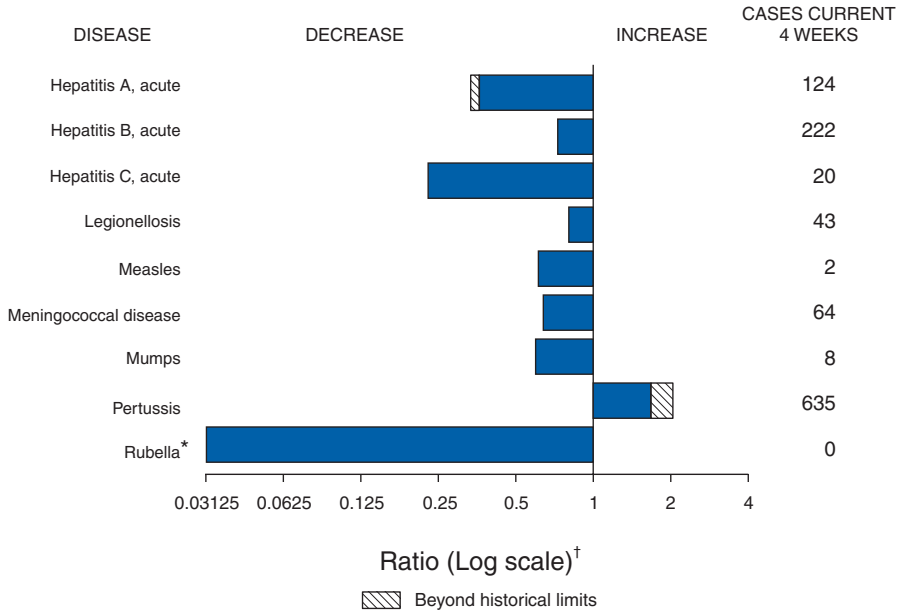
Notice to Readers

New Edition of *Health Information for International Travel*

CDC announces the availability of the 2005–2006 edition of *Health Information for International Travel* (i.e., the Yellow Book). This edition, which has been completely revised, updated, and reorganized, now includes references listed at the end of each section.

Sections of the book have been expanded substantially, including those covering immunosuppressed travelers, disabled travelers, cruise-ship travel, and children who travel. New sections have been added on air travel, norovirus infection, SARS, and legionellosis. Copies can be ordered through the CDC Travelers' Health website at http://www.cdc.gov/travel.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals May 28, 2005, with historical data



* No rubella cases were reported for the current 4-week period yielding a ratio for week 21 of zero (0).
† Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary of provisional cases of selected notifiable diseases, United States, cumulative, week ending May 28, 2005 (21st Week)*

Disease	Cum. 2005	Cum. 2004	Disease	Cum. 2005	Cum. 2004
Anthrax	—	—	Hemolytic uremic syndrome, postdiarrheal†	45	29
Botulism:			HIV infection, pediatric†¶	116	155
foodborne	5	4	Influenza-associated pediatric mortality†**	34	—
infant	21	27	Measles	15††	14§§
other (wound & unspecified)	10	3	Mumps	101	87
Brucellosis	30	42	Plague	2	—
Chancroid	10	19	Poliomyelitis, paralytic	—	—
Cholera	1	4	Psittacosis†	8	4
Cyclosporiasis†	364	88	Q fever†	27	27
Diphtheria	—	—	Rabies, human	1	—
Domestic arboviral diseases			Rubella	4	8
(neuroinvasive & non-neuroinvasive):	—	—	Rubella, congenital syndrome	1	—
California serogroup†§	—	4	SARS†**	—	—
eastern equine†§	—	—	Smallpox†	—	—
Powassan†§	—	—	*Staphylococcus aureus*:		
St. Louis†§	—	1	Vancomycin-intermediate (VISA)†	—	—
western equine†§	—	—	Vancomycin-resistant (VRSA)†	—	1
Ehrlichiosis:	—	—	Streptococcal toxic-shock syndrome†	65	80
human granulocytic (HGE)†	33	50	Tetanus	5	5
human monocytic (HME)†	34	28	Toxic-shock syndrome	40	38
human, other and unspecified †	10	6	Trichinellosis¶¶	5	—
Hansen disease†	16	45	Tularemia†	14	21
Hantavirus pulmonary syndrome†	5	4	Yellow fever	—	—

—: No reported cases.
* Incidence data for reporting years 2004 and 2005 are provisional and cumulative (year-to-date).
† Not notifiable in all states.
§ Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases (ArboNet Surveillance).
¶ Updated monthly from reports to the Division of HIV/AIDS Prevention, National Center for HIV, STD, and TB Prevention. Last update April 24, 2005.
** Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases.
†† Of 15 cases reported, nine were indigenous and six were imported from another country.
§§ Of 14 cases reported, five were indigenous and nine were imported from another country.
¶¶ Formerly Trichinosis.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending May 28, 2005, and May 29, 2004 (21st Week)*

Reporting area	AIDS		Chlamydia†		Coccidioidomycosis		Cryptosporidiosis	
	Cum. 2005§	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004
UNITED STATES	13,232	16,816	344,968	368,769	1,625	1,832	724	968
NEW ENGLAND	532	566	11,239	12,166	—	—	38	57
Maine	4	5	864	783	N	N	3	9
N.H.	7	23	740	699	—	—	6	14
Vt.¶	3	13	409	467	—	—	9	6
Mass.	275	151	5,862	5,381	—	—	14	20
R.I.	47	66	1,361	1,401	—	—	1	1
Conn.	196	308	2,003	3,435	N	N	5	7
MID. ATLANTIC	2,558	3,919	41,537	45,770	—	—	105	157
Upstate N.Y.	253	462	8,693	8,916	N	N	28	30
N.Y. City	1,476	2,145	13,269	14,097	—	—	24	50
N.J.	413	670	4,532	7,383	N	N	7	12
Pa.	416	642	15,043	15,374	N	N	46	65
E.N. CENTRAL	1,204	1,446	53,962	66,354	3	5	136	246
Ohio	185	233	14,443	16,961	N	N	50	53
Ind.	165	164	8,104	7,376	N	N	11	30
Ill.	661	703	14,836	19,033	—	—	2	41
Mich.	138	263	9,596	15,642	3	5	22	48
Wis.	55	83	6,983	7,342	N	N	51	74
W.N. CENTRAL	318	323	20,613	22,601	3	4	109	99
Minn.	88	79	3,117	4,666	3	N	33	39
Iowa	41	20	2,748	2,757	N	N	18	14
Mo.	132	127	9,123	8,371	—	3	42	18
N. Dak.	5	14	412	785	N	N	—	—
S. Dak.	9	5	1,142	1,019	—	—	7	11
Nebr.¶	5	21	1,498	2,114	—	1	1	5
Kans.	38	57	2,573	2,889	N	N	8	12
S. ATLANTIC	4,263	5,192	66,718	68,920	—	—	161	177
Del.	70	76	1,339	1,198	N	N	—	—
Md.	513	597	7,161	7,588	—	—	9	9
D.C.	276	308	1,522	1,484	—	—	2	3
Va.¶	223	282	7,944	8,960	—	—	12	23
W. Va.	22	29	949	1,140	N	N	4	2
N.C.	350	296	13,775	11,166	N	N	21	34
S.C.¶	215	328	8,219	7,018	—	—	7	8
Ga.	741	799	8,872	13,249	—	—	47	50
Fla.	1,853	2,477	16,937	17,117	N	N	59	48
E.S. CENTRAL	770	774	24,698	22,814	—	3	19	40
Ky.	91	68	4,438	2,235	N	N	7	10
Tenn.¶	313	324	8,895	9,220	N	N	3	12
Ala.¶	213	203	3,346	5,599	—	—	8	10
Miss.	153	179	8,019	5,760	—	3	1	8
W.S. CENTRAL	1,513	2,023	43,292	46,910	—	2	18	47
Ark.	71	88	3,413	3,314	—	1	1	7
La.	278	340	7,224	10,653	—	1	3	—
Okla.	112	87	4,413	4,329	N	N	7	9
Tex.¶	1,052	1,508	28,242	28,614	N	N	7	31
MOUNTAIN	537	559	21,137	20,724	1,080	1,123	45	41
Mont.	3	—	820	903	N	N	5	7
Idaho¶	5	3	756	1,215	N	N	2	4
Wyo.	—	6	440	452	1	—	2	2
Colo.	107	97	5,542	5,345	N	N	18	19
N. Mex.	56	90	1,478	3,497	2	9	2	2
Ariz.	227	200	8,018	5,719	1,045	1,085	4	5
Utah	25	32	1,717	1,354	2	6	7	1
Nev.¶	114	131	2,366	2,239	30	23	5	1
PACIFIC	1,537	2,014	61,772	62,510	539	695	93	104
Wash.	144	165	7,762	6,983	N	N	5	—
Oreg.¶	90	110	3,399	3,220	—	—	17	11
Calif.	1,250	1,685	47,351	48,356	539	695	71	92
Alaska	9	13	1,531	1,605	—	—	—	—
Hawaii	44	41	1,729	2,346	—	—	—	1
Guam	1	—	—	452	—	—	—	—
P.R.	335	208	1,726	1,273	N	N	N	N
V.I.	7	5	32	153	—	—	—	—
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	2	U	—	U	—	U	—	U

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

* Incidence data for reporting years 2004 and 2005 are provisional and cumulative (year-to-date).

† Chlamydia refers to genital infections caused by *C. trachomatis*.

§ Updated monthly from reports to the Division of HIV/AIDS Prevention, National Center for HIV, STD, and TB Prevention. Last update April 24, 2005.

¶ Contains data reported through National Electronic Disease Surveillance System (NEDSS).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending May 28, 2005, and May 29, 2004 (21st Week)*

Reporting area	*Escherichia coli*, Enterohemorrhagic (EHEC)						Giardiasis		Gonorrhea	
	O157:H7		Shiga toxin positive, serogroup non-O157		Shiga toxin positive, not serogrouped					
	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004
UNITED STATES	411	448	61	79	62	48	5,833	6,300	114,773	127,186
NEW ENGLAND	29	22	16	19	6	5	463	553	2,019	2,861
Maine	2	—	2	—	—	—	44	54	54	107
N.H.	2	4	1	3	—	—	22	17	62	53
Vt.	2	—	—	—	—	—	59	42	18	37
Mass.	10	12	5	6	6	5	194	278	1,107	1,241
R.I.	1	3	—	—	—	—	30	47	204	374
Conn.	12	3	8	10	—	—	114	115	574	1,049
MID. ATLANTIC	50	40	3	11	5	10	1,093	1,405	11,887	14,654
Upstate N.Y.	18	12	3	3	2	3	361	405	2,507	2,954
N.Y. City	2	7	—	—	—	—	303	451	3,394	4,559
N.J.	12	7	—	3	—	4	146	182	1,687	2,747
Pa.	18	14	—	5	3	3	283	367	4,299	4,394
E.N. CENTRAL	80	96	8	15	3	5	805	968	21,308	26,952
Ohio	34	18	1	3	2	5	238	284	6,755	8,626
Ind.	8	12	—	—	—	—	N	N	3,145	2,500
Ill.	9	26	1	—	—	—	130	323	5,988	7,971
Mich.	14	17	—	2	1	—	250	213	3,510	6,036
Wis.	15	23	6	10	—	—	187	148	1,910	1,819
W.N. CENTRAL	60	70	13	14	9	9	745	676	6,611	6,673
Minn.	8	24	4	6	2	2	382	206	895	1,160
Iowa	12	12	—	—	—	—	77	96	609	503
Mo.	23	10	6	6	2	2	154	207	3,724	3,420
N. Dak.	1	2	—	—	—	3	1	11	19	58
S. Dak.	2	3	—	—	—	—	33	22	150	105
Nebr.	5	9	3	2	2	—	38	57	349	436
Kans.	9	10	—	—	3	2	60	77	865	991
S. ATLANTIC	63	43	11	11	31	8	998	986	28,296	30,350
Del.	—	—	N	N	N	N	8	20	318	388
Md.	6	5	2	2	1	2	59	36	2,649	3,180
D.C.	—	1	—	—	—	—	18	30	817	998
Va.	3	1	4	6	6	—	204	141	2,865	3,595
W. Va.	—	1	—	—	—	—	11	12	277	332
N.C.	—	—	—	—	16	4	N	N	6,613	5,885
S.C.	1	4	—	—	—	—	30	37	3,514	3,387
Ga.	8	13	3	1	—	—	360	305	3,850	5,591
Fla.	45	18	2	2	8	2	308	405	7,393	6,994
E.S. CENTRAL	22	26	—	2	5	6	144	139	9,043	9,893
Ky.	4	8	—	1	4	4	N	N	1,394	946
Tenn.	11	3	—	—	1	2	74	66	3,153	3,251
Ala.	7	7	—	—	—	—	70	73	2,072	3,211
Miss.	—	8	—	1	—	—	—	—	2,424	2,485
W.S. CENTRAL	9	43	1	2	2	5	89	107	16,919	17,383
Ark.	1	8	—	—	—	—	30	47	1,723	1,604
La.	2	1	1	—	2	—	13	17	3,980	4,777
Okla.	3	4	—	—	—	—	46	43	1,839	1,847
Tex.	3	30	—	2	—	5	N	N	9,377	9,155
MOUNTAIN	44	45	9	4	1	—	431	449	4,278	4,552
Mont.	3	3	—	—	—	—	13	15	44	31
Idaho	3	12	5	1	—	—	31	64	32	34
Wyo.	—	—	1	—	—	—	10	7	26	23
Colo.	13	9	1	1	—	—	152	150	1,092	1,289
N. Mex.	—	5	2	1	—	—	14	25	260	407
Ariz.	10	6	N	N	N	N	59	71	1,690	1,618
Utah	7	6	—	—	—	—	124	93	268	193
Nev.	8	4	—	1	1	—	28	24	866	957
PACIFIC	54	63	—	1	—	—	1,065	1,017	14,412	13,868
Wash.	15	17	—	—	—	—	87	94	1,413	1,061
Oreg.	6	8	—	1	—	—	92	153	618	407
Calif.	27	34	—	—	—	—	833	710	11,868	11,566
Alaska	3	1	—	—	—	—	30	26	196	272
Hawaii	3	3	—	—	—	—	23	34	317	562
Guam	N	N	—	—	—	—	—	—	—	71
P.R.	—	—	—	—	—	—	10	25	161	107
V.I.	—	—	—	—	—	—	—	—	2	53
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	—	U	—	U	—	U	—	U	—	U

N: Not notifiable. U: Unavailable. —: No reported cases. C.N.M.I.: Commonwealth of Northern Mariana Islands.
* Incidence data for reporting years 2004 and 2005 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending May 28, 2005, and May 29, 2004 (21st Week)*

Reporting area	*Haemophilus influenzae*, invasive							
	All ages		Age <5 years					
	All serotypes		Serotype b		Non-serotype b		Unknown serotype	
	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004
UNITED STATES	947	931	2	6	53	48	88	94
NEW ENGLAND	68	93	—	1	6	6	3	1
Maine	3	7	—	—	—	—	1	—
N.H.	3	12	—	—	—	2	—	—
Vt.	6	5	—	—	—	—	2	1
Mass.	27	44	—	1	1	2	—	—
R.I.	6	2	—	—	2	—	—	—
Conn.	23	23	—	—	3	2	—	—
MID. ATLANTIC	188	190	—	1	—	3	21	24
Upstate N.Y.	51	64	—	1	—	3	5	3
N.Y. City	31	42	—	—	—	—	6	8
N.J.	38	34	—	—	—	—	5	2
Pa.	68	50	—	—	—	—	5	11
E.N. CENTRAL	128	169	—	—	1	8	7	24
Ohio	67	58	—	—	—	2	6	10
Ind.	35	26	—	—	1	4	1	1
Ill.	9	50	—	—	—	—	—	10
Mich.	10	10	—	—	—	2	—	3
Wis.	7	25	—	—	—	—	—	—
W.N. CENTRAL	49	43	—	1	2	2	7	5
Minn.	18	14	—	—	2	2	—	—
Iowa	—	1	—	1	—	—	—	—
Mo.	24	18	—	—	—	—	5	4
N. Dak.	1	3	—	—	—	—	1	—
S. Dak.	—	—	—	—	—	—	—	—
Nebr.	3	2	—	—	—	—	1	—
Kans.	3	5	—	—	—	—	—	1
S. ATLANTIC	244	216	—	—	14	11	13	16
Del.	—	—	—	—	—	—	—	—
Md.	35	39	—	—	4	2	—	—
D.C.	—	1	—	—	—	—	—	1
Va.	19	18	—	—	—	—	—	1
W. Va.	14	10	—	—	1	3	2	—
N.C.	40	25	—	—	5	3	—	—
S.C.	10	5	—	—	—	—	1	—
Ga.	61	65	—	—	—	—	6	14
Fla.	65	53	—	—	4	3	4	—
E.S. CENTRAL	46	35	—	—	1	—	10	6
Ky.	4	—	—	—	1	—	1	—
Tenn.	32	25	—	—	—	—	6	4
Ala.	10	10	—	—	—	—	3	2
Miss.	—	—	—	—	—	—	—	—
W.S. CENTRAL	59	37	1	1	4	4	6	1
Ark.	—	1	—	—	—	—	—	—
La.	26	9	1	—	2	—	6	1
Okla.	33	26	—	—	2	4	—	—
Tex.	—	1	—	1	—	—	—	—
MOUNTAIN	122	105	—	2	14	10	18	12
Mont.	—	—	—	—	—	—	—	—
Idaho	3	4	—	—	—	—	1	2
Wyo.	1	—	—	—	—	—	—	—
Colo.	27	25	—	—	—	—	4	3
N. Mex.	13	23	—	—	4	3	1	4
Ariz.	55	43	—	—	8	6	4	1
Utah	10	8	—	2	—	1	6	1
Nev.	13	2	—	—	2	—	2	1
PACIFIC	43	43	1	—	11	4	3	5
Wash.	—	1	—	—	—	—	—	1
Oreg.	18	22	—	—	—	—	3	2
Calif.	19	13	1	—	11	4	—	1
Alaska	1	3	—	—	—	—	—	1
Hawaii	5	4	—	—	—	—	—	—
Guam	—	—	—	—	—	—	—	—
P.R.	—	—	—	—	—	—	—	—
V.I.	—	—	—	—	—	—	—	—
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	—	U	—	U	—	U	—	U

N: Not notifiable. U: Unavailable. —: No reported cases. C.N.M.I.: Commonwealth of Northern Mariana Islands.
* Incidence data for reporting years 2004 and 2005 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending May 28, 2005, and May 29, 2004 (21st Week)*

Reporting area	Hepatitis (viral, acute), by type					
	A		B		C	
	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004
UNITED STATES	1,466	2,449	2,238	2,313	253	289
NEW ENGLAND	200	334	118	149	6	4
Maine	—	7	4	1	—	—
N.H.	24	8	5	20	—	—
Vt.	1	5	1	2	6	1
Mass.	147	279	93	71	—	3
R.I.	5	7	—	2	—	—
Conn.	23	28	15	53	U	—
MID. ATLANTIC	242	290	488	304	42	46
Upstate N.Y.	37	34	43	33	10	2
N.Y. City	118	110	39	66	—	—
N.J.	41	64	322	79	—	—
Pa.	46	82	84	126	32	44
E.N. CENTRAL	142	188	153	221	47	30
Ohio	25	23	60	57	2	2
Ind.	20	19	10	13	9	2
Ill.	27	59	14	21	—	7
Mich.	56	67	69	109	36	19
Wis.	14	20	—	21	—	—
W.N. CENTRAL	49	57	142	137	15	1
Minn.	3	10	8	12	—	1
Iowa	10	18	39	7	—	—
Mo.	27	9	70	97	14	—
N. Dak.	—	1	—	1	1	—
S. Dak.	—	2	—	—	—	—
Nebr.	2	10	13	11	—	—
Kans.	7	7	12	9	—	—
S. ATLANTIC	212	419	643	742	52	73
Del.	—	4	26	17	—	2
Md.	21	58	79	60	13	1
D.C.	2	4	—	12	—	1
Va.	29	33	75	80	6	7
W. Va.	2	1	14	2	5	10
N.C.	29	29	67	74	7	6
S.C.	8	22	41	51	1	6
Ga.	40	163	116	228	3	7
Fla.	81	105	225	218	17	33
E.S. CENTRAL	88	67	133	195	28	29
Ky.	4	9	29	22	1	13
Tenn.	61	46	58	89	7	7
Ala.	11	6	29	31	8	1
Miss.	12	6	17	53	12	8
W.S. CENTRAL	87	450	101	105	25	65
Ark.	2	46	17	51	—	—
La.	28	13	20	24	6	3
Okla.	3	16	7	24	—	2
Tex.	54	375	57	6	19	60
MOUNTAIN	144	185	212	166	16	17
Mont.	6	3	2	1	—	2
Idaho	12	10	5	6	—	1
Wyo.	—	—	—	3	—	—
Colo.	15	18	18	21	7	4
N. Mex.	7	6	5	10	—	5
Ariz.	86	127	146	82	—	2
Utah	12	19	24	17	6	1
Nev.	6	2	12	26	3	2
PACIFIC	302	459	248	294	22	24
Wash.	19	26	24	23	3	6
Oreg.	17	35	40	41	9	7
Calif.	254	385	178	219	10	11
Alaska	3	3	5	8	—	—
Hawaii	9	10	1	3	—	—
Guam	—	1	—	4	—	—
P.R.	2	11	3	21	—	—
V.I.	—	—	—	—	—	—
Amer. Samoa	U	U	U	U	U	U
C.N.M.I.	—	U	—	U	—	U

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TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending May 28, 2005, and May 29, 2004 (21st Week)*

Reporting area	Legionellosis		Listeriosis		Lyme disease		Malaria	
	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004
UNITED STATES	419	495	180	211	2,101	3,310	374	486
NEW ENGLAND	23	9	6	11	121	436	15	38
Maine	1	—	—	2	2	24	—	3
N.H.	4	—	1	1	20	18	3	—
Vt.	—	—	—	—	2	11	—	1
Mass.	12	4	2	3	69	261	10	23
R.I.	1	1	1	1	3	32	2	2
Conn.	5	4	2	4	25	90	—	9
MID. ATLANTIC	121	92	35	47	1,469	2,282	103	120
Upstate N.Y.	30	19	9	12	254	813	19	14
N.Y. City	14	11	7	7	—	72	44	60
N.J.	27	14	7	16	655	548	27	24
Pa.	50	48	12	12	560	849	13	22
E.N. CENTRAL	89	102	19	28	34	155	21	33
Ohio	43	42	7	9	22	17	5	9
Ind.	6	10	1	6	2	1	—	4
Ill.	9	17	—	5	—	23	5	9
Mich.	23	28	6	6	2	—	8	7
Wis.	8	5	5	2	8	114	3	4
W.N. CENTRAL	13	12	11	3	76	41	19	24
Minn.	1	—	2	1	60	12	8	9
Iowa	2	3	4	1	9	10	2	1
Mo.	8	5	2	1	6	14	8	5
N. Dak.	1	1	2	—	—	—	—	2
S. Dak.	—	1	—	—	—	—	—	1
Nebr.	—	1	—	—	—	4	—	1
Kans.	1	1	1	—	1	1	1	5
S. ATLANTIC	85	108	43	28	341	325	86	123
Del.	1	2	N	N	77	47	—	3
Md.	19	15	5	5	184	198	27	26
D.C.	1	3	—	—	3	2	2	6
Va.	6	8	2	3	28	13	9	10
W. Va.	4	2	—	1	3	2	1	—
N.C.	10	9	9	5	18	37	13	8
S.C.	2	2	1	—	7	3	3	7
Ga.	6	19	9	7	—	7	14	23
Fla.	36	48	17	7	21	16	17	40
E.S. CENTRAL	11	21	9	11	11	13	11	14
Ky.	2	5	1	3	—	5	2	1
Tenn.	3	9	4	6	11	6	6	3
Ala.	6	6	3	1	—	2	3	7
Miss.	—	1	1	1	—	—	—	3
W.S. CENTRAL	11	100	5	36	15	26	22	62
Ark.	1	—	—	1	2	—	1	3
La.	4	5	3	2	3	1	—	3
Okla.	1	2	—	—	—	—	2	1
Tex.	5	93	2	33	10	25	19	55
MOUNTAIN	40	27	1	4	2	5	18	15
Mont.	2	1	—	—	—	—	—	—
Idaho	1	1	—	1	—	2	—	1
Wyo.	2	4	—	—	—	2	1	—
Colo.	10	4	1	1	—	—	11	6
N. Mex.	1	—	—	—	—	—	—	1
Ariz.	12	5	—	—	—	1	2	2
Utah	5	9	—	—	2	—	4	3
Nev.	7	3	—	2	—	—	—	2
PACIFIC	26	24	51	43	32	27	79	57
Wash.	—	4	2	6	—	2	7	1
Oreg.	N	N	4	4	2	14	1	8
Calif.	26	20	45	33	29	11	65	46
Alaska	—	—	—	—	1	—	2	—
Hawaii	—	—	—	—	N	N	4	2
Guam	—	—	—	—	—	—	—	—
P.R.	—	1	—	—	N	N	—	—
V.I.	—	—	—	—	—	—	—	—
Amer. Samoa	U	U	U	U	U	U	U	U
C.N.M.I.	—	U	—	U	—	U	—	U

N: Not notifiable. U: Unavailable. —: No reported cases. C.N.M.I.: Commonwealth of Northern Mariana Islands.
* Incidence data for reporting years 2004 and 2005 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending May 28, 2005, and May 29, 2004 (21st Week)*

Reporting area	Meningococcal disease									
	All serogroups		Serogroup A, C, Y, and W-135		Serogroup B		Other serogroup		Serogroup unknown	
	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004
UNITED STATES	554	636	44	42	27	26	—	—	483	568
NEW ENGLAND	38	33	1	4	—	4	—	—	37	25
Maine	1	8	—	—	—	1	—	—	1	7
N.H.	5	3	—	—	—	—	—	—	5	3
Vt.	3	1	—	—	—	—	—	—	3	1
Mass.	18	20	—	4	—	3	—	—	18	13
R.I.	2	—	—	—	—	—	—	—	2	—
Conn.	9	1	1	—	—	—	—	—	8	1
MID. ATLANTIC	75	88	22	25	4	5	—	—	49	58
Upstate N.Y.	19	25	2	4	3	3	—	—	14	18
N.Y. City	10	15	—	—	—	—	—	—	10	15
N.J.	20	17	—	—	—	—	—	—	20	17
Pa.	26	31	20	21	1	2	—	—	5	8
E.N. CENTRAL	53	60	13	8	4	4	—	—	36	48
Ohio	25	37	—	3	4	4	—	—	21	30
Ind.	8	8	—	—	—	—	—	—	8	8
Ill.	2	1	—	—	—	—	—	—	2	1
Mich.	13	5	13	5	—	—	—	—	—	—
Wis.	5	9	—	—	—	—	—	—	5	9
W.N. CENTRAL	32	37	2	—	1	3	—	—	29	34
Minn.	6	9	1	—	—	—	—	—	5	9
Iowa	9	8	—	—	1	2	—	—	8	6
Mo.	10	11	1	—	—	1	—	—	9	10
N. Dak.	—	1	—	—	—	—	—	—	—	1
S. Dak.	1	1	—	—	—	—	—	—	1	1
Nebr.	2	3	—	—	—	—	—	—	2	3
Kans.	4	4	—	—	—	—	—	—	4	4
S. ATLANTIC	99	124	2	2	4	2	—	—	93	120
Del.	—	1	—	—	—	—	—	—	—	1
Md.	9	7	1	—	2	—	—	—	6	7
D.C.	—	5	—	2	—	—	—	—	—	3
Va.	12	8	—	—	—	—	—	—	12	8
W. Va.	4	4	—	—	—	—	—	—	4	4
N.C.	11	18	1	—	2	2	—	—	8	16
S.C.	11	12	—	—	—	—	—	—	11	12
Ga.	10	8	—	—	—	—	—	—	10	8
Fla.	42	61	—	—	—	—	—	—	42	61
E.S. CENTRAL	27	29	—	—	2	—	—	—	25	29
Ky.	8	3	—	—	2	—	—	—	6	3
Tenn.	13	10	—	—	—	—	—	—	13	10
Ala.	2	6	—	—	—	—	—	—	2	6
Miss.	4	10	—	—	—	—	—	—	4	10
W.S. CENTRAL	45	59	1	1	3	1	—	—	41	57
Ark.	8	10	—	—	—	—	—	—	8	10
La.	20	21	—	1	2	—	—	—	18	20
Okla.	9	3	1	—	1	1	—	—	7	2
Tex.	8	25	—	—	—	—	—	—	8	25
MOUNTAIN	45	30	2	—	4	3	—	—	39	27
Mont.	—	1	—	—	—	—	—	—	—	1
Idaho	1	4	—	—	—	—	—	—	1	4
Wyo.	—	3	—	—	—	—	—	—	—	3
Colo.	12	9	2	—	—	—	—	—	10	9
N. Mex.	1	4	—	—	—	2	—	—	1	2
Ariz.	21	5	—	—	2	—	—	—	19	5
Utah	7	2	—	—	2	—	—	—	5	2
Nev.	3	2	—	—	—	1	—	—	3	1
PACIFIC	140	176	1	2	5	4	—	—	134	170
Wash.	28	16	1	2	4	4	—	—	23	10
Oreg.	23	35	—	—	—	—	—	—	23	35
Calif.	82	118	—	—	—	—	—	—	82	118
Alaska	1	2	—	—	—	—	—	—	1	2
Hawaii	6	5	—	—	1	—	—	—	5	5
Guam	—	—	—	—	—	—	—	—	—	—
P.R.	3	5	—	—	—	—	—	—	3	5
V.I.	—	—	—	—	—	—	—	—	—	—
Amer. Samoa	—	—	—	—	—	—	—	—	—	—
C.N.M.I.	—	—	—	—	—	—	—	—	—	—

N: Not notifiable. U: Unavailable. —: No reported cases. C.N.M.I.: Commonwealth of Northern Mariana Islands.
* Incidence data for reporting years 2004 and 2005 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending May 28, 2005, and May 29, 2004 (21st Week)*

Reporting area	Pertussis		Rabies, animal		Rocky Mountain spotted fever		Salmonellosis		Shigellosis	
	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004
UNITED STATES	6,332	4,089	1,957	2,764	233	246	9,575	11,260	3,704	5,281
NEW ENGLAND	322	600	291	193	1	5	582	513	73	91
Maine	12	3	19	22	N	N	26	31	2	1
N.H.	17	21	4	6	—	—	41	34	4	4
Vt.	46	39	22	6	—	—	34	18	4	2
Mass.	225	509	178	85	—	5	322	283	42	59
R.I.	8	9	6	11	1	—	19	37	2	4
Conn.	14	19	62	63	—	—	140	110	19	21
MID. ATLANTIC	604	909	213	288	15	25	1,224	1,426	406	489
Upstate N.Y.	206	647	161	140	—	1	325	328	99	210
N.Y. City	28	66	9	5	1	8	305	418	169	146
N.J.	109	65	N	N	5	6	202	254	109	85
Pa.	261	131	43	143	9	10	392	426	29	48
E.N. CENTRAL	1,493	917	38	19	6	10	1,012	1,561	235	340
Ohio	632	166	21	7	5	4	307	361	24	70
Ind.	138	34	3	3	—	1	123	158	33	58
Ill.	83	180	8	4	—	4	108	506	24	132
Mich.	100	42	6	3	1	1	247	266	96	34
Wis.	540	495	—	2	—	—	227	270	58	46
W.N. CENTRAL	854	242	133	228	29	16	691	713	293	140
Minn.	159	41	30	18	—	—	183	181	26	18
Iowa	289	39	29	23	—	—	109	136	41	29
Mo.	183	133	20	7	27	14	211	191	182	53
N. Dak.	48	6	6	23	—	—	11	13	2	1
S. Dak.	1	8	12	47	—	—	45	25	8	6
Nebr.	72	4	—	60	1	2	48	53	20	7
Kans.	102	11	36	50	1	—	84	114	14	26
S. ATLANTIC	459	221	646	1,008	136	132	2,680	2,284	667	1,186
Del.	12	—	—	9	1	2	13	19	4	3
Md.	78	50	109	119	14	5	216	195	28	46
D.C.	3	6	—	—	—	—	14	15	6	21
Va.	74	59	232	187	4	1	268	251	35	36
W. Va.	22	3	13	29	1	—	35	46	—	—
N.C.	27	33	198	268	87	87	423	279	63	133
S.C.	161	30	5	60	6	13	161	140	35	211
Ga.	15	12	86	131	14	21	445	398	190	270
Fla.	67	28	3	205	9	3	1,105	941	306	466
E.S. CENTRAL	174	48	54	55	14	32	523	629	515	236
Ky.	49	8	6	11	—	—	95	104	43	31
Tenn.	78	26	18	17	11	19	187	184	302	93
Ala.	34	7	30	22	3	6	171	178	135	87
Miss.	13	7	—	5	—	7	70	163	35	25
W.S. CENTRAL	150	154	458	854	8	20	616	1,598	680	1,958
Ark.	74	14	13	24	2	4	122	121	20	18
La.	14	7	—	—	1	3	189	192	44	133
Okla.	—	13	48	54	5	13	101	100	293	196
Tex.	62	120	397	776	—	—	204	1,185	323	1,611
MOUNTAIN	1,524	422	74	46	20	3	654	737	216	275
Mont.	323	12	—	5	1	—	33	51	2	3
Idaho	46	17	—	—	—	1	30	55	—	5
Wyo.	13	3	11	—	1	—	16	20	—	1
Colo.	642	225	5	5	2	1	166	174	38	49
N. Mex.	52	62	—	—	—	—	48	81	28	52
Ariz.	261	72	58	36	13	1	201	231	107	132
Utah	169	29	—	—	3	—	105	80	16	15
Nev.	18	2	—	—	—	—	55	45	25	18
PACIFIC	752	576	50	73	4	3	1,593	1,799	619	566
Wash.	164	161	—	—	—	—	137	120	24	31
Oreg.	267	195	—	—	—	2	110	153	24	30
Calif.	260	202	49	62	4	1	1,227	1,370	555	485
Alaska	16	10	1	11	—	—	17	28	5	4
Hawaii	45	8	—	—	—	—	102	128	11	16
Guam	—	—	—	—	—	—	—	16	—	17
P.R.	—	1	28	18	N	N	29	78	—	1
V.I.	—	—	—	—	—	—	—	—	—	—
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	—	U	—	U	—	U	—	U	—	U

N: Not notifiable. U: Unavailable. —: No reported cases. C.N.M.I.: Commonwealth of Northern Mariana Islands.
* Incidence data for reporting years 2004 and 2005 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending May 28, 2005, and May 29, 2004 (21st Week)*

Reporting area	Streptococcal disease, invasive, group A		*Streptococcus pneumoniae*, invasive disease				Syphilis			
			Drug resistant, all ages		Age <5 years		Primary & secondary		Congenital	
	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004
UNITED STATES	2,029	2,427	1,182	1,219	370	404	2,783	3,030	101	161
NEW ENGLAND	72	169	12	59	37	58	76	73	—	—
Maine	2	3	N	N	—	1	1	—	—	—
N.H.	6	11	—	—	2	N	5	2	—	—
Vt.	7	5	6	5	3	1	—	—	—	—
Mass.	51	81	—	11	32	36	59	44	—	—
R.I.	6	16	6	7	—	3	2	9	—	—
Conn.	—	53	U	36	U	17	9	18	—	—
MID. ATLANTIC	465	405	126	90	64	54	355	399	15	21
Upstate N.Y.	158	123	51	39	38	35	30	36	11	1
N.Y. City	67	66	U	U	U	U	229	233	3	9
N.J.	98	86	N	N	12	4	52	74	1	10
Pa.	142	130	75	51	14	15	44	56	—	1
E.N. CENTRAL	404	543	305	270	97	95	223	363	17	25
Ohio	109	135	198	198	44	47	81	101	2	1
Ind.	42	54	105	72	25	18	30	23	1	1
Ill.	82	158	2	—	24	—	72	140	3	2
Mich.	163	155	—	N	—	N	32	83	9	21
Wis.	8	41	N	N	4	30	8	16	2	—
W.N. CENTRAL	139	167	29	11	43	32	87	82	1	2
Minn.	53	72	—	—	24	18	16	14	—	1
Iowa	N	N	N	N	—	N	1	4	—	—
Mo.	44	40	27	9	4	8	61	45	1	1
N. Dak.	2	6	—	—	1	—	—	—	—	—
S. Dak.	9	8	2	2	—	—	—	—	—	—
Nebr.	9	12	—	—	4	4	2	5	—	—
Kans.	22	29	N	N	10	2	7	14	—	—
S. ATLANTIC	425	459	502	596	43	28	722	754	20	26
Del.	—	2	1	3	—	N	6	3	—	—
Md.	115	74	—	—	29	20	132	143	7	3
D.C.	5	4	13	5	2	4	50	21	—	1
Va.	27	37	N	N	—	N	35	32	3	1
W. Va.	8	14	50	65	12	4	2	3	—	—
N.C.	68	65	N	N	U	U	97	64	5	1
S.C.	11	43	—	68	—	N	26	56	—	7
Ga.	83	119	155	149	—	N	84	132	—	1
Fla.	108	101	283	306	—	N	290	300	5	12
E.S. CENTRAL	79	121	88	77	3	9	153	158	11	7
Ky.	19	35	14	19	N	N	15	23	—	—
Tenn.	60	86	74	56	—	N	66	57	8	1
Ala.	—	—	—	—	—	N	57	59	3	4
Miss.	—	—	—	2	3	9	15	19	—	2
W.S. CENTRAL	85	277	79	38	52	103	487	447	20	32
Ark.	7	6	8	5	10	7	22	13	—	3
La.	5	1	71	33	17	20	107	103	2	2
Okla.	62	32	N	N	16	23	17	12	1	2
Tex.	11	238	N	N	9	53	341	319	17	25
MOUNTAIN	320	248	41	17	31	25	140	156	13	13
Mont.	—	—	—	—	—	—	5	—	—	—
Idaho	1	4	N	N	—	N	13	10	1	2
Wyo.	2	5	16	4	—	—	—	1	—	—
Colo.	123	49	N	N	30	25	15	28	—	—
N. Mex.	23	53	—	5	—	—	18	42	1	2
Ariz.	127	116	N	N	—	N	56	66	11	9
Utah	43	21	24	6	1	—	4	2	—	—
Nev.	1	—	1	2	—	—	29	7	—	—
PACIFIC	40	38	—	61	—	—	540	598	4	35
Wash.	N	N	N	N	N	N	60	33	—	—
Oreg.	N	N	N	N	—	N	12	14	—	—
Calif.	—	—	N	N	N	N	462	548	4	35
Alaska	—	—	—	—	—	N	4	—	—	—
Hawaii	40	38	—	61	—	—	2	3	—	—
Guam	—	—	—	—	—	—	—	—	—	—
P.R.	N	N	N	N	—	N	64	56	6	3
V.I.	—	—	—	—	—	—	—	4	—	—
Amer. Samoa	U	U	U	U	U	U	U	U	U	U
C.N.M.I.	—	U	—	U	—	U	—	U	—	U

N: Not notifiable. U: Unavailable. —: No reported cases. C.N.M.I.: Commonwealth of Northern Mariana Islands.
* Incidence data for reporting years 2004 and 2005 are provisional and cumulative (year-to-date).

TABLE II. (*Continued*) Provisional cases of selected notifiable diseases, United States, weeks ending May 28, 2005, and May 29, 2004 (21st Week)*

Reporting area	Tuberculosis		Typhoid fever		Varicella (chickenpox)		West Nile virus disease†		
							Neuroinvasive		Non-neuroinvasive§
	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005	Cum. 2004	Cum. 2005
UNITED STATES	3,469	4,889	77	101	9,751	11,295	—	28	—
NEW ENGLAND	104	146	8	11	371	1,387	—	—	—
Maine	6	8	—	—	101	44	—	—	—
N.H.	4	6	—	—	54	—	—	—	—
Vt.	—	—	—	—	24	332	—	—	—
Mass.	70	79	6	10	192	26	—	—	—
R.I.	6	17	—	1	—	—	—	—	—
Conn.	18	36	2	—	U	985	—	—	—
MID. ATLANTIC	789	734	22	28	2,306	31	—	1	—
Upstate N.Y.	96	87	3	2	—	—	—	—	—
N.Y. City	406	371	5	10	—	—	—	—	—
N.J.	177	153	7	11	—	—	—	—	—
Pa.	110	123	7	5	2,306	31	—	1	—
E.N. CENTRAL	499	427	4	11	3,250	3,520	—	—	—
Ohio	99	73	—	2	771	893	—	—	—
Ind.	53	54	—	—	120	N	—	—	—
Ill.	242	199	1	5	17	1	—	—	—
Mich.	71	74	1	3	2,108	2,253	—	—	—
Wis.	34	27	2	1	234	373	—	—	—
W.N. CENTRAL	180	159	1	2	72	123	—	1	—
Minn.	73	62	1	1	—	—	—	—	—
Iowa	17	15	—	—	N	N	—	—	—
Mo.	47	47	—	1	3	2	—	—	—
N. Dak.	2	3	—	—	10	68	—	—	—
S. Dak.	5	4	—	—	59	53	—	1	—
Nebr.	15	6	—	—	—	—	—	—	—
Kans.	21	22	—	—	—	—	—	—	N
S. ATLANTIC	742	1,023	11	9	894	1,283	—	1	—
Del.	2	9	—	—	6	4	—	—	—
Md.	93	88	2	2	—	—	—	—	—
D.C.	27	4	—	—	15	17	—	—	—
Va.	100	78	2	3	144	316	—	—	—
W. Va.	8	10	—	—	552	680	—	—	N
N.C.	74	96	2	2	—	N	—	—	—
S.C.	80	83	—	—	177	266	—	—	—
Ga.	66	270	2	—	—	—	—	—	—
Fla.	292	385	3	2	—	—	—	1	—
E.S. CENTRAL	201	178	1	4	—	—	—	—	—
Ky.	40	31	1	2	N	N	—	—	—
Tenn.	95	48	—	2	—	—	—	—	—
Ala.	66	66	—	—	—	—	—	—	—
Miss.	—	33	—	—	—	—	—	—	—
W.S. CENTRAL	278	861	3	9	1,349	3,509	—	2	—
Ark.	36	55	—	—	—	—	—	—	—
La.	—	—	—	—	97	42	—	—	—
Okla.	54	60	—	—	—	—	—	—	—
Tex.	188	746	3	9	1,252	3,467	—	2	—
MOUNTAIN	86	206	3	3	1,509	1,442	—	23	—
Mont.	—	—	—	—	—	—	—	—	—
Idaho	—	—	—	—	—	—	—	—	—
Wyo.	—	1	—	—	42	18	—	—	—
Colo.	16	52	—	1	1,081	1,080	—	1	—
N. Mex.	4	14	—	—	78	65	—	—	—
Ariz.	56	83	1	1	—	—	—	22	—
Utah	10	18	1	1	308	279	—	—	—
Nev.	—	38	1	—	—	—	—	—	—
PACIFIC	590	1,155	24	24	—	—	—	—	—
Wash.	86	81	1	1	N	N	—	—	—
Oreg.	38	36	2	—	—	—	—	—	—
Calif.	406	981	17	17	—	—	—	—	—
Alaska	13	12	—	—	—	—	—	—	—
Hawaii	47	45	4	6	—	—	—	—	—
Guam	—	14	—	—	—	99	—	—	—
P.R.	—	21	—	—	76	147	—	—	—
V.I.	—	—	—	—	—	—	—	—	—
Amer. Samoa	U	U	U	U	U	U	U	U	—
C.N.M.I.	—	U	—	U	—	U	—	U	—

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

* Incidence data for reporting years 2004 and 2005 are provisional and cumulative (year-to-date).

† Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases (ArboNet Surveillance).

§ Not previously notifiable.

TABLE III. Deaths in 122 U.S. cities,* week ending May 28, 2005 (21st Week)

Reporting Area	All causes, by age (years)						P&I† Total
	All Ages	≥65	45–64	25–44	1–24	<1	
NEW ENGLAND	440	315	89	23	7	6	46
Boston, Mass.	119	77	30	8	1	3	15
Bridgeport, Conn.	30	27	2	—	1	—	3
Cambridge, Mass.	12	8	4	—	—	—	1
Fall River, Mass.	21	17	3	1	—	—	1
Hartford, Conn.	52	34	10	4	3	1	7
Lowell, Mass.	11	8	3	—	—	—	—
Lynn, Mass.	11	7	4	—	—	—	1
New Bedford, Mass.	23	18	3	2	—	—	1
New Haven, Conn.	31	19	9	2	1	—	4
Providence, R.I.	U	U	U	U	U	U	U
Somerville, Mass.	4	4	—	—	—	—	—
Springfield, Mass.	38	28	7	1	—	2	4
Waterbury, Conn.	31	23	5	3	—	—	1
Worcester, Mass.	57	45	9	2	1	—	8
MID. ATLANTIC	2,084	1,405	459	128	56	36	109
Albany, N.Y.	46	26	12	5	1	2	1
Allentown, Pa.	28	25	1	2	—	—	2
Buffalo, N.Y.	68	37	19	4	4	4	4
Camden, N.J.	25	17	5	2	—	1	1
Elizabeth, N.J.	16	14	1	1	—	—	3
Erie, Pa.	50	41	7	1	—	1	4
Jersey City, N.J.	34	21	9	3	—	1	—
New York City, N.Y.	1,109	752	254	65	24	14	54
Newark, N.J.	64	32	18	6	6	2	—
Paterson, N.J.	5	2	3	—	—	—	—
Philadelphia, Pa.	246	147	59	22	13	5	15
Pittsburgh, Pa.§	15	6	5	—	—	4	—
Reading, Pa.	20	14	5	1	—	—	3
Rochester, N.Y.	148	108	30	7	2	1	5
Schenectady, N.Y.	21	16	4	1	—	—	4
Scranton, Pa.	41	36	4	1	—	—	2
Syracuse, N.Y.	89	67	15	5	2	—	10
Trenton, N.J.	22	12	5	1	3	1	—
Utica, N.Y.	17	14	2	1	—	—	1
Yonkers, N.Y.	20	18	1	—	1	—	—
E.N. CENTRAL	1,987	1,276	475	138	46	52	130
Akron, Ohio	53	35	10	2	2	4	4
Canton, Ohio	37	27	10	—	—	—	4
Chicago, Ill.	335	192	83	35	13	12	20
Cincinnati, Ohio	105	61	27	9	5	3	6
Cleveland, Ohio	258	180	51	17	2	8	6
Columbus, Ohio	172	96	53	16	3	4	13
Dayton, Ohio	118	79	27	5	2	5	8
Detroit, Mich.	184	96	61	16	4	7	10
Evansville, Ind.	54	37	11	4	2	—	4
Fort Wayne, Ind.	47	36	8	3	—	—	4
Gary, Ind.	6	3	2	—	—	1	1
Grand Rapids, Mich.	60	49	10	1	—	—	3
Indianapolis, Ind.	121	81	30	4	4	2	12
Lansing, Mich.	55	42	8	3	1	1	4
Milwaukee, Wis.	111	68	30	9	2	2	8
Peoria, Ill.	56	42	5	4	4	1	6
Rockford, Ill.	58	43	11	4	—	—	2
South Bend, Ind.	61	46	12	2	—	1	6
Toledo, Ohio	96	63	26	4	2	1	9
Youngstown, Ohio	U	U	U	U	U	U	U
W.N. CENTRAL	652	414	144	51	22	20	40
Des Moines, Iowa	60	45	9	3	3	—	4
Duluth, Minn.	25	21	3	—	—	1	3
Kansas City, Kans.	36	24	6	4	—	2	—
Kansas City, Mo.	88	52	22	6	5	3	3
Lincoln, Nebr.	38	34	3	—	—	1	1
Minneapolis, Minn.	57	25	18	8	3	3	8
Omaha, Nebr.	73	57	9	5	—	2	4
St. Louis, Mo.	124	64	31	16	8	4	12
St. Paul, Minn.	61	36	19	2	2	2	4
Wichita, Kans.	90	56	24	7	1	2	1
S. ATLANTIC	1,204	733	315	82	40	34	67
Atlanta, Ga.	111	54	31	10	2	14	5
Baltimore, Md.	189	111	45	16	12	5	15
Charlotte, N.C.	125	77	35	6	3	4	8
Jacksonville, Fla.	116	68	37	9	1	1	6
Miami, Fla.	111	71	28	8	4	—	9
Norfolk, Va.	53	35	14	3	—	1	1
Richmond, Va.	72	39	23	6	3	1	2
Savannah, Ga.	59	40	15	2	2	—	2
St. Petersburg, Fla.	58	46	5	1	5	1	6
Tampa, Fla.	195	128	49	10	2	6	10
Washington, D.C.	99	54	28	10	6	1	2
Wilmington, Del.	16	10	5	1	—	—	1
E.S. CENTRAL	801	534	182	51	18	16	57
Birmingham, Ala.	167	117	36	7	3	4	18
Chattanooga, Tenn.	75	45	19	6	4	1	2
Knoxville, Tenn.	73	54	13	5	—	1	7
Lexington, Ky.	67	42	17	4	3	1	4
Memphis, Tenn.	157	99	38	13	4	3	5
Mobile, Ala.	60	40	15	3	1	1	3
Montgomery, Ala.	58	38	12	7	—	1	7
Nashville, Tenn.	144	99	32	6	3	4	11
W.S. CENTRAL	1,508	968	349	100	53	38	74
Austin, Tex.	88	52	26	5	3	2	11
Baton Rouge, La.	28	19	7	1	1	—	—
Corpus Christi, Tex.	44	34	8	—	1	1	2
Dallas, Tex.	208	125	55	16	9	3	18
El Paso, Tex.	88	62	16	4	4	2	5
Ft. Worth, Tex.	133	86	26	12	3	6	3
Houston, Tex.	365	216	95	31	12	11	21
Little Rock, Ark.	76	48	19	4	3	2	—
New Orleans, La.	30	11	13	2	1	3	1
San Antonio, Tex.	242	166	46	13	11	6	12
Shreveport, La.	43	34	7	1	1	—	1
Tulsa, Okla.	163	115	31	11	4	2	—
MOUNTAIN	1,131	739	244	87	31	27	68
Albuquerque, N.M.	137	85	29	16	6	1	12
Boise, Idaho	34	23	4	3	—	4	2
Colo. Springs, Colo.	64	43	15	3	2	1	5
Denver, Colo.	101	62	16	13	2	8	6
Las Vegas, Nev.	265	166	66	21	8	3	15
Ogden, Utah	32	25	4	2	1	—	—
Phoenix, Ariz.	184	112	49	12	5	4	8
Pueblo, Colo.	41	29	10	1	1	—	2
Salt Lake City, Utah	97	60	18	11	3	5	7
Tucson, Ariz.	176	134	33	5	3	1	11
PACIFIC	1,755	1,237	372	92	29	25	158
Berkeley, Calif.	16	12	3	1	—	—	1
Fresno, Calif.	179	133	33	7	4	2	14
Glendale, Calif.	19	16	3	—	—	—	2
Honolulu, Hawaii	93	71	18	4	—	—	6
Long Beach, Calif.	73	47	19	7	—	—	6
Los Angeles, Calif.	267	191	46	19	7	4	31
Pasadena, Calif.	44	30	12	1	1	—	8
Portland, Oreg.	119	80	28	5	3	3	6
Sacramento, Calif.	161	110	40	8	—	3	19
San Diego, Calif.	145	112	27	4	2	—	6
San Francisco, Calif.	173	117	36	13	3	4	19
San Jose, Calif.	178	129	32	9	7	1	18
Santa Cruz, Calif.	28	18	8	2	—	—	3
Seattle, Wash.	108	63	33	7	1	4	3
Spokane, Wash.	51	36	10	1	1	3	6
Tacoma, Wash.	101	72	24	4	—	1	10
TOTAL	11,562¶	7,621	2,629	752	302	254	749

U: Unavailable. —: No reported cases.

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

† Pneumonia and influenza.

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

¶ Total includes unknown ages.

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☆U.S. Government Printing Office: 2005-733-116/00093 Region IV ISSN: 0149-2195