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Community-Associated Methicillin-Resistant *Staphylococcus aureus* Infection Among Healthy Newborns — Chicago and Los Angeles County, 2004

Methicillin-resistant *Staphylococcus aureus* (MRSA) infection has long been associated with exposure in health-care settings but emerged in the late 1990s among previously healthy adults and children in the community. Community-associated MRSA (CA-MRSA) infections most commonly are skin and soft-tissue infections; however, certain cases can progress to invasive tissue infections, bacteremia, and death (1). This report describes two independent investigations by local health departments, assisted by CDC, into outbreaks of MRSA skin infection among otherwise healthy, full-term newborns delivered at hospitals in Chicago, Illinois, and Los Angeles County, California. In both locations, MRSA transmission likely occurred in the newborn nursery; however, laboratory testing identified the MRSA strain as one that was described initially in association with CA-MRSA infections and outbreaks and that differs from predominant health-care-associated MRSA (HA-MRSA) strains. The findings from these investigations underscore 1) the need for health-care providers to be aware that MRSA can cause skin infections among otherwise healthy newborns and 2) the importance of adhering to standard infection-control practices,* including consistent hand hygiene, in newborn nurseries.

Chicago, Illinois

In October 2004, the Chicago Department of Public Health was notified of a cluster of seven MRSA skin infections among otherwise healthy, full-term newborns delivered at a Chicago hospital (hospital A). The health department investigated, seeking to identify other cases among hospital A newborns who were hospitalized after discharge or brought to the hospital's emergency department or pediatric and well-baby clinics. A

case was defined as an infection in a newborn aged <30 days delivered at hospital A during May–December 2004 with a skin lesion from which MRSA was isolated. A total of 11 cases were identified. Two patients had single and nine patients had multiple pustules, vesicles, or blisters on the neck (five patients), groin (five), perineum (four), ears (two), legs (two), chin (one), and trunk (one). Seven of the 11 patients had multiple affected body sites.

Births of nine (82%) of the infants were by cesarean delivery. Median age at symptom onset was 7 days (range: 4–23 days); nine (82%) infants were male. Median hospital stay after delivery was 4 days (range: 3–10 days). One infant had symptoms of infection while still hospitalized on day 6. Symptom onset for the other 10 infants occurred 1–18 days (median: 5 days) after discharge from the newborn nursery. Ten infants received topical antimicrobial therapy (i.e., mupirocin or neosporin), and three of those 10 also received oral antimicrobials (i.e., cefaclor, cephalexin, or clindamycin) for their skin infections; none were treated with incision and drainage. One infant was hospitalized as a result of his infection; all recovered without incident. None of the mothers of the infants reported having current or recent skin lesions. No likely

* Available at http://www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html.

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sources of MRSA exposure were identified outside of the hospital environment (e.g., family members or close contacts who had skin lesions or recognized risk factors for MRSA infection[†]).

In January 2005, nasal cultures were obtained from 135 health-care workers (HCWs) in the labor and delivery, post-natal, and newborn nursery wards who were likely to have had direct contact with one or more of the patients. One physician and one nurse who attended to newborns in the nursery were found to have nasal MRSA colonization. Isolates from the two HCWs and six of the 11 infants were available for characterization by pulsed-field gel electrophoresis (PFGE) and identification of toxin genes by a CDC laboratory. All eight isolates were identified as pulsed-field type (PFT) USA300 and contained genes for the Panton-Valentine leukocidin toxin, which has been associated with necrotizing pneumonia and primary skin infections (2). Isolates from the two HCWs and five of the infants were indistinguishable from one another by PFGE and also indistinguishable from MRSA strain USA300-0114, which has been associated with CA-MRSA outbreaks and sporadic infections in multiple states (3). Another strain of PFT USA300 was isolated from the remaining infant.

To prevent further transmission of MRSA in the nursery, adherence to standard infection-control measures, hand hygiene, and environmental cleaning were reinforced through in-service training and direct observation. In addition, the two MRSA-colonized HCWs were restricted from work until they completed a course of intranasal mupirocin and a second nasal culture tested negative for MRSA. As of March 27, 2006, no subsequent cases had been reported.

Los Angeles County, California

In January and June 2004, the Los Angeles County Department of Health Services was notified of two clusters of MRSA skin infections among newborns delivered at a Los Angeles County hospital (hospital B). A case was defined as a culture-confirmed MRSA skin infection in a newborn delivered at hospital B with onset during November 1, 2003–June 14, 2004, within 21 days after discharge from the well-baby nursery. Eleven cases were identified during two outbreak periods: November–December 2003 and May–June 2004. All 11 patients were males with pustular-vesicular lesions in the groin region; births of seven (64%) were by cesarean delivery. Median nursery stay after delivery was 4 days (range: 2–5 days).

[†] Risk factors for HA-MRSA infection as defined in CDC's Active Bacterial Core Surveillance system include isolation of MRSA ≥ 2 days after hospitalization; history of hospitalization, surgery, dialysis, or residence in a long-term-care facility < 1 year before the MRSA culture; presence of a permanent indwelling catheter or percutaneous medical device at the time of culture; or previous isolation of MRSA.

Symptom onset occurred at a median of 3 days (range: 1–17 days) after discharge from the nursery.

Eight (73%) of the 11 infants were hospitalized and treated with parenteral antimicrobials; all recovered without adverse sequelae. The remaining three infants were either administered topical antimicrobial agents or not treated. Characterization of the seven available MRSA isolates by PFGE, performed by the Public Health Laboratory of the Los Angeles County Department of Health Services, confirmed that the outbreak strain was USA300-0114, the same MRSA outbreak strain as identified in Chicago.

Investigators elected not to test HCWs for MRSA colonization at hospital B because no single HCW had more contact than others with all of the infected infants. Sources outside the hospital (e.g., family members or household contacts) were excluded. Hospital HCWs were provided education to reinforce routine hospital infection-control practices, including proper hand hygiene. In addition, use of gloves and gowns for all patient contacts was instituted, newborns were bathed with antibacterial soap before discharge, and the frequency and intensity of environmental cleaning of the nursery were increased. As of March 27, 2006, no subsequent cases had been reported.

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Editorial Note: The outbreaks described in this report involved otherwise healthy, full-term newborns who had onset of MRSA skin infections before or shortly after discharge from common nurseries. The 22 cases in this report are similar to six cases among newborns in a New York City hospital in 2002 (4). As occurred in the New York City outbreak, an MRSA strain associated with community transmission was identified as the outbreak strain in Chicago and Los Angeles County.

Outbreaks of CA-MRSA have been reported among children in child-care settings, prisoners, military trainees, athletes, and men who have sex with men (3,5). To date, MRSA isolates from CA-MRSA infections have been genetically and phenotypically distinct from isolates from HA-MRSA infections (6). Whereas isolates from HA-MRSA infections generally are resistant to multiple classes of antimicrobial agents, those from CA-MRSA infections typically have been resistant only to beta-lactams (e.g., penicillins and cephalosporins) and macrolides (e.g., erythromycin) (1,6). PFGE and other

testing methods have identified a limited number of molecular types that have accounted for most isolates from CA-MRSA infections characterized in the United States (7). Health-care-associated transmission of MRSA strains with bacteriologic properties characteristic of CA-MRSA has recently been reported among postpartum women (8) and infants in a neonatal intensive-care unit (9).

The clusters of CA-MRSA infection described in this report involved skin and soft-tissue infections that appeared superficial; however, 41% of patients were hospitalized for treatment of their infections. Infection is often treated aggressively in newborns because of their immature immune function and potential for rapid deterioration. MRSA strains are resistant to all beta-lactam agents, which have been used for standard first-line antimicrobial therapy for skin infections in the community. Several potential alternative agents (e.g., tetracyclines or trimethoprim-sulfamethoxazole) are contraindicated or not recommended in newborns. Isolates from CA-MRSA infections also are commonly susceptible to gentamicin, rifampin, linezolid, and clindamycin. However, some isolates that appear clindamycin-susceptible and erythromycin-resistant on routine susceptibility testing can be induced to express resistance to clindamycin in vitro, and clindamycin treatment failure has been reported in association with invasive infections caused by such isolates. This inducible clindamycin resistance can be detected using a specialized laboratory test known as the D-zone test.[§] Vancomycin remains a first-line therapy for severe infections potentially caused by MRSA. Incision and drainage is considered standard therapy for purulent skin lesions. Some minor CA-MRSA skin infections can resolve without antimicrobial therapy.

Births of 16 of the 22 infants were by cesarean delivery. Because neonates whose births are by cesarean delivery remain in the hospital longer than neonates delivered vaginally, the role of cesarean delivery in MRSA infection is unclear. Comparative or prospective studies are needed to identify specific risk factors for MRSA acquisition and transmission among neonates.

A total of 20 of 22 infants with CA-MRSA infection in the Chicago and Los Angeles County outbreaks were male. Although the role of male sex in these outbreaks is unclear, male sex has been identified as a risk factor for staphylococcal colonization and infection among newborns in previous studies (10). A proclivity for involvement of the groin and perineal areas also was noted in the outbreaks described in this report. Skin in the diaper area might be particularly prone to staphylococcal infection because of the moist environment and friction from diapers, causing disruption of the epidermal barrier.

[§] Available at http://www.phppo.cdc.gov/nltn/pdf/2004/2_hindler_d-test.pdf.

The implications of two HCWs colonized with the outbreak strain in Chicago are unclear. One or both of these HCWs might have introduced the MRSA strain into the nursery and transmitted the organism directly to the infants, or the HCWs might have become colonized as a result of contact with already colonized or infected newborns. In addition, because the same MRSA strain has been implicated in outbreaks in multiple states, colonization of the HCWs might have been unrelated to transmission in the nursery.

Clinicians should be aware that MRSA can cause skin infections and potentially more serious infections among healthy full-term newborns. These infections might be confused with other rash illnesses in newborns, such as infection caused by herpes simplex virus. Obtaining cultures of purulent skin lesions is important to guide therapy. Caretakers of newborns with skin infections should receive guidance on measures to prevent further transmission, including washing hands frequently and applying clean, dry dressings to draining lesions. Adherence to standard infection-control practices and strict hand hygiene should be enforced in all newborn nursery settings. HCWs should be encouraged to seek treatment promptly for skin lesions.

When transmission of MRSA occurs in a newborn nursery, standard infection-control practices should be reviewed and reinforced. Surveillance for skin lesions among patients, staff members, and visitors should be considered. The necessity for using other measures, such as universal use of gowns and gloves, antiseptic bathing of newborns, and surveillance cultures of HCWs and the environment is less clear. Culture surveys are not routinely recommended for HCWs for whom an epidemiologic link to MRSA transmission has not been established.⁴ However, cultures sometimes are performed to rule out potential sources of transmission in novel settings. When surveillance cultures of HCWs are conducted, they should target staff members likely to have had direct contact with patients with MRSA infections; a clear plan of action that will be taken on the basis of culture results should be established and communicated to staff members. Additional information regarding HA-MRSA and CA-MRSA infections is available at http://www.cdc.gov/ncidod/dhqp/ar_mrsa.html.

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Tuberculosis Control Activities After Hurricane Katrina — New Orleans, Louisiana, 2005

On August 29, 2005, when Hurricane Katrina struck the U.S. Gulf Coast, 130 Louisiana residents in the greater New Orleans area were known to be undergoing treatment for tuberculosis (TB) disease. Standard treatment and cure of TB requires a multidrug regimen administered under directly observed therapy (DOT) for at least 6 months (1). This report updates previous information (2) and summarizes TB cases reported as of December 31, 2005, among persons undergoing TB treatment in the New Orleans area when Hurricane Katrina made landfall and among persons who were evacuated and subsequently received a diagnosis of TB in other parts of the country. By October 13, 2005, through intensive local, state, and national efforts involving both government and private sector partners, all 130 TB patients from the New Orleans area had been located and, if still indicated, had resumed TB treatment. As a result of heightened public health surveillance among Hurricane Katrina evacuees, six other New Orleans evacuees began treatment (i.e., two persons with

⁴ Guidelines available at http://www.cdc.gov/ncidod/dhqp/gl_hcpersonnel.html.

known TB and four with previously undiagnosed TB) after arriving in other states. The success of these post-disaster TB control measures affirms the utility of alternative data sources during health-related emergencies and the importance of maintaining a strong TB control component in the public health sector.

Locating Displaced TB Patients

On August 31, the Louisiana TB Control Program (LATB) was forced to abandon its headquarters in downtown New Orleans, and the state TB laboratory and central medication stock were located in a flooded building. Approximately half of the LATB staff had evacuated to other states, and many who stayed were temporarily displaced from their damaged homes. Although some staff members could communicate via personal cellular telephones, normal communication channels (e.g., landline telephone services or fax transmission) were disrupted. LATB began establishing a new central office approximately 100 miles away in Lafayette, Louisiana, where the state TB controller asked field staff members to submit their most recent lists of patients receiving DOT and, if known, the post-Katrina location and status of these patients.

Before and after New Orleans opened for reentry on September 17, LATB staff repeatedly searched the affected parishes for known TB patients to ensure that their TB treatment continued. They visited locations known to be frequented by patients before the hurricane, called all known telephone numbers, and asked contacts whether they had heard from patients. (Similar work took place in the most affected counties of Alabama and Mississippi, where TB programs were able to account for all 48 known TB patients by September 12.) Through these frontline methods, by September 21, LATB staff identified 44 (34%) of the 130 patients who either were still residing in their homes, were temporarily living with relatives or friends in other parts of the state, or had left briefly but returned home within a few weeks post-hurricane. An additional 14 (11%) incarcerated persons remained secured in the same facilities or in other facilities where they had been transferred in anticipation of the hurricane; all 14 continued TB treatment without interruption.

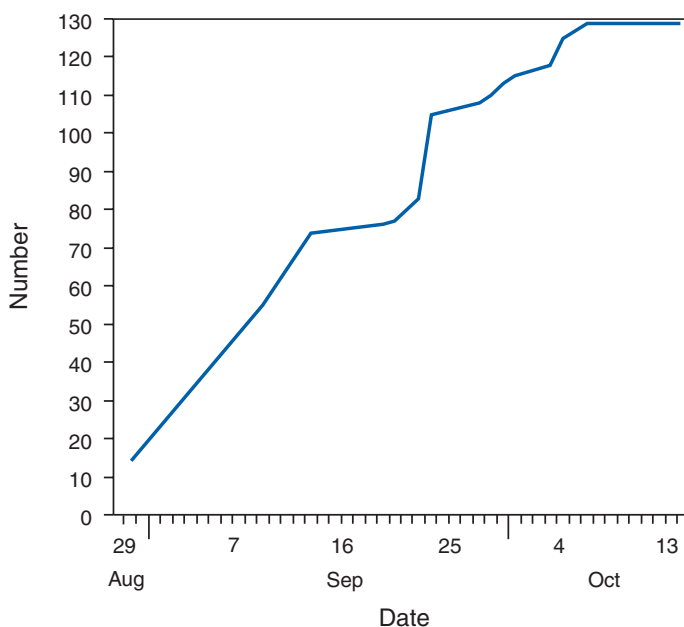
Beginning September 2, the national network of TB control programs took several measures to provide assistance. The TB Program of the Texas Department of State Health Services arranged for sputum specimens from Louisiana to be processed through the Texas State Laboratory. VersaPharm Incorporated, a pharmaceutical supplier, sent LATB free shipments of replacement TB medications. To help with state-to-state communication, the National TB Controllers Association and the CDC Division of Tuberculosis Elimination established

a Katrina TB help desk in Atlanta, Georgia. TB programs in other states could telephone the help desk to inquire whether an evacuee in their jurisdiction who reported taking TB medication was on the list of New Orleans-area patients who remained missing. If so, the help desk facilitated completion of the standard TB interjurisdictional transfer form for public health authorities in the new state of residence. Through this process, an additional 34 (26%) displaced New Orleans-area patients were located by September 21.

Novel approaches were then used to locate the 38 remaining New Orleans-area patients. Public registries (e.g., an online hospital patient locator and an online locator coordinated by the American Red Cross) were searched for information on patients, leading to contact with an additional six patients (5%). Agreements and other arrangements were established with relief agencies and targeted national pharmacy chains to permit limited cross-matching of missing patients' names while safeguarding their privacy and confidentiality. Twenty-six (20%) patients were located through relief agency rosters, and the final six (5%) were located through searches of recent prescription activity in other states.

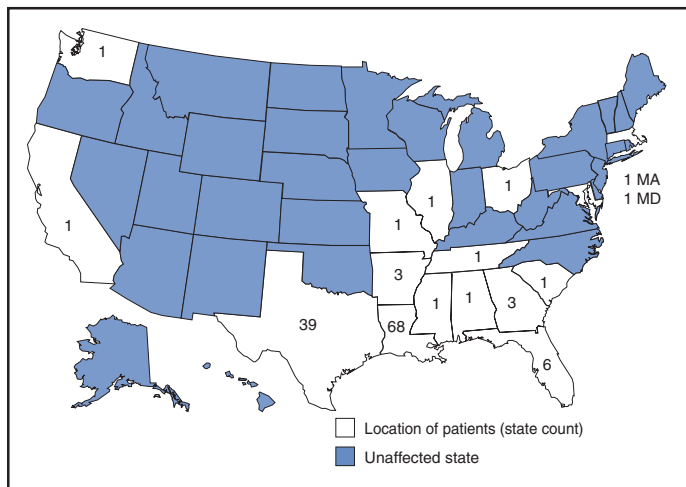
By October 13, 2005, all 130 New Orleans-area patients had been located and had resumed TB treatment, if still indicated (Figure 1). Sixty-eight (52%) of the patients had stayed in Louisiana, 39 (30%) had relocated to Texas, and the remaining 23 (18%) had relocated to 14 other states (Figure 2).

FIGURE 1. Number of New Orleans-area tuberculosis (TB) patients who resumed TB treatment (if indicated),* by date — August 29–October 13, 2005



* After landfall of Hurricane Katrina on August 29, 2005.

FIGURE 2. Initial reported locations* of New Orleans-area residents who had been undergoing tuberculosis treatment



* After landfall of Hurricane Katrina on August 29, 2005.

Health departments in these states assumed responsibility for the TB case management of displaced persons for as long as the patients remained in their new jurisdictions. Two additional New Orleans evacuees who had received pulmonary TB diagnoses before the hurricane but had not started treatment began DOT in Arkansas and Colorado. In the months after the hurricane, many displaced Louisiana residents returned; 96 (74%) of the 130 persons who had been receiving treatment for TB had returned to the greater New Orleans area by December 31.

Detection and Treatment of New TB Cases Among Evacuees

Staff at the Katrina TB help desk also coordinated activities to identify evacuees who might have undiagnosed cases of TB disease (3). Detecting new TB cases and bringing them to the attention of local or state TB controllers as early as possible was critical to preventing transmission of *Mycobacterium tuberculosis*; initiation of effective treatment rapidly reduces infectiousness (4). As of December 31, four new TB cases among Hurricane Katrina evacuees from Louisiana had been verified and reported by other states (California, Connecticut, Pennsylvania, and Texas).

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Editorial Note: Ensuring successful treatment of TB is an essential public health responsibility carried out daily by TB control programs in health departments across the United States. This report describes the challenges faced by LATB when Hurricane Katrina completely disrupted its normal operations. Despite the challenges, persistent frontline work by staff (who themselves had suffered the consequences of Hurricane Katrina) helped ensure continuity of TB treatment for all 130 patients, including not only those who stayed but also those who relocated to 15 other states.

During an initial disaster response, the most urgent public health priorities are providing safe and adequate shelter, water, food, and sanitation. Also important are interventions to minimize potential spread of infectious diseases, including TB, as displaced persons congregate in shelters and resettle in new communities. All TB control programs should consider planning for emergencies that might result in mass displacement of patients.

In response to the lessons learned from Hurricane Katrina, the TB programs in Louisiana and Texas took several measures in advance of Hurricane Rita to ensure continuity of care: 1) preparing line lists of patients in parishes and counties that might be affected, 2) giving patients a 2-to-4 week supply of medication in case DOT was interrupted, 3) ensuring that patients had a list of phone numbers to reestablish contact with the health department if they were displaced, 4) obtaining contact information for patients' relatives and friends in other parts of the country, 5) ensuring that back-up copies of patient records were available for potential sharing with new jurisdictions, and 6) moving essential TB supplies and medication stock to safer inland areas. These activities contributed to continuity of TB treatment after landfall of Hurricane Rita on September 24, 2005.

Locating patients who could not be found by traditional field methods required cross-matching their names and other limited identifying data with records maintained by relief agencies and national pharmacy chains. This approach, although valuable, required a substantial effort to negotiate and execute event-limited agreements and arrangements that addressed privacy and confidentiality concerns and applicable matters related to the Health Insurance Portability and Accountability Act, Standards for Privacy of Identifiable Health Information

(HIPAA Privacy Rule) and related laws.* Prearranged agreements of this type, applicable to various health-related emergencies, would have facilitated faster location of patients. Further efforts to standardize electronic health records and secure HIPAA-compliant platforms for sharing information among public health and private entities could facilitate locating TB patients in future disasters (5).

After Hurricane Katrina, multiple Louisiana TB patients were displaced to other states, requiring mobilization of the existing national network of state and local TB control programs not directly affected by Hurricane Katrina. This network, under guidance of the National TB Controllers Association and with assistance from the CDC Division of Tuberculosis Elimination, coordinated activities to account for all TB patients who had been evacuated. Such accomplishment affirms the importance of maintaining strong TB control programs in the public health sector.

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Racial and Socioeconomic Disparities in Breastfeeding — United States, 2004

The American Academy of Pediatrics recommends breastfeeding for at least the first year of life, and beyond for as long as mutually desired by mother and child (1). Not breastfeeding is associated with increased health risks for children, including otitis media, respiratory tract infections, diarrhea, and necrotizing enterocolitis (1,2). In addition, breastfeeding duration is inversely associated with risk for childhood overweight (3). Breastfeeding also is associated with health benefits for mothers, including reduced risk for ovarian cancer and premenopausal breast cancer (1,2). Breastfeeding rates differ substantially by race, socioeconomic level, and other demographic factors (4). For example, among children born during 1982–1993, non-Hispanic black children were less likely than non-Hispanic white children to be breastfed at birth and at age 6 months, even when comparisons were among children in the same socioeconomic or other demographic subgroup (4). To obtain current estimates of racial and economic disparities in breastfeeding among U.S. children, CDC analyzed data from the 2004 National Immunization Survey (NIS). This report describes the results of that analysis, which indicated that 71.5% of non-Hispanic white children were ever breastfed compared with 50.1% of non-Hispanic black children. Among those ever breastfed, 53.9% of non-Hispanic white and 43.2% of non-Hispanic black children continued breastfeeding until at least age 6 months. Disparities between black and white children existed within most socioeconomic subgroups studied. Public health programs should continue to promote breastfeeding initiation and increase support of breastfeeding continuation, especially among subgroups with the lowest rates (i.e., black, poor, and young mothers; mothers with less than a high school education; and mothers residing in rural areas).

*The HIPAA Privacy Rule generally applies to entities covered by the Rule, known as “covered entities.” These covered entities include health-care providers who bill electronically, health-care insurers, and health-care clearinghouses. Under the Rule, CDC is not a covered entity but rather a “public health authority.” Covered entities are permitted to disclose protected health information to a public health authority, subject to certain conditions. In addition, CDC is subject to federal privacy laws that govern the use and disclosure of certain identifiable records. Although not required, data-sharing agreements might be appropriate in certain instances of cross-matching to document compliance with applicable law and ensure appropriate procedural and security protections for the information exchanged.

CDC conducts the NIS annually to obtain national, state, and selected urban-area estimates of vaccination rates among children (5,6). The NIS uses random-digit dialing to survey households with children aged 19–35 months at the time of the telephone interview; thus, the 2004 NIS represents children born from February 2001 through May 2003. Interviews are conducted via telephone with the household member most knowledgeable about the child's vaccination history and collect data about the child, mother, and household. The survey is designed to collect nationally representative data on the noninstitutionalized U.S. civilian population. From the last quarter of 2001 through 2005, the NIS included the following questions on breastfeeding: "Was [child's name] ever breastfed or fed breast milk?" and "How long was [child's name] breastfed or fed breast milk?"

In the analyses, "maternal age" was the mother's age at the child's birth. U.S. Census Bureau definitions were used to classify residence, region, and poverty status; thus, residence was classified by Metropolitan Statistical Area (MSA), and poverty was based on household size, composition, and income. These analyses included only children classified as non-Hispanic white or non-Hispanic black and are referred to in this report as white and black, respectively. Weighted percentages were calculated using statistical software to account for complex sample design. The statistical significance of percentage point differences between races and between demographic subgroups within races were estimated using contrast analysis.

The results indicated that 71.5% of white and 50.1% of black children (Table 1) were ever breastfed. Breastfeeding rates were lower among black than white children within every subgroup studied and significantly lower ($p < 0.05$) in all subgroups except children ineligible for WIC,* children residing in the Northeast,[†] and children born to mothers aged ≤ 20 years. The greatest percentage point difference between races was among children in rural areas, whereas the smallest percentage point differences were among children ineligible for WIC, children residing in the Northeast, and children born to married mothers. Among both races, children were more likely to have ever been breastfed if they were ineligible for WIC; had mothers who were aged ≥ 20 years, married or had at least some college education; lived in the West or in urban areas; or were above the federal poverty threshold.

* Special Supplemental Nutrition Program for Women, Infants, and Children.

[†] *Northeast*: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; *Midwest*: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *South*: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia; *West*: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Among children ever breastfed, 53.9% of whites and 43.2% of blacks were still breastfed at age 6 months (Table 2). A significantly smaller proportion of black than white children continued breastfeeding to at least 6 months among both sexes; children first born or not; children ineligible for WIC; children born to mothers aged < 20 years or ≥ 30 years, or to mothers who had attended college; children living in urban areas, the Midwest, South, and West; and children whose household incomes ranged from 185% to $< 350\%$ of the poverty level. Among children of both races, older maternal age, higher maternal education, mother being married, and living in the Northeast were positively associated with continuing to breastfeed at 6 months. Among white children, breastfeeding continuation at 6 months was also positively associated with being female, being first born, not participating in WIC, and higher poverty-to-income ratio.

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Editorial Note: The findings in this report indicate substantial racial and economic disparities in rates of breastfeeding initiation and breastfeeding continuation to at least age 6 months. The findings also demonstrate that race is associated with breastfeeding status independent of socioeconomic and other demographic factors, but also that socioeconomic and other factors are associated with breastfeeding independent of race. Within each income group, the proportion of black children who were ever breastfed was 10 to 17 percentage points lower than that of white children; within each race, the proportion of children ever breastfed was 23 to 26 percentage points higher among those in the highest income group compared with the lowest. Racial differences in breastfeeding continuation rates to 6 months were generally smaller than differences observed in breastfeeding initiation.

A comparison of breastfeeding rates and disparities described in this report with the rates measured in the NHANES III survey (4,7), which collected data on breastfeeding among children born from 1982 through 1993, suggests that progress has been made in recent decades to increase breastfeeding initiation and decrease breastfeeding disparities between whites and blacks and between economic strata. Breastfeeding initiation rates increased from 60.3% in NHANES III to 71.5% in the 2004 NIS among white children and from 25.5% to 50.1% among black children. During the same period, the proportion of breastfed children who continued breastfeeding for at least 6 months increased from 44.4% to 53.9% among white children and from 33.3% to 43.2% among black children, indicating that although both groups improved, the absolute

TABLE 1. Number and percentage of non-Hispanic white and non-Hispanic black children ever breastfed, by selected demographic characteristics — United States, 2004, National Immunization Survey

Characteristic	White, non-Hispanic				Black, non-Hispanic				White versus black percentage point difference
	No.	%	(95% CI)*	Percentage point difference	No.	%	(95% CI)	Percentage point difference	
Sex									
Male	8,835	71.1	(68.7–75.3)	—	2,109	50.5	(43.1–57.9)	—	-20.6†
Female	8,142	72.0	(67.9–73.7)	0.9	2,003	49.8	(41.8–57.8)	-0.7	-22.2†
Birth order									
First born	10,063	70.8	(67.9–73.7)	—	2,666	48.9	(41.8–56.0)	—	-21.9†
Not first born	6,914	72.7	(69.2–76.2)	1.9	1,446	52.5	(43.1–61.9)	3.6	-20.2†
Recipient of WIC[§]									
Yes	4,832	59.9	(55.6–64.2)	—	3,269	46.2	(39.9–52.5)	—	-13.7†
No, but eligible	972	74.7	(65.3–84.1)	14.8†	150	51.0	(23.0–79.0)	4.8	-23.7¶
No, ineligible	9,998	79.2	(76.5–81.9)	19.3†	583	74.2	(59.9–88.5)	28.0†	-5.0
Mother's age (yrs) at child's birth									
<20	177	43.1	(20.4–65.8)	—	223	28.2	(8.2–48.2)	—	-14.9**
20–29	5,859	66.1	(62.2–70.0)	23.0†	2,230	47.7	(40.3–55.1)	19.5†	-18.4†
≥30	10,941	76.3	(73.6–79.0)	33.2†	1,659	57.6	(48.6–66.6)	29.4†	-18.7†
Mother's education									
<High school	854	48.8	(38.6–59.0)	—	593	36.7	(23.4–50.0)	—	-12.1¶
High school	3,643	61.4	(56.7–66.1)	12.6†	1,584	43.2	(34.4–52.0)	6.5	-18.2†
Some college	3,374	74.7	(70.2–79.2)	25.9†	921	59.8	(48.8–70.8)	23.1†	-14.9†
College graduate	9,106	84.8	(82.6–87.0)	36.0†	1,014	71.9	(59.0–84.8)	35.2†	-12.9†
Mother's marital status									
Unmarried	2,268	53.3	(46.8–59.8)	—	2,657	41.0	(34.3–47.7)	—	-12.3†
Married	14,709	76.0	(73.6–78.4)	22.7†	1,455	67.2	(58.0–76.4)	26.2†	-8.8†
Residence									
MSA,†† central city	5,734	72.7	(68.2–77.2)	—	3,047	51.2	(44.3–58.1)	—	-21.5†
MSA, noncentral city	6,931	74.1	(70.8–77.4)	1.4	775	58.1	(46.9–69.3)	6.9¶	-16.0†
Non-MSA	4,312	65.1	(60.4–69.8)	-7.6†	290	27.4	(11.9–42.9)	-23.8†	-37.7†
Region^{§§}									
Northeast	2,957	67.5	(61.8–73.2)	—	709	60.1	(45.8–74.4)	—	-7.4**
Midwest	4,560	69.5	(65.2–73.8)	2.0	897	47.2	(35.4–59.0)	-12.9¶	-22.3†
South	5,851	67.8	(63.7–71.9)	0.3	2,345	45.9	(38.5–53.3)	-14.2**	-21.9†
West	3,609	86.2	(82.3–90.1)	18.7†	161	71.7	(51.7–91.7)	11.6†	-14.5¶
Poverty-to-income ratio^{¶¶}									
Ratio < 100%	1,456	57.2	(49.0–65.4)	—	1,517	40.7	(31.9–49.5)	—	-16.5†
100% ≤ ratio < 185%	2,482	65.6	(59.5–71.7)	8.4¶	900	53.0	(41.2–64.8)	12.3¶	-12.6†
185% ≤ ratio < 350%	4,928	72.8	(68.7–76.9)	15.6†	699	62.4	(48.9–75.9)	21.7†	-10.4¶
350% ≤ ratio	6,678	79.9	(76.8–83.0)	22.7†	485	66.6	(46.0–87.2)	25.9†	-13.3¶
Total	16,977	71.5	(69.1–73.0)	—	4,112	50.1	(44.4–55.8)	—	-21.4†

* Confidence interval.

† p<0.001.

§ Special Supplemental Nutrition Program for Women, Infants, and Children.

¶ p<0.05.

** p<0.1.

†† MSA = Metropolitan Statistical Area, defined by the U.S. Census Bureau.

§§ *Northeast*: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; *Midwest*: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *South*: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia; *West*: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

¶¶ Ratio of self-reported family income to the federal poverty threshold value, defined by the U.S. Census Bureau.

TABLE 2. Number and percentage of non-Hispanic white and non-Hispanic black children ever breastfed who were still breastfed at age 6 months, by selected demographic characteristics — United States, 2004, National Immunization Survey

Characteristic	White, non-Hispanic				Black, non-Hispanic				White versus black percentage point difference
	No.	%	(95% CI)*	Percentage point difference	No.	%	(95% CI)	Percentage point difference	
Sex									
Male	6,768	52.5	(48.6–56.4)	—	1,125	42.7	(32.3–53.1)	—	-9.8†
Female	6,276	55.5	(51.6–59.4)	3.0§	1,056	43.7	(32.3–55.1)	1.0	-11.8†
Birth order									
First born	7,611	56.7	(53.0–60.4)	—	1,373	43.5	(33.9–53.1)	—	-13.2†
Not first born	5,433	49.8	(45.5–54.1)	-6.9†	808	42.6	(29.9–55.3)	-0.9	-7.2§
Recipient of WIC¶									
Yes	3,106	39.5	(34.0–45.0)	—	1,576	41.0	(32.2–49.8)	—	1.5
No, but eligible	773	64.5	(52.9–76.1)	25.0†	86	50.7	(8.6–92.8)	9.7	-13.8
No, ineligible	8,225	60.4	(57.1–63.7)	20.9†	446	47.5	(30.3–64.7)	6.5	-12.9§
Mother's age (yrs) at child's birth									
<20	97	31.1	(5.6–56.6)	—	70	9.5	(0–25.6)	—	-21.6§
20–29	4,172	43.1	(38.4–47.8)	12.0**	1,119	38.9	(28.5–49.3)	29.4†	-4.2
≥30	8,775	61.0	(57.7–64.3)	29.9†	992	51.4	(40.0–62.8)	41.9†	-9.6§
Mother's education									
<High school	437	35.0	(20.9–49.1)	—	202	32.8	(10.5–55.1)	—	-2.2
High school	2,277	44.4	(38.3–50.5)	9.4§	698	41.7	(28.2–55.2)	8.9	-2.7
Some college	2,572	51.6	(45.7–57.5)	16.6†	542	43.6	(29.1–58.1)	10.8	-8.0§
College graduate	7,758	64.7	(61.4–68.0)	29.7†	739	52.0	(39.7–64.3)	19.2§	-12.7†
Mother's marital status									
Unmarried	1,295	37.2	(28.6–45.8)	—	1,166	31.8	(22.2–41.4)	—	-5.4
Married	11,749	56.8	(53.9–59.7)	19.6†	1,015	56.3	(45.5–67.1)	24.5†	-0.5
Residence									
MSA,†† central city	4,530	55.9	(50.6–61.2)	—	1,608	40.0	(30.8–49.2)	—	-15.9†
MSA, non-central city	5,384	55.2	(51.1–59.3)	-0.7	482	50.1	(36.4–63.8)	10.1§	-5.1
Non-MSA	3,130	48.9	(43.2–54.6)	-7.0†	91	35.4	(3.3–67.5)	-4.6	-13.5
Region§§									
Northeast	2,155	56.7	(50.0–63.4)	—	407	52.5	(35.3–69.7)	—	-4.2
Midwest	3,395	52.7	(47.6–57.8)	-4.0**	450	41.8	(25.7–57.9)	-10.7**	-10.9§
South	4,345	48.6	(43.7–53.5)	-8.1†	1,214	42.2	(31.6–52.8)	-10.3**	-6.4§
West	3,149	61.2	(54.9–67.5)	4.5**	110	32.2	(7.9–56.5)	-20.3§	-29.0†
Poverty-to-income ratio¶¶									
Ratio < 100%	891	41.4	(30.8–52.0)	—	627	41.6	(27.7–55.5)	—	0.2
100% ≤ ratio < 185%	1,764	48.2	(40.6–55.8)	6.8§	508	40.8	(25.7–55.9)	-0.8	-7.4**
185% ≤ ratio < 350%	3,837	56.8	(51.9–61.7)	15.4†	451	43.6	(24.6–62.6)	2.0	-13.2§
350% ≤ ratio	5,502	58.7	(54.4–63.0)	17.3†	347	49.5	(30.3–68.7)	7.9	-9.2**
Total	13,044	53.9	(51.2–56.6)	—	2,181	43.2	(35.6–50.8)	—	-10.7†

* Confidence interval.

† p<0.001.

§ p<0.05.

¶ Special Supplemental Nutrition Program for Women, Infants, and Children.

** p<0.1.

†† MSA = Metropolitan Statistical Area, defined by the U.S. Census Bureau.

§§ *Northeast*: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; *Midwest*: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *South*: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia; *West*: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

¶¶ Ratio of self-reported family income to the federal poverty threshold value, defined by the U.S. Census Bureau.

racial disparity did not diminish greatly (11.1% in NHANES III; 10.7% in the 2004 NIS). Because differences existed between NIS and NHANES III methodologies, comparisons between the two surveys should be interpreted with caution. For example, the NHANES interview was conducted in person for children aged 12–72 months, whereas the NIS used telephone interviews and covered children aged 19–35 months. Duration of breastfeeding was assessed in the NHANES interview with the following question: “How old was [child’s name] when [child’s name] completely stopped breastfeeding or being fed breast milk?”

The findings in this report are subject to at least four limitations. First, breastfeeding behavior was based on retrospective self-reports by mothers or other caregivers, whose responses might be subject to recall bias. However, maternal recall has been determined to be valid and reliable for estimating breastfeeding initiation and duration, especially when duration is recalled after a short period (e.g., ≤ 3 years) (8). Second, family income and place of residence reported might differ from those at the time the child was being breastfed. Third, survey data were weighted to make them as representative as possible of all children aged 19–35 months; however, the statistical adjustments might not fully account for all survey complexities. Finally, this report does not address exclusive breastfeeding, defined as the consumption of human milk with no supplementation of any type except for vitamins, minerals, and medications (1). Exclusive breastfeeding enhances protection against many diseases and is recommended for the first 6 months of life by the American Academy of Pediatrics (1).

Increasing rates of breastfeeding is a crucial strategy for improving children’s health, reducing childhood overweight, and reducing health-care costs. For example, increasing the proportion of children breastfed in the early postpartum period from 64% in 2000 to the *Healthy People 2010* goal of 75% would save an estimated \$3.6 billion in health-care costs annually (1). Although racial and economic disparities in breastfeeding initiation rates appear to have decreased in recent decades, they have not been eliminated. Barriers to breastfeeding initiation and continuation include lack of social support, lack of proper guidance from health-care providers, lack of adequate or timely postpartum follow-up care, and disruptive hospital maternity-care practices (e.g., delays in breastfeeding initiation, use of pacifiers by newborns, and hospital promotion of formula through the provision of free formula in hospital discharge packs) (1,9). Public health measures to promote breastfeeding should continue and should target groups with the lowest initiation rates, such as black

mothers in rural (i.e., non-MSA) areas or aged <20 years, mothers who have not completed high school, and participants in the WIC program. Public health programs also should increase protection and support of breastfeeding continuation among the same target groups. For policy makers and others interested in decreasing breastfeeding disparities through improving breastfeeding initiation and duration, *The CDC Guide to Breastfeeding Interventions* (9) provides an introduction to interventions aimed at promoting and supporting breastfeeding. In addition, breastfeeding interventions should account for racial, ethnic, and socioeconomic variations in attitudes towards breastfeeding and perceived barriers to breastfeeding (1,10).

Acknowledgments

The findings in this report are based, in part, on contributions by J Chen, MS, R Li, MD, PhD, Div of Nutrition and Physical Activity, National Center for Chronic Disease Prevention and Health Promotion, and E Luman, PhD, National Immunization Program, CDC.

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Death of a Child After Ingestion of a Metallic Charm — Minnesota, 2006

On March 23, this report was posted as an MMWR Dispatch on the MMWR website (<http://www.cdc.gov/mmwr>).

Lead-based paint remains the most common source of lead exposure for children aged <6 years. However, one report determined that 34% of children aged <6 years with lead poisoning in Los Angeles County had been exposed to items containing lead that had been brought into the home (1). These items might include candy, folk and traditional medications, ceramic dinnerware, and metallic toys and trinkets. Exposures to some of these items can result in life-threatening BLLs of $\geq 100 \mu\text{g/dL}$ (elevated BLLs are $\geq 10 \mu\text{g/dL}$ for children and $\geq 25 \mu\text{g/dL}$ for adults) (2). In 2004, a child in Oregon had a BLL of $123 \mu\text{g/dL}$ after ingesting a necklace with high lead content (3). The same year, the Consumer Product Safety Commission (CPSC) recalled 150 million pieces of imported metallic toy jewelry sold in vending machines.* Some lead-contaminated items intended for use by children are manufactured in countries with limited government regulation of lead in consumer products (4). With the decline in BLLs in U.S. children (5), widespread education of the dangers of lead paint, and systematic reduction of lead hazards in U.S. housing, acute ingestion of lead-containing items has become increasingly more common as a source of life-threatening BLLs.

This report describes the death of a child from acute lead poisoning caused by lead encephalopathy after ingestion of a heart-shaped metallic charm containing lead; the charm had been attached to a metal bracelet provided as a free gift with the purchase of shoes manufactured by Reebok International Ltd. On March 23, a voluntary recall of 300,000 heart-shaped charm bracelets was announced by CPSC and Reebok† (Figure). Health-care providers should consider lead poisoning in young children with increased intracranial pressure, unexplained and prolonged gastric symptoms, or a history of mouthing or ingesting nonfood items. Health-care providers also should warn caregivers against allowing children to mouth any metal objects.

In mid-February 2006, a boy aged 4 years with a previous medical history of microcephaly and developmental delay was brought to a hospital pediatric emergency department in Minneapolis, Minnesota, with a chief complaint of vomiting. Probable viral gastroenteritis was diagnosed, and the boy was administered ondansetron, an antiemetic; his parents were encouraged to increase his fluid intake, and he was released. He returned to the emergency department 2 days later with

FIGURE. Heart-shaped charm bracelet that is the subject of the voluntary recall announced March 23, 2006, by Reebok International Ltd. and the Consumer Product Safety Commission



Photo/Consumer Product Safety Commission

intractable vomiting, poor oral intake, “sore tummy,” and listlessness. He was dehydrated and had normal blood sodium and elevated blood urea nitrogen levels. He received intravenous fluid replacement and was admitted to the hospital.

The next day, about 10 hours after admission, the boy became agitated and combative and exhibited possible posturing. During transport to the radiology department, the boy suffered a respiratory arrest associated with seizure-type activity. He was resuscitated and placed on mechanical ventilation. He was administered a computer tomography (CT) scan of his head and of his chest and radiographs of his abdomen. The CT scan revealed diffuse cerebral edema, and the boy underwent emergent ventriculostomy and decompressive craniotomy. A heart-shaped object was observed on his abdominal radiographs but it was thought to be a radiopaque temperature probe on his body. When the radiographs were examined again, the object was recognized as a foreign body in his stomach, and testing for heavy metal levels was requested.

The next day, a BLL of $180 \mu\text{g/dL}$ was reported; cerebral blood flow studies indicated no flow to the brain, and the boy met clinical brain death criteria. On the fourth day of hospitalization, the child was removed from life support and died. Upon autopsy, a heart-shaped charm imprinted with “Reebok” was removed from the child’s stomach. The mother recognized the object as a charm that came with a pair of shoes belonging to another child whose home her son had visited. The mother was not aware that her son had ingested the charm, and he had no history of ingesting nonfood substances.

* Available at <http://www.cpsc.gov/CPSC/PUB/PREREL/prhtml04/04174.html>.

† Available at <http://www.cpsc.gov/cpsc/pub/prerel/prhtml06/06119.html>.

One day after the boy's death, a Minneapolis Department of Regulatory Services inspector examined the child's residence. The inspector identified no lead-paint hazards in the home and only one slightly elevated lead-dust level (260 $\mu\text{g}/\text{ft}^2$) on a window sill (U.S. Environmental Protection Agency [EPA] threshold for windowsill hazard is 250 $\mu\text{g}/\text{ft}^2$). Seven other dust samples were below the EPA threshold.

Acid digestion testing performed on the ingested charm by the Minneapolis Public Health Department Laboratory using EPA protocol 3050[§] determined that the charm consisted of 99.1% lead. CPSC suggests that tests for leaching be conducted on those items containing more than 0.06% lead by weight. A charm similar in size and shape to the one ingested, with Reebok imprinted on it, was obtained by Minneapolis Department of Regulatory Services staff members at an athletic shoe store in Minneapolis and tested by the same laboratory using the same method. Results determined that the charm consisted of 67.0% lead by weight. The same staff member purchased another look-alike charm with a pair of athletic shoes from the Reebok Internet site; this charm was tested by the same Minneapolis laboratory using the same testing method and determined to contain only 0.07% lead by weight.

In Atlanta, Georgia, CDC staff members purchased four pairs of athletic shoes of the same brand, including two pairs with look-alike charm bracelets and two pairs with both charm bracelets and shoelace charms, from local stores and from the company's Internet site; they also obtained a promotional charm bracelet from a different athletic shoe manufacturer. Acid digestion analyses were conducted using either EPA protocol 3050 or NIOSH protocol 7300,[¶] which offers a similar acid-digestion method for measuring lead content; analyses of these items revealed lead contents ranging from 0.004% to 0.044% by weight.

The variation in lead content revealed by the tests in Minneapolis and Atlanta is consistent with previous test results for small, inexpensive metallic jewelry (6). The variations in lead content of the charms purchased in Atlanta stores and from the company's Internet site were not as varied as those in Minneapolis, likely indicating different suppliers or production lots.

As the variation in lead content in these products indicates, alternatives to lead are available. Restriction or elimination of nonessential uses of lead in consumer products should be part of a proactive strategy that prevents exposure to these products and is preferable to relying on case finding to identify lead exposure hazards.

[§] Available at <http://www.epa.gov/SW-846/pdfs/3050b.pdf>.

[¶] Available at <http://www.cdc.gov/niosh/nmam/pdfs/7300.pdf>.

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Update: Influenza Activity — United States, March 12–18, 2006

During March 12–18, 2006,* the number of states reporting widespread influenza activity[†] decreased to 23. Fourteen states reported regional activity, eight reported local activity, and five reported sporadic activity (Figure 1).[§]

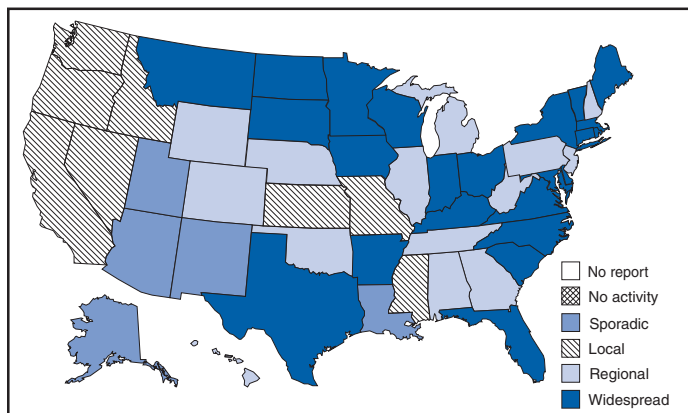
The percentage of specimens testing positive for influenza decreased in the United States overall. During the preceding

* Provisional data reported as of March 17. Additional information about influenza activity is updated each Friday and is available from CDC at <http://www.cdc.gov/flu>.

[†] Levels of activity are 1) *widespread*: outbreaks of influenza or increases in influenza-like illness (ILI) cases and recent laboratory-confirmed influenza in at least half the regions of a state; 2) *regional*: outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in at least two but less than half the regions of a state; 3) *local*: outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in a single region of a state; 4) *sporadic*: small numbers of laboratory-confirmed influenza cases or a single influenza outbreak reported but no increase in cases of ILI; and 5) *no activity*.

[§] *Widespread*: Arkansas, Connecticut, Delaware, Florida, Indiana, Iowa, Kentucky, Maine, Maryland, Massachusetts, Minnesota, Montana, New York, North Carolina, North Dakota, Ohio, Rhode Island, South Carolina, South Dakota, Texas, Vermont, Virginia, and Wisconsin; *regional*: Alabama, Colorado, Georgia, Hawaii, Illinois, Michigan, Nebraska, New Hampshire, New Jersey, Oklahoma, Pennsylvania, Tennessee, West Virginia, and Wyoming; *local*: California, Idaho, Kansas, Mississippi, Missouri, Nevada, Oregon, and Washington; *sporadic*: Alaska, Arizona, Louisiana, New Mexico, and Utah; *no activity*: none; *no report*: none.

FIGURE 1. Estimated influenza activity levels reported by state epidemiologists, by state and level of activity* — United States, March 12–18, 2006



* Levels of activity are 1) *widespread*: outbreaks of influenza or increases in influenza-like illness (ILI) cases and recent laboratory-confirmed influenza in at least half the regions of a state; 2) *regional*: outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in at least two but less than half the regions of a state; 3) *local*: outbreaks of influenza or increases in ILI cases and recent laboratory-confirmed influenza in a single region of a state; 4) *sporadic*: small numbers of laboratory-confirmed influenza cases or a single influenza outbreak reported but no increase in cases of ILI; and 5) *no activity*.

3 weeks (weeks 9–11), the percentage of specimens testing positive for influenza ranged from 34.0% and 30.4% in the South Atlantic and East South Central regions, respectively, to 12.9% in the Pacific region. During this period, 60.4% of isolates from the Mountain region have been influenza B. The influenza B isolates reported from this region accounted for 39.3% of the B isolates reported during this time period. Other regions reporting more than 30.0% of recent isolates as influenza B include the West North Central and West South Central regions. The percentage of outpatient visits for influenza-like illness (ILI)[‡] during the week ending March 18 remains above the national baseline.** The percentage of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold for the week ending March 18.

Laboratory Surveillance

During March 12–18, World Health Organization (WHO) collaborating laboratories and National Respiratory and Enteric Virus Surveillance System (NREVSS) laboratories in

[‡] Temperature of $\geq 100.0^{\circ}\text{F}$ ($\geq 37.8^{\circ}\text{C}$) and cough and/or sore throat in the absence of a known cause other than influenza.

** The national baseline was calculated as the mean percentage of visits for ILI during noninfluenza weeks for the preceding three seasons, plus two standard deviations. Noninfluenza weeks are those in which $< 10\%$ of laboratory specimens are positive for influenza. Wide variability in regional data precludes calculating region-specific baselines; therefore, applying the national baseline to regional data is inappropriate.

the United States reported testing 3,092 specimens for influenza viruses, of which 655 (21.2%) were positive. Of these, 159 were influenza A (H3N2) viruses, 33 were influenza A (H1N1) viruses, 255 were influenza A viruses that were not subtyped, and 208 were influenza B viruses.

Since October 2, 2005, WHO and NREVSS laboratories have tested 103,188 specimens for influenza viruses, of which 12,298 (11.9%) were positive. Of these, 11,049 (89.8%) were influenza A viruses, and 1,249 (10.2%) were influenza B viruses. Of the 11,049 influenza A viruses, 4,578 (41.4%) have been subtyped; 4,404 (96.2%) were influenza A (H3N2) viruses, and 174 (3.8%) were influenza A (H1N1) viruses.

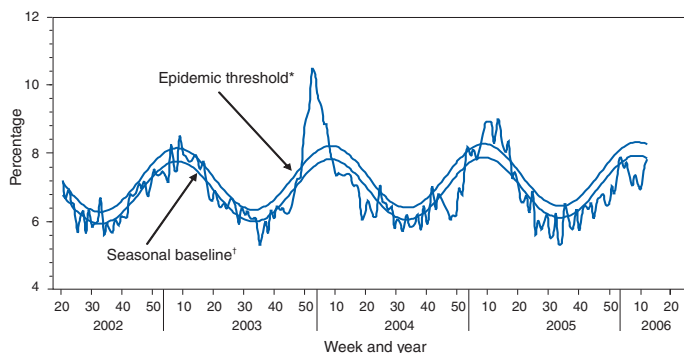
P&I Mortality and ILI Surveillance

During the week ending March 18, P&I accounted for 7.8% of all deaths reported through the 122 Cities Mortality Reporting System. This percentage is below the epidemic threshold^{††} of 8.2% (Figure 2).

The percentage of patient visits for ILI was 2.5%, which is above the national baseline of 2.2% (Figure 3). The percentage of patient visits for ILI ranged from 1.3% in the Pacific region to 3.6% in the West South Central region.

^{††} The expected seasonal baseline proportion of P&I deaths reported by the 122 Cities Mortality Reporting System is projected using a robust regression procedure in which a periodic regression model is applied to the observed percentage of deaths from P&I that occurred during the preceding 5 years. The epidemic threshold is 1.645 standard deviations above the seasonal baseline.

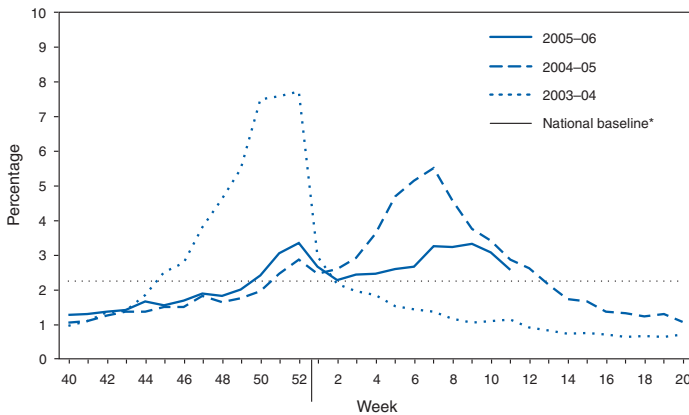
FIGURE 2. Percentage of deaths attributed to pneumonia and influenza (P&I) reported by the 122 Cities Mortality Reporting System, by week and year — United States, 2002–2006



* The epidemic threshold is 1.645 standard deviations above the seasonal baseline.

[†] The seasonal baseline is projected using a robust regression procedure that applies a periodic regression model to the observed percentage of deaths from P&I during the preceding 5 years.

FIGURE 3. Percentage of visits for influenza-like illness (ILI) reported by the Sentinel Provider Surveillance Network, by week — United States, 2003–04, 2004–05, and 2005–06 influenza seasons



*The national baseline was calculated as the mean percentage of visits for ILI during noninfluenza weeks for the preceding three seasons, plus two standard deviations. Noninfluenza weeks are those in which <10% of laboratory specimens are positive for influenza. Wide variability in regional data precludes calculating region-specific baselines; therefore, applying the national baseline to regional data is inappropriate.

Pediatric Deaths and Hospitalizations

During October 2, 2005–March 18, 2006, CDC received reports of 16 influenza-associated deaths in U.S. residents aged <18 years. Fourteen of the deaths occurred during the current influenza season, and two occurred during the 2004–05 influenza season.

During October 1, 2005–March 4, 2006, the preliminary laboratory-confirmed influenza-associated hospitalization rate reported by the Emerging Infections Program^{§§} for children

^{§§} The Emerging Infections Program Influenza Project conducts surveillance in 60 counties associated with 12 metropolitan areas: San Francisco, California; Denver, Colorado; New Haven, Connecticut; Atlanta, Georgia; Baltimore, Maryland; Minneapolis/St. Paul, Minnesota; Albuquerque, New Mexico; Las Cruces, New Mexico; Albany, New York; Rochester, New York; Portland, Oregon; and Nashville, Tennessee.

aged 0–17 years was 0.60 per 10,000 population. For children aged 0–4 years and 5–17 years, the rate was 1.44 per 10,000 and 0.19 per 10,000, respectively. During October 30, 2005–March 4, 2006, the preliminary laboratory-confirmed influenza-associated hospitalization rate for children aged 0–4 years in the New Vaccine Surveillance Network^{¶¶} was 2.1 per 10,000.

Human Avian Influenza A (H5N1)

No human avian influenza A (H5N1) virus infection has ever been identified in the United States. From December 2003 through March 24, 2006, a total of 186 laboratory-confirmed human avian influenza A (H5N1) infections were reported to WHO from Azerbaijan, Cambodia, China, Indonesia, Iraq, Thailand, Turkey, and Vietnam.^{***} Of these, 105 (56%) were fatal (Table). This represents an increase of 1 case and 1 death in Cambodia and 1 case and 1 death in China since March 21. The majority of infections appear to have been acquired from direct contact with infected poultry. No evidence of sustained human-to-human transmission of H5N1 has been detected, although rare instances of human-to-human transmission likely have occurred (1).

Reference

1. Ungchusak K, Auewarakul P, Dowell SF, et al. Probable person-to-person transmission of avian influenza A (H5N1). *N Engl J Med* 2005;352:333–40.

^{¶¶} The New Vaccine Surveillance Network conducts surveillance in Monroe County, New York; Hamilton County, Ohio; and Davidson County, Tennessee.

^{***} Available at http://www.who.int/csr/disease/avian_influenza/en.

TABLE. Number of laboratory-confirmed human cases and deaths from avian influenza A (H5N1) infection reported to the World Health Organization, by country — worldwide, 2003–2006*

Country	Year of onset									
	2003		2004		2005		2006		Total	
	No. of cases	Deaths	No. of cases	Deaths	No. of cases	Deaths	No. of cases	Deaths	No. of cases	Deaths
Azerbaijan	0	0	0	0	0	0	7	5	7	5
Cambodia	0	0	0	0	4	4	1	1	5	5
China	0	0	0	0	8	5	8	6	16	11
Indonesia	0	0	0	0	17	11	12	11	29	22
Iraq	0	0	0	0	0	0	2	2	2	2
Thailand	0	0	17	12	5	2	0	0	22	14
Turkey	0	0	0	0	0	0	12	4	12	4
Vietnam	3	3	29	20	61	19	0	0	93	42
Total	3	3	46	32	95	41	42	29	186	105

* As of March 24, 2006.

*Notice to Readers***Satellite Broadcast: Mass Antibiotic Dispensing: Collecting Point-of-Dispensing Exercise Data**

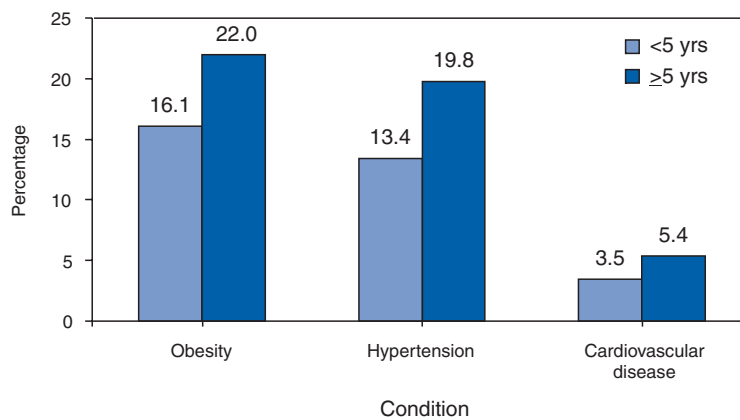
The Strategic National Stockpile is an inventory of medications and medical supplies used to augment local and state resources during a public health emergencies, including terrorist attacks. To ensure preparedness, state and local planners are urged to conduct exercises to test their plans for dispensing medications to their communities in ≤ 48 hours.

On April 6, 2006, during 1:00–2:30 p.m. EDT, the Strategic National Stockpile and Public Health Training Network will present the satellite broadcast and webcast, “Mass Antibiotic Dispensing: Collecting Point-of-Dispensing Exercise Data.” This live, interactive program will describe the collection of time-study data during point-of-dispensing exercises. Viewers can access the webcast at the designated time at <http://www.phppo.cdc.gov/phtn/webcast/mad5/default.asp>.

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Percentage of Foreign-Born* Hispanic Adults with Selected Health Conditions,[†] by Length of Time Living in the United States, 1998–2003[§]



* Foreign-born persons are defined as persons living in the United States who were not U.S. citizens by birth, including naturalized citizens, legal permanent residents, undocumented residents, and persons on long-term temporary visas.

[†] Obesity, hypertension, and cardiovascular disease are defined in the source report. Data on health conditions were collected in National Health Interview Surveys from household interviews with samples of the civilian, noninstitutionalized population.

[§] Estimates are age-adjusted to the 2000 U.S. standard population using four age groups: 18–34 years, 35–44 years, 45–64 years, and ≥65 years.

Hispanic immigrants aged ≥18 years living in the United States for ≥5 years were more likely to be obese and have a higher prevalence of self-reported hypertension and cardiovascular disease than Hispanic adults who immigrated more recently.

SOURCE: Dey AN, Lucas JW. Physical and mental health characteristics of U.S. and foreign-born adults, 1998–2003. Advance data from vital and health statistics; no. 369. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics; 2006. Available at <http://www.cdc.gov/nchs/data/ad/ad369.pdf>.

TABLE I. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending March 25, 2006 (12th Week)*

Disease	Current week	Cum 2006	5-year weekly average†	Total cases reported for previous years					States reporting cases during current week (No.)
				2005	2004	2003	2002	2001	
Anthrax	—	1	—	—	—	—	2	23	
Botulism:									
foodborne	—	—	0	18	16	20	28	39	
infant	—	8	2	90	87	76	69	97	
other (wound & unspecified)	—	10	0	25	30	33	21	19	
Brucellosis	2	16	2	115	114	104	125	136	MI (1), FL (1)
Chancroid	2	6	1	27	30	54	67	38	NY (1), SC (1)
Cholera	—	—	—	6	5	2	2	3	
Cyclosporiasis§	1	10	3	737	171	75	156	147	FL (1)
Diphtheria	—	—	—	—	—	1	1	2	
Domestic arboviral diseases§§:									
California serogroup	—	—	0	73	112	108	164	128	
eastern equine	—	—	—	21	6	14	10	9	
Powassan	—	—	—	1	1	—	1	N	
St. Louis	—	—	0	10	12	41	28	79	
western equine	—	—	—	—	—	—	—	—	
Ehrlichiosis§:									
human granulocytic	1	8	2	734	537	362	511	261	NY (1)
human monocytic	1	37	1	456	338	321	216	142	MD (1)
human (other & unspecified)	—	2	0	121	59	44	23	6	
<i>Haemophilus influenzae</i> ,**									
invasive disease (age <5 yrs):									
serotype b	—	2	0	8	19	32	34	—	
nonserotype b	1	20	3	118	135	117	144	—	MN (1)
unknown serotype	3	47	4	206	177	227	153	—	FL (1), TN (1), AZ (1)
Hansen disease§	—	9	3	85	105	95	96	79	
Hantavirus pulmonary syndrome§	—	3	0	22	24	26	19	8	AZ (2)
Hemolytic uremic syndrome, postdiarrheal§	2	12	2	204	200	178	216	202	NY (1), CO (1)
Hepatitis C viral, acute	7	154	36	780	713	1,102	1,835	3,976	CT (1), NY (3), CO (1), WA (1), CA (1)
HIV infection, pediatric (age <13 yrs)§††	—	—	5	382	436	504	420	543	
Influenza-associated pediatric mortality§§,§§,¶¶	1	12	1	52	—	N	N	N	
Listeriosis	3	95	9	861	753	696	665	613	NC (2), CA (1)
Measles	—	3***	2	64	37	56	44	116	
Meningococcal disease,††† invasive:									
A, C, Y, & W-135	3	55	6	300	—	—	—	—	MD (1), FL (2)
serogroup B	4	35	3	174	—	—	—	—	OK (1), WA (3)
other serogroup	—	5	1	24	—	—	—	—	
Mumps	4	161	5	296	258	231	270	266	IA (2), KS (2)
Plague	—	—	—	7	3	1	2	2	
Poliomyelitis, paralytic	—	—	—	1	—	—	—	—	
Psittacosis§	—	1	0	23	12	12	18	25	
Q fever§	2	24	1	125	70	71	61	26	MO (1), CO (1)
Rabies, human	—	—	0	2	7	2	3	1	
Rubella	—	—	0	10	10	7	18	23	
Rubella, congenital syndrome	—	—	0	1	—	1	1	3	
SARS-CoV§§§	—	—	0	—	—	8	N	N	
Smallpox§	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome§	3	32	4	104	132	161	118	77	MN (2), KS (1)
<i>Streptococcus pneumoniae</i> ,§									
invasive disease (age <5 yrs)	18	246	16	1,099	1,162	845	513	498	NY (6), OH (3), IN (1), MO (1), KS (1), MD (2), CO (2), AZ (2)
Syphilis, congenital (age <1 yr)	5	46	9	337	353	413	412	441	MI (4), AZ (1)
Tetanus	1	3	0	20	34	20	25	37	UT (1)
Toxic-shock syndrome (other than streptococcal)§	3	26	3	91	95	133	109	127	PA (1), CO (2)
Trichinellosis	—	2	0	21	5	6	14	22	
Tularemia§	—	3	0	137	134	129	90	129	
Typhoid fever	1	42	5	301	322	356	321	368	MA (1)
Vancomycin-intermediate <i>Staphylococcus aureus</i> §	—	—	—	2	—	N	N	N	NY (1)
Vancomycin-resistant <i>Staphylococcus aureus</i> §	—	—	—	—	1	N	N	N	
Yellow fever	—	—	—	—	—	—	1	—	

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

* Incidence data for reporting years 2004, 2005, and 2006 are provisional, whereas data for 2001, 2002, and 2003 are finalized.

† Calculated by summing the incidence counts for the current week, the two weeks preceding the current week, and the two 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.

¶ Includes both neuroinvasive and non-neuroinvasive. Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases (ArboNET Surveillance).

** 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, STD, and TB Prevention. Implementation of HIV reporting influences the number of cases reported. Data for HIV/AIDS are available in Table IV quarterly.

§§ Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases.

¶¶ Of the 19 cases reported since October 2, 2005 (week 40), only 16 occurred during the current 2005–06 season.

*** No measles cases were reported for the current week.

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

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending March 25, 2006, and March 26, 2005 (12th Week)*

Table with columns: Reporting area, Meningococcal disease, invasive (All serogroups, Serogroup unknown), and Pertussis. Rows list various states and territories like United States, New England, Mid. Atlantic, etc., with columns for Current week, Previous 52 weeks (Med, Max), Cum 2006, and Cum 2005.

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 2005 and 2006 are provisional.

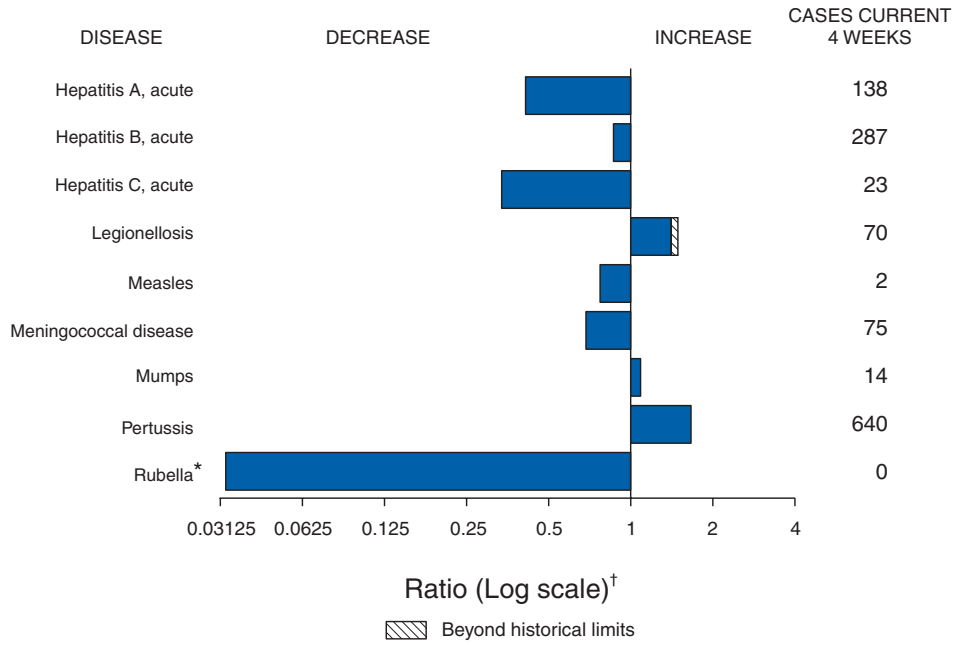
† Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending March 25, 2006, and March 26, 2005 (12th Week)*

Reporting area	West Nile virus disease†									
	Neuroinvasive					Non-neuroinvasive				
	Current week	Previous 52 weeks		Cum 2006	Cum 2005	Current week	Previous 52 weeks		Cum 2006	Cum 2005
		Med	Max				Med	Max		
United States	—	1	154	1	1	—	2	202	—	3
New England	—	0	3	—	—	—	0	2	—	—
Connecticut	—	0	2	—	—	—	0	1	—	—
Maine	—	0	0	—	—	—	0	0	—	—
Massachusetts	—	0	3	—	—	—	0	1	—	—
New Hampshire	—	0	0	—	—	—	0	0	—	—
Rhode Island	—	0	1	—	—	—	0	0	—	—
Vermont§	—	0	0	—	—	—	0	0	—	—
Mid. Atlantic	—	0	9	—	—	—	0	3	—	—
New Jersey	—	0	1	—	—	—	0	2	—	—
New York (Upstate)	—	0	6	—	—	—	0	1	—	—
New York City	—	0	2	—	—	—	0	2	—	—
Pennsylvania	—	0	3	—	—	—	0	2	—	—
E.N. Central	—	0	39	—	—	—	0	18	—	—
Illinois	—	0	25	—	—	—	0	16	—	—
Indiana	—	0	2	—	—	—	0	1	—	—
Michigan	—	0	14	—	—	—	0	3	—	—
Ohio	—	0	9	—	—	—	0	4	—	—
Wisconsin	—	0	3	—	—	—	0	2	—	—
W.N. Central	—	0	26	—	—	—	0	80	—	—
Iowa	—	0	3	—	—	—	0	5	—	—
Kansas	—	0	3	—	—	N	0	3	N	N
Minnesota	—	0	5	—	—	—	0	5	—	—
Missouri	—	0	4	—	—	—	0	3	—	—
Nebraska§	—	0	9	—	—	—	0	24	—	—
North Dakota	—	0	4	—	—	—	0	15	—	—
South Dakota	—	0	7	—	—	—	0	33	—	—
S. Atlantic	—	0	6	—	—	—	0	4	—	—
Delaware	—	0	1	—	—	—	0	0	—	—
District of Columbia	—	0	1	—	—	—	0	1	—	—
Florida	—	0	2	—	—	—	0	4	—	—
Georgia	—	0	3	—	—	—	0	3	—	—
Maryland	—	0	2	—	—	—	0	1	—	—
North Carolina	—	0	1	—	—	—	0	1	—	—
South Carolina§	—	0	1	—	—	—	0	0	—	—
Virginia§	—	0	0	—	—	—	0	1	—	—
West Virginia	—	0	0	—	—	N	0	0	N	N
E.S. Central	—	0	10	1	—	—	0	5	—	—
Alabama§	—	0	1	—	—	—	0	2	—	—
Kentucky	—	0	1	—	—	—	0	0	—	—
Mississippi	—	0	9	1	—	—	0	5	—	—
Tennessee§	—	0	3	—	—	—	0	1	—	—
W.S. Central	—	0	32	—	—	—	0	21	—	2
Arkansas	—	0	3	—	—	—	0	2	—	—
Louisiana	—	0	20	—	—	—	0	8	—	2
Oklahoma	—	0	6	—	—	—	0	3	—	—
Texas§	—	0	16	—	—	—	0	13	—	—
Mountain	—	0	16	—	1	—	0	39	—	—
Arizona	—	0	8	—	1	—	0	8	—	—
Colorado	—	0	5	—	—	—	0	13	—	—
Idaho§	—	0	2	—	—	—	0	3	—	—
Montana	—	0	3	—	—	—	0	9	—	—
Nevada§	—	0	3	—	—	—	0	8	—	—
New Mexico§	—	0	3	—	—	—	0	4	—	—
Utah	—	0	6	—	—	—	0	8	—	—
Wyoming	—	0	2	—	—	—	0	1	—	—
Pacific	—	0	50	—	—	—	0	89	—	1
Alaska	—	0	0	—	—	—	0	0	—	—
California	—	0	50	—	—	—	0	88	—	1
Hawaii	—	0	0	—	—	—	0	0	—	—
Oregon§	—	0	1	—	—	—	0	2	—	—
Washington	—	0	0	—	—	—	0	0	—	—
American Samoa	U	0	0	U	U	U	0	0	U	U
C.N.M.I.	U	0	0	U	U	U	0	0	U	U
Guam	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	0	0	—	—	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—

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 2005 and 2006 are provisional.
 † Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases (ArboNet Surveillance).
 § Contains data reported through the National Electronic Disease Surveillance System (NEDSS).

FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals March 25, 2006, with historical data



* No rubella cases were reported for the current 4-week period yielding a ratio for week 12 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.

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