



MMWRTM

Morbidity and Mortality Weekly Report

Weekly

April 21, 2006 / Vol. 55 / No. 15

HIV Transmission Among Male Inmates in a State Prison System — Georgia, 1992–2005

The estimated prevalence of human immunodeficiency virus (HIV) infection is nearly five times higher for incarcerated populations (2.0%) (1) than for the general U.S. population (0.43%) (2). In 1988, the Georgia Department of Corrections (GDC) initiated mandatory HIV testing of inmates upon entry into prison and voluntary HIV testing of inmates on request or if clinically indicated. GDC offered voluntary HIV testing to inmates annually during July 2003–June 2005 and currently offers testing to inmates on request. During July 1988–February 2005, a total of 88 male inmates were known to have had both a negative HIV test result upon entry into prison and a subsequent confirmed positive HIV test result (i.e., seroconversion) during incarceration. Of these 88 inmates, 37 (42%) had had more than one negative HIV test result before their HIV diagnosis. In October 2004, GDC and the Georgia Division of Public Health invited CDC to assist with an epidemiologic investigation of HIV risk behaviors and transmission patterns among male inmates within GDC facilities and to make HIV prevention recommendations for the prison population. This report describes the results of that investigation, which identified the following characteristics as associated with HIV seroconversion in prison: male-male sex in prison, tattooing in prison, older age (i.e., age of >26 years at date of interview), having served ≥ 5 years of the current sentence, black race, and having a body mass index (BMI) of ≤ 25.4 kg/m² on entry into prison. Findings from the investigation demonstrated that risk behaviors such as male-male sex and tattooing were associated with HIV transmission among inmates, highlighting the need for HIV prevention programs for this population.

To describe the state's male inmate population and the 88 inmates known to have become HIV positive while in prison (i.e., seroconverters), investigators analyzed summary demographic data for all inmates and prison-movement and HIV-

testing histories of seroconverters, all of which had been routinely collected for GDC administrative purposes. The HIV-testing and prison-movement histories of seroconverters were also analyzed to identify the facility in which HIV transmission occurred, defined as one in which a seroconverter had a negative HIV test followed by a subsequent positive HIV test confirmed by Western blot while incarcerated in the same facility.

To identify demographic characteristics and behavioral risk factors associated with HIV seroconversion, both an unmatched and a matched case-control study were conducted. Male inmates aged ≥ 18 years were eligible to participate in both studies. Case inmates had documented HIV seroconversion during the incarceration period. Control inmates had a negative result on their most recent HIV test (during 1997–2005) and had their HIV-negative status confirmed by repeat HIV testing on enrollment in the investigation. For the unmatched study, control inmates were randomly selected from a list of eligible inmates in the seven prisons in which the largest proportion of seroconverters were believed to have become infected with HIV. For the matched case-control study, to compare inmates with the same duration of exposure to risk for HIV transmission, control inmates were selected from the 31 prisons currently housing the case

INSIDE

- 426 [Monitoring Poison Control Center Data to Detect Health Hazards During Hurricane Season — Florida, 2003–2005](#)
- 429 [Rapid Needs Assessment of Two Rural Communities After Hurricane Wilma — Hendry County, Florida, November 1–2, 2005](#)
- 431 [Update: Influenza Activity — United States, April 2–8, 2006](#)
- 433 [Notices to Readers](#)
- 435 [QuickStats](#)

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

SUGGESTED CITATION

Centers for Disease Control and Prevention. [Article title]. *MMWR* 2006;55:[inclusive page numbers].

Centers for Disease Control and Prevention

Julie L. Gerberding, MD, MPH
Director

Dixie E. Snider, MD, MPH
Chief Science Officer

Tanja Popovic, MD, PhD
Associate Director for Science

Coordinating Center for Health Information and Service

Steven L. Solomon, MD
Director

National Center for Health Marketing

Jay M. Bernhardt, PhD, MPH
Director

Division of Scientific Communications

Judith R. Aguilar
(Acting) Director

Mary Lou Lindegren, MD
Editor, MMWR Series

Suzanne M. Hewitt, MPA
Managing Editor, MMWR Series

Douglas W. Weatherwax
(Acting) Lead Technical Writer-Editor

Stephanie M. Neitzel
Jude C. Rutledge
Writers-Editors

Lynda G. Cupell
Malbea A. LaPete
Visual Information Specialists

Quang M. Doan, MBA
Erica R. Shaver
Information Technology Specialists

Notifiable Disease Morbidity and 122 Cities Mortality Data

Patsy A. Hall
Deborah A. Adams
Lenee Blanton

Rosaline Dhara
Pearl C. Sharp

inmates and matched by sentence length (± 2 years) and time already served (± 2 years). After giving written, informed consent, inmates completed audio computer-assisted self-interviews (ACASI). No personally identifying information was collected in these interviews. To determine how behavioral risks for HIV infection changed during incarceration, the interview asked about sex, drug use, and tattooing behaviors during the 6 months before incarceration and during the incarceration period. Questions were also asked about knowledge regarding HIV transmission. Exact multivariate logistic regression was used to analyze unmatched data, and exact multivariate conditional logistic regression was used to analyze matched-pair data. After ACASI, investigators asked open-ended questions about strategies to reduce HIV transmission among inmates.

In October 2005, GDC housed 44,990 male inmates in 73 facilities; median age was 34 years (range: 15–88 years). A total of 28,350 (63%) were black, 16,364 (36%) were white, 50 were American Indian (0.1%), and 47 (0.1%) were Asian; race was not reported for 179 (0.4%). A total of 856 (1.9%) were known to be HIV infected, of whom 780 (91%) were infected before incarceration, and 732 (86%) were black.* During July 1988–February 2005 (the month in which the last seroconverter included in the investigation was identified), 88 male inmates had both a negative HIV test result upon entry into prison and a subsequent HIV seroconversion during incarceration. Of these 88 inmates, the median age at time of HIV diagnosis was 32 years (range: 21–58 years). Fifty-nine (67%) were black, and 29 (33%) were white. Diagnoses were made during September 1992–June 2003 for 47 (53%) inmates and during July 2003–February 2005 for 41 (47%). For 26 (30%) of the 88 seroconverters, the facility in which HIV transmission occurred was identified; for 34 (39%) seroconverters, the facility in which transmission occurred was narrowed to two. Of the 88 seroconverters, 11 were released from prison and two died before the start of the case-control study. Of the remaining 75 inmates, 68 (91%) were enrolled in both the unmatched and matched case-control studies as case inmates. Sixty-five (87%) unmatched control inmates and 70 (79%) matched control inmates who were eligible agreed to participate.

In multivariate analysis of the unmatched study, variables significantly associated with HIV seroconversion were male sex in prison, older age, having served ≥ 5 years of the

*Black persons are disproportionately affected by HIV/AIDS. Although blacks represent 12% of the U.S. population, an estimated 43% of all persons living with AIDS in the United States are black (3). In Georgia, an estimated 76% of new AIDS cases reported in 2004 were among blacks (additional information is available at http://dhr.georgia.gov/DHR/DHR_FactSheets/AIDS%20in%20Georgia%20Jan%2006%20rev.pdf).

current sentence, and having a BMI of ≤ 25.4 kg/m² on entry into prison.

Univariate analysis of matched case-control study data identified multiple demographic characteristics and risk behaviors as significantly associated with HIV seroconversion (Table 1). However, in the final multivariate logistic regression model, only four covariates were significantly associated with HIV seroconversion during incarceration: male-male sex in prison, receipt of a tattoo in prison, BMI of ≤ 25.4 kg/m² on entry into prison, and black race (Table 2).

Among 54 inmates (45 case and nine control) reporting male-male sex while in prison, 35 (78%) of 45 case inmates and four (44%) of nine control inmates reported no male-male sex during the 6 months immediately before incarceration. Among 54 inmates (case and control) who reported any male-male sex during incarceration, 39 (72%) reported consensual sex and 48 (89%) reported sex with other inmates. Exchange sex (e.g., for money, food, or cigarettes) and rape were also reported. Of 43 inmates (34 case and nine control) who reported any consensual sex, 13 (30%) reported using condoms or other improvised barrier methods (e.g., rubber gloves or plastic wrap). Of 14 (12 case and two control) inmates who reported any exchange sex, three (21%) reported using improvised barrier methods but not condoms; no barrier methods were used during rape. Of 59 inmates (48 case and 11 control) who reported having sex in prison, 36 (75%) case inmates and six (55%) control inmates reported intent to tell sex partners outside prison about unprotected sex in prison.

Of 68 inmates who reported receiving a tattoo in prison, 59 (87%) used clean tattooing equipment for at least one tattoo, 52 (76%) used bleach to clean tattooing equipment, two (3%) used tattooing equipment that was not cleaned, and seven (10%) did not know whether tattooing equipment was cleaned before they received at least one tattoo. Most inmates correctly identified that HIV can be transmitted through unprotected sex (88%), needle sharing (83%), and infected blood (78%). In 181 responses to open-ended questions about how to reduce HIV transmission in prison, inmates suggested that condoms be made available in prison (38%), that inmates receive HIV education (22%), and that inmates practice safe tattooing (13%).

Reported by: J Taussig, MPH, Georgia Dept of Corrections and Georgia Dept of Human Resources, Div of Public Health; RL Shouse, MD, Georgia Dept of Human Resources, Div of Public Health. M LaMarre, MN; L Fitzpatrick, MD, P McElroy, PhD, CB Borkowf, PhD, R MacGowan, MPH, AD Margolis, MPH, D Stratford, PhD, E McLellan-Lemal, MA, K Robbins, W Heneine, PhD, A Greenberg, MD, P Sullivan, PhD, Div of HIV/AIDS Prevention, National Center for HIV, Hepatitis, STD and TB Prevention; Z Henderson, MD, K Jafa, MBBS, EIS officers, CDC.

Editorial Note: This report indicates that HIV transmission among inmates in Georgia's prison system was associated with male-male sex and tattooing and highlights the need for more effective HIV prevention among inmates. Sex among inmates occurs (4), and laws or policies prohibiting sex among inmates have been difficult to implement or enforce. However, GDC might consider certain HIV prevention options (e.g., education, testing, and prevention counseling) proven to be effective for nonincarcerated populations; some of those prevention measures are being used in correctional settings within and outside the United States (4).

CDC recommends that HIV education, testing, and prevention counseling be made available to populations at increased behavioral or clinical risk for HIV infection, including inmates in correctional facilities (5,6). HIV prevention education in state prisons should address male-male sex, tattooing, and injection drug use that occurs during incarceration and risk behaviors that occur after release. Case studies of inmate-led HIV prevention interventions suggest that these interventions might engender more inmate trust of and cooperation with intervention staff (4). HIV education might also benefit correctional facility staff.

CDC recommends that HIV screening be provided upon entry into prison and before release and that voluntary HIV testing be offered periodically during incarceration. This investigation demonstrates that annual voluntary testing is useful; 41 (47%) of 88 HIV seroconverters were identified during the 2 years in which annual testing was offered. Prison HIV testing programs allow inmates to learn their HIV status and, if not infected, to learn protective behaviors to reduce their HIV infection risks (7). Inmates who test HIV positive should receive antiretroviral treatment and care in addition to prevention counseling to protect future sex partners; before release, they should receive discharge planning and linkages to care in the community. GDC provides treatment and care for HIV-infected inmates, provides a 30-day supply of antiretroviral drugs on release and, in 12 of 73 facilities, undertakes enhanced HIV discharge planning, which includes individualized case management, housing placement, substance abuse and mental health treatment referrals, enrollment in benefit programs, and referrals for assistance with employment and other social services.

Approximately 15% of inmates reported using improvised barrier protection methods during sex, and 38% recommended making condoms available in prisons. Providing condoms to sexually active persons is an integral part of HIV prevention interventions outside prisons. However, in most prison and jail settings, condoms are considered contraband (4). Condoms are provided to some inmates in state prisons in Mississippi and Vermont and jails in Los Angeles, New York, Philadel-

TABLE 1. Characteristics and self-reported human immunodeficiency virus (HIV) risk behaviors of prison inmates* who became HIV positive during incarceration, compared with matched controls* — Georgia state prison system, 2005

Characteristic/Behavior	Case inmates*		Controls*		Exact odds ratio	(95% CI) [†]	p-value
	No.	(%)	No.	(%)			
Age (yrs)							
Median (range)	36 (21–65)		42 (24–77)		—	—	<0.01 [§]
≤26	10	(15)	3	(4)	Referent		
>26	58	(85)	65	(96)	0.3	(0.1–1.2)	0.09
Race[¶]							
White	23	(34)	28	(41)	Referent		
Black	45	(66)	40	(59)	1.4	(0.6–3.1)	0.47
Ethnicity							
Non-Hispanic	63	(93)	64	(94)	Referent		
Hispanic	4	(6)	4	(6)	1.3	(0.2–9.1)	1.0
Body mass index (kg/m²) at entry							
Median (range)	23.8 (18.5–40.3)		27.4 (19.3–38.5)		—	—	<0.01 [§]
>25.4**	17	(25)	45	(66)	Referent		
≤25.4	51	(75)	23	(34)	4.5	(2.1–11.2)	<0.01
Mental illness diagnosed in prison^{††}							
No	40	(59)	52	(76)	Referent		
Yes	28	(41)	16	(24)	2.7	(1.1–7.6)	0.03
Had sex in prison							
No	20	(29)	57	(84)	Referent		
Yes	48	(71)	11	(16)	10.3	(3.7–39.4)	<0.01
Sex partners^{§§}							
Any male-male sex	45	(66)	9	(13)	8.2	(3.2–26.6)	<0.01
New ^{¶¶} male-male sex	35	(73)	4	(36)			
Any sex with other male inmate	40	(59)	8	(12)	7.4	(2.9–24.1)	<0.01
Any sex with male prison staff	22	(32)	4	(6)	5.5	(1.9–22.0)	<0.01
Any sex with female prison staff	15	(22)	6	(9)	2.8	(1.0–9.9)	0.06
Any sex with visitors or prison volunteers	6	(9)	0	(0)	8.2	(1.2→999.9)	0.03
Any sex with other	7	(10)	0	(0)	9.6	(1.4→999.9)	0.02
Nature of sexual encounter(s)^{***}							
No sex	20	(29)	57	(84)	Referent		
Consensual sex only	31	(46)	8	(12)	9.4	(3.0–40.0)	<0.01
Exchange sex ^{†††} (no rape)	11	(16)	2	(3)	9.5	(1.7–105.9)	<0.01
Any rape as victim	6	(9)	1	(1)	10.1	(1.0–575.1)	0.05
Type of sex act^{§§§}							
No sex	20	(29)	57	(84)	Referent		
Oral sex only	9	(13)	4	(6)	10.3	(1.0–589.6)	0.05
Insertive anal or vaginal sex (no receptive sex)	20	(29)	4	(6)	10.6	(2.4–97.5)	<0.01
Any receptive anal sex	19	(28)	3	(4)	9.0	(2.1–80.0)	<0.01
Injection drug user in prison							
No	61	(90)	67	(99)	Referent		
Yes	7	(10)	1	(1)	7.0	(0.9–315.5)	0.07
New ^{¶¶} injection drug user	4	(57)	1	(100)			
Received tattoo in prison							
No	28	(41)	40	(59)	Referent		
Yes	40	(59)	28	(41)	4.0	(1.3–16.4)	0.01
New ^{¶¶} tattoo recipient	20	(50)	19	(68)			

NOTE: Bolded values are statistically significant.

* Case inmates (n = 68) were male prison inmates who seroconverted to HIV in prison; controls (n = 68) were HIV-uninfected male prison inmates with comparable sentence lengths (±2 years) and time served (±2 years).

† Confidence interval.

§ Signed rank test.

¶ Races other than black or white were not included because no case inmates or matched control inmates were from other racial groups.

** A body mass index of ≤25.4 kg/m² approximately corresponded to the lowest quartile of body mass index among control inmates.†† Received a diagnosis of mental illness at any time during the current incarceration; a mental illness was a condition included within the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition*, American Psychiatric Association, 1994.

§§ The referent group for each subcategory (i.e., any male-male sex, any sex with other male inmate, any sex with male prison staff, any sex with female prison staff, any sex with visitors or prison volunteers, and any sex with other) was the group of inmates who reported no sex with a person in that subcategory.

¶¶ Did not engage in the respective behavior (male-male sex, injection drug use, or tattoo receipt) during the 6 months before incarceration. The denominators for the three "new" categories were the total numbers of persons who engaged in the respective behavior (sex in prison, injection drug use in prison, and receipt of tattoo in prison).

*** Sexual encounters were assigned a risk hierarchy in order of increasing risk: no sex; consensual sex only; sex in exchange (with or without consensual sex but no rape); and sex as a rape victim (with or without consensual sex and/or sex in exchange).

††† Sex that was bartered in exchange for items (e.g., food, drugs, or cigarettes), money, social reasons (e.g., protection or gang initiation), or other unspecified reason.

§§§ Type of sex act was assigned a risk hierarchy in order of increasing risk: no sex, oral sex only, insertive anal or vaginal sex (with or without oral sex and with no receptive anal sex), and receptive anal sex (with or without insertive sex and/or oral sex).

TABLE 2. Exact multivariate conditional logistic regression analysis of characteristics and risk behaviors among prison inmates* who became HIV[†] positive during incarceration, compared with matched controls* — Georgia state prison system, 2005

Characteristic/Behavior	Case inmates*		AOR [§]	(95% CI)	p-value		
	No.	(%)				No.	(%)
Any male-male sex in prison	45	(66)	9	(13)	10.1	(3.0–54.9)	<0.01
Received tattoo in prison	40	(59)	28	(41)	13.7	(1.5–390.6)	0.01
Body mass index							
≤25.4 kg/m ² at entry	51	(75)	23	(34)	3.8	(1.2–15.2)	0.02
Black race	45	(66)	40	(59)	3.7	(1.1–16.7)	0.03

NOTE: All values are statistically significant.

* Case inmates (n = 68) were male prison inmates who seroconverted to HIV in prison; controls (n = 68) were HIV-uninfected male prison inmates with comparable sentence lengths and time served.

[†] Human immunodeficiency virus.

[§] Adjusted odds ratio.

^{||} Confidence interval.

phia, San Francisco, and the District of Columbia (4). A recent survey in a large jail in a U.S. city reported that condom distribution was acceptable to most inmates and correctional officers (8). Departments of corrections with existing condom distribution programs should evaluate those programs to determine their effectiveness; departments of corrections without condom distribution programs should assess relevant state laws, policies, and circumstances to determine the feasibility and benefits and risks of implementing such programs.

Although no case of HIV transmission via tattooing has been documented, the procedure carries a theoretical risk for transmission if nonsterile equipment is used. In this investigation, receipt of a tattoo was associated with HIV seroconversion. Further investigation is required to explore commonalities in time frames, tattoo artists, or equipment among HIV-infected inmates who reported tattooing as their only risk behavior and to determine whether the association between tattooing and HIV seroconversion identified in this investigation is causal.

Black race was significantly associated with HIV seroconversion, although no differences in risk behaviors were identified among racial groups. HIV disproportionately affects blacks in the general population, and 86% of males who were already infected with HIV when they entered GDC facilities were black. Black-only sex or tattooing networks might exist in prisons, given that 63% of all male inmates and 86% of HIV-infected men in GDC facilities are black. If so, then black race might be a marker in the analysis for the choice of sex or tattooing partners within these networks. Having a BMI of ≤25.4 kg/m² also was significantly associated with HIV seroconversion, but the implications of this finding for HIV transmission and prevention are unclear. Although BMI was explored in the analysis as a physical characteristic associ-

ated with HIV seroconversion, insufficient data are available to determine whether a statistically significant association existed between lower BMI and reported rape.

The findings in this report are subject to at least three limitations. First, risk behaviors might differ between seroconverters identified through voluntary HIV testing and those refusing voluntary HIV testing, limiting representativeness. Second, recall bias might have affected the reporting of HIV risk behaviors. Finally, although ACASI interviews were conducted to provide privacy and reduce social desirability bias, inmates might have inaccurately reported HIV risk behaviors because sex between inmates, sex with correctional staff, injection drug use, and tattooing are illegal or forbidden by policy in this prison system.

In response to this investigation, GDC is evaluating options to modify existing HIV prevention education and house HIV-infected inmates in a limited number of facilities. Three state prison systems (Alabama, Mississippi, and South Carolina) house HIV-infected inmates in separate facilities to provide focused medical care. At least three other state prison systems (California, Florida, and Texas) house some HIV-infected inmates with advanced disease or those requesting separate housing in “centers of excellence” for medical care; HIV-negative and HIV-infected inmates mix for education, vocational training, religious, and other prison programs. However, separate housing of HIV-infected inmates is limited in that it 1) does not reduce the spread of other sexually transmitted, opportunistic, and bloodborne infections, 2) might increase the risk for tuberculosis outbreaks (9), 3) raises concerns about disclosure of inmates’ HIV status and access to prison programs, and 4) does not prevent transmission by inmates who are unaware that they are infected or by HIV-infected corrections staff. No data are available on the effectiveness of separate housing for HIV-infected inmates as an HIV prevention strategy.

Although this investigation was conducted in a single state prison system, incarcerated populations in other correctional settings are at risk for HIV infection, both while in prison and after release into the community. Corrections officials, in partnership with public health officials, should assess the adequacy of existing programs and services for incarcerated populations and develop strategies to reduce HIV infection, both in prisons and in the community. This recommendation is consistent with one recently issued by the Presidential Advisory Council on HIV/AIDS, which called for improved HIV prevention in U.S. prisons, jails, and correctional facilities (10).

Acknowledgments

This report is based, in part, on contributions by staff members of the Georgia Dept of Corrections; D Crippen, D Duran, MPH, Georgia Dept of Human Resources, Div of Public Health; L Cohen, MD, F Kamara, MD, MT Morgan, MD, Dept of Community Health and Preventive Medicine, Morehouse School of Medicine, Atlanta; Recovery Consultants of Atlanta, Inc.; Stand, Inc., Decatur, Georgia; S Broadwell, PhD, JT Brooks, MD, M Clay, F Cowart, M Ed, M Durham, MS, A Edwards, MA, V Goli, MPH, D Gnesda, MPH, K Henny, PhD, M Kalish, PhD, S McDougal, MD, SM Owen, PhD, B Parekh, PhD, RH Potter, PhD, J Prejean, PhD, L Reid, MS, S Richard, MPH, S Watson, K Williams, PhD, C Yang, PhD, A Youngpairoi, Div of HIV/AIDS Prevention, National Center for HIV, Hepatitis, STD and TB Prevention; S Bartley, MMSc, D Hemmerlein, Serum Bank, Div of Scientific Resources, Center for Prevention, Detection, and Control of Infectious Diseases; F Forna, MD, EIS Officer, CDC.

References

1. Maruschak LM. HIV in prisons, 2003. Bureau of Justice Statistics bulletin. Washington, DC: US Department of Justice, Office of Justice Programs; September 2005. Publication no. NCJ 210344.
2. McQuillan GM, Kottiri BJ, Kruszon-Moran D. The prevalence of HIV in the United States household population: the national health and nutrition examination surveys, 1988 to 2002. Presented at the 12th Conference on Retroviruses and Opportunistic Infections, Boston, MA; 2005. Abstract no. 166.
3. CDC. HIV/AIDS surveillance report, 2004. Vol. 16. Atlanta, GA: US Department of Health and Human Services, CDC; 2005. Available at <http://www.cdc.gov/hiv/stats/hasrlink.htm>.
4. Hammett TM, Harmon P. Issues and practices in criminal justice, 1996–1997. Update: HIV/AIDS, STDs, and TB in correctional facilities. Washington, DC: US Department of Justice; National Institute of Justice; US Department of Health and Human Services, CDC; 1999:25–52.
5. CDC. Revised guidelines for HIV counseling, testing, and referral and revised recommendations for HIV screening of pregnant women. *MMWR* 2001;50(No. RR-19).
6. CDC. HIV/AIDS education and prevention programs for adults in prisons and jails and juveniles in confinement facilities—United States, 1994. *MMWR* 1996;45:268–71.
7. CDC. Advancing HIV prevention: new strategies for a changing epidemic—United States, 2003. *MMWR* 2003;52:329–32.
8. May JP, Williams EL. Acceptability of condom availability in a U.S. jail. *AIDS Educ Prev* 2002;14(Suppl B):85–91.
9. CDC. Tuberculosis outbreaks in prison housing units for HIV-infected inmates—California, 1995–1996. *MMWR* 1999;48:79–82.
10. Presidential Advisory Council on HIV/AIDS. Achieving an HIV-free generation: recommendations for a new American HIV strategy. Washington, DC: US Department of Health and Human Services; 2005:22.

Monitoring Poison Control Center Data to Detect Health Hazards During Hurricane Season — Florida, 2003–2005

Eight hurricanes made landfall in Florida from August 13, 2004, through October 24, 2005.* Each hurricane caused flooding and widespread power outages (1–4). In the fall of 2004, the Florida Department of Health (FDOH) began retrospectively reviewing data collected by the Florida Poison Information Center Network (FPICN) during the 2004 hurricane season. During the 2005 hurricane season, FDOH, in consultation with FPICN, initiated daily monitoring of FPICN records of exposures that might reflect storm-related health hazards. Analysis of these data determined that 28 carbon monoxide (CO) exposures were reported to FPICN in the 2 days after Hurricane Katrina made its August 25, 2005, landfall in Florida, en route to a second landfall on the Gulf Coast. Data on CO and other exposures were used to develop and distribute public health prevention messages to Florida communities affected by hurricanes.

FPICN, created by the Florida legislature in 1989, consists of poison control centers in Jacksonville, Miami, and Tampa and a data analysis unit in Jacksonville. Health professionals and the public can contact FPICN by calling a toll-free hotline available 24 hours a day. Specialists in poison information at each center collect exposure and substance information from callers and enter it into a local database; this information is then uploaded to a statewide database.

The statewide database includes a case narrative and patient identification information provided by the individual caller or clinician from a health-care facility. Information is coded following American Association of Poison Control Centers (AAPCC) guidelines regarding harmful substances, circumstances of exposure, clinical findings, disposition, and follow-up.† FPICN defines exposure as contact with a substance that could be harmful to health via ingestion, inhalation, injection, or mucosal membrane/dermal exposure.

FDOH selected the following hurricane-related exposures for daily monitoring in 2005 and retrospective review of data from 2004: CO; hydrocarbon fuels; batteries and fire/matches/explosives; bites/stings and snake bites; contaminated, polluted, or sewage water; and food poisoning (Table). For this analysis, exposures to smoke or exhaust gas (e.g., from motor vehicles) were not included as CO exposures. FDOH compared exposures from 30 days before and up to 1 week

* Hurricanes Charley, Frances, Ivan, and Jeanne in 2004 and Dennis, Katrina, Rita, and Wilma in 2005. Although Rita did not make a direct landfall, the hurricane swept past the Florida Keys, causing flood damage and power outages.

† Available at <http://www.aapcc.org/poison1.htm>.

TABLE. Types and sources of exposures reported to the Florida Poison Information Center Network that were monitored by the Florida Department of Health during the 2005 hurricane season

Exposure type	Source of exposure
Carbon monoxide	Improper storage, ventilation, and maintenance of generators.
Hydrocarbon fuels	Gasoline siphoning for fuel and use of oil-based lamps for alternative light sources.
Batteries and fire/matches/explosives	Use of alternative power sources for lighting and electronics that result in dermal injuries.
Bites/stings and snake bites	Environmental exposure during power outages and property restoration.
Contaminated, polluted, or sewage water	Sewage overflows and spills resulting from sewer lift stations knocked out by storm surges, excessive rainfall, and power outages.
Food poisoning	Inadequate food refrigeration and storage; undercooked food products.

after a hurricane's landfall to determine whether increases in exposures occurred. Data for 2005 also were compared with 2003 hurricane-season data because no hurricane made landfall in Florida that year.

A major public health concern after storms is CO poisoning associated with the use of portable, gasoline-powered generators (5). The FDOH review of 2004 data indicated increased numbers of reported CO exposures in the days after Hurricanes Charley (38 reports), Frances (49), and Jeanne (42). In 2005, approximately 18 hours after the eye of Hurricane Dennis made landfall, FPICN received reports from health-care facilities of eight CO poisonings in two families. In the 2 days after Hurricane Katrina struck south Florida on August 25, 2005, FPICN received reports of 28 CO exposures (Figure 1), including 20 attributed to improper use and ventilation of generators. From October 24, 2005 through November 4, 2005, a total of 58 CO exposures occurred during power outages resulting from Hurricane Wilma.

In October 2005, FPICN detected an increase in exposures to hydrocarbon fuels after Hurricane Wilma, when prolonged widespread power outages were accompanied by a gasoline shortage (Figure 2). In September 2004, FPICN detected an increase in exposure to hydrocarbon fuels in the days before and after Hurricane Frances made landfall. Of 24 exposures to hydrocarbon fuels reported the day after landfall, 12 (50%) were directly related to persons siphoning gasoline, and three of

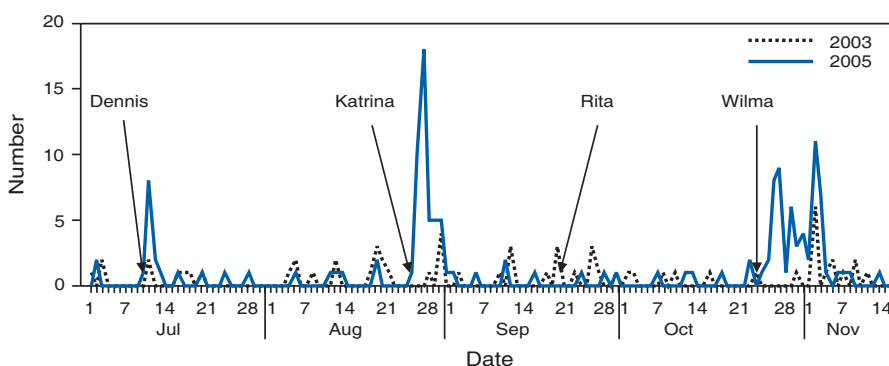
those 12 exposures occurred while persons were siphoning gasoline for portable generators. In both 2004 and 2005, the number of incidents involving other analyzed exposures (e.g., batteries, fire/matches/explosives, or bites/stings) after hurricanes did not differ substantially from baseline exposure data.

During the 2005 hurricane season, beginning the day after hurricane landfall and continuing for 3–10 days, daily graphs illustrating the frequency of exposures to harmful substances were posted on EpiCom, the secure information-sharing Internet site maintained by FDOH, and on the *Epidemic Information Exchange (Epi-X)*, the secure communications system for public health officials maintained by CDC. The graphs were also distributed to the Planning Section of the FDOH Incident Management Team. County officials used the information to foster awareness of possible health hazards before, during, and after landfall of each hurricane in 2005. Information about CO and hydrocarbon fuel exposures was used to alert the public to the hazards of improper use of portable, gasoline-powered generators. Public health announcements also described how to disinfect water for consumption and prevent foodborne illness by practicing safe food handling and spoiled food disposal.

Reported by: RS Kay, MPH, RS Hopkins, MD, C Blackmore, DVM, PhD, D Johnson, MD, Florida Dept of Health; JL Schauben, PharmD, Florida Poison Information Center—Jacksonville; Florida Poison Information Center Network Data Center; R Weisman, PharmD, Florida Poison Information Center—Miami; V Speranza, PharmD, Florida Poison Information Center—Tampa. M Belson, MD, JG Schier, MD, M Patel, MD, Div of Environmental Hazards and Health Effects, National Center for Environmental Health; J Schulte, DO, Career Epidemiology Field Officer, CDC.

Editorial Note: In 2005, daily monitoring of detailed data from poison control centers in Florida enabled prompt atten-

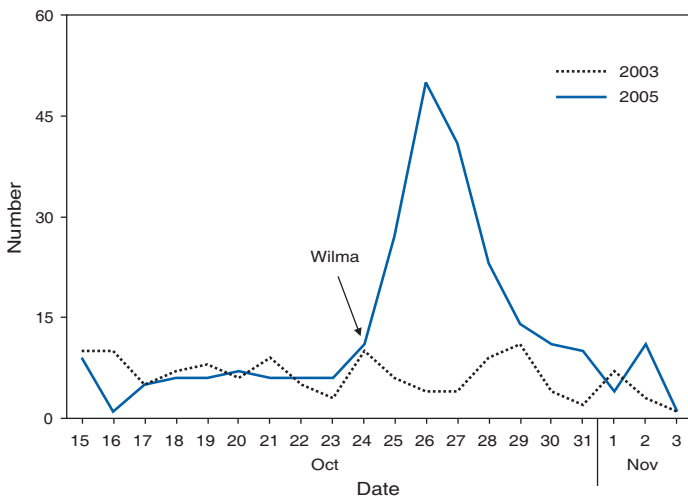
FIGURE 1. Number of reported carbon monoxide exposures* and landfalls of hurricanes, by date, July 1–November 13 — Florida, 2003† and 2005



* Exposures to carbon monoxide reported to the Florida Poison Information Center Network.

† In 2003, no hurricane made landfall in Florida.

FIGURE 2. Number of reported hydrocarbon fuel exposures* and hurricane landfall, by date, October 15–November 3 — Florida, 2003† and 2005



* Exposures to gasoline, lamp oil, and other fuels reported to the Florida Poison Information Center Network.

† In 2003, no hurricane made landfall in Florida.

tion to health hazards related to hurricanes. Use of on-line, real-time FPICN data enabled timely detection of increases in injury and illness events before, during, and after hurricanes, enhancing FDOH capacity for delivering important public health and safety measures. These capabilities potentially reduced morbidity and mortality in Florida from these events. This local monitoring activity is similar to the national Toxic Exposure Surveillance System (TESS), which is used by AAPCC and CDC to detect potential public health threats from reports received by 61 poison control centers in the United States. TESS has demonstrated its capability to provide surveillance to states and regions and to detect potential poisonings and biologic or chemical events (6–8). However, in Florida, although the data used for TESS surveillance is maintained by FPICN, the subset of data transferred to TESS contains no personal identifiers, case notes, or data specific to the state's own monitoring system.

To aid in detecting health hazards immediately before and after hurricanes, FDOH continues to use various statewide surveillance tools (e.g., hospital-based data, emergency medical services reports, and shelter surveillance). Hospital-based surveillance relies on chief complaints, disease and injury codes, and discharge data (9,10). However, in the aftermath of hurricanes, hospitals can experience structural damage, electric power loss, limitations in available personnel, or other factors that make routine functioning and surveillance difficult. In 2004, FPICN received telephone calls during four hurricanes from residents in their homes who were told by 911 emer-

gency operators not to go to health-care facilities because travel was too hazardous. After these hurricanes, FPICN received reports and inquiries from residents because travel was impaired, the nearby hospital was damaged, or wait times at the hospitals were excessive. Therefore, monitoring of local poison control center data provided a valuable supplement to the hospital-based surveillance system.

The findings in this report are subject to at least two limitations. First, underreporting to poison control centers (e.g., because of telephone service disruption) might have occurred. Second, delays might have occurred between exposures to a harmful substance and recognition by a person that their illness was related to that exposure (e.g., headache resulting from CO exposure).

During 2005, FDOH monitoring of FPICN data enabled timely detection of increases in CO and hydrocarbon fuel exposures before, during, and after hurricanes. Public health departments might consider collaborating with local or regional poison control centers to monitor for exposures after disasters. Evaluation of local and national poison center systems for detecting outbreaks of diseases and increases in injuries or poisonings should be an ongoing process to substantiate methods for collection, analysis, and decision-making based on these data.

References

1. Florida State Emergency Response Team. Situation reports: Hurricane Dennis, 2005. Tallahassee, FL: Florida Division of Emergency Management; 2005.
2. Florida State Emergency Response Team. Situation report no. 7: Hurricane Charley, 2004. Tallahassee, FL: Florida Division of Emergency Management; 2004. Available at http://www.floridadisaster.org/eoc/eoc_Activations/Charley04/Reports/Sitrep_Charley_081404_7.pdf.
3. Florida State Emergency Response Team. Hurricane Jeanne: current level of activation. Tallahassee, FL: Florida Division of Emergency Management; 2004. Available at <http://www.floridadisaster.org/eoc/jeanne04.asp>.
4. Florida State Emergency Response Team. Situation report no. 17: Wilma's aftermath. Tallahassee, FL: Florida Division of Emergency Management; 2005. Available at http://www.floridadisaster.org/eoc/eoc_Activations/Wilma05/Reports/Sitrep_Wilma_102505_17_final.pdf.
5. CDC. Carbon monoxide poisoning from hurricane-associated use of portable generators—Florida, 2004. *MMWR* 2005;54:697–700.
6. CDC. Investigation of a ricin-containing envelope at a postal facility—South Carolina, 2003. *MMWR* 2003;52:1129–31.
7. Watson WA, Litovitz T, Rubin C, et al. Toxic Exposure Surveillance System [abstract]. In: Syndromic surveillance: reports from a national conference, 2003. *MMWR* 2004;53(Suppl):262.
8. Wolkin A, Patel M, Watson W, et al. Early detection of illness associated with poisonings of public health significance. *Ann Emerg Med* 2006;47:170–6.
9. CDC. Syndromic surveillance for bioterrorism following the attacks on the World Trade Center—New York City, 2001. *MMWR* 2002;51 (Special Issue):13–5.
10. Lober WB, Trigg LJ, Karras BT, et al. Syndromic surveillance using automated collection computerized discharge diagnoses. *J Urban Health* 2003;80(2 Suppl 1):i97–i106.

Rapid Needs Assessment of Two Rural Communities After Hurricane Wilma — Hendry County, Florida, November 1–2, 2005

On October 24, 2005, Hurricane Wilma, the most intense hurricane (882 mb) ever recorded in the Atlantic Basin, made landfall on the southern tip of Florida (1). By landfall, Wilma had been downgraded from a Category 5 (i.e., winds of ≥ 156 mph) to a Category 3 hurricane but still contained winds of >110 mph. The storm moved slowly over the Florida Keys and south Florida, causing extensive wind and flood damage to homes and businesses. Approximately 3 million households were left without power, and thousands of residents were displaced to temporary shelters; 10 deaths were storm related (2). On October 27, the Florida Department of Health (FDOH) asked CDC and the North Carolina Division of Public Health (NCDPH) for assistance in performing a rapid needs assessment of communities most affected by the storm. On the basis of information from local public health officials, field assessment teams, and electric power companies, FDOH identified Hendry County, a rural county with a 2000 population of 36,210, as the most severely affected area. Two Hendry County communities, Montura Ranch Estates and Pioneer Plantation in the town of Clewiston (pop. 6,460), were of particular concern. According to the 2000 census, nearly 20% of Clewiston residents lived below the poverty level (3). The assessment determined that approximately one third of households also had been affected by at least one other hurricane that preceded Wilma during 2004 and 2005. More than half of the households surveyed lived in homes that were damaged but still habitable, and 10% of households in Montura Ranch Estates reported their homes as uninhabitable; approximately 73% of households had not received information about how to remain safe during clean-up activities. Results of the assessment were immediately provided to the Hendry County Emergency Operations Center, Hendry County Health Department, and FDOH for allocation of resources to help these communities recover from the hurricane.

During November 1–2, teams from FDOH, CDC, NCDPH, and North Carolina Public Health Regional Surveillance Teams (PHRST) traveled to Clewiston, on Lake Okeechobee in south-central Florida, to assess the needs of residents in the two communities 8 days after Hurricane Wilma. The local tax appraiser's office provided information regarding property parcels, which was used to obtain a sample population. Any parcel that did not contain at least one building structure was excluded from the survey. Samples of 166 of 1,222 parcels thought to have structures in Montura Ranch Estates and 140 of 345 parcels in Pioneer Plantation were randomly selected using statistical analy-

sis software, and locations were mapped as described previously (4,5). Because more than 40% of Clewiston residents were Hispanic, bilingual teams were deployed, and all survey questions were asked in English or Spanish.

In Montura Ranch Estates, teams used handheld devices equipped with global positioning system technology to locate the selected parcels and personal digital assistants (PDAs) to record survey responses. In Pioneer Plantation, teams used paper maps of the area to locate selected parcels. Interviews were conducted using both paper and PDA versions of the questionnaire.

Interviewers in both areas made at least four attempts, at least 1 hour apart, to make contact with the selected households. In all cases, the reason for an unsuccessful interview attempt was recorded. When an interview could not be obtained at a selected address, teams proceeded to the next address on their list.

During November 1–2, teams approached the 166 parcels in Montura Ranch Estates and 140 parcels in Pioneer Plantation. Ninety-one interviews were completed in Montura Ranch Estates (overall response rate: 55%) and 74 in Pioneer Plantation (overall response rate: 53%), for a total of 165 households. In Montura Ranch Estates, 17 (10%) of the 166 parcels approached contained no identifiable housing structure. Thirty-seven (22%) contained a housing structure that was not occupied at the time of the interview attempt. Ten (6%) homes were inaccessible (e.g., because of flooding or debris), and nine (5%) were destroyed. Two (1%) of the parcels were occupied by households that declined to be interviewed. In Pioneer Plantation, 12 (9%) of the 140 parcels approached contained no identifiable housing structure, and 39 (28%) contained homes that were unoccupied. Eleven (8%) homes were inaccessible, and two (1%) were destroyed. Households at two (1%) parcels declined to be interviewed.

In both Hendry County communities, the average household size was three persons, both before and after Hurricane Wilma. In Montura Ranch Estates, 11 (12%) households had at least one occupant aged <2 years, and 32 (35%) had at least one occupant aged ≥ 65 years. In Pioneer Plantation, one household reported an occupant aged <2 years, and three (4%) households had at least one occupant aged ≥ 65 years.

In Montura Ranch Estates, 74 (81%) households lived in mobile homes, and 17 (19%) lived in single-family homes (Table). Forty-seven (64%) Pioneer Plantation households lived in mobile homes and 26 (35%) in single-family homes. Thirty-five (38%) homes in Montura Ranch Estates and 34 (46%) homes in Pioneer Plantation had minimal or no damage. Eighty-six (52%) of the homes in both areas were considered damaged but habitable by the residents living there at the time of the interview. Nine (10%) homes in Montura

TABLE. Number and percentage of households reporting selected characteristics after Hurricane Wilma, by community — Hendry County, Florida, November 1–2, 2005

Characteristic	Pioneer Plantation		Montura Ranch Estates	
	No. of households (n = 74)	(%)	No. of households (n = 91)	(%)
Damage to home				
Minimal or no damage	34	(46)	35	(38)
Damaged, habitable	39	(53)	47	(52)
Damaged, uninhabitable	1	(1)	9	(10)
House structure type				
Mobile home	47	(64)	74	(81)
Single-family home	26	(35)	17	(19)
Two-to-five-family unit	1	(1)	0	—
Affected by another hurricane during 2004–2005				
Household utilities				
No running water	5	(7)	7	(8)
No electricity from the utility company	2	(3)	5	(6)
No working toilet	2	(3)	3	(3)
No working telephone	8	(11)	6	(7)
No regular garbage pickup	1	(1)	10	(11)
Food, water, supplies, and information				
Using well water	22	(30)	15	(17)
Using bottled water	52	(70)	75	(82)
Without access to a 3-day food supply	2	(3)	3	(4)*
Received information about post-disaster safety (e.g., carbon monoxide poisoning) during the preceding week	27	(37)	18	(24)
Health care and social support				
At least one household member had an injury or illness since the hurricane	8	(11)	11	(14)*
At least one household member was unable to obtain needed medical care	2	(3)	4	(5)*
At least one household member was without access to 3-day prescription medication supply	5	(7)	7	(9)*
At least one household member had emotional concerns, thinking, or memory problems preventing caring for self or dependents	9	(12)	9	(12)*

* Response data missing from 15 households in Montura Ranch Estates (n = 76).

Ranch Estates were considered to be uninhabitable, and one (1%) home in Pioneer Plantation was considered uninhabitable. Eighteen (20%) households in Montura Ranch Estates and 29 (39%) in Pioneer Plantation reported needing a tarpaulin to cover leaking roofs. At the time of the survey, more than 88% of households in both communities had basic utilities (i.e., running water, working toilet, and landline or cellular telephone service). Two (2%) households in Montura Ranch Estates and seven (9%) in Pioneer Plantation reported having a working carbon monoxide (CO) detector.

Eighty-two (90%) households in Montura Ranch Estates and 58 (80%) in Pioneer Plantation reported receiving disaster relief (e.g., food, water, ice, or shelter) in the 7 days before the interview. A total of 145 of 150 (97%) households in both communities reported having access to a 3-day supply of food, and 19 (13%) reported that at least one household member had been ill or sustained an injury since the hurricane. Six (4%) of 150 households reported that a household member had been unable to obtain needed medical care.

Forty-five (27%) households in the two communities reported having received information about safety (e.g., safe use of pressure cleaners to reduce the risk for CO poisoning during hurricane cleanup) during the week before the survey. Radio and television were the most common sources of this information. Other sources included word of mouth and flyers.

Reported by: *W Service, MSPH, North Carolina Div of Public Health; S Ramsey, K Henderson, DO, M Smith, PhD, North Carolina Public Health Regional Surveillance Teams. S Emmanuel, MPH, Florida Dept of Health. D Batts, MD, C Sanchez, MD, S Young, MS, MPH, E Azziz-Baumgartner, MD, M Patel, MD, M Miller, L Corrales, MPH, National Center for Environmental Health; J Schulte, DO, Career Epidemiology Field Officer; L Conklin, MD, EIS Officer, CDC.*

Editorial Note: Rural areas present unique challenges to assessing and fulfilling the needs of residents after disasters such as hurricanes. Although they often sustain more damage than urban areas, needs of rural communities can be more difficult to assess because of lesser population density. Residents in certain rural areas are more socioeconomically disadvantaged and often have more needs than their urban counterparts; available recovery resources can be quickly exhausted.

The survey results indicate that public health risk factors were present in Hendry County 8 days after Hurricane Wilma struck the area. Property damage was substantial, with more than half of the homes, although habitable, sustaining damage from the storm. The majority of residents had used disaster relief aid services, but only 27% reported receiving information on clean-up safety. Only 5% of survey participants had a working CO detector in their homes, although one third of households had been affected by at least one previous hurricane in 2004–2005.

The findings in this report are subject to at least three limitations. First, residents of evacuated or destroyed homes were unavailable for inclusion in the assessment, which likely underestimated overall needs. Second, homes that might have been occupied but were inaccessible because of flooding or debris also were not included in the assessment. Finally, lack of updated census information and maps to accurately define the communities being assessed might have resulted in sampling errors.

On November 3, recommendations based on the findings in this report were presented to FDOH and the Hendry County

Emergency Operations Center, which responded immediately. Recommendations included the following: 1) provide residents with information and assistance on post-storm home remediation (e.g., clean-up safety, debris removal, and CO poisoning risks), 2) restore electric power to households without it, 3) consider implementing a program to facilitate access to medical care and prescription drugs, 4) provide tarpaulins to residents with damaged roofs to temporarily prevent leaking, and 5) ensure that populations affected by the storm had knowledge of and access to food banks in their areas.

References

1. Pasch RJ, Blake ES, Cobb III HD, Roberts DP. Tropical cyclone report: Hurricane Wilma, 15–25 October 2005. Miami, FL: US Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Hurricane Center; 2006. Available at http://www.nhc.noaa.gov/pdf/TCR-AL242005_Wilma.pdf.
2. Metropolitan Medical Risk Team. Headlines: threat and risk news. Raises Wilma death toll to 10. Available at <http://mmrs.fema.gov/news/threats/2005/oct/nthr2005-10-26b.aspx>
3. US Census Bureau. Florida data: 2000 census. Washington, DC: US Census Bureau. Available at <http://www.census.gov>.
4. CDC. Rapid community health and needs assessments after Hurricanes Isabel and Charley—North Carolina, 2003–2004. *MMWR* 2004;53:840–2.
5. CDC. Rapid assessment of the needs and health status of older adults after Hurricane Charley—Charlotte, DeSoto, and Hardee Counties, Florida, August 27–31, 2004. *MMWR* 2004;53:837–40.

Update: Influenza Activity — United States, April 2–8, 2006

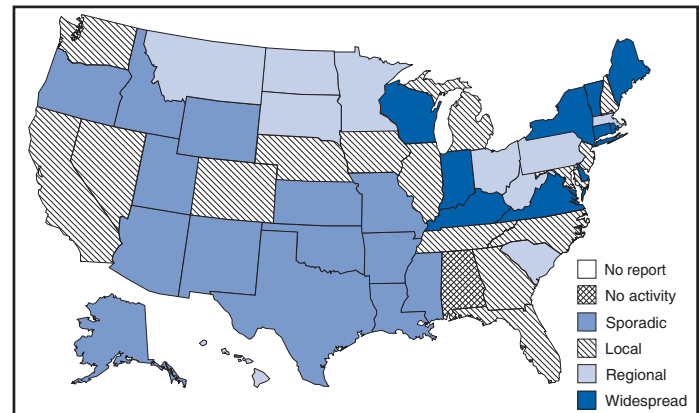
During April 2–8, 2006,* the number of states reporting widespread influenza activity† decreased to 10. Ten states reported regional activity, 15 reported local activity, 14 reported sporadic activity, and one reported no activity (Figure 1).‡ The percentage of specimens testing positive for

* Provisional data reported as of April 14. 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*: Connecticut, Delaware, Indiana, Kentucky, Maine, New York, Rhode Island, Vermont, Virginia, and Wisconsin; *regional*: Hawaii, Massachusetts, Minnesota, Montana, North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, and West Virginia; *local*: California, Colorado, Florida, Georgia, Illinois, Iowa, Maryland, Michigan, Nebraska, Nevada, New Hampshire, New Jersey, North Carolina, Tennessee, and Washington; *sporadic*: Alaska, Arizona, Arkansas, Idaho, Kansas, Louisiana, Mississippi, Missouri, New Mexico, Oklahoma, Oregon, Texas, Utah, and Wyoming; *no activity*: Alabama; *no report*:

FIGURE 1. Estimated influenza activity levels reported by state epidemiologists, by state and level of activity* — United States, April 2–8, 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*.

influenza decreased in the United States. During the preceding 3 weeks (weeks 12–14), the percentage of specimens testing positive for influenza ranged from 26.4% in the South Atlantic region to 12.5% in the Mid-Atlantic region. During this period, regions reporting the highest proportion of isolates as influenza B included the Pacific (62.5%), Mountain (61.8%), and West North Central (61.2%) regions. Other regions reporting more than 30.0% of recent isolates as influenza B include the East North Central, West South Central, and New England regions. The percentage of outpatient visits for influenza-like illness (ILI)§ during the week ending April 8 was below the national baseline.** The percentage of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold for the week ending April 8.

Laboratory Surveillance

During April 2–8, World Health Organization (WHO) collaborating laboratories and National Respiratory and Enteric Virus Surveillance System (NREVSS) laboratories in the United States reported testing 1,908 specimens for influ-

§ 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.

enza viruses, of which 300 (15.7%) were positive. Of these, 24 were influenza A (H3N2) viruses, 36 were influenza A (H1N1) viruses, 77 were influenza A viruses that were not subtyped, and 163 were influenza B viruses.

Since October 2, 2005, WHO and NREVSS laboratories have tested 119,202 specimens for influenza viruses, of which 15,113 (12.7%) were positive. Of these, 12,910 (85.4%) were influenza A viruses, and 2,203 (14.6%) were influenza B viruses. Of the 12,910 influenza A viruses, 5,234 (40.5%) have been subtyped; 4,935 (94.3%) were influenza A (H3N2) viruses, and 299 (5.7%) were influenza A (H1N1) viruses.

P&I Mortality and ILI Surveillance

During the week ending April 8, P&I accounted for 7.4% of all deaths reported through the 122 Cities Mortality Reporting System. This percentage is below the epidemic threshold^{††} of 8.0% (Figure 2).

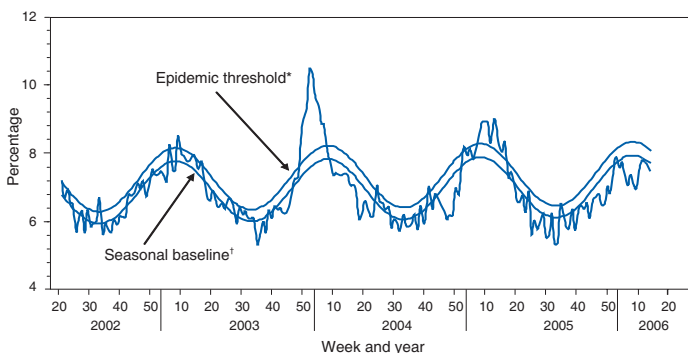
The percentage of patient visits for ILI was 1.9%, which is below the national baseline of 2.2% (Figure 3). The percentage of patient visits for ILI ranged from 1.2% in the West North Central region to 4.6% in the West South Central region.

Pediatric Deaths and Hospitalizations

During October 2, 2005–April 8, 2006, CDC received reports of 22 influenza-associated deaths in U.S. residents aged

^{††} 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.

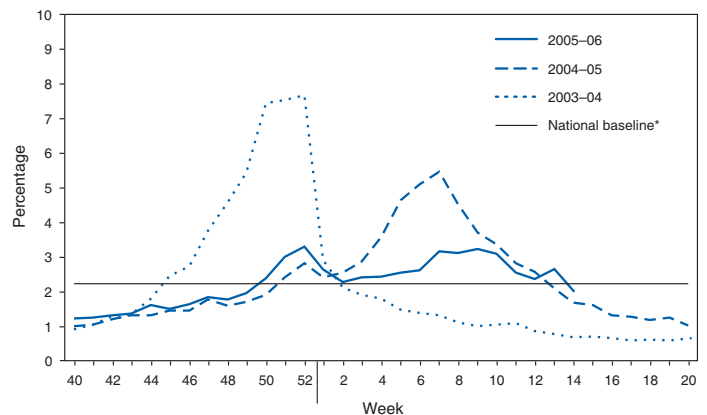
FIGURE 2. Percentage of deaths attributed to pneumonia and influenza (P&I) reported by the 122 Cities Mortality Reporting System, by week and year — United States, 2002–2006



* 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.

<18 years. Twenty of the deaths occurred during the current influenza season, and two occurred during the 2004–05 influenza season.

During October 1, 2005–April 1, 2006, the preliminary laboratory-confirmed influenza-associated hospitalization rate reported by the Emerging Infections Program^{§§} for children aged 0–17 years was 0.98 per 10,000. For children aged 0–4 years and 5–17 years, the rate was 2.31 per 10,000 and 0.31 per 10,000, respectively. During October 30, 2005–April 1, 2006, the preliminary laboratory-confirmed influenza-associated hospitalization rate for children aged 0–4 years in the New Vaccine Surveillance Network^{¶¶} was 4.0 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 April 13, 2006, a total of 194 laboratory-confirmed human avian influenza A (H5N1) infections were reported to WHO from Azerbaijan, Cambodia, China, Egypt, Indonesia, Iraq, Thailand, Turkey, and Vietnam.^{***} Of these, 109

^{§§} 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.

^{¶¶} 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.

(56%) were fatal (Table). This represents an increase of one case in Indonesia since the previous update on April 11. 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.

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	8	5	8	5
Cambodia	0	0	0	0	4	4	2	2	6	6
China	0	0	0	0	8	5	8	6	16	11
Egypt	0	0	0	0	0	0	4	2	4	2
Indonesia	0	0	0	0	17	11	14	12	31	23
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	50	33	194	109

* As of April 18, 2006.

Notice to Readers

Africa Malaria Day — April 25, 2006

Approximately 90% of the estimated 1 million deaths caused by malaria each year occur in Africa, where every 30 seconds a child dies from malaria (1). To confront this public health problem, on April 25, 2000, government leaders from 44 African countries met in Abuja, Nigeria, and signed the Abuja Declaration, committing their countries to decreasing malaria deaths in Africa by 50% by 2010 (2). This event has been commemorated every year since on Africa Malaria Day.*

This year's theme, Universal Access to Effective Malaria Treatment Is a Human Right, and the associated slogan, Get your ACT Together!, underscore the importance of ensuring access to artemisinin-based combination treatment (ACT). Because chloroquine is no longer effective in Africa and resistance is increasing to other first-line antimalarials, the World Health Organization has recommended a change to ACTs, and many African countries now recommend first-line use of ACT, a more expensive, but more effective drug regimen (3).

Africa Malaria Day also is an occasion to recognize renewed global commitment to the fight against malaria. On Africa Malaria Day in 2005, the World Bank pledged \$500 million to \$1 billion over the next 5 years to its Global Strategy and

Booster Program for Malaria Control to strengthen program design and implementation, increase intervention coverage, and improve outcomes. Antimalaria projects have been approved in the Democratic Republic of the Congo, Eritrea, Niger, and Zambia, and preparations are under way in nine additional countries.

In May 2005, the Program for Appropriate Technology in Health (PATH), an international nonprofit organization, partnered with Zambia to promote rapid scale-up of malaria interventions in sub-Saharan Africa. The Malaria Control and Evaluation Partnership in Africa, consisting of PATH, the Government of Zambia, and other local and global partners, is working to increase malaria prevention and control and assess the impact on morbidity and mortality of major interventions, including case management, personal protection with insecticide-treated nets (ITNs) and indoor residual spraying (IRS), and prevention of malaria during pregnancy. Before and during the recent transmission season, the Zambian government distributed approximately 500,000 ITNs and retreatment kits, extended IRS to eligible households in 15 districts, and extended ACT coverage to all district health facilities.

On June 30, 2005, the President's Malaria Initiative (PMI)[†] pledged \$1.2 billion over the next 5 years to support malaria prevention and treatment in sub-Saharan Africa. PMI's goal is to reduce malaria deaths by 50% in each of the target coun-

* Available at <http://www.rbm.who.int/cgi-bin/rbm/rbmportal/custom/rbm/home.do>.

[†] Available at <http://www.fightingmalaria.gov/index.html>.

tries after 3 years of full implementation. In December 2005 and January 2006, the United States, in partnership with ministries of health, nongovernmental organizations, academia, and private industries, launched PMI in the first three target countries (Angola, Tanzania, and Uganda) with distribution of more than 300,000 ITNs and IRS of 100,000 homes. PMI plans to ultimately reach 175 million people in up to 15 or more African countries most affected by malaria. PMI activities are integrated with the Global Fund to Fight AIDS, Tuberculosis, and Malaria, which has more than \$1 billion for malaria interventions.

References

1. Bryce J, Boschi-Pinto C, Shibuya K, Black RE, WHO Child Health Epidemiology Reference Group. WHO estimates of the causes of death in children. *Lancet* 2005;365:1147–52.
2. Roll Back Malaria Partnership, World Health Organization. The Abuja Declaration and the plan of action. Geneva, Switzerland: World Health Organization; 2000. Available at http://www.rbm.who.int/docs/abuja_declaration.pdf.
3. World Health Organization. Facts on ACTS. Geneva, Switzerland: World Health Organization; 2005. Available at http://www.rbm.who.int/cmcc_upload/0/000/015/364/RBMInfosheet_9.htm.

Notice to Readers

National Infant Immunization Week — April 22–29, 2006

The week of April 22–29, 2006 is National Infant Immunization Week (NIIW) and Vaccination Week in the Americas (VWA). During this week, hundreds of communities throughout the United States are expected to participate in NIIW-VWA by sponsoring activities emphasizing the importance of timely infant and childhood vaccination.

Immunization is one of the most effective ways to protect infants and children from potentially serious diseases. Because of increased emphasis on vaccination, the majority of vaccine-preventable diseases have decreased in incidence by approximately 99% from peak prevaccine levels in the United States (1). In 2005, CDC announced the elimination of rubella virus in the United States (1). Measles is no longer endemic in the United States (1). The number of measles cases in the Western Hemisphere has been reduced by more than 99%, from approximately 250,000 cases in 1990 to 75 cases in 2005 (2).

In 2005, a total of 62 cases of measles, one case of wild poliovirus, and no cases of diphtheria were reported in the United States (3). Approximately 11,000 infants are born each day in the United States; according to the recommended childhood immunization schedule, they require approximately 24 doses of vaccine (18–19 injections using combination vac-

cines) before age 2 years to protect them from 13 vaccine-preventable diseases (4).

Arizona, Utah, and communities along the United States–Mexico border will host kick-off events highlighting the need to achieve and maintain high childhood vaccination coverage rates, including provider education activities, media events, and immunization clinics in collaboration with CDC, state and local health departments, the United States–Mexico Border Health Commission, and the Pan American Health Organization (PAHO).

NIIW is being held in conjunction with VWA. VWA, sponsored by PAHO, targets children and other vulnerable and underserved populations with low vaccination coverage rates in all countries in the Western Hemisphere during this annual campaign.

During NIIW-VWA, CDC will introduce a new Spanish-language public education campaign, including television and radio public service announcements, posters, and print advertisements. Additional information about NIIW-VWA and childhood vaccination is available from CDC's National Immunization Program at <http://www.cdc.gov/nip/events/niiw/default.htm>. Information on VWA is available at http://www.paho.org/English/DD/PIN/vw_2006.htm.

References

1. CDC. Achievements in public health, 1900–1999 impact of vaccines universally recommended for children—United States, 1990–1998. *MMWR* 1999;48:243–8.
2. Pan American Health Organization. Measles and rubella surveillance in the Americas. *Measles / Rubella Weekly Bulletin* 2005;11:1–2. Available at <http://www.paho.org/english/ad/fch/im/sme1152.pdf>.
3. CDC. Summary of provisional cases of selected notifiable diseases, United States, cumulative, week ending December 31, 2005 (52nd week). *MMWR* 2006;54:1320–30.
4. CDC. Recommended childhood and adolescent immunization schedule—United States, 2006. *MMWR* 2006;54:Q1–Q4.

Errata: Vol. 55, No. 14

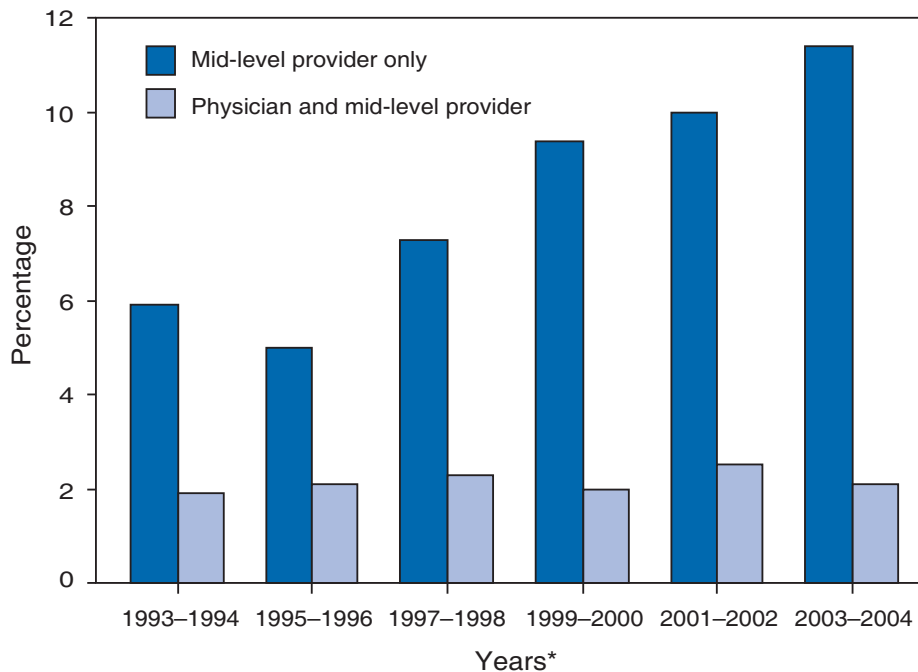
In the report, “Exposure to Mumps During Air Travel — United States, April 2006,” an incorrect city name was given for the location of Northwest Arkansas Regional Airport. The correct city is **Bentonville**, Arkansas.

In the report, “Botulism from Home-Canned Bamboo Shoots — Nan Province, Thailand, March 2006,” on page 390, the second sentence of the third paragraph should read, “Twenty vials of heptavalent antitoxin (A–G) were provided by the United Kingdom Department of Health with assistance from the World Health Organization, 50 vials of bivalent antitoxin (A, B) were donated by CDC, and 23 vials of **quadrivalent** antitoxin (A, B, E, F) were donated by the National Institute of Infectious Diseases in Japan.”

QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Percentage of Outpatient Department (OPD) Visits in Which Only a Mid-Level Provider Was Seen and in Which Both a Physician and a Mid-Level Provider Were Seen — United States, 1993–2004



* Data reflect average annual estimates for each 2-year period.

Since 1993–1994, the annual number of OPD visits increased by 39% to approximately 90 million during 2003–2004. Although the majority (80%) of OPD patients were seen by a physician during 2003–2004, the role of mid-level providers (e.g., physician assistants, nurse practitioners, and midwives) became more prominent. Since 1993–1994, the percentage of visits in which only a mid-level provider was seen increased from approximately 6% to 11%. During the same period, the percentage of visits in which both a mid-level provider and physician were seen did not change, and the percentage of visits in which only a physician was seen decreased by 4%, from 81% to 78%.

SOURCE: Unpublished data from the National Hospital Ambulatory Medical Care Survey (NHAMCS), 1993–2004. Available at <http://www.cdc.gov/nchs/nhamcs.htm>.

TABLE I. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending April 15, 2006 (15th 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	1	21	1	90	87	76	69	97	WA (1)
other (wound & unspecified)	1	13	0	22	30	33	21	19	CA (1)
Brucellosis	2	21	2	116	114	104	125	136	OH (1), CA (1)
Chancroid	—	9	1	27	30	54	67	38	
Cholera	—	—	0	6	5	2	2	3	ND (1)
Cyclosporiasis§	—	11	3	737	171	75	156	147	
Diphtheria	—	—	—	—	—	1	1	2	
Domestic arboviral diseases§§:									
California serogroup	—	—	0	78	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	—	12	2	759	537	362	511	261	
human monocytic	—	42	1	459	338	321	216	142	
human (other & unspecified)	—	2	0	122	59	44	23	6	
<i>Haemophilus influenzae</i> ,**									
invasive disease (age <5 yrs):									
serotype b	—	2	0	10	19	32	34	—	
nonserotype b	—	24	3	127	135	117	144	—	
unknown serotype	4	63	4	211	177	227	153	—	VT (1), OH (1), MO (1), FL (1)
Hansen disease§	1	12	2	83	105	95	96	79	TX (1)
Hantavirus pulmonary syndrome§	—	5	0	22	24	26	19	8	
Hemolytic uremic syndrome, postdiarrheal§	2	17	2	203	200	178	216	202	CA (2)
Hepatitis C viral, acute	6	206	35	794	713	1,102	1,835	3,976	NY (2), PA (1), MO (1), FL (1), UT (1)
HIV infection, pediatric (age <13 yrs)§††	—	52	6	380	436	504	420	543	
Influenza-associated pediatric mortality§§§¶¶	2	19	1	49	—	N	N	N	NJ (1), CA (1)
Listeriosis	9	134	9	864	753	696	665	613	VT (1), NY (1), OH (2), MI (1), MN (1), NC (1), FL (1), AL (1)
Measles	—	4***	2	65	37	56	44	116	
Meningococcal disease,††† invasive:									
A, C, Y, & W-135	1	70	5	305	—	—	—	—	FL (1)
serogroup B	3	47	2	183	—	—	—	—	NY (2), SC (1)
other serogroup	—	7	1	26	—	—	—	—	
Mumps	88	660	5	305	258	231	270	266	NY (1), PA (1), MN (1), IA (3), MO (14), KS (65), NC (1), FL (1), UT (1)
Plague	—	1	—	7	3	1	2	2	
Poliomyelitis, paralytic	—	—	—	1	—	—	—	—	
Psittacosis§	2	4	0	23	12	12	18	25	NY (1), PA (1)
Q fever§	1	32	1	128	70	71	61	26	CA (1)
Rabies, human	—	—	0	4	7	2	3	1	
Rubella	—	1	0	11	10	7	18	23	
Rubella, congenital syndrome	—	—	0	1	—	1	1	3	CA (2)
SARS-CoV§§	—	—	0	—	—	8	N	N	
Smallpox§	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome§	—	37	4	104	132	161	118	77	
<i>Streptococcus pneumoniae</i> ,§									
invasive disease (age <5 yrs)	8	316	16	1,143	1,162	845	513	498	MA (1), NY (2), PA (1), OH (2), MI (1), AR (1)
Syphilis, congenital (age <1 yr)	1	54	8	341	353	413	412	441	AZ (1)
Tetanus	1	5	0	25	34	20	25	37	ND (1)
Toxic-shock syndrome (other than streptococcal)§	1	33	2	92	95	133	109	127	OH (1)
Trichinellosis	—	2	0	21	5	6	14	22	
Tularemia§	—	3	1	137	134	129	90	129	
Typhoid fever	2	60	5	311	322	356	321	368	NY (1), CA (1)
Vancomycin-intermediate <i>Staphylococcus aureus</i> §	—	1	—	2	—	N	N	N	
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 24 cases reported since October 2, 2005 (week 40), only 22 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 April 15, 2006, and April 16, 2005 (15th Week)*

Reporting area	Lyme disease					Malaria				
	Current week	Previous 52 weeks		Cum 2006	Cum 2005	Current week	Previous 52 weeks		Cum 2006	Cum 2005
		Med	Max				Med	Max		
United States	13	298	1,334	1,289	1,887	5	24	110	241	315
New England	—	50	232	67	168	—	1	12	8	14
Connecticut	—	9	154	41	6	—	0	10	1	—
Maine	—	2	26	8	10	—	0	1	1	—
Massachusetts	—	18	164	1	134	—	0	4	5	11
New Hampshire	—	3	17	14	16	—	0	1	—	2
Rhode Island	—	0	12	—	1	—	0	2	—	1
Vermont†	—	1	5	3	1	—	0	2	1	—
Mid. Atlantic	10	170	934	892	1,214	—	5	15	32	79
New Jersey	—	25	310	131	400	—	0	7	—	19
New York (Upstate)	8	73	900	480	202	—	1	11	7	15
New York City	—	0	0	—	—	—	3	8	16	36
Pennsylvania	2	61	464	281	612	—	1	2	9	9
E.N. Central	—	13	157	32	82	—	2	6	31	24
Illinois	—	0	6	—	1	—	0	2	7	7
Indiana	—	0	4	—	2	—	0	3	5	3
Michigan	—	1	7	6	1	—	0	2	4	7
Ohio	—	1	5	5	15	—	0	3	11	3
Wisconsin	—	10	148	21	63	—	0	3	4	4
W.N. Central	1	12	99	32	46	1	0	30	6	14
Iowa	—	1	8	1	7	—	0	1	1	2
Kansas	—	0	3	—	2	—	0	1	—	1
Minnesota	1	7	96	29	36	—	0	29	2	3
Missouri	—	0	2	1	1	—	0	3	1	8
Nebraska†	—	0	2	1	—	—	0	2	—	—
North Dakota	—	0	0	—	—	1	0	0	1	—
South Dakota	—	0	1	—	—	—	0	1	1	—
S. Atlantic	2	33	124	197	336	3	6	15	82	67
Delaware	—	9	37	71	122	—	0	1	1	1
District of Columbia	1	0	2	6	1	—	0	2	—	2
Florida	1	1	5	12	9	2	1	6	12	14
Georgia	—	0	1	—	1	—	1	6	22	10
Maryland†	—	16	87	97	160	—	1	9	21	21
North Carolina	—	0	5	8	14	1	0	8	10	8
South Carolina†	—	0	3	2	4	—	0	2	3	3
Virginia†	—	3	22	1	25	—	0	9	12	7
West Virginia	—	0	42	—	—	—	0	2	1	1
E.S. Central	—	0	4	—	6	—	1	2	7	7
Alabama†	—	0	1	—	—	—	0	1	3	2
Kentucky	—	0	1	—	1	—	0	2	1	2
Mississippi	—	0	0	—	—	—	0	1	1	—
Tennessee†	—	0	4	—	5	—	0	2	2	3
W.S. Central	—	1	7	1	18	—	1	30	10	32
Arkansas	—	0	2	—	—	—	0	2	—	2
Louisiana	—	0	1	—	2	—	0	1	—	1
Oklahoma	—	0	0	—	—	—	0	6	1	2
Texas†	—	0	7	1	16	—	1	29	9	27
Mountain	—	0	4	2	2	—	1	7	13	16
Arizona	—	0	4	2	—	—	0	7	1	2
Colorado	—	0	1	—	—	—	0	3	4	8
Idaho†	—	0	1	—	—	—	0	0	—	—
Montana	—	0	0	—	—	—	0	1	1	—
Nevada†	—	0	2	—	—	—	0	2	—	—
New Mexico†	—	0	1	—	—	—	0	1	—	1
Utah	—	0	1	—	1	—	0	2	7	4
Wyoming	—	0	1	—	1	—	0	1	—	1
Pacific	—	3	19	66	15	1	4	12	52	62
Alaska	—	0	1	—	1	—	0	1	4	2
California	—	2	19	66	12	1	3	10	37	51
Hawaii	N	0	0	N	N	—	0	4	—	4
Oregon†	—	0	3	—	2	—	0	2	4	2
Washington	—	0	3	—	—	—	0	5	7	3
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	N	0	0	N	N	—	0	1	—	—
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—

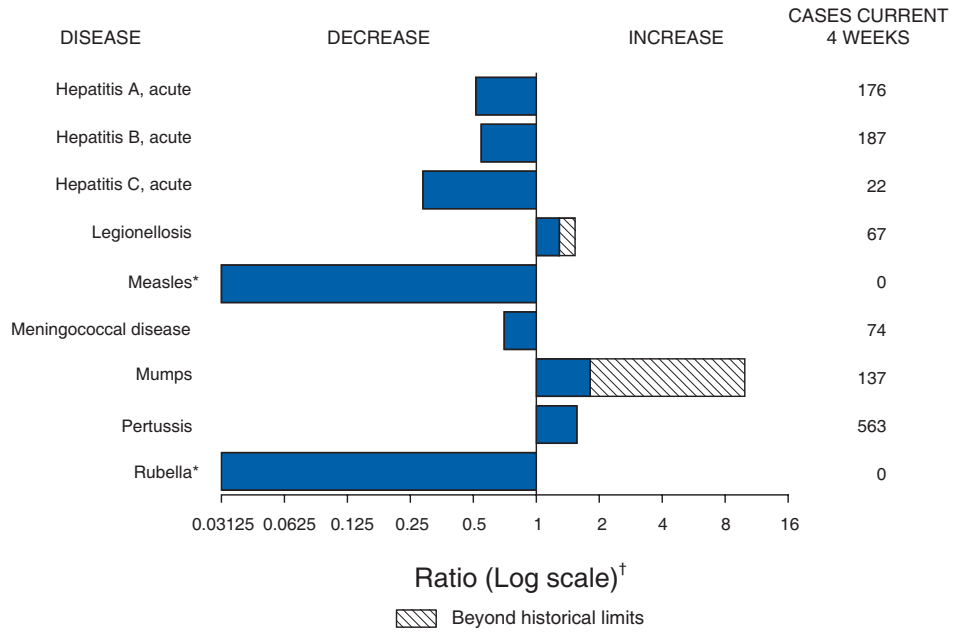
C.N.M.I.: Commonwealth of Northern Mariana Islands.

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.

† 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 April 15, 2006, with historical data



* No measles or rubella cases were reported for the current 4-week period yielding a ratio for week 15 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.

The *Morbidity and Mortality Weekly Report (MMWR)* Series is prepared by the Centers for Disease Control and Prevention (CDC) and is available free of charge in electronic format and on a paid subscription basis for paper copy. To receive an electronic copy each week, send an e-mail message to listserv@listserv.cdc.gov. The body content should read *SUBscribe mmwr-toc*. Electronic copy also is available from CDC's World-Wide Web server at <http://www.cdc.gov/mmwr> or from CDC's file transfer protocol server at <ftp://ftp.cdc.gov/pub/publications/mmwr>. To subscribe for paper copy, contact Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; telephone 202-512-1800.

Data in the weekly *MMWR* are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the following Friday. Address inquiries about the *MMWR* Series, including material to be considered for publication, to Editor, *MMWR* Series, Mailstop E-90, CDC, 1600 Clifton Rd., N.E., Atlanta, GA 30333; telephone 888-232-3228.

All material in the *MMWR* Series is in the public domain and may be used and reprinted without permission; citation as to source, however, is appreciated.

All *MMWR* references are available on the Internet at <http://www.cdc.gov/mmwr>. Use the search function to find specific articles.

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

References to non-CDC sites on the Internet are provided as a service to *MMWR* readers and do not constitute or imply endorsement of these organizations or their programs by CDC or the U.S. Department of Health and Human Services. CDC is not responsible for the content of these sites. URL addresses listed in *MMWR* were current as of the date of publication.