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Work-Related Injury Deaths Among Hispanics — United States, 1992–2006

Hispanics are among the fastest-growing segments of the U.S. workforce (1). In 2006, an estimated 19.6 million workers in the United States were Hispanic, 56% of whom were foreign born* (2). To characterize work-related injury deaths among Hispanic workers in the United States, CDC, the Bureau of Labor Statistics (BLS), and certain state agencies analyzed data from 1992–2006. This report summarizes the results of that analysis, which indicated that, during 1992–2006, a total of 11,303 Hispanic workers died from work-related injuries.† The death rate for Hispanic workers decreased during this period; however, the rate was consistently higher than the rate for all U.S. workers, and the proportion of deaths among foreign-born Hispanic workers increased over time. During 2003–2006, 34% of Hispanic worker deaths occurred in the construction industry. Additional efforts are needed to reduce the risk for death among Hispanic workers because of projected increases in their employment, involvement in work with high risk for injury, susceptibility to miscommunication caused by language differences, and other potential risks associated with culture and economic status.

The BLS Census of Fatal Occupational Injuries (CFOI) collects data on fatal occupational injuries from multiple federal, state, and local sources, including death certificates, workers' compensation reports, medical examiner reports, and police reports. Approximately 95% of cases are verified by at least two independent sources (3). To be included in CFOI, the decedent must have been employed at the time of the event, engaged in a legal work activity, or present at a site as a job requirement. CFOI excludes deaths that occurred during a worker's normal commute to and from

work and deaths related to occupational illnesses. A decedent is classified as Hispanic if documentation is available indicating that the decedent was of Mexican, Puerto Rican, Cuban, or Central or South American descent, or of other Spanish culture or origin, regardless of race. Deaths of undocumented workers are included. In this report, certain data are presented only for the period 2003–2006 because, in 2003, industry coding changed to the 2002 North American Industry Classification System. Death rates were calculated for workers aged ≥ 16 years, using estimates of employed civilian workers from the BLS Current Population Survey (CPS) (2). CPS is a monthly survey of approximately 60,000 households that uses a combination of in-person and telephone interviews with a single person reporting for all household members. Undocumented persons are included in CPS.

Work-related injury deaths among Hispanic workers during 1992–2006 totaled 11,303 (Figure 1), approximately 13% of all U.S. work-related injury deaths during that period. Median age of Hispanic decedents was 35 years, compared with a median age of 42 years for all workers. Approximately 95% of Hispanic decedents were male. The annual work-related injury death rate for Hispanic workers exceeded the rate for all U.S. workers every year during 1992–2006, with the exception of 1995. In 2006, the work-related injury death rate for Hispanic workers was

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* Does not reflect any immigration status.

† Data from 2001 exclude fatalities resulting from the September 11 terrorist attacks.

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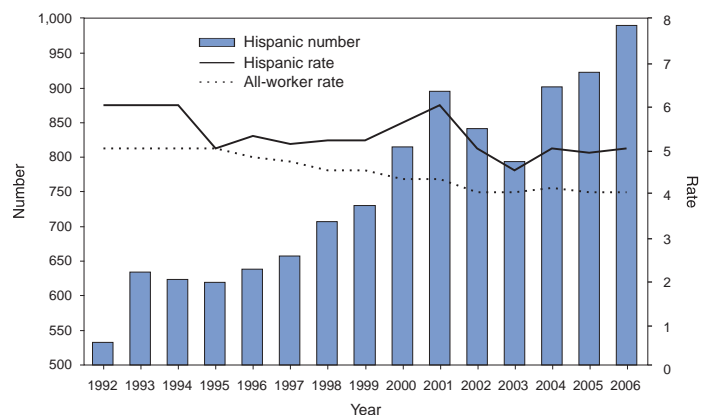
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FIGURE 1. Number* and rate† of work-related injury deaths of Hispanic workers compared with rate for all workers — United States, 1992–2006



* Data from 2001 exclude fatalities resulting from the September 11 terrorist attacks.

† Per 100,000 civilian workers aged ≥ 16 years.

5.0 per 100,000 Hispanic workers, compared with rates of 4.0 for all workers, 4.0 for non-Hispanic white workers, and 3.7 for non-Hispanic black workers. During 2003–2006, the work-related injury death rate for foreign-born Hispanic workers was 5.9, compared with a rate of 3.5 for U.S.-born Hispanic workers.

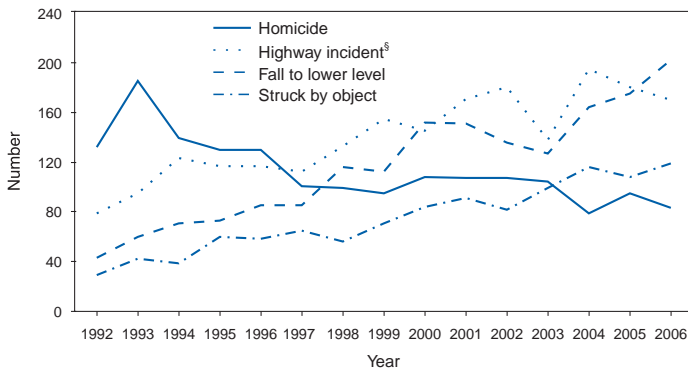
During 1992–1996, homicide was the most common fatal event among Hispanic workers (Figure 2). However, during 1997–2006, highway incidents[§] were the most common fatal event, with the exception of 2000 and 2006, when falls to a lower level were most common. Work-related homicides among Hispanics decreased 37% from 1992 to 2006, while the number of falls to a lower level increased approximately 370% during the same period.

During 2003–2006, 67% of Hispanic decedents were foreign born (Table), an increase from 52% in 1992. Approximately 70% of these decedents were born in Mexico. During 2003–2006, the most common industries employing Hispanics who died from work-related injuries were construction (34%), administrative and waste services (11%), agriculture/forestry/fishing/hunting (10%), and transportation/warehousing (10%). Of those states with 30 or more work-related injury deaths among Hispanics during 2003–2006, the highest numbers of fatalities were in California (773 deaths), Texas (687), and Florida (417); however, the highest fatality rates were in South Carolina (22.8 per 100,000 Hispanic workers), Oklahoma (10.3), Georgia (9.6), and Tennessee (8.9) (Table).

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[§] Defined as incidents on public roadways that involved vehicles or equipment.

FIGURE 2. Number of work-related injury deaths among Hispanic workers, by most common fatal events* — United States, 1992–2006†



* Event coded according to the Bureau of Labor Statistics Occupational Injury and Illness Classification System.

† Data from 2001 exclude fatalities resulting from the September 11 terrorist attacks.

§ Incidents involving vehicles or equipment that occurred on public roadways.

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TABLE. Number, rate,* birth status, and most common fatal event† and industry‡ associated with Hispanic work-related injury deaths, by selected states¶ — United States, 2003–2006

State	No.	Rate	Foreign-born %	Fatal event (%)	Industry (%)
Arizona	114	3.9	62	Highway incident (20)	Construction (25)
California	773	3.7	71	Fall to lower level (18)	Construction (27)
Colorado	87	5.4	59	Highway incident (29)	Construction (31)
Florida	417	6.3	81	Highway incident (26)	Construction (34)
Georgia	115	9.6	77	Fall to lower level (25)	Construction (56)
Illinois	104	3.8	72	Fall to lower level (24)	Construction (28)
Maryland	58	6.8	91	Highway incident (19)	Construction (59)
Michigan	30	4.7	50	Highway incident (27)	Construction (27)
Nevada	48	5.0	65	Fall to lower level (31)	Construction (46)
New Jersey	116	4.7	81	Fall to lower level (25)	Construction (29)
New Mexico	70	5.1	34	Highway incident (30)	Construction (30)
New York	172	3.4	73	Fall to lower level (25)	Construction (38)
North Carolina	97	7.8	75	Fall to lower level (18)	Construction (47)
Ohio	33	5.5	61	Highway incident (21)	Construction (30)
Oklahoma	32	10.3	44	Fall to lower level (19)	Construction (41)
Pennsylvania	41	5.3	51	Fire/explosion (19)	Transportation/ warehousing (22)
South Carolina	51	22.8	88	Homicide (29)	Construction (63)
Tennessee	36	8.9	92	Fall to lower level (24)	Construction (44)
Texas	687	4.8	55	Fall to lower level (22)	Construction (44)
Virginia	63	4.8	55	Highway incident (22)	Construction (37)
Washington	33	6.5	87	Fall to lower level (33)	Construction (57)
Washington	33	4.0	70	Highway incident (36)	Agriculture (39)
Total	3,609	4.9	67	Highway incident (19)	Construction (34)

* Per 100,000 civilian workers aged ≥ 16 years.

† Event coded according to the Bureau of Labor Statistics Occupational Injury and Illness Classification System.

‡ Industry coded according to the 2002 North American Industry Classification System.

¶ States reporting at least 30 work-related injury deaths of Hispanic workers during 2003–2006.

Editorial Note: Although work-related injury death rates declined generally and among Hispanics in the United States from 1992 to 2006, disparities between Hispanics and all workers persisted, with Hispanics consistently experiencing higher rates. In 2006, rates for Hispanics and all workers were above the *Healthy People 2010* target for work-related injury deaths of 3.2 deaths per 100,000 workers (objective 20-1) (4). Foreign-born Hispanic workers were at especially high risk, and a large proportion of deaths occurred in the construction industry. Much of the increased risk for Hispanic workers likely can be attributed to holding high-risk jobs (5). However, an analysis of Hispanic work-related injury deaths in the construction industry found that Hispanic workers also had elevated rates when compared with non-Hispanic workers in the same occupations (e.g., laborers or roofers) (6).

In-depth investigations of approximately 200 deaths of Hispanic workers by CDC's National Institute for Occupational Safety and Health and state public health and labor agencies during 1992–2006 suggested characteristics that contributed to higher numbers of work-related injury deaths among Hispanic workers, including inadequate knowledge and control of recognized safety hazards and inadequate training and supervision of workers, often

exacerbated by different languages and literacy levels of workers (CDC, unpublished data, 2008).[¶] Preventing work-related injury deaths among Hispanics will require 1) employers to take additional responsibility for providing a safe work environment, 2) safety and health agencies to provide employers of Hispanic workers with safety information and ensure compliance with existing regulations, and 3) researchers and health communication professionals to develop additional materials that are culturally appropriate and effective for workers who speak different languages and have varying levels of literacy. In addition, labor unions, community groups, and workers themselves can contribute to research and prevention measures.

The findings in this report are subject to at least five limitations. First, the number of deaths of Hispanic workers might be undercounted in the CFOI database (6), resulting in an underestimate of the death rate among Hispanics. Second, Hispanic ethnicity might have been misclassified in CFOI, which relies on secondary data sources, and also in CPS, which uses a single reporter for all household members. Third, the number of Hispanic workers might be undercounted in the CPS, which relies on stable residences for sequential interviews and largely collects data via telephone. An undercount of the total population of Hispanic workers would result in overestimate of Hispanic work-related injury death rates (6). Fourth, Hispanic workers are a heterogeneous population, and analyses that aggregate deaths for all Hispanics might mask differences among subpopulations. Finally, the data do not address potential contributors to Hispanic worker risk associated with cultural and social norms or economic status. For example, Hispanic workers, especially those who are foreign born, might be more willing to perform tasks with higher risk and more hesitant to decline such tasks for fear of losing their jobs.

CDC, the Occupational Safety and Health Administration (OSHA), and other agencies have provided additional Spanish-language occupational health and safety materials and training opportunities for employers, supervisors, and workers (7,8). OSHA has worked with employers to publicize best practices for Hispanic worker education and training programs (8). In addition, federally supported research projects are exploring grassroots approaches to improving occupational health and safety among Hispanic and other immigrant workers.** Others agencies can build upon these

projects to develop culturally competent programs that engage Hispanic workers in identifying and addressing their occupational health and safety concerns.

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References

1. Franklin JC. Employment outlook: 2006-16: An overview of BLS projections to 2016. *Monthly Labor Review*, November 2007;3-12. Available at <http://www.bls.gov/opub/mlr/2007/11/art1full.pdf>.
2. Bureau of Labor Statistics. Current Population Survey, 2006, and labor force, employment and unemployment from the Current Population Survey. In: BLS handbook of methods. Washington, DC: US Department of Labor, Bureau of Labor Statistics; 2003. Available at <http://www.bls.gov/cps/home.htm>.
3. Loh K, Richardson S. Foreign-born workers: trends in fatal occupational injuries. *Monthly Labor Review*, June 2004;42-53. Available at <http://www.bls.gov/opub/mlr/2004/06/art3full.pdf>.
4. US Department of Health and Human Services. Healthy people 2010 (conference ed, in 2 vols). Washington, DC: US Department of Health and Human Services; 2000. Available at <http://www.healthypeople.gov/document/html/volume2/20ocsh.htm>.
5. Richardson S, Ruser J, Suarez P. Hispanic workers in the United States: An analysis of employment distributions, fatal occupational injuries, and nonfatal occupational injuries. In: Safety is seguridad: a workshop summary. Washington, DC: The National Academies Press; 2003. Available at http://books.nap.edu/openbook.php?record_id=10641&page=43.
6. Dong X, Platner J. Occupational fatalities of Hispanic construction workers from 1992 to 2000. *Am J Ind Med* 2004;45:45-54.
7. National Institute for Occupational Safety and Health. NIOSH en Español. Washington, DC: US Department of Health and Human Services, CDC, National Institute for Occupational Safety and Health; 2008. Available at <http://www.cdc.gov/spanish/niosh>.
8. Occupational Health and Safety Administration. OSHA compliance assistance: Hispanic workers and employers. Available at http://www.osha.gov/dccsp/compliance_assistance/index_hispanic.html.

Hospital-Acquired Pertussis Among Newborns — Texas, 2004

On July 10, 2004, staff members at a children's hospital in Texas noted that six infants with pertussis diagnosed by clinical symptoms and confirmed by polymerase chain reaction (PCR) testing had all been born during June 4-16 at the same area general hospital. The infants had symptoms consistent with pertussis, including cough, congestion, cyanosis, emesis, or apnea. Infection-control personnel at the general hospital (general hospital A), children's hospital (children's hospital A), and the county health department investigated and determined that an outbreak of pertussis among 11 newborns at general hospital A had

[¶] Individual case reports of Hispanic worker deaths are available at <http://www2a.cdc.gov/NIOSH-FACE/state.asp?Category=0009&Category2=ALL&Submit=Submit>.

** Additional information available at http://www.dph.sf.ca.us/phes/work_unidos.htm.

occurred after direct exposure to a health-care worker (HCW) with pertussis. This report describes the outbreak investigation and highlights the importance of following recommendations to administer tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine to HCWs to prevent transmission of pertussis to patients.

Immediately after identification of the six infants with pertussis at children's hospital A, hospital staff members reviewed newborn nursery charts at general hospital A. One staff member (HCW A) was identified as having directly cared for all six infants during their stay in the newborn nursery. Review of work logs for all shifts identified four additional hospital workers who had been present while the six infants were in the newborn nursery.

From early to mid-June until July 17, while working in the newborn nursery at general hospital A, HCW A had exhibited symptoms of pertussis, including cough, posttussive emesis, and dyspnea. Her spouse reportedly had similar symptoms after he returned from a trip to California, 2–3 weeks before HCW A began exhibiting her symptoms. HCW A, aged 24 years, had been fully vaccinated for pertussis during early childhood. HCW A and a nursery coworker with cough symptoms were tested for pertussis by PCR; only HCW A tested positive. On July 17, HCW A was furloughed from general hospital A for 5 days and treated with erythromycin. Her husband also was prescribed erythromycin.

After obtaining Institutional Review Board approval from the institutions involved, staff members at children's hospital A reviewed the charts and laboratory records of all patients aged <4 months who had received a diagnosis of pertussis during June–August 2004. During that period, no additional cases of pertussis were reported to the county health department from facilities other than children's hospital A. A case of pertussis was defined in accordance with the Council of State and Territorial Epidemiologists (CSTE) case definition for pertussis, with one variation. The CSTE case definition for pertussis is a cough illness lasting at least 2 weeks with one of the following symptoms and no other apparent cause (as reported by a health professional): paroxysms of coughing, inspiratory "whoop," or posttussive vomiting. Confirmatory criteria consist of either isolation of *B. pertussis* from a clinical specimen or positive PCR assay for *B. pertussis*. For this investigation, that definition was modified to include infants with cough illness of any duration so that the definition might cover cases in newborns in the first 2 weeks of life. PCR amplification and detection of a 114 nucleotide segment of the

B. pertussis IS481 sequence (1) was conducted using nucleic acid extracted from nasopharyngeal swabs.

The review of laboratory records and charts at children's hospital A revealed that 29 infants aged <4 months met the case definition for pertussis during June–August. Of these 29 infants, 11 (including the six previously known patients) had been born at general hospital A and directly exposed to HCW A in the newborn nursery. All 11 had been treated at children's hospital A with erythromycin and recovered; none developed hypertrophic pyloric stenosis, which has been reported as a complication of treatment of infants with erythromycin (2). Five of the infants required admission to the pediatric intensive-care unit (PICU), and four were treated in the general pediatric medical unit; one infant was treated in the emergency department, and one was treated as an outpatient (Table). Median age of the 11 infants born at general hospital A was 31 days at the time of pertussis diagnosis, compared with a median age of 61 days for the other 18 infants with diagnosed pertussis, who were born at 12 other general hospitals during June–August.

On July 21, 2004, the county health department directed general hospital A to contact the families of all infants who had been in its newborn nursery during May 31–July 17 so that the infants could be screened for respiratory symptoms and administered antibiotics as needed. Families of 158 infants who had been in the newborn nursery during May 31–July 17 were contacted, and a total of 110 infants returned to general hospital A. Eighteen of the 110 had cough but were PCR negative; they received erythromycin prophylaxis. Two infants had cough and also were PCR positive; they were treated for pertussis, and one was admitted to children's hospital A. In addition, three family members reported cough or runny nose but were PCR negative; they were treated with erythromycin.

During the period that HCW A exhibited symptoms, she directly cared for 113 infants, 11 of whom subsequently had a diagnosis of pertussis, resulting in an attack rate of 9.7%. One other possible case was identified in a sibling aged 3 years. Interviews with families when they brought their infants back to general hospital A for screening, revealed no other exposures to pertussis. No secondary cases of pertussis among HCWs at either general hospital A or children's hospital A were discovered. After HCW A was furloughed and treated, no new cases of pertussis were identified during September–October 2004 in infants born at general hospital A.

Reported by: JL Hood, MPH, DK Murphrey, MD, JJ Dunn, PhD, children's hospital A, Texas.

TABLE. Characteristics of 11 infants who received diagnoses of pertussis after being under the direct care of the same health-care worker — Texas, 2004

Infant No.	Date of birth	Age at pertussis diagnosis	Symptoms	Hospitalization status/ Length of hospitalization	Treatment
1	June 15	12 days	Cough, apnea	PICU*/MED†, 16 days	Ventilator, intravenous (IV) fluids, erythromycin, tube feedings
2	June 15	16 days	Cough, apnea, posttussive emesis	PICU/MED, 12 days	Ventilator, IV fluids, erythromycin, tube feedings
3	June 15	28 days	Cough, apnea, cyanosis	PICU/MED, 11 days	Oxygen, IV fluids, erythromycin
4	June 16	18 days	Cough, cyanosis	PICU/MED, 13 days	Oxygen, IV fluids, erythromycin, tube feedings
5	June 14	21 days	Cough, apnea, cyanosis	MED, 14 days	Oxygen, erythromycin
6	June 4	32 days	Cough, apnea, cyanosis	MED, 12 days	Oxygen, erythromycin
7	June 14	31 days	Cough, stridor, cyanosis	PICU/MED, 15 days	Ventilator, IV fluids, erythromycin, tube feedings
8	June 8	44 days	Cough, cyanosis	MED, 5 days	Oxygen, erythromycin
9	June 17	72 days	Cough, congestion	Emergency department only	Erythromycin
10	June 3	123 days	Cough, congestion	MED, 2 days	Oxygen, erythromycin, tube feedings
11	June 15	38 days	Cough, congestion	Outpatient only	Erythromycin

*Pediatric intensive-care unit.

†General pediatric medical unit.

Editorial Note: Pertussis is a highly contagious, vaccine-preventable illness caused by *Bordetella pertussis* infection. Complications of pertussis (e.g., seizures, pneumonia, encephalopathy, and cardiovascular compromise) can occur, especially in infants aged <1 year. Deaths from pertussis occur most frequently among infants; the case-fatality rate is 1.8% for newborns and infants aged <2 months (3). From 1980–1989 to 1990–1999, the number of infant deaths from pertussis increased from 61 (1.67 deaths per million) to 93 (2.40 deaths per million) (4). Newborns most commonly acquire pertussis from adults with undiagnosed disease (5). Reports on outbreaks of pertussis in health-care facilities and neonatal nurseries have been published previously (6,7).

In 2004, the reported incidence of pertussis in the United States nearly tripled compared with 2001, and the number of reported cases exceeded any year since 1959 (8). This increase might have resulted, in part, from increased use of more sensitive PCR testing (8). CDC recommendations call for culture confirmation of infection in one or more cases in an outbreak. However, in the outbreak described in this report, no culture confirmation was performed. The medical staff at children's hospital A requested PCR testing, as did the local health department. Current molecular detection methods for detection of *B. pertussis* have high sensitivity compared with culture, but occasionally can be prone to false positives, depending on the target sequences, interpretation of results, and subjects tested (9). In a recent report describing outbreaks of respiratory illness mistakenly attributed to pertussis, PCR was used inappropriately as a mass screening tool on a large number

of persons who did not meet the CSTE case definition for pertussis (9). For the infants described in this report, a high index of suspicion for pertussis was based on clinical symptoms, and PCR testing was used to confirm diagnoses of pertussis. HCW A also met the CTSE case definition for pertussis.

In 2005, Tdap vaccine was licensed by the Food and Drug Administration for use in adolescents and adults. In December 2006, the Advisory Committee on Immunization Practices (ACIP) recommended use of Tdap vaccine for HCWs with direct patient contact and for adults who have or might have close contact with infants aged <12 months (3). This recommendation was based on the documented risk for transmission of pertussis in health-care facilities. Despite the costs involved for health-care facilities, one study suggests the return on investment from vaccinating HCWs with Tdap vaccine is twice the cost of the vaccine (10).

Widespread implementation of Tdap vaccination of adolescents and adults as recommended by ACIP can reduce the risk for pertussis in the community and the incidence of pertussis transmission in health-care facilities. This outbreak also highlights the importance of rapid recognition of pertussis transmission in health-care settings and rapid response from hospital and public health practitioners to identify the source and prevent more extensive spread of disease, particularly among vulnerable newborns and infants.

Acknowledgment

The findings in this report are based, in part, on observations first made by S Roderick.

References

1. Kösters K, Riffelmann M, Wirsing von König CH. Evaluation of a real-time PCR assay for detection of *Bordetella pertussis* and *B. parapertussis* in clinical samples. *J Med Microbiol* 2001;50:436–40.
2. CDC. Hypertrophic pyloric stenosis in infants following pertussis prophylaxis with erythromycin—Knoxville, Tennessee, 1999. *MMWR* 1999;48:1117–20.
3. CDC. Preventing tetanus, diphtheria, and pertussis among adults: use of tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine: Recommendations of the Advisory Committee on Immunization Practices (ACIP) and recommendation of ACIP, supported by the Healthcare Infection Control Practices Advisory Committee (HICPAC), for use of Tdap among health-care personnel. *MMWR* 2006;55(No. RR-17).
4. Vitek CR, Pascual FB, Baughman AL, Murphy TV. Increase in deaths from pertussis among young infants in the United States in the 1990s. *Pediatr Infect Dis J* 2003;22:628–34.
5. Bamberger E, Starets-Haham O, Greenberg D, et al. Adult pertussis is hazardous for the newborn. *Infect Control Hosp Epidemiol* 2006;27:623–5.
6. Bryant KA, Humbaugh K, Brothers K, et al. Measures to control an outbreak of pertussis in a neonatal intermediate care nursery after exposure to a healthcare worker. *Infect Control Hosp Epidemiol* 2006;27:541–5.
7. CDC. Outbreaks of pertussis associated with hospitals—Kentucky, Pennsylvania, and Oregon, 2003. *MMWR* 2005;54:67–71.
8. CDC. Summary of notifiable diseases, United States, 2004. *MMWR* 2006;53(53).
9. CDC. Outbreaks of respiratory illness mistakenly attributed to pertussis—New Hampshire, Massachusetts, and Tennessee, 2004–2006. *MMWR* 2007;56:837–42.
10. Calugar A, Ortega-Sanchez I, Tiwari T, Oakes L, Jahre J, Murphy TV. Nosocomial pertussis: costs of an outbreak and benefits of vaccinating health care workers. *Clin Infect Dis* 2006;42:981–8.

Public Health Consequences of a False-Positive Laboratory Test Result for *Brucella* — Florida, Georgia, and Michigan, 2005

Human brucellosis, a nationally notifiable disease, is uncommon in the United States. Most human cases have occurred in returned travelers or immigrants from regions where brucellosis is endemic, or were acquired domestically from eating illegally imported, unpasteurized fresh* cheeses (1,2). In January 2005, a woman aged 35 years who lived in Nassau County, Florida, received a diagnosis of brucellosis, based on results of a *Brucella* immunoglobulin M (IgM) enzyme immunoassay (EIA) performed in a commercial laboratory using analyte specific reagents (ASRs); this diagnosis prompted an investigation of dairy products in two other states. Subsequent confirmatory

* Fresh cheeses, such as cottage cheese and Neufchâtel, also are referred to as soft or unripened cheeses. They are made by curdling milk and draining the whey, with little additional processing, and spoil more quickly than processed hard cheeses.

antibody testing by *Brucella* microagglutination test (BMAT) performed at CDC on the patient's serum was negative. The case did not meet the CDC/Council of State and Territorial Epidemiologists' (CSTE) definition for a probable or confirmed brucellosis case (3) (Box), and the initial EIA result was determined to be a false positive. This report summarizes the case history, laboratory findings, and public health investigations. CDC recommends that *Brucella* serology testing only be performed using tests cleared or approved by the Food and Drug Administration (FDA) or validated under the Clinical Laboratory Improvement Amendments (CLIA) and shown to reliably detect the presence of *Brucella* infection. Results from these tests should be considered supportive evidence for recent infection only and interpreted in the context of a clinically compatible illness and exposure history. EIA is not considered a confirmatory *Brucella* antibody test; positive screening test results should be confirmed by *Brucella*-specific agglutination (i.e., BMAT or standard tube agglutination test) methods.

On February 1, 2005, the Nassau County Health Department received a report, based on a positive *Brucella* antibody test result, of a possible case of brucellosis in a

BOX. CDC/Council of State and Territorial Epidemiologists case definition for human brucellosis for public health surveillance

Clinical description

An illness characterized by acute or insidious onset of fever, night sweats, undue fatigue, anorexia, weight loss, headache, and arthralgia.

Laboratory criteria for diagnosis

- Isolation of *Brucella* spp. from a clinical specimen, or
- Fourfold or greater rise in *Brucella* agglutination titer between acute- and convalescent-phase serum specimens obtained ≥ 2 weeks apart and studied at the same laboratory, or
- Demonstration by immunofluorescence of *Brucella* spp. in a clinical specimen.

Case classification

Probable: clinically compatible case that is epidemiologically linked to a confirmed case or that has supportive serology (i.e., *Brucella* agglutination titer ≥ 160 in one or more serum specimens obtained after onset of symptoms).

Confirmed: a clinically compatible illness that is laboratory confirmed.

SOURCE: CDC. Case definitions for infectious conditions under public health surveillance. *MMWR* 1997;46(No. RR-10):8–9.

female resident aged 35 years. The woman reported having intermittent fever, chills, sweats, body aches, weakness, headaches, and malaise since October 13, 2004. She was examined first at a local emergency department in November 2004, diagnosed with acute bronchitis, and discharged without a prescription for antimicrobials. She subsequently was examined by an infectious disease specialist on January 3, 2005, at which time brucellosis was considered based on continued nonspecific symptoms, polyarthritis, and an atypical lymphocytosis seen on a peripheral blood smear. Blood was obtained for culture and *Brucella* antibody testing on January 3 and January 24. Blood cultures were negative after 10 days. The EIA results from a commercial laboratory were interpreted as positive IgM and negative IgG, consistent with early brucellosis. On the basis of these results, on February 1 the patient was prescribed a twice daily, 6-week course of antimicrobial therapy of doxycycline (100 mg) and rifampin (300 mg). She stopped taking both antimicrobials after a short period because of side effects. After confirmatory testing by BMAT of the January 24 serum sample, performed February 14 at CDC, was negative, no further treatment for brucellosis was recommended. No other infectious etiologies were identified as a cause of the patient's symptoms, and she was lost to follow-up.

After the February 1 report, but before receiving the negative BMAT results, Nassau County and Florida epidemiologists began an investigation to identify possible exposures to *Brucella* species. The patient reported no recent contact with animals or animal fluids. She had eaten goat cheese from several sources while traveling in Michigan during May–July 2004 and while staying at a Georgia youth hostel in July 2004, 3–5 months before her illness onset. No unpasteurized dairy products were discovered at the identified sources that supplied locations where the woman ate. At the youth hostel, all dairy products used for cooking were pasteurized and purchased from local markets; however, guests often contributed food they had brought with them, and exact origins of shared foods were difficult to determine.

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Editorial Note: Brucellosis is a classic bacterial zoonosis. Common *Brucella* species that are pathogenic in humans and their usual animal reservoirs include *B. melitensis* in

sheep and goats, *B. abortus* in cattle, and *B. suis* in swine. *B. melitensis*, considered the most pathogenic species in humans, has not been reported in animals in the United States since 1999. Symptoms of human brucellosis vary, and include periodic or undulant fever, muscle aches, back pain, and fatigue. Diagnosis can be difficult because brucellosis has a prolonged and variable incubation period (5 days to 5 months), often presents as a nonspecific febrile syndrome, and occurs in acute, chronic, and asymptomatic forms.

Definitive diagnosis of brucellosis requires isolation and identification of the *Brucella* species. More commonly, cases are diagnosed serologically by detection of agglutinating antibodies. The reference method is the standard tube agglutination test (SAT), of which BMAT is a modified format (4). *Brucella*-specific agglutination tests involve direct agglutination of bacterial antigens by specific antibodies. Agglutination tests detect antibodies of IgM, IgG, and IgA classes. IgM antibodies are predominant in acute infection but decline within weeks, whereas relapses are accompanied by transient elevations of IgG and IgA antibodies but not IgM (5).

Evidence of *Brucella* antibody by nonagglutination-based tests does not meet the current CDC/CSTE case definition for brucellosis (Box). In the context of a clinically compatible illness, brucellosis is confirmed by a fourfold or greater rise in *Brucella* agglutination titer between acute- and convalescent-phase serum specimens obtained at least 2 weeks apart, isolation of *Brucellae* in culture, or demonstration of organism presence by specific immunohistochemical staining (3). A clinically compatible case that is epidemiologically linked to a confirmed case or that has supportive serology (i.e., *Brucella* agglutination titer of ≥ 160 in one or more serum specimens obtained after onset of symptoms) is considered a probable case.

The *Brucella* EIA reagents used in this investigation were obtained from Panbio, Inc. (Columbia, Maryland); they are sold as ASRs in the United States but elsewhere as complete test kits. ASRs are used as active components of assays developed by individual clinical laboratories (6). Laboratories that use ASRs are responsible for evaluating and validating their assay and for establishing and maintaining assay interpretation and performance criteria, including sensitivity and specificity (6). Specificity of the Panbio IgM and IgG EIA, based on a study in a brucellosis endemic area, was reported as 100% (7); IgM detection sensitivities using different EIA formats has been reported as 67%–100%, with limited specificity data (8). Such tests might have different performance characteristics when used

in areas with low disease prevalence, such as the United States. The CDC laboratory has observed that specimens that were positive using EIA tests from commercial laboratories often were negative when tested by BMAT. Results of EIA tests must be confirmed by a reference method such as BMAT, which is quantitative and provides evidence of rising antibody titers when paired sera are tested.

Cross-reactions and false-positive test results can occur in *Brucella* antibody tests. The primary immunodeterminant and virulence factor for *Brucella* species is the cell wall surface lipopolysaccharide, which is antigenically similar to the lipopolysaccharide of other gram-negative rods. False-positive *Brucella* antibody test results can be caused by cross-reactivity of antibodies to *Escherichia coli* O157, *Francisella tularensis*, *Moraxella phenylpyruvica*, *Yersinia enterocolitica*, and certain *Salmonella* species (9). Most cross-reacting antibodies are IgM (10), making interpretation of any IgM assay difficult because of false positivity. Therefore, results obtained using EIA should be confirmed by a reference method.

This investigation highlights the need to confirm screening serologic test results by using established reference testing methods and to identify the presence of known risk factors before committing a patient to prolonged antimicrobial therapy for brucellosis or initiating public health investigations. Testing of persons with compatible signs and symptoms for brucellosis should be supported by a thorough history that reveals likely exposure through travel to an area where brucellosis is endemic, consumption of an unpasteurized dairy product, hunting potentially infected wildlife species, or laboratory exposure. Testing of persons in the absence of a suggestive exposure increases the likelihood of false-positive results and lowers the overall positive predictive value of the assay used. Rapid *Brucella* antibody assays can be useful as screening tools when results are interpreted in the context of performance characteristics of the particular test; however, CDC recommends that all positive results obtained by rapid serologic assays be confirmed with *Brucella*-specific agglutination testing. For questions about risk factors or to request confirmatory testing for brucellosis in patients with strong evidence of exposure, health-care providers should contact their local or state health department.

Acknowledgments

The findings in this report are based, in part, on contributions by K Geib, Nassau County Health Dept; K Ward, Florida Dept of Health; and L Brumble, MD, Mayo Clinic, Jacksonville, Florida.

References

1. Chomel BB, DeBess EE, Mangiamale DM, et al. Changing trends in the epidemiology of human brucellosis in California from 1973 to 1992: a shift toward foodborne transmission. *J Infect Dis* 1994;170:1216–23.
2. Thapar MK, Young EJ. Urban outbreak of goat cheese brucellosis. *Pediatr Infect Dis* 1986;40:677–82.
3. CDC. Case definitions for infectious conditions under public health surveillance. *MMWR* 1997;46(No. RR-10):8–9.
4. Brown SL, Klein GC, McKinney FT, Jones WL. Safranin O-stained antigen microagglutination test for detection of *Brucella* antibodies. *J Clin Microbiol* 1981;13:398–400.
5. Reddin JL, Anderson RK, Jenness R, Spink WW. Significance of 7S and macroglobulin *Brucella* agglutinins in human brucellosis. *N Engl J Med* 1965;272:1263–8.
6. Food and Drug Administration. Guidance for industry and FDA staff. Commercially distributed analyte specific reagents (ASRs): frequently asked questions. Rockville, MD: US Department of Health and Human Services; 2007. Available at <http://www.fda.gov/cdrh/oivd/guidance/1590.pdf>.
7. Araj G, Kattar M, Fattouh L, Bajakian KO, Kobeissi SA. Evaluation of the PANBIO *Brucella* immunoglobulin G (IgG) and IgM enzyme-linked immunosorbent assays for diagnosis of human brucellosis. *Clin Diag Lab Immunol* 2005;12:1334–5.
8. Memish ZA, Almuneef M, Mah MW, Qassem LA, Osoba AO. Comparison of *Brucella* standard agglutination test with the ELISA IgG and IgM in patients with *Brucella* bacteremia. *Diag Microbiol Infect Dis* 2002;44:129–32.
9. Corbel MJ. Brucellosis: an overview. *Emerg Infect Dis* 1997;3:213–21.
10. Corbel MJ. Recent advances in the study of *Brucella* antigens and their serological cross-reactions. *Vet Bull* 1985;55:927–42.

Notice to Readers

Cancer Survivorship — June 2008

National Cancer Survivors Day was June 1. Throughout the month of June, CDC is focusing attention on the needs of cancer survivors. Currently, approximately 11 million persons in the United States are living with a previously diagnosed cancer, a threefold increase from the estimated 3 million persons who were living with cancer in 1971 (1,2).

Today, approximately 65% of persons diagnosed with cancer are expected to live at least 5 years after diagnosis (2), but disparities in health care can affect survival. Low-income persons who have inadequate or no health insurance coverage are more likely to be diagnosed with cancer at later stages, when the potential for survival is reduced (3).

The National Action Plan for Cancer Survivorship (4), developed by CDC, the Lance Armstrong Foundation, and multiple partners, identified public health needs of cancer survivors and proposed strategies to meet those needs. Additional information, including descriptions of CDC's cancer survivorship research initiatives and partnerships and

links to national publications highlighting health-care needs of cancer survivors is available at <http://www.cdc.gov/features/cancersurvivors>.

References

1. CDC. Cancer survivorship—United States, 1971–2001. *MMWR* 2004;53:526–9.
2. Ries LAG, Melbert D, Krapcho M, et al., eds. SEER cancer statistics review, 1975–2004. Bethesda, MD: National Cancer Institute; 2007. Available at http://seer.cancer.gov/csr/1975_2004.
3. Schwartz KL, Crossley-May H, Vigneau FD, Brown K, Banerjee M. Race, socioeconomic status and stage at diagnosis for five common malignancies. *Cancer Causes Control* 2003;14:761–6.
4. CDC, Lance Armstrong Foundation. A national action plan for cancer survivorship: advancing public health strategies. Atlanta, GA: US Department of Health and Human Services, CDC; 2004.

Notice to Readers

Assessment Tool for Evaluating Emergency and Disaster Shelters

Shelters provide refuge for communities and at-risk populations during and after emergencies and disasters. Effective emergency response requires that environmental health practitioners rapidly assess the health and safety of the shelter environment for these populations.

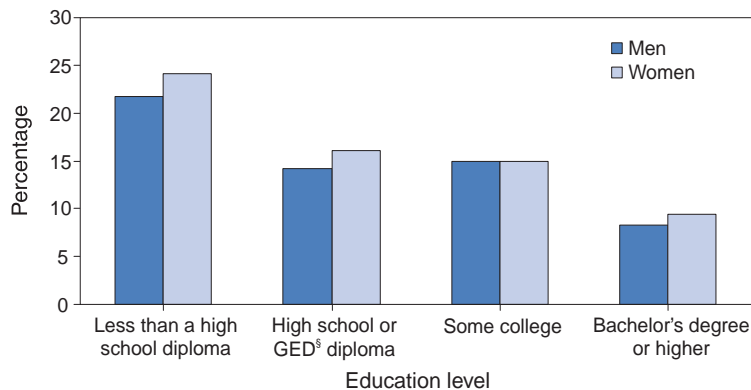
To help meet this challenge, CDC and partners have developed an environmental health shelter assessment form (available in English and Spanish) that covers general areas of environmental health, such as food safety, sanitation, and service and companion animal care. It also provides space for listing immediate needs. The form provides guidance and information that environmental health practitioners and shelter managers can use with existing plans, procedures, resources, and management systems.

The environmental health shelter assessment tool, including the assessment form, instructions for its use, and training materials, is available at <http://www.emergency.cdc.gov/shelterassessment>.

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Percentage of Adults Aged ≥ 25 Years with Limitation of Activity Caused by One or More Chronic Conditions,* by Education Level and Sex — National Health Interview Survey, United States, 2006[†]



* Limitation in usual activity is determined from responses to a series of questions about limitations in a person's ability to engage in work, school, play, or other activities for health reasons; the specific conditions causing the limitations; and the duration of these conditions. Conditions lasting >3 months are classified as chronic; selected conditions (e.g., arthritis, diabetes, cancer, and heart conditions) are considered chronic regardless of duration.

[†] Estimates are age adjusted using the projected 2000 U.S. population as the standard population and using four age groups: 25–44 years, 45–64 years, 65–74 years, and ≥ 75 years. Estimates are based on household interviews of a sample of the civilian, noninstitutionalized U.S. population. Persons who did not know whether they had a limitation and those with a limitation who did not know whether the condition causing the limitation was chronic were excluded from the denominators.

[§] General Educational Development.

In 2006, persons who had less than a high school diploma were more than twice as likely as persons who had a bachelor's degree or higher to be limited in their usual activities because of one or more chronic conditions. At lower education levels (less than a high school diploma or a high school or GED diploma), women were more likely than men to be limited in usual activities. At higher education levels, no significant difference in limitation was observed between men and women.

SOURCES: 2006 National Health Interview Survey. Available at <http://www.cdc.gov/nchs/nhis.htm>.

Adams PF, Lucas JW, Barnes PM. Summary health statistics for the U.S. population: National Health Interview Survey, 2006. Vital Health Stat 2008;10(236). Available at http://www.cdc.gov/nchs/data/series/sr_10/sr10_236.pdf.

TABLE I. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending May 31, 2008 (22nd Week)*

Disease	Current week	Cum 2008	5-year weekly average†	Total cases reported for previous years					States reporting cases during current week (No.)
				2007	2006	2005	2004	2003	
Anthrax	—	—	—	1	1	—	—	—	
Botulism:									
foodborne	—	2	0	31	20	19	16	20	
infant	—	29	2	85	97	85	87	76	
other (wound & unspecified)	1	4	1	27	48	31	30	33	WA (1)
Brucellosis	—	32	2	128	121	120	114	104	
Chancroid	1	23	1	23	33	17	30	54	MD (1)
Cholera	—	—	0	7	9	8	6	2	
Cyclosporiasis§	2	29	12	92	137	543	160	75	NY (1), FL (1)
Diphtheria	—	—	—	—	—	—	—	1	
Domestic arboviral diseases§¶:									
California serogroup	—	—	1	44	67	80	112	108	
eastern equine	—	—	0	4	8	21	6	14	
Powassan	—	—	0	1	1	1	1	—	
St. Louis	—	—	0	7	10	13	12	41	
western equine	—	—	—	—	—	—	—	—	
Ehrlichiosis/Anaplasmosis§¶¶:									
<i>Ehrlichia chaffeensis</i>	2	44	10	824	578	506	338	321	ME (1), MD (1)
<i>Ehrlichia ewingii</i>	—	—	—	—	—	—	—	—	
<i>Anaplasma phagocytophilum</i>	12	18	12	802	646	786	537	362	ME (1), MN (11)
undetermined	—	2	4	139	231	112	59	44	
<i>Haemophilus influenzae</i> ††									
invasive disease (age <5 yrs):									
serotype b	—	11	0	22	29	9	19	32	
nonserotype b	2	75	2	189	175	135	135	117	ID (2)
unknown serotype	1	106	4	179	179	217	177	227	AL (1)
Hansen disease§	—	32	2	101	66	87	105	95	
Hantavirus pulmonary syndrome§	—	5	1	32	40	26	24	26	
Hemolytic uremic syndrome, postdiarrheal§	1	40	4	291	288	221	200	178	MN (1)
Hepatitis C viral, acute	4	302	16	856	766	652	720	1,102	PA (1), MI (1), MO (1), NV (1)
HIV infection, pediatric (age <13 yrs)§§	—	—	4	—	—	380	436	504	
Influenza-associated pediatric mortality§¶¶¶	4	80	1	76	43	45	—	N	OK (2), OR (1), UT (1)
Listeriosis	2	193	12	806	884	896	753	696	NC (1), CA (1)
Measles***	1	74	2	43	55	66	37	56	AZ (1)
Meningococcal disease, invasive†††:									
A, C, Y, & W-135	2	134	6	316	318	297	—	—	MD (1), OK (1)
serogroup B	2	75	3	158	193	156	—	—	FL (1), WA (1)
other serogroup	—	14	0	35	32	27	—	—	
unknown serogroup	8	304	14	563	651	765	—	—	NY (2), OH (2), FL (1), CA (3)
Mumps	2	230	45	816	6,584	314	258	231	NE (1), FL (1)
Novel influenza A virus infections	—	—	—	1	N	N	N	N	
Plague	—	1	0	7	17	8	3	1	
Poliomyelitis, paralytic	—	—	—	—	—	1	—	—	
Poliovirus infection, nonparalytic§	—	—	—	—	N	N	N	N	
Psittacosis§	—	2	0	10	21	16	12	12	
Q fever§,§§§ total:	2	21	4	172	169	136	70	71	
acute	2	18	—	—	—	—	—	—	GA (1), TX (1)
chronic	—	3	—	—	—	—	—	—	
Rabies, human	—	—	0	1	3	2	7	2	
Rubella¶¶¶	—	5	0	12	11	11	10	7	
Rubella, congenital syndrome	—	—	—	—	1	1	—	1	
SARS-CoV§,****	—	—	0	—	—	—	—	8	

—: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts.

* Incidence data for reporting years 2007 and 2008 are provisional, whereas data for 2003, 2004, 2005, and 2006 are finalized.

† Calculated by summing the incidence counts for the current week, the 2 weeks preceding the current week, and the 2 weeks following the current week, for a total of 5 preceding years. Additional information is available at <http://www.cdc.gov/epo/dphsi/phs/files/5yearweeklyaverage.pdf>.

§ Not notifiable in all states. Data from states where the condition is not notifiable are excluded from this table, except in 2007 and 2008 for the domestic arboviral diseases and influenza-associated pediatric mortality, and in 2003 for SARS-CoV. Reporting exceptions are available at <http://www.cdc.gov/epo/dphsi/phs/infdis.htm>.

¶ Includes both neuroinvasive and nonneuroinvasive. Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ArboNET Surveillance). Data for West Nile virus are available in Table II.

** The names of the reporting categories changed in 2008 as a result of revisions to the case definitions. Cases reported prior to 2008 were reported in the categories: Ehrlichiosis, human monocytic (analogous to *E. chaffeensis*); Ehrlichiosis, human granulocytic (analogous to *Anaplasma phagocytophilum*), and Ehrlichiosis, unspecified, or other agent (which included cases unable to be clearly placed in other categories, as well as possible cases of *E. ewingii*).

†† Data for *H. influenzae* (all ages, all serotypes) are available in Table II.

§§ Updated monthly from reports to the Division of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. Implementation of HIV reporting influences the number of cases reported. Updates of pediatric HIV data have been temporarily suspended until upgrading of the national HIV/AIDS surveillance data management system is completed. Data for HIV/AIDS, when available, are displayed in Table IV, which appears quarterly.

¶¶ Updated weekly from reports to the Influenza Division, National Center for Immunization and Respiratory Diseases. Seventy-nine cases occurring during the 2007–08 influenza season have been reported.

*** The one measles case reported for the current week was indigenous.

††† Data for meningococcal disease (all serogroups) are available in Table II.

§§§ In 2008, Q fever acute and chronic reporting categories were recognized as a result of revisions to the Q fever case definition. Prior to that time, case counts were not differentiated with respect to acute and chronic Q fever cases.

¶¶¶ No rubella cases were reported for the current week.

**** Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases.

TABLE I. (Continued) Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending May 31, 2008 (22nd Week)*

Disease	Current week	Cum 2008	5-year weekly average†	Total cases reported for previous years					States reporting cases during current week (No.)
				2007	2006	2005	2004	2003	
Smallpox§	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome§	4	65	3	132	125	129	132	161	OH (1), DE (1), NC (2)
Syphilis, congenital (age <1 yr)	—	59	8	387	349	329	353	413	
Tetanus	—	2	1	27	41	27	34	20	
Toxic-shock syndrome (staphylococcal)§	2	25	2	90	101	90	95	133	OH (1), MN (1)
Trichinellosis	—	2	0	6	15	16	5	6	
Tularemia	1	14	3	137	95	154	134	129	NE (1)
Typhoid fever	3	150	6	437	353	324	322	356	NY (1), CA (2)
Vancomycin-intermediate <i>Staphylococcus aureus</i> §	—	3	0	28	6	2	—	N	
Vancomycin-resistant <i>Staphylococcus aureus</i> §	—	—	0	2	1	3	1	N	
Vibriosis (noncholera <i>Vibrio</i> species infections)§	1	55	2	402	N	N	N	N	MD (1)
Yellow fever	—	—	—	—	—	—	—	—	

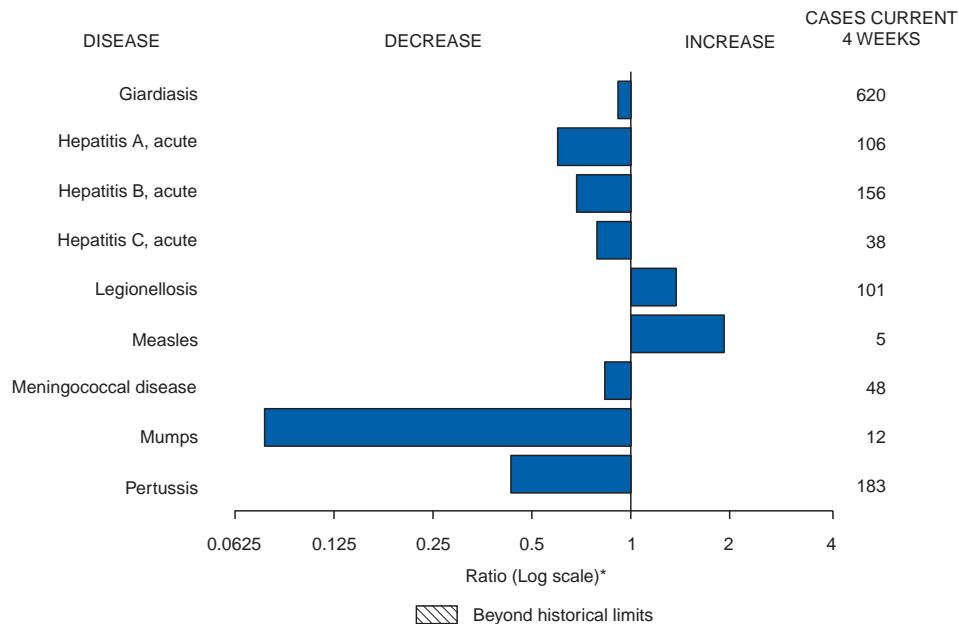
—: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts.

* Incidence data for reporting years 2007 and 2008 are provisional, whereas data for 2003, 2004, 2005, and 2006 are finalized.

† Calculated by summing the incidence counts for the current week, the 2 weeks preceding the current week, and the 2 weeks following the current week, for a total of 5 preceding years. Additional information is available at <http://www.cdc.gov/epo/dphsi/phs/files/5yearweeklyaverage.pdf>.

§ Not notifiable in all states. Data from states where the condition is not notifiable are excluded from this table, except in 2007 and 2008 for the domestic arboviral diseases and influenza-associated pediatric mortality, and in 2003 for SARS-CoV. Reporting exceptions are available at <http://www.cdc.gov/epo/dphsi/phs/infdis.htm>.

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals May 31, 2008, with historical data



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

Notifiable Disease Data Team and 122 Cities Mortality Data Team
 Patsy A. Hall
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TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending May 31, 2008, and June 2, 2007 (22nd Week)*

Reporting area	Streptococcal disease, invasive, group A					<i>Streptococcus pneumoniae</i> , invasive disease, nondrug resistant† Age <5 years				
	Current week	Previous 52 weeks		Cum 2008	Cum 2007	Current week	Previous 52 weeks		Cum 2008	Cum 2007
		Med	Max				Med	Max		
United States	52	99	255	2,730	2,743	15	35	165	806	865
New England	—	6	31	184	215	—	2	14	39	73
Connecticut	—	0	28	59	49	—	0	11	—	11
Maine§	—	0	3	13	15	—	0	1	1	1
Massachusetts	—	3	7	83	118	—	1	5	30	47
New Hampshire	—	0	2	16	18	—	0	1	7	8
Rhode Island§	—	0	6	5	2	—	0	1	—	4
Vermont§	—	0	2	8	13	—	0	1	1	2
Mid. Atlantic	10	16	42	562	577	4	4	38	92	163
New Jersey	—	3	9	80	113	—	1	6	18	34
New York (Upstate)	7	6	20	201	169	4	2	14	49	54
New York City	—	3	10	95	142	—	1	35	25	75
Pennsylvania	3	5	16	186	153	N	0	0	N	N
E.N. Central	9	16	59	556	546	2	5	22	164	136
Illinois	—	4	15	145	191	—	1	6	38	41
Indiana	—	2	11	75	61	—	0	14	21	7
Michigan	—	3	8	85	124	—	1	5	39	46
Ohio	9	4	15	162	144	2	1	5	32	34
Wisconsin	—	0	38	89	26	—	0	9	34	8
W.N. Central	2	4	39	228	194	2	2	16	69	50
Iowa	—	0	0	—	—	—	0	0	—	—
Kansas	—	0	6	33	24	—	0	3	13	1
Minnesota	—	0	35	101	90	—	0	13	24	31
Missouri	—	2	10	55	52	—	1	2	20	13
Nebraska§	2	0	3	20	14	—	0	3	4	4
North Dakota	—	0	5	8	10	2	0	1	3	1
South Dakota	—	0	2	11	4	—	0	1	5	—
S. Atlantic	12	22	51	538	592	4	6	13	125	149
Delaware	—	0	2	6	4	—	0	0	—	—
District of Columbia	—	0	2	11	13	—	0	1	1	2
Florida	2	6	16	130	129	2	1	4	34	31
Georgia	5	4	10	106	133	—	1	5	6	37
Maryland§	2	4	9	96	106	1	1	5	35	38
North Carolina	3	2	22	73	55	N	0	0	N	N
South Carolina§	—	1	6	32	58	1	1	4	22	15
Virginia§	—	3	12	68	80	—	0	6	23	24
West Virginia	—	0	3	16	14	—	0	1	4	2
E.S. Central	2	4	13	88	102	—	2	11	53	50
Alabama§	N	0	0	N	N	N	0	0	N	N
Kentucky	1	1	3	17	26	N	0	0	N	N
Mississippi	N	0	0	N	N	—	0	3	15	3
Tennessee§	1	3	13	71	76	—	2	9	38	47
W.S. Central	8	7	85	215	157	—	5	66	126	118
Arkansas§	—	0	2	4	13	—	0	2	5	7
Louisiana	—	0	1	3	12	—	0	2	1	24
Oklahoma	2	1	20	61	40	—	1	7	42	24
Texas§	6	5	64	147	92	—	3	58	78	63
Mountain	8	11	22	301	292	3	5	12	128	117
Arizona	1	4	9	104	105	—	2	8	66	60
Colorado	6	3	8	84	78	3	1	4	40	29
Idaho§	—	0	2	9	6	—	0	1	2	2
Montana§	N	0	0	N	N	—	0	1	—	—
Nevada§	—	0	2	6	3	N	0	0	N	N
New Mexico§	—	2	7	54	49	—	0	3	11	22
Utah	1	1	5	39	47	—	0	4	8	4
Wyoming§	—	0	2	5	4	—	0	1	1	—
Pacific	1	2	9	58	68	—	0	2	10	9
Alaska	1	0	3	16	12	N	0	0	N	N
California	—	0	0	—	—	N	0	0	N	N
Hawaii	—	2	9	42	56	—	0	2	10	9
Oregon§	N	0	0	N	N	N	0	0	N	N
Washington	N	0	0	N	N	N	0	0	N	N
American Samoa	—	0	12	19	4	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—
Guam	—	0	0	—	—	—	0	0	—	—
Puerto Rico	N	0	0	N	N	N	0	0	N	N
U.S. Virgin Islands	—	0	0	—	—	N	0	0	N	N

C.N.M.I.: Commonwealth of Northern Mariana Islands.

U: Unavailable. —: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts. Med: Median. Max: Maximum.

* Incidence data for reporting years 2007 and 2008 are provisional.

† Includes cases of invasive pneumococcal disease, in children aged <5 years, caused by *S. pneumoniae*, which is susceptible or for which susceptibility testing is not available (NNDSS event code 11717).

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

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