



# MMWR<sup>TM</sup>

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### Resurgence of Wild Poliovirus Type 1 Transmission and Consequences of Importation — 21 Countries, 2002–2005

After the 1988 World Health Assembly resolution to eradicate poliomyelitis globally,\* the number of polio-endemic countries decreased from 125 in 1988 to six<sup>†</sup> (Afghanistan, Egypt, India, Niger, Nigeria, and Pakistan) in 2003 (1). However, during 2002–2005, a total of 21 previously polio-free countries<sup>§</sup> were affected by importations of wild poliovirus (WPV) type 1 from the six remaining countries (primarily Nigeria) where WPV was endemic; four countries (Indonesia, Somalia, Sudan, and Yemen) had outbreaks of >100 polio cases (1,2).<sup>¶</sup> By the end of 2005, WPV transmission in all 21 countries except Somalia had been interrupted or substantially curtailed. This report summarizes WPV importations into polio-free countries during 2002–2005 and the status of WPV transmission in these countries as of January 24, 2006, and describes actions that polio-free countries can take to improve importation preparedness.

#### Origins and Timelines of Importations

Comprehensive sequencing data enable tracing of the origins and routes of virus importations.\*\* Of 21 previously polio-free countries with importations since 2002, a total of 11

countries in Africa detected WPV type 1 during September 2002–June 2004; the virus was imported directly from Nigeria into Benin, Botswana, Burkina Faso, Cameroon, and Chad and indirectly from Nigeria through neighboring countries to Central African Republic, Côte d'Ivoire, Ghana, Guinea, Mali, and Togo (Figure). The number of reported polio cases resulting from a single importation ranged from one in multiple countries to 44 in Chad<sup>††</sup> (Table).

In addition, WPV type 1 of Nigerian origin was transmitted into seven other countries after virus from the Chad outbreak spread to Sudan in mid-2004. During November 2004–July 2005, WPV from Sudan spread to Eritrea, Ethiopia, Saudi Arabia, and Yemen; subsequently, WPV was imported into Indonesia from Saudi Arabia and into Somalia from Yemen. The number of polio cases ranged from one in Eritrea to large outbreaks in Yemen (478 cases), Indonesia (299), Somalia (154), and Sudan (146<sup>§§</sup>) (4–6).

<sup>††</sup> Imported virus resulted in 48 cases from three importations in Chad; transmission of older endemic lineages of WPV type 3 accounted for two cases.

<sup>§§</sup> Imported virus resulted in 146 cases in Sudan; transmission of nonimported endemic lineages of WPV type 1 accounted for five other cases and WPV type 3 for three cases.

\* World Health Assembly. Global eradication of poliomyelitis by the year 2000: resolution of the 41st World Health Assembly. Geneva, Switzerland: World Health Organization; 1988 (WHA resolution no. 41.28).

<sup>†</sup> As of February 1, 2006, Niger and Egypt were considered no longer endemic for WPV because neither country had indigenous transmission during the preceding 12 months.

<sup>§</sup> Countries with no evidence of indigenous WPV transmission for  $\geq 1$  year.

<sup>¶</sup> In this report, Niger was not included among the 21 polio-free countries with imported WPV because Niger was not considered polio-free at the beginning of 2005.

\*\* The sequence of the complete VP1 coding region is determined by using automated cycle-sequencing procedures described previously (3) and by comparing the resulting sequences with those in a database of all recent poliovirus isolates. The origins and routes of virus importation are then derived from phylogenetic analysis.

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#### Notifiable Disease Morbidity and 122 Cities Mortality Data

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WPV type 1 originating from India has resulted in 15 polio cases in three countries since 2002. WPV type 1 was imported into Lebanon (one case in January 2003), Angola (10 cases during April–November 2005) (7), and Nepal (four cases during August–October 2005 from multiple importations) (Figure, Table).

### Consequences of WPV Importation

Imported WPV did not result in sustained transmission in eight of the 21 countries, including four countries (Botswana, Eritrea, Lebanon, and Togo) with only one case and four countries (Benin, Cameroon, Nepal, and Saudi Arabia) with either polio cases not directly linked genetically or epidemiologically or with a duration of WPV transmission of <6 months. In the remaining 13 countries, imported WPV caused multiple-case outbreaks lasting  $\geq 6$  months. In eight (Burkina Faso, Central African Republic, Chad, Côte d'Ivoire, Ghana, Guinea, Mali, and Sudan) of the 13 countries, transmission is considered to have stopped,<sup>¶¶</sup> with a median interval between the first and the last case of 315 days (range: 184–743 days).

The eight countries without sustained WPV transmission differed in other ways from the 13 countries with sustained transmission. According to World Health Organization (WHO)/UNICEF estimates for 2003, the eight countries had median vaccination coverage (3 doses of live, attenuated oral polio vaccine [OPV3] by age 12 months) of 83% compared with a median coverage of 52% in the other 13 countries ( $p = 0.001$ , Wilcoxon rank-sum test). The median proportion of districts with reported coverage of at least 80% also differed: 63% for the eight countries without sustained WPV transmission and 20% for the 13 countries with sustained transmission ( $p = 0.009$ ) (8).

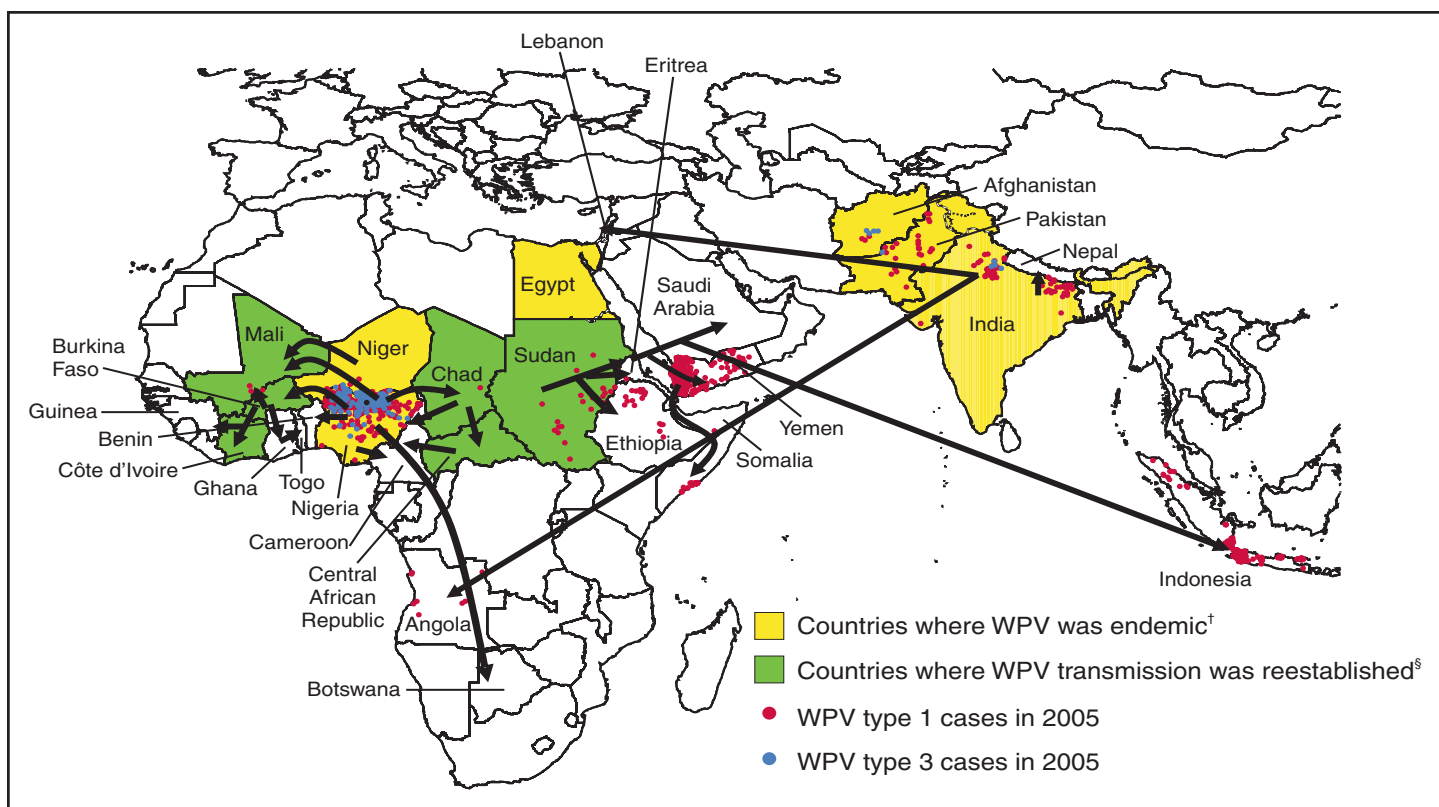
### Timeliness of Detection and Response

The median interval from onset of paralysis in the first case to laboratory confirmation of WPV was 51 days (range: 24–123 days) in the 21 countries with importations (Table). The median interval from laboratory confirmation to supplementary immunization activity (SIA)<sup>\*\*\*</sup> was 37 days (range: 7–102 days). All countries conducted multiple SIA

<sup>¶¶</sup> For the purposes of this analysis, transmission after importation of WPV type 1 was considered to have stopped if countries did not detect WPV during the preceding 6 months.

<sup>\*\*\*</sup> SIAs consist of 1) national immunization days (NIDs), nationwide mass campaigns conducted during a short period (i.e., days to weeks) during which a dose of OPV is administered to all children (usually aged <5 years) regardless of previous vaccination history; 2) sub-NIDs (SNIDs), which are campaigns similar to NIDs but confined to certain parts of the country; or 3) mopping-up intensive focal campaigns focusing on high-risk areas after poliovirus isolation in countries that are endemic for WPV.

FIGURE. Wild poliovirus (WPV) cases in 2005 and WPV importation routes\* during 2002–2005 — worldwide



\* Routes (not all importation events) indicated by arrows.

† As of February 1, 2006, Niger and Egypt were considered no longer endemic for WPV because neither country had indigenous transmission during the preceding 12 months.

§ Countries were considered to have reestablished transmission if WPV was detected for >1 year after importation. The majority of these countries have not experienced WPV type 1 transmission since July 2005.

rounds (mean: four rounds; range: two to 10 rounds) in response to WPV importations, some of which had already been planned because of the known high risk for importations. SIAs in west and central Africa and Sudan were synchronized among as many as 22 countries. The median interval from onset of the first case to the first large-scale (i.e.,  $\geq 25\%$  of children) vaccination response was 92 days (range: 60–202 days).

### Countries with Ongoing Transmission

In six countries (i.e., five with sustained transmission [Angola, Ethiopia, Indonesia, Somalia, and Yemen] plus Nepal with repeated importations), transmission was detected during the most recent 6-month period. Nepal reported a case with onset on October 24, 2005, and ongoing transmission, although unlikely, cannot be excluded. The following are summaries of the status in the three countries with recent WPV transmission and large outbreaks.

**Yemen.** Six years after its last clinically confirmed polio case in 1999 and 4 years after conducting its last national immunization day (NID) in 2002, Yemen confirmed its first case of

imported WPV infection (onset February 2005) in late April 2005. Even before the first case in the outbreak was identified, an NID round was conducted in mid-April 2005 in response to the threat of importation from Sudan. Six additional NIDs were conducted during May–December 2005, with type 1 monovalent OPV (mOPV1<sup>†††</sup>) used for three of the six rounds. A total of 478 polio cases have been reported from 21 of 22 governorates, with only five cases reported after the September NID; the most recent onset was November 17, 2005.

**Indonesia.** Ten years after its last clinically confirmed polio case and 2.5 years after its most recent SIA, Indonesia confirmed its first case of imported WPV infection (onset in March 2005) in West Java Province in May 2005. By the time the first response SIA was conducted, targeting 6.4 million children aged <5 years in three provinces of the island of Java (25% of the national target population), 99 additional cases

††† mOPV1 has greater immunogenicity for WPV type 1 per dose than trivalent OPV (9).

**TABLE. Summary information regarding importation of wild poliovirus (WPV) type 1 — 21 previously polio-free\* countries, 2002–2005†**

Country	Onset date of first polio case	Onset date of most recent polio case	Closest WPV origin(s) by sequencing	Duration (days) <sup>§</sup>	No. of polio cases	Interval from onset date to date of confirmation (days)	Interval from confirmation to first large-scale vaccination response (days) <sup>¶</sup>	Estimated OPV3 coverage during 2003**	% of districts with ≥80% coverage during 2003††
Burkina Faso	9/17/2002	9/29/2004	Nigeria	743	21	47	47	83	43
Lebanon	1/23/2003	1/23/2003	India	0	1	49	18	92	100
Ghana	2/3/2003	9/29/2003	Burkina Faso	238	8	24	102	80	48
Togo	7/22/2003	7/22/2003	Ghana	0	1	59	33	63	29
Chad	8/2/2003	5/6/2005	Nigeria	643	48	66	35	48	9
Cameroon	10/8/2003	2/8/2005	Central African Republic, Chad, Nigeria	51	16	86	18	73	31
Benin	11/4/2003	6/1/2004	Nigeria	158	8	49	63	83	77
Central African Republic	12/16/2003	11/10/2004	Chad	188	31	38	38	40	8
Côte d'Ivoire	12/17/2003	10/3/2004	Burkina Faso	291	18	61	7	54	20
Botswana	2/8/2004	2/8/2004	Nigeria	0	1	50	42	97	100
Mali	5/15/2004	5/1/2005	Burkina Faso, Côte d'Ivoire, Niger, Nigeria	339	22	123	53	65	43
Guinea	6/5/2004	12/6/2004	Côte d'Ivoire	184	7	68	57	43	18
Sudan	5/20/2004	6/17/2005	Chad	393	146	32	36	50	41
Saudi Arabia	11/9/2004	12/17/2004	Sudan	0	2	36	—	95	100
Ethiopia <sup>§§</sup>	1/12/2005	12/6/2005	Sudan	229	22	59	14	52	10
Yemen <sup>§§</sup>	2/25/2005	11/17/2005	Sudan	265	478	52	40	66	24
Indonesia <sup>§§</sup>	3/13/2005	12/4/2005	Saudi Arabia	266	299	43	36	70	72
Eritrea	4/23/2005	4/23/2005	Sudan	0	1	111	91	83	17
Angola <sup>§§</sup>	4/23/2005	11/13/2005	India	204	10	51	44	45	7
Somalia <sup>§§</sup>	7/12/2005	11/30/2005	Yemen	141	154	58	20	40	3
Nepal <sup>§§</sup>	8/6/2005	10/24/2005	India	0	4	45	15	76	49

\* Countries with no evidence of indigenous WPV transmission for ≥1 year.

† Data as of January 24, 2006; certain laboratory specimens were pending confirmation.

§ Nine countries had multiple importations of different WPV lineages. Duration in these countries (Benin, Cameroon, Central African Republic, Chad, Ethiopia, Guinea, Mali, Nepal, and Saudi Arabia) reflects the longest transmission among individual lineages.

¶ Countries where ≥25% of children were targeted.

\*\* World Health Organization (WHO)/UNICEF estimate of vaccination coverage with 3 doses of live, attenuated oral polio vaccine (OPV3) by age 12 months, on the basis of country reports and survey data.

†† As reported by countries in the WHO/UNICEF Joint Reporting Form, using 3 doses of diphtheria and tetanus toxoids and pertussis vaccine (DTP3) as a surrogate.

§§ Countries with recent WPV transmission (i.e., any confirmed case with onset after July 1, 2005).

had occurred; the outbreak had grown to 252 cases in seven provinces when the first of three full NIDs targeting 24 million children was conducted in August 2005. To date, 299 cases have been reported from 10 provinces on Java and Sumatra; 11 cases have been reported since the September NID campaign, with the most recent onset on December 4, 2005.

**Somalia.** The first case of polio in Somalia in 2005, which resulted from importation of WPV from Yemen, had onset of paralysis in the capital city of Mogadishu in July 2005 and was confirmed in September 2005. Before this case occurred, the last confirmed polio case in Somalia (WPV type 3) occurred in October 2002. Because of the difficulties of implementing polio eradication strategies in Somalia, which has been affected by chronic conflict and security problems, OPV

SIA campaigns have been conducted in Somalia every year. Four NIDs (two using mOPV1) were conducted during February–July 2005 in response to the risk for WPV importation from nearby countries. After the onset of polio cases in July, three additional NID rounds were conducted during August–November 2005. To date, 154 cases have been confirmed, with the most recent onset on November 30, 2005; the cases have included 140 from Mogadishu, 11 from an adjacent district, one from a district west of Mogadishu, and two from a district in northwest Somalia near the Ethiopian border.

**Reported by:** Polio Eradication Initiative; Global Polio Laboratory Network, World Health Organization, Geneva, Switzerland. Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases; Global Immunization Div, National Immunization Program, CDC.

**Editorial Note:** Strategies for achieving polio eradication include high routine vaccination coverage, high-quality SIAs, and acute flaccid paralysis (AFP) surveillance that meets WHO performance indicators. Cessation of SIAs in portions of northern Nigeria during 2003–2004 (2) and the ongoing deficiencies in vaccinating children through routine services in many countries resulted in regional spread of WPV type 1 from Nigeria into previously polio-free countries, followed by intercontinental spread to the Middle East and Asia. Continuing transmission in northern India similarly resulted in intercontinental spread of WPV type 1 to Lebanon and Angola and contiguous spread to Nepal.

During 2005, WPV type 3 polio cases were limited to five countries (Afghanistan, India, Niger, Nigeria, and Pakistan). WPV type 3 typically is more geographically localized than WPV type 1 and is less commonly associated with importation events or subsequent outbreaks.

WPV type 1 importations and subsequent transmission has had a major impact (e.g., on finances and human resources) on the Global Polio Eradication Initiative. During 2005, a total of 1,000 polio cases (54% of the global total of 1,856) were reported from countries with outbreaks caused by importation, more than from the six remaining polio-endemic countries. Most outbreaks required multiple rounds of large-scale SIAs to control and stop transmission. Countries and international polio partners had to urgently secure additional financing and vaccine. Because of these efforts, transmission of WPV after importation has been halted or curtailed in all countries experiencing importations since 2002, except Somalia.

The relative ease with which WPV type 1 originating from Nigeria spread through west and central Africa to the Horn of Africa, the Arabian Peninsula, and Indonesia, underscores the immunity gaps among children in the affected countries. In the 13 countries experiencing outbreaks after importation, routine immunization programs remained weak, and immunity gaps at the subnational level enabled sustained transmission of WPV. The majority of countries had discontinued large-scale SIAs soon after becoming polio-free because of funding limitations. Inability to achieve or maintain high routine vaccination coverage in the absence of periodic NIDs made some countries with imported WPV vulnerable to reestablishment of WPV transmission within their borders. When periodic SIAs are conducted, planning and supervised implementation to ensure campaign quality and effectiveness are critical.

Delay in effective response vaccination contributes to extended duration of WPV transmission, which facilitates further global spread. Although surveillance systems detected and confirmed initial imported cases within the recommended

60-day period in the majority of countries, response vaccination often was not implemented within the recommended 28-day interval after WPV confirmation. Only six (30%) of 20 countries met this target.

WPV importations from polio-endemic countries into polio-free areas will continue to occur until endemic transmission is interrupted globally. The risk for importation is greatest for countries adjacent to polio-endemic countries; however, globalization and international migration pose a risk for reintroduction of WPV to all countries. Maintaining polio eradication strategies and preparedness can prevent WPV spread subsequent to importation. All polio-free countries are advised to maintain sensitive, efficient AFP surveillance systems in all areas to detect importations rapidly and to maintain sufficient levels of immunity against polioviruses through routine immunization programs or, where necessary, SIAs. Countries should prepare and maintain plans for timely, large-scale, high-quality response SIAs in case importation occurs.

WHO's Advisory Committee on Polio Eradication recommends that any polio-free country that detects imported WPV take the following measures immediately: 1) obtain a risk assessment from an international expert group and prepare a large-scale vaccination response plan within 72 hours of case confirmation; 2) conduct at least three large-scale, house-to-house immunization campaigns using type-specific mOPV, initiating the first round within 28 days of case confirmation<sup>§§§</sup>; 3) target a large number (e.g., at least 2–5 million) of children aged <5 years in the affected and adjacent geographic areas; and 4) initiate independent SIA monitoring to ensure adequate coverage, with rounds repeated in areas with <90% vaccination coverage (10). Adherence to these recommendations and timelines, in combination with enhanced surveillance and investigation, can minimize the impact of WPV importation and facilitate global eradication of polio. Despite substantial progress toward polio eradication during 2002–2005, the potential for WPV importation and transmission underscores the importance of sustained political and financial support to avoid resurgence of polio worldwide.

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<sup>§§§</sup> Continuing with at least two NID rounds after the last virus is detected.

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## Assessing Capacity for Surveillance, Prevention, and Control of West Nile Virus Infection — United States, 1999 and 2004

Indigenous human disease caused by West Nile virus (WNV) was first identified in the United States in August 1999 in the greater New York City area (1,2). By the end of 2004, human WNV disease had been reported in all states except Washington, Hawaii, and Alaska (3–8), and WNV transmission to humans had been documented by five routes: mosquito bites (principally from *Culex* spp.), blood transfusions, organ transplantation, transplacental transfer, and breastfeeding (1). During 1999–2005, a total of 19,525 cases of WNV disease in humans and 771 deaths were reported in the United States. In 2000, CDC first published guidelines for WNV surveillance, prevention, and control and created ArboNET, an electronic surveillance and reporting system. Beginning in 1999, WNV surveillance and prevention activities had been initiated in selected states and large cities through the CDC Epidemiology and Laboratory Capacity (ELC) cooperative agreements for emerging infectious diseases and subsequently expanded to all 50 states, six large cities/counties,\* and Puerto Rico. In 2005, to assess the capacity of state and large-city/county health departments to conduct WNV surveillance, prevention, and control activities, the Council of State and Territorial Epidemiologists (CSTE), with assistance from the Association of Public Health Laboratories (APHL) and CDC, surveyed WNV programs in the 50 states and six large-city/county health departments. This report describes the results of that assessment, which indicated that all participating states and cities had well-developed surveillance and control programs for human, avian, equine, or mosquito WNV.

\* Chicago, Illinois; Houston, Texas; Los Angeles County, California; New York, New York; Philadelphia, Pennsylvania; and the District of Columbia.

Using CDC guidelines for WNV surveillance, prevention, and control (1), CSTE developed survey questions to assess human, avian, equine, and mosquito WNV infection and disease surveillance, laboratory capacity, and prevention activities. Respondents were instructed to answer the questions on the basis of their program activities during 2004 unless otherwise noted. Forty-nine (98%) of 50 states and all six city/county health departments responded to the survey.

### State Surveillance Activities

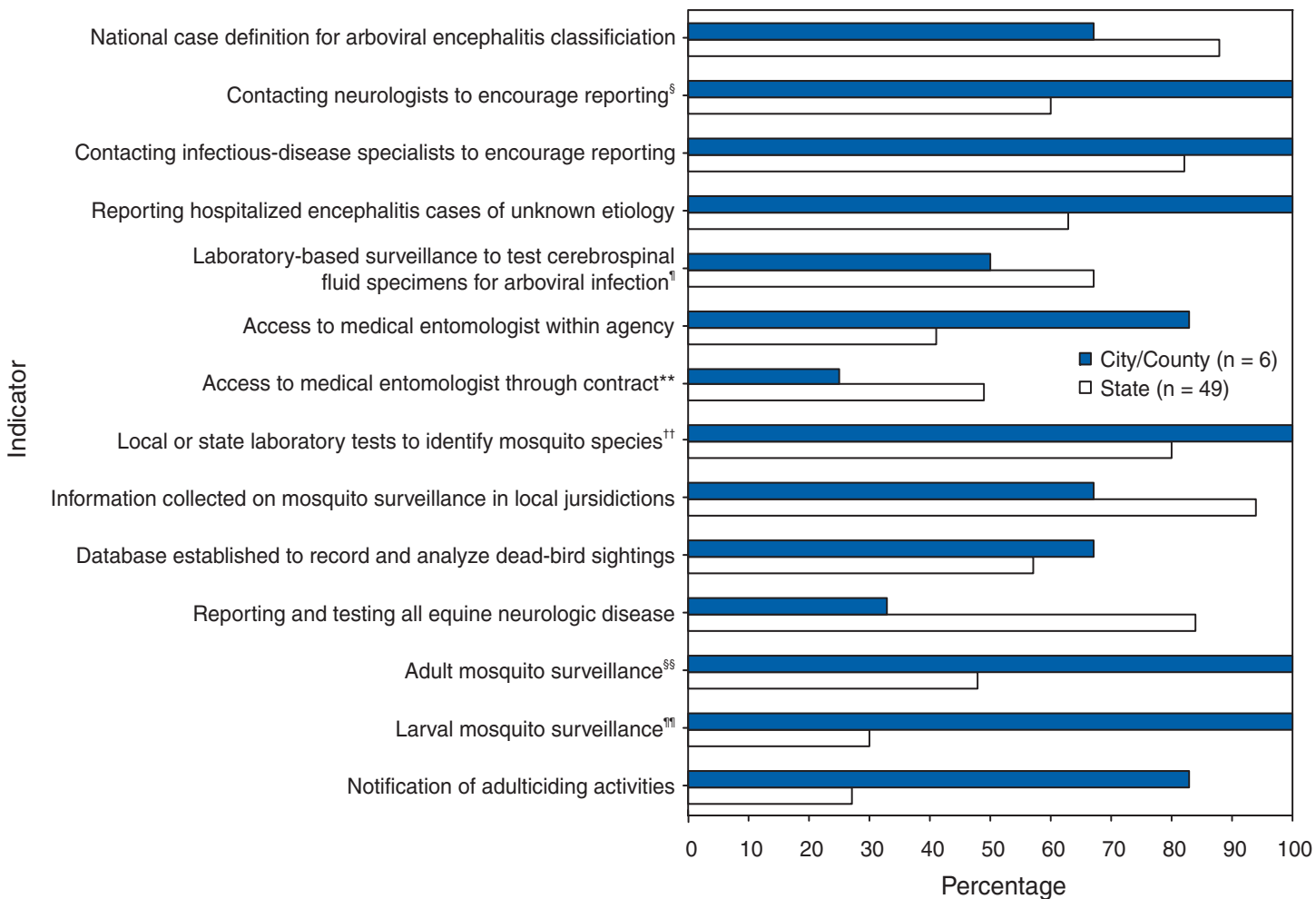
Forty (82%) of 49 state programs reported contact with infectious-disease specialists by telephone, fax, mail, or electronic health alerts to encourage disease reporting; 29 (60%) of 48 reported contacting neurologists; and 28 (57%) of 49 reported contacting critical-care specialists. Thirty-one (63%) and 27 (55%) of 49 states, respectively, required reporting of encephalitis and meningitis cases of unknown etiology requiring hospitalization. Thirty-two (67%) of 48 state programs reported implementing a laboratory-based surveillance system to test cerebrospinal fluid (CSF) specimens for arboviral infection (Figure 1); the median number of CSF specimens tested in state public health laboratories (48 states) during 2004 was 117 (mean: 310 specimens; range: 0–2,600 specimens).

State respondents were asked about their access to specialists (e.g., wildlife biologists, medical entomologists, and veterinarians) for both 1999 and 2004. These specialists are integral to WNV surveillance and control programs. Of the participating 49 states, 45 (92%) reported adequate access to expertise in wildlife biology, 20 (41%) had adequate access to medical entomologists within a public health agency, and 23 (49%) had access through contract or other formal arrangement. In addition, 40 (82%) had adequate access to a designated state public health veterinarian, an increase from 28 states in 1999 (Figure 2).

Forty-six (94%) of 49 state respondents reported that they either conducted mosquito surveillance themselves, collected information about mosquito surveillance conducted by other agencies in their jurisdictions, or both (Figure 1). On average, nearly 62% of each state's jurisdiction was reported covered by mosquito surveillance. Forty-one (84%) of 49 state respondents had surveillance systems that included reporting of equine neurologic disease, 28 (57%) of 49 tracked dead-bird sightings, and 36 (80%) of 45 collected information about mosquito-infection rates by species.

The median reporting interval, including collection of specimens, laboratory confirmation, and surveillance program notification, was 1 week for both human (range: 2–28 days) and bird specimens (range: 1–30 days). The median interval from report of a suspected human case to the surveillance

**FIGURE 1. West Nile virus surveillance capacity\* in state and city/county† health departments, by selected indicators — United States, 2004**



\* On the basis of CDC guidelines (7).

† Chicago, Illinois; Houston, Texas; Los Angeles County, California; New York, New York; Philadelphia, Pennsylvania; and the District of Columbia.

§ State (n = 48).

¶ State (n = 48).

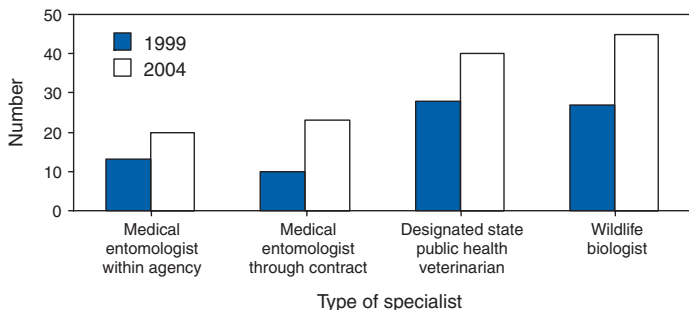
\*\* State (n = 47); city/county (n = 4).

†† State (n = 45); city/county (n = 4).

§§ State (n = 44); city/county (n = 4).

¶¶ State (n = 44); city/county (n = 4).

**FIGURE 2. Number of state health departments reporting access to specialists for West Nile virus surveillance, by type of specialist — United States, 1999 and 2004**



program to report of a probable or confirmed case by the program to CDC was 16.5 days (range: 2–45 days). All six city/county programs and 46 (98%) of 47 states indicated that ELC funding for WNV surveillance also had enhanced surveillance for other mosquito-borne diseases.

**City/County Surveillance Activities**

Survey findings also demonstrated that WNV surveillance, prevention, and control programs in the six city/county health departments generally were well-developed, with features

including outreach to specialists, reporting of equine neurologic disease, tracking of dead-bird sightings, collection of mosquito-infection rates, reporting of intervals from collection of human specimens to laboratory confirmation to surveillance program (median: 5.5 days), and testing for human infection (Figure 1). However, emphasis on different components of WNV surveillance, prevention, and control programs varied between state health departments and city/county health departments because of differences in roles and responsibilities. For example, mosquito control was primarily conducted by local agencies and contractors; local health departments more frequently conducted larval (100% versus 30%) and adult (100% versus 48%) mosquito surveillance than state health departments. Local health departments also more frequently provided public notification of adulticiding<sup>†</sup> activities (83% versus 27%).

### Laboratory Testing

CDC guidelines recommend Biosafety Level 3 (BSL-3) practices, containment equipment, and facilities for all manipulations of WNV cultures and animal BSL-3 for experimental animal and vector studies (1). Forty-one (87%) of 47 state respondents reported that their public health laboratories had BSL-3 capability in 2004; eight (17%) of 47 reported BSL-3 capability for animal testing. All responding states (47 of 47) that provided laboratory testing data performed serologic testing for case confirmation by using enzyme-linked immunosorbent assay (ELISA) for WNV-specific IgM on human specimens, and 79% (37 of 47) performed WNV-specific polymerase chain reaction tests on mosquito specimens (Table). Plaque-reduction neutralization testing (PRNT), a confirmatory assay, was performed by a minority of state laboratories on specimens from human (10 of 47 [21%]), equine (six of 47 [13%]), avian (three of 47 [6%]), or other animal species (three of 47 [6%]). Overall, 14 (28%) of 49

states reported that their laboratory used PRNT. This assay was used to confirm all positive ELISA results by seven (50%) of the 14 states; PRNT was used more selectively by the other seven states for reasons not ascertained by the survey. Twenty-three (64%) of 36 states not performing PRNT reported that confirmatory testing was performed at CDC.<sup>§</sup>

### Prevention Activities

All or nearly all state programs delivered WNV prevention messages concerning use of DEET (N, N-diethyl-m-toluamide) (49 of 49 [100%]), residential mosquito control (47 of 49 [96%]), and other personal protective measures<sup>¶</sup> (49 of 49 [100%]), whereas notification of adulticiding activities was delivered by 27% (13 of 49) of states. Adulticiding activities commonly are conducted by local agencies and contractors rather than by state health agencies. States used various methods to provide WNV prevention information in 2004, including posting information on agency websites (48 of 49 [98%]), issuing press releases (47 of 49 [96%]), and distributing informational brochures (44 of 49 [90%]). Less commonly used methods included door-to-door outreach in selected locations (11 of 49 [22%]) and participation in community clean-ups (four of 49 [8%]). All six city/county health agencies promoted WNV prevention in 2004 by using press releases; active distribution of informational brochures; town, community, or neighborhood meetings; and posting information on agency websites.

**Reported by:** J Lemmings, MPH, L Robinson, MPH, Council of State and Territorial Epidemiologists, Atlanta, Georgia. R Hoffman, MD, Univ of Colorado Health Sciences Center, Dept of Preventive Medicine and Biometrics, Denver; E Mangione, MD, Colorado Dept of Public

<sup>†</sup> Application of pesticides to kill adult mosquitoes.

<sup>§</sup> Confirmatory testing is performed by CDC for selected specimens considered high priority and beyond the capacity of the state public health laboratory or collaborating laboratory (1).

<sup>¶</sup> Includes protective clothing, use of repellent on skin, and awareness of peak mosquito biting hours.

**TABLE. Number and percentage of West Nile virus assays conducted by state public health laboratories,\* by assay and vector type—United States, 2004**

Vector type	Assay type					
	IgM ELISA <sup>†</sup> No. (%)	IgG ELISA No. (%)	PRNT <sup>§</sup> No. (%)	Culture No. (%)	PCR <sup>¶</sup> No. (%)	VecTest <sup>**</sup> No. (%)
Human	47 (100)	34 (72)	10 (21)	9 (19)	23 (49)	—
Equine	27 (57)	11 (23)	6 (13)	9 (19)	21 (45)	—
Avian	4 (9)	1 (2)	3 (6)	6 (13)	36 (77)	7 (15)
Sentinel species	13 (28)	4 (9)	3 (6)	2 (4)	6 (13)	—
Mosquito	—	—	—	11 (23)	37 (79)	10 (21)

\* N = 47.

<sup>†</sup> Enzyme-linked immunosorbent assay.

<sup>§</sup> Plaque-reduction neutralization test.

<sup>¶</sup> Polymerase chain reaction test.

\*\* Antigen-capture assay to detect West Nile virus.



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**Editorial Note:** The findings of the CSTE survey demonstrate that the capacity of WNV surveillance systems, technical expertise, laboratory capacity, and prevention programs have developed substantially since 1999. This progress can be attributed primarily to congressionally appropriated funds and technical guidance from CDC. The capacities that state and local health departments chose to emphasize or develop were based on the needs of their particular jurisdictions; however, establishment of this national program has enhanced viral laboratory capacity, veterinary disease surveillance capacity, and surveillance for vector-borne diseases other than WNV disease. For example, in 2004, states indicated improved access to medical entomologists and wildlife biologists compared with 1999. In addition, more state health departments currently have a designated state public health veterinarian. Finally, nearly all responding states had enhanced their capacity to conduct surveillance for other mosquito-borne diseases.

The findings in this report are subject to at least one limitation. Because the six city/county health departments included in this survey are agencies that receive supplemental funding from CDC for WNV surveillance, prevention, and control, the extent to which these city/county health departments are representative of other city/county health departments is unclear.

These findings illustrate the presence of well-developed WNV surveillance and control programs for human, avian, equine, or mosquito populations within state and local health departments. Because a universally applicable arbovirus surveillance system does not exist, surveillance systems within any given jurisdiction should be tailored according to the probability of arbovirus activity and available resources (1). Appropriate and timely response to surveillance data enables prevention of human and animal disease associated with WNV and other arboviruses. Response activities must include effective mosquito control and public education without delay if an increasing intensity of virus activity is detected by bird- or mosquito-based surveillance systems. WNV surveillance data collected in bird and mosquito populations help health officials predict and prevent human and domestic animal infections (1).

Work by CDC and states to address newly emerging and reemerging infectious diseases (9,10) resulted in establishment of ArboNET within a national program to meet the emergence of WNV (1). On the basis of the findings described in this report, CSTE has recommended that WNV surveillance and control activities continue, but that the surveillance

infrastructure be expanded to include other vector-borne and arboviral diseases.

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## Enterovirus Surveillance — United States, 2002–2004

Enteroviruses are common viruses associated with diverse clinical syndromes, ranging from minor febrile illness to severe, potentially fatal conditions (e.g., aseptic meningitis, encephalitis, paralysis, myocarditis, and neonatal enteroviral sepsis) (1,2). A total of 68 enterovirus serotypes are recognized, including 65 nonpolio enteroviruses (1,2). Individual serotypes have different temporal patterns of circulation and can be associated with different clinical manifestations (2,3). This report describes trends in reported enterovirus infections in the United States during 2002–2004, including widespread circulation of two serotypes, echovirus 9 and echovirus 30, commonly associated with aseptic meningitis outbreaks. Monitoring circulating enteroviruses helped identify these two serotypes as primary causes of aseptic meningitis outbreaks in 2003 (4). Increased state laboratory participation and timely

reporting by all laboratories to CDC would further increase the public health utility of enterovirus surveillance.

Other than paralytic poliomyelitis, diseases associated with enterovirus infections are not nationally notifiable in the United States. To help public health officials recognize and control outbreaks of enteroviral disease, the National Enterovirus Surveillance System (NESS) monitors temporal and geographic trends in circulating enteroviruses in the United States. Enterovirus detections, characterized by serotype, specimen type, collection date, and basic demographic information, are reported monthly to CDC by participating laboratories. NESS is a voluntary, passive surveillance system, and the number of participating state laboratories varies from year to year.

During 2002–2004, a total of 24 laboratories, including 22 public health laboratories, one private laboratory, and the CDC Enterovirus Laboratory, reported 4,123 enterovirus detections in 46 states and Puerto Rico (Figure). Twenty-one states reported results directly from state public health laboratories, whereas 25 states and Puerto Rico reported results indirectly, either through the private laboratory or the CDC Enterovirus Laboratory. Four states and the District of Columbia did not report any enterovirus detections to NESS. Seven laboratories, an increase from three during 2000–2001, used genomic sequencing for enterovirus typing; 17 laboratories used traditional antigenic methods of serotype detection (neutralization reaction or immunofluorescence assay). Enterovirus serotype was identified in 3,630 (88%) reports and was unknown for 493 (12%) reports (Table 1).

The two predominant enteroviruses, echoviruses 9 and 30, accounted for more than half of all enterovirus detections in the United States during 2002–2004 (Table 2). Echovirus 9 accounted for 21.5%, 41.0%, and 18.9% of detections with

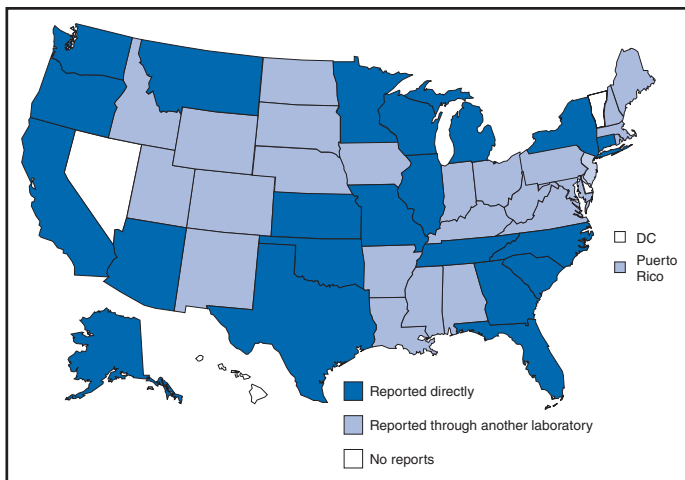
known serotypes during 2002, 2003, and 2004, respectively. Echovirus 30 was uncommon in 2002 (3.3%) but accounted for 32.4% of reports with known serotypes in 2003 and 40.3% in 2004. Echovirus 7 was the most common enterovirus in 2002 (22.5% of reports with known serotypes) but rarely was reported in 2003 and 2004. Coxsackievirus B1 was the third most commonly reported enterovirus in 2002 and 2003 (10.8% and 4.6%, respectively), and coxsackievirus A9 was the third most common serotype (6.9%) in 2004. Other nonpolio enteroviruses were reported infrequently, and no polioviruses were reported (Table 2). During 2002–2004, echovirus 9 was detected in 41 states and Puerto Rico, echovirus 30 in 38 states and Puerto Rico, and echovirus 7 in 24 states. Three states (Georgia, Illinois, and New York) accounted for 528 (47.8%) of the echovirus 9 detections. The majority (536 [50.7%]) of echovirus 30 detections were from Arizona, Florida, and Texas, and more than half of echovirus 7 detections (98 [54.0%]) were from Minnesota and Texas.

Cerebrospinal fluid was the most common source for enterovirus detection (2,483 [63.1%] of 3,932 reports with known specimen type), followed by respiratory specimens (562 [14.3%]) and stool or rectal-swab specimens (517 [13.1%]). The age of source patients ranged from <1 month to 95 years (median: 7 years). Children aged <1 year accounted for 953 (27.4%) of 3,481 enterovirus detections for which age of source patient was known. Consistent with the established summer–fall seasonality of enterovirus circulation (2,3), the majority of enterovirus detections (2,983 [72.5%] of 4,115 records for which month of specimen collection was known) were reported during June–October of 2002, 2003, and 2004.

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**Editorial Note:** Monitoring circulating enteroviruses is important because individual serotypes have different temporal patterns of circulation and the changes in predominant serotypes can be accompanied by large-scale outbreaks of enteroviral illnesses (3). Serotype-based enterovirus surveillance in the United States has five objectives. First, NESS data help public health practitioners determine long-term patterns of circulation for individual enteroviruses (3). Second, the data are used for interpreting trends in enteroviral diseases, such as aseptic meningitis, by associating them with circulating serotypes (5) and can be helpful for studying the association of enteroviruses with clinical manifestations (e.g., chronic diseases such as diabetes) (2). Third, the data are used to guide outbreak investigations by enabling linkage of disease clusters;

**FIGURE. Reporting of enterovirus detections to the National Enterovirus Surveillance System, by state/territory — United States, 2002–2004**



**TABLE 1. Number and percentage of enterovirus-detection reports, by serotype identification status and year — National Enterovirus Surveillance System, United States, 2002–2004**

Serotype status	2002		2003		2004		Total	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Known serotype	710	(76.9)	1,811	(91.0)	1,109	(91.7)	3,630	(88.0)
Unknown serotype	213	(23.1)	180	(9.0)	100	(8.3)	493	(12.0)
<b>Total</b>	<b>923</b>		<b>1,991</b>		<b>1,209</b>		<b>4,123</b>	

diagnosis by serologic assay and clinical presentation, which varies by serotype; and timelier laboratory identification. Fourth, because susceptibility to candidate anti-enterovirus drugs varies by serotype (6), information on circulating serotypes helps guide development of new diagnostic tests and therapies. Finally, NESS monitors poliovirus detections, thereby supplementing poliovirus surveillance in the United States.

The findings of this report are consistent with previous observations regarding temporal variability of predominant enterovirus serotypes (3). Although the predominant serotypes change, certain enteroviruses appear consistently among those most commonly detected each year. Of the 15 most common serotypes detected during 2002–2004, seven (echoviruses 6, 9, 11, and 30 and coxsackieviruses A9, B2, and B4) have been among the 15 most common enteroviruses detected each year since 1993 (7–9).

During 2002–2004, echoviruses 9 and 30 became the predominant serotypes, whereas echoviruses 18 and 13, which prevailed in 2001 (9), were detected rarely. Echoviruses 9 and 30 usually have an epidemic pattern of circulation, with periods of high activity followed by several years of relative quiescence (3). Before 2002, echovirus 9 had not been the predominant enterovirus since 1995, when it accounted for

45.1% of reported enterovirus detections, and echovirus 30 had not been widespread since 1998, when it accounted for 45.9% of reported detections (7–9). The identification of echoviruses 9 and 30 by NESS as the two most prevalent enterovirus serotypes helped guide investigations of

multiple outbreaks of aseptic meningitis in the United States in 2003, all of which were subsequently linked to these serotypes (4). The occurrence of these outbreaks was consistent with the previously noted coincidence of the high activity of echoviruses 9 and 30 (as reported to NESS) with peaks in hospitalizations for aseptic meningitis in the United States (5).

Echovirus 7 was the most common serotype for the first time in 2002. Small peaks of echovirus 7 activity were observed in 1979, in the mid-1980s, and in 1997, but the serotype has been detected infrequently at other times (7–9; CDC, unpublished data, 1971–2005).

Beginning in 2003, the proportion of reports with unknown serotypes decreased to <10%, compared with 18%–20% during 2000–2002. This decrease likely was associated with an increase in the number of laboratories using molecular techniques to detect enteroviruses. Enterovirus typing by genomic sequencing of the capsid viral protein 1 (VP1) gene (which correlates with enterovirus serotype) allows rapid and reliable identification of any enterovirus, including those for which the reagents used in traditional antigen-based typing methods are not readily available (10). The use of this approach has led to recent identification of several previously unknown enterovirus serotypes (1).

**TABLE 2. Distribution of the 15 most commonly reported nonpolio enterovirus serotypes, by rank and year — National Enterovirus Surveillance System, United States, 2002–2004**

Rank	2002 (n = 710)		2003 (n = 1,811)		2004 (n = 1,109)		2002–2004 (n = 3,630)	
	Serotype	%	Serotype	%	Serotype	%	Serotype	%
1	Echo 7	22.5	Echo 9	41.0	Echo 30	40.3	Echo 9	30.4
2	Echo 9	21.5	Echo 30	32.4	Echo 9	18.9	Echo 30	29.1
3	Coxsackie B1	10.8	Coxsackie B1	4.6	Coxsackie A9	6.9	Echo 7	5.0
4	Echo 11	6.8	Coxsackie B4	2.9	Coxsackie B5	5.2	Coxsackie B1	4.6
5	Coxsackie B5	5.0	Coxsackie A9	2.7	Coxsackie B4	4.7	Coxsackie A9	3.8
6	Coxsackie B3	4.1	Coxsackie A24	2.5	Echo 18	4.3	Coxsackie B5	3.4
7	Echo 4	4.1	Echo 11	1.8	Coxsackie B3	2.6	Coxsackie B4	3.1
8	Echo 6	3.4	Coxsackie B5	1.7	Coxsackie B2	2.3	Echo 11	2.9
9	Echo 30	3.3	Enterovirus 71	1.4	Echo 11	2.2	Coxsackie B3	2.2
10	Echo 18	2.8	Coxsackie B3	1.1	Echo 6	2.0	Echo 18	2.0
11	Coxsackie B2	2.7	Echo 5	0.9	Coxsackie A1	1.4	Coxsackie B2	1.7
12	Echo 13	2.7	Echo 7	0.9	Echo 13	1.3	Echo 6	1.4
13	Coxsackie A9	1.7	Coxsackie B2	0.9	Echo 5	1.1	Enterovirus 71	1.3
14	Enterovirus 71	1.6	Enterovirus 68	0.7	Enterovirus 71	1.0	Coxsackie A24	1.2
15	Echo 3	1.3	Echo 13	0.7	Coxsackie B1	0.7	Echo 13	1.2
<b>Total (top 15)*</b>	<b>94.3</b>		<b>96.2</b>		<b>94.9</b>		<b>93.3</b>	

\* All other serotypes combined accounted for 5.7% of reports in 2002, 3.8% in 2003, 5.1% in 2004, and 6.7% during 2002–2004.

The findings in this report are subject to at least two limitations. First, enteroviruses that commonly infect younger patients or that are associated with more severe illnesses might be overrepresented in NESS because clinical specimens from young children and more severely ill patients are submitted for testing more frequently. Second, because of the voluntary and passive nature of reporting to NESS, the decreasing number of participating laboratories (from 27 during 2000–2001 to 24 during 2002–2004), the small numbers of reports from certain states, and the absence of reports from others, these results might not be representative of enterovirus circulation in the entire United States.

The geographic representation of the states reporting enterovirus detections increased from 44 states during 2000–2001 to 46 states and Puerto Rico during 2002–2004 (Figure). This trend toward increased geographic representation began in 2000, when the CDC Enterovirus Laboratory and a private laboratory, both of which receive specimens from multiple states, began reporting directly to NESS. Future enterovirus surveillance would benefit from increased laboratory participation, especially by state public health laboratories. Heightened awareness of the importance of enterovirus surveillance and knowledge about the deficiency in reporting might increase reporting by state laboratories.

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## Update: Influenza Activity — United States, January 29–February 4, 2006

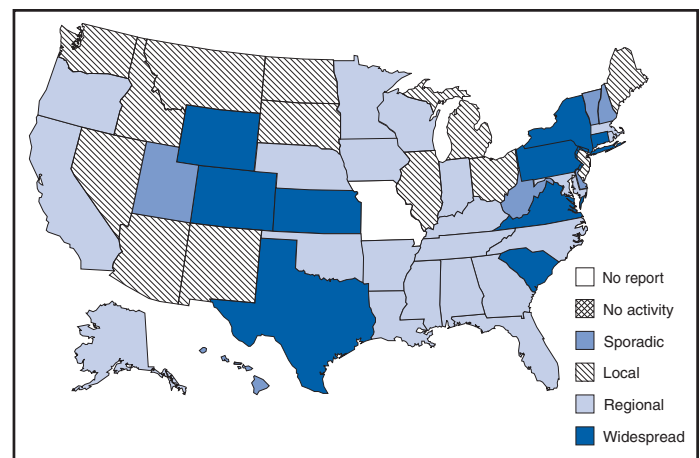
During January 29–February 4, 2006,\* the number of states reporting widespread influenza activity† increased to nine. Twenty-one states reported regional activity, 13 reported local activity, and six reported sporadic activity (Figure 1).§

\*Provisional data reported as of February 10. 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*: Colorado, Connecticut, Kansas, New York, Pennsylvania, South Carolina, Texas, Virginia, and Wyoming; *regional*: Alabama, Alaska, Arkansas, California, Florida, Georgia, Indiana, Iowa, Kentucky, Louisiana, Maryland, Massachusetts, Minnesota, Mississippi, Nebraska, North Carolina, Oklahoma, Oregon, Rhode Island, Tennessee, and Wisconsin; *local*: Arizona, Idaho, Illinois, Maine, Michigan, Montana, Nevada, New Jersey, New Mexico, North Dakota, Ohio, South Dakota, and Washington; *sporadic*: Delaware, Hawaii, New Hampshire, Utah, Vermont, and West Virginia; *no activity*: none; *no report*: Missouri.

FIGURE 1. Estimated influenza activity levels reported by state epidemiologists, by state and level of activity\* — United States, January 29–February 4, 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*.

The percentage of specimens testing positive for influenza increased in the United States overall. During weeks 3–5, the largest number of isolates were reported from the Mountain and West South Central regions; the percentage of specimens testing positive for influenza ranged from 20.5% in the West South Central region to 3.7% in the East South Central region. The percentage of outpatient visits for influenza-like illness (ILI)<sup>‡</sup> decreased during the week ending February 4 but remained above the national baseline.\*\* The percentage of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold for the week ending February 4.

## Laboratory Surveillance

During January 29–February 4, World Health Organization (WHO) collaborating laboratories and National Respiratory and Enteric Virus Surveillance System (NREVSS) laboratories in the United States reported testing 2,401 specimens for influenza viruses, of which 333 (13.9%) were positive. Of these, 96 were influenza A (H3N2) viruses, two were influenza A (H1N1) viruses, 211 were influenza A viruses that were not subtyped, and 24 were influenza B viruses.

Since October 2, 2005, WHO and NREVSS laboratories have tested 61,861 specimens for influenza viruses, of which 4,466 (7.2%) were positive. Of these, 4,312 (96.6%) were influenza A viruses, and 154 (3.4%) were influenza B viruses. Of the 4,312 influenza A viruses, 2,069 (48.0%) have been subtyped; 2,048 (99.0%) were influenza A (H3N2) viruses, and 21 (1.0%) were influenza A (H1N1) viruses.

## P&I Mortality and ILI Surveillance

During the week ending February 4, P&I accounted for 7.4% of all deaths reported through the 122 Cities Mortality Reporting System. This percentage is below the epidemic threshold<sup>††</sup> of 8.2% (Figure 2).

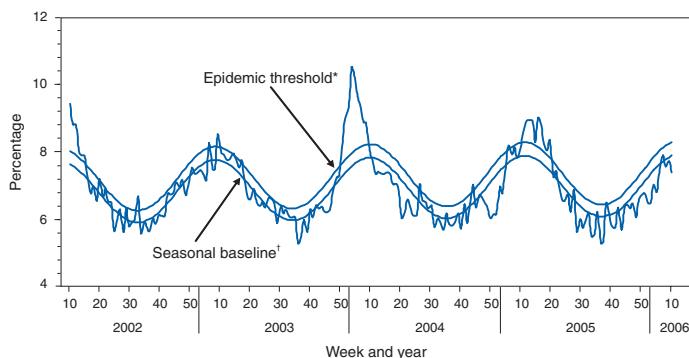
The percentage of patient visits for ILI was 2.3%, which is above the national baseline of 2.2% (Figure 3). The percentage of patient visits for ILI ranged from 1.4% in the West North Central region to 4.6% in the West South Central region.

<sup>‡</sup> 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 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.

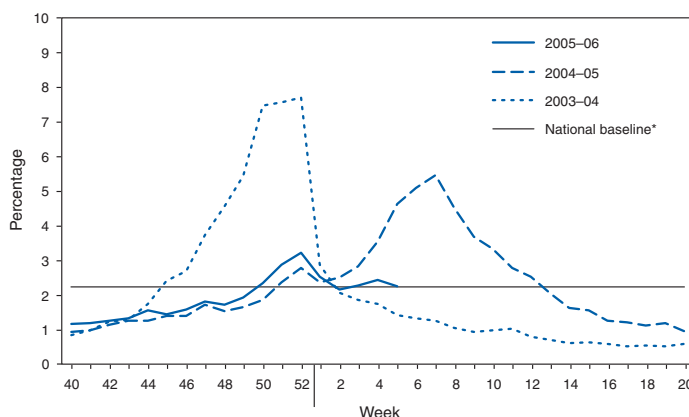
**FIGURE 2. Percentage of deaths attributed to pneumonia and influenza (P&I) reported by the 122 Cities Mortality Reporting System, by week and year — United States, 2002–2006**



\* 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–February 4, 2006, CDC received reports of 14 influenza-associated deaths in U.S. residents aged  $<18$  years. Twelve of the deaths occurred during the current influenza season, and two occurred during the 2004–05 influenza season.

During October 1, 2005–January 21, 2006, the preliminary laboratory-confirmed influenza-associated hospitalization

rate reported by the Emerging Infections Program<sup>§§</sup> for children aged 0–17 years was 0.24 per 10,000. For children aged 0–4 years and 5–17 years, the rate was 0.66 per 10,000 and 0.04 per 10,000, respectively. During October 30, 2005–January 21, 2006, the preliminary laboratory-confirmed influenza-associated hospitalization rate for children aged 0–4 years in the New Vaccine Surveillance Network<sup>¶¶</sup> was 0.21 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 February 13, 2006, a total of 169 laboratory-confirmed human avian influenza A (H5N1) infections were reported to WHO from Cambodia, China, Indonesia, Iraq, Thailand, Turkey, and Vietnam.<sup>\*\*\*</sup> Of these, 91 (54%) were fatal (Table). This represents an increase of two cases and one death in China and two cases and two deaths in Indonesia since February 6, 2006. 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).

<sup>§§</sup> 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.

<sup>¶¶</sup> The New Vaccine Surveillance Network conducts surveillance in Monroe County, New York; Hamilton County, Ohio; and Davidson County, Tennessee.

<sup>\*\*\*</sup> Available at [http://www.who.int/csr/disease/avian\\_influenza/en](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
Cambodia	0	0	0	0	4	4	0	0	4	4
China	0	0	0	0	8	5	4	3	12	8
Indonesia	0	0	0	0	17	11	8	7	25	18
Iraq	0	0	0	0	0	0	1	1	1	1
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
<b>Total</b>	<b>3</b>	<b>3</b>	<b>46</b>	<b>32</b>	<b>95</b>	<b>41</b>	<b>25</b>	<b>15</b>	<b>169</b>	<b>91</b>

\* As of February 13, 2006.

## Reference

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## Notice to Readers

### Draft of Applied Epidemiology Competencies

In October 2004, CDC and the Council of State and Territorial Epidemiologists (CSTE) convened a panel to define competencies for applied epidemiology for local, state, and federal government public health epidemiologists. This panel includes representatives from state and local health agencies, academia, private industry, and CDC. The complete draft of defined competencies for all levels of practicing epidemiologists is now available for review and comment at <http://www.cste.org/assessment/competencies/indexnew.asp>.

Practicing epidemiologists and those employing applied epidemiologists can also submit questions and comments to CSTE by e-mail ([competencies@cste.org](mailto:competencies@cste.org)) through March 17, 2006. After the review period, the panel will consider all information received and revise the competencies for publication.

## Errata: Vol. 54, No. RR-16

In the *MMWR Recommendations and Reports*, “A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices (ACIP), Part 1: Immunization of Infants, Children, and Adolescents,” the following errors occurred:

On page 8, the last two footnotes in Table 2 should read, “<sup>¶¶</sup>Dialysis formulation administered on a 3-dose schedule at 0, 1, and 6 months. <sup>\*\*\*</sup>Two 1.0-mL doses administered at one site, on a 4-dose schedule at 0, 1, 2, and 6 months.”

On pages 27–28, in the section titled, “Hepatitis B Immune Globulin (HBIG) Dose and Administration,” the second sentence of the third bullet should read, “For neonates (aged <1 month) and infants (aged 1–12 months), HBIG should be administered intramuscularly in the anterolateral thigh using a 22–25-gauge needle. The appropriate needle length is usually 5/8" for neonates and 7/8"–1" for infants.”

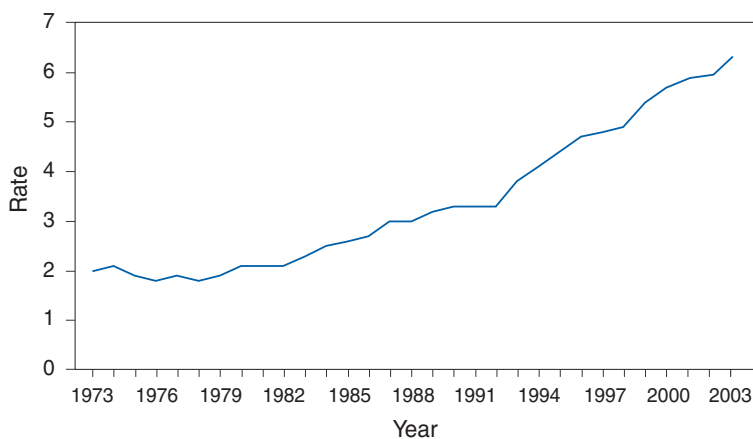
On page 29, second column, the second sentence of the second bullet should read, “Administration of three doses on an appropriate schedule (**Table 5**), followed by anti-HBs testing 1–2 months after the third dose, is usually more practical than serologic testing after one or more doses of vaccine.”

Also on page 29, second column, third bullet, the first sub-bullet should read, “— If the HBsAg test result is positive, the persons should receive appropriate management, and any household, sexual, or needle-sharing contacts should be identified and vaccinated (see Appendix A).”

## QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

### Age-Adjusted Death Rates\* for Parkinson Disease — United States, 1973–2003†



\* Per 100,000 standard U.S. population.

† Coded in accordance with the *International Classification of Diseases, Eighth Revision, Adapted*, during 1973–1978 and the *Ninth Revision* during 1979–1998. The *Tenth Revision* (codes G20–G21) is now in effect.

Annual U.S. death rates for Parkinson disease increased during 1973–2003. Parkinson disease became the 14th leading cause of death in the United States in 2003. This increase might be attributable to multiple factors, including an aging population, greater awareness of the disease, and improved identification of cases.

**SOURCE:** Hoyert DL, Heron M, Murphy SL, Kung HC. Health E-Stats. Deaths: final data for 2003. Hyattsville, MD: US Department of Health and Human Services, CDC; 2006. Available at <http://www.cdc.gov/nchs/products/pubs/pubd/hestats/finaldeaths03/finaldeaths03.htm>.

**TABLE I. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending February 11, 2006 (6th 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	—	—	—	—	—	—	2	23	
Botulism:									
foodborne	—	—	0	20	16	20	28	39	
infant	1	2	1	86	87	76	69	97	PA (1)
other (wound & unspecified)	3	6	0	24	30	33	21	19	CA (3)
Brucellosis	—	5	1	104	114	104	125	136	
Chancroid	1	2	1	27	30	54	67	38	NY (1)
Cholera	—	—	0	6	5	2	2	3	
Cyclosporiasis§	—	5	2	731	171	75	156	147	
Diphtheria	—	—	—	—	—	1	1	2	
Domestic arboviral diseases§§:									
California serogroup	—	—	—	71	112	108	164	128	
eastern equine	—	—	—	21	6	14	10	9	
Powassan	—	—	—	1	1	—	1	N	
St. Louis	—	—	—	9	12	41	28	79	
western equine	—	—	—	—	—	—	—	—	
Ehrlichiosis§:									
human granulocytic	—	2	1	722	537	362	511	261	
human monocytic	2	24	1	476	338	321	216	142	NY (1), GA (1)
human (other & unspecified)	1	1	0	119	59	44	23	6	GA (1)
<i>Haemophilus influenzae</i> ,**									
invasive disease (age <5 yrs):									
serotype b	—	1	1	8	19	32	34	—	
nonserotype b	1	5	4	115	135	117	144	—	MD (1)
unknown serotype	3	16	4	197	177	227	153	—	FL (2), AR (1)
Hansen disease§	2	7	1	87	105	95	96	79	NYC (1), CA (1)
Hantavirus pulmonary syndrome§	—	1	0	22	24	26	19	8	
Hemolytic uremic syndrome, postdiarrheal§	—	5	2	203	200	178	216	202	
Hepatitis C viral, acute	3	76	32	751	713	1,102	1,835	3,976	PA (1), MD (1), FL (1)
HIV infection, pediatric (age <13 yrs)§§††	—	—	6	255	436	504	420	543	
Influenza-associated pediatric mortality§,§§,¶¶	—	9	1	49	—	N	N	N	
Listeriosis	6	35	8	819	753	696	665	613	PA (1), MD (2), FL (2), CA (1)
Measles	—	1***	1	66	37	56	44	116	
Meningococcal disease,††† invasive:									
A, C, Y, & W-135	2	21	6	275	—	—	—	—	MD (1), FL (1)
serogroup B	2	11	4	152	—	—	—	—	TN (2)
other serogroup	—	2	1	19	—	—	—	—	
Mumps	8	20	5	291	258	231	270	266	NY (1), OH (1), MD (1), WY (1), UT (1), CA (3)
Plague	—	—	—	7	3	1	2	2	
Poliomyelitis, paralytic	—	—	—	1	—	—	—	—	
Psittacosis§	—	—	0	19	12	12	18	25	
Q fever§	1	9	1	133	70	71	61	26	CO (1)
Rabies, human	—	—	0	2	7	2	3	1	
Rubella	—	—	0	11	10	7	18	23	
Rubella, congenital syndrome	—	—	0	1	—	1	1	3	
SARS-CoV§,§§	—	—	—	—	—	8	N	N	
Smallpox§	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome§	2	8	3	103	132	161	118	77	PA (1), OH (1)
<i>Streptococcus pneumoniae</i> ,§									
invasive disease (age <5 yrs)	11	71	14	1,010	1,162	845	513	498	NH (1), NY (3), OH (2), KS (1), MD (1), ID (1), CO (1), NM (1)
Syphilis, congenital (age <1 yr)	4	24	8	303	353	413	412	441	LA (2), AZ (2)
Tetanus	—	1	0	20	34	20	25	37	
Toxic-shock syndrome (other than streptococcal)§	—	7	2	89	95	133	109	127	
Trichinellosis	—	2	0	18	5	6	14	22	
Tularemia§	—	3	0	132	134	129	90	129	
Typhoid fever	1	20	5	296	322	356	321	368	OH (1)
Vancomycin-intermediate <i>Staphylococcus aureus</i> §	—	—	—	2	—	N	N	N	
Vancomycin-resistant <i>Staphylococcus aureus</i> §	—	—	—	1	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 14 cases reported since October 2, 2005 (week 40), only 12 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 February 11, 2006, and February 12, 2005 (6th Week)\*

Reporting area	Hepatitis (viral, acute), by type										Legionellosis				
	A					B					Current week	Previous 52 weeks		Cum 2006	Cum 2005
	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2006	Cum 2005	Current week	Previous 52 weeks Med	Previous 52 weeks Max	Cum 2006	Cum 2005		Med	Max		
<b>United States</b>	19	78	182	326	429	19	102	142	333	671	11	37	111	101	139
<b>New England</b>	3	8	23	31	55	—	5	12	21	28	—	2	11	3	4
Connecticut	1	1	3	2	9	—	0	5	—	6	—	0	8	1	—
Maine	—	0	2	—	—	—	0	2	—	—	—	0	1	—	—
Massachusetts	2	6	14	20	42	—	3	10	18	20	—	1	5	1	4
New Hampshire	—	1	12	5	4	—	1	3	3	1	—	0	1	—	—
Rhode Island	—	0	4	1	—	—	0	2	—	—	—	0	7	—	—
Vermont†	—	0	2	3	—	—	0	1	—	1	—	0	3	1	—
<b>Mid. Atlantic</b>	—	12	23	17	85	4	13	37	20	129	3	11	53	30	45
New Jersey	—	3	11	—	17	—	5	26	—	72	—	1	12	—	8
New York (Upstate)	—	2	15	4	6	2	2	8	3	5	3	3	25	9	10
New York City	—	5	12	8	43	—	2	7	2	18	—	1	20	3	—
Pennsylvania	—	1	6	5	19	2	4	8	15	34	—	5	17	18	27
<b>E.N. Central</b>	2	7	18	28	49	2	10	25	26	67	3	6	23	14	34
Illinois	—	1	9	—	24	—	2	7	—	21	—	0	2	—	7
Indiana	1	1	10	2	2	—	0	11	—	1	—	0	5	—	3
Michigan	1	2	11	17	12	1	3	7	12	24	1	2	6	6	10
Ohio	—	1	7	8	6	1	2	8	13	18	2	3	19	8	12
Wisconsin	—	1	5	1	5	—	0	6	1	3	—	0	2	—	2
<b>W.N. Central</b>	1	2	31	12	10	1	5	13	8	25	—	1	12	2	5
Iowa	—	0	2	—	1	—	0	2	—	1	—	0	1	—	—
Kansas	1	0	3	8	2	—	0	3	2	4	—	0	1	—	—
Minnesota	—	0	31	—	—	—	0	6	—	—	—	0	10	—	—
Missouri	—	0	5	3	5	1	3	7	6	14	—	0	3	2	5
Nebraska†	—	0	3	—	2	—	0	2	—	6	—	0	1	—	—
North Dakota	—	0	0	—	—	—	0	0	—	—	—	0	1	—	—
South Dakota	—	0	1	1	—	—	0	1	—	—	—	0	6	—	—
<b>S. Atlantic</b>	1	13	33	50	52	9	24	52	97	193	4	8	19	28	27
Delaware	—	0	1	1	—	—	1	6	1	7	—	0	4	1	—
District of Columbia	—	0	2	1	—	—	0	4	—	—	—	0	2	—	—
Florida	—	5	18	22	22	7	9	21	46	62	2	2	6	13	10
Georgia	1	1	6	4	18	1	2	6	5	44	1	0	3	1	3
Maryland	—	2	6	12	4	—	2	8	18	21	—	2	9	8	7
North Carolina	—	0	18	8	3	—	0	19	19	26	—	0	3	3	4
South Carolina†	—	1	3	2	1	—	3	9	6	11	—	0	2	—	—
Virginia†	—	1	7	—	4	1	2	12	2	20	1	1	8	2	2
West Virginia	—	0	2	—	—	—	0	11	—	2	—	0	3	—	1
<b>E.S. Central</b>	3	3	16	9	20	2	7	20	18	38	—	1	6	2	2
Alabama†	—	0	6	—	3	1	1	7	6	14	—	0	2	—	2
Kentucky	—	0	3	—	1	—	1	6	3	9	—	0	4	—	—
Mississippi	—	0	2	—	5	—	1	4	3	4	—	0	1	—	—
Tennessee†	3	2	13	9	11	1	2	12	6	11	—	1	4	2	—
<b>W.S. Central</b>	1	6	19	7	28	—	12	35	91	56	—	0	4	1	—
Arkansas	—	0	3	—	—	—	1	4	2	11	—	0	1	—	—
Louisiana	—	1	5	1	10	—	1	5	2	6	—	0	2	1	—
Oklahoma	—	0	1	1	1	—	0	5	—	3	—	0	3	—	—
Texas†	1	4	16	5	17	—	9	33	87	36	—	0	3	—	—
<b>Mountain</b>	—	6	21	11	47	—	10	39	11	62	—	2	8	3	10
Arizona	—	3	20	—	27	—	5	34	—	42	—	0	3	—	3
Colorado	—	1	5	5	6	—	1	4	6	4	—	0	3	—	1
Idaho†	—	0	3	1	4	—	0	2	1	2	—	0	2	—	—
Montana	—	0	1	—	4	—	0	2	—	—	—	0	1	—	—
Nevada†	—	0	2	2	1	—	1	4	2	4	—	0	2	3	2
New Mexico†	—	0	3	2	3	—	0	3	1	3	—	0	1	—	1
Utah	—	0	3	1	2	—	0	5	1	7	—	0	2	—	1
Wyoming	—	0	0	—	—	—	0	1	—	—	—	0	1	—	2
<b>Pacific</b>	8	15	148	161	83	1	10	38	41	73	1	1	10	18	12
Alaska	—	0	2	—	—	—	0	1	—	—	—	0	1	—	—
California	8	13	147	153	69	1	6	32	32	54	1	1	10	18	12
Hawaii	—	0	2	1	3	—	0	1	—	1	—	0	1	—	—
Oregon†	—	1	4	3	7	—	2	5	9	17	N	0	0	N	N
Washington	—	1	5	4	4	—	0	8	—	1	—	0	0	—	—
American Samoa	U	0	1	U	—	U	0	0	U	—	U	0	0	U	U
C.N.M.I.	U	0	0	U	U	U	0	0	U	U	U	0	0	U	U
Guam	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	1	6	—	3	—	1	6	—	2	—	0	0	—	—
U.S. Virgin Islands	—	0	0	—	—	—	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).

**TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending February 11, 2006, and February 12, 2005 (6th 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		
<b>United States</b>	33	290	1,316	238	789	6	23	46	90	136
<b>New England</b>	8	43	209	13	65	—	1	12	5	3
Connecticut	8	9	154	9	—	—	0	10	—	—
Maine	—	2	25	1	4	—	0	1	—	—
Massachusetts	—	12	141	—	52	—	0	4	4	3
New Hampshire	—	3	17	3	8	—	0	1	—	—
Rhode Island	—	0	12	—	—	—	0	1	—	—
Vermont†	—	0	5	—	1	—	0	2	1	—
<b>Mid. Atlantic</b>	13	181	918	117	548	1	6	15	14	42
New Jersey	—	36	305	—	195	—	1	7	—	13
New York (Upstate)	9	48	753	37	79	1	1	5	3	4
New York City	—	0	0	—	—	—	3	8	7	20
Pennsylvania	4	59	458	80	274	—	1	2	4	5
<b>E.N. Central</b>	—	13	156	6	29	—	2	6	9	14
Illinois	—	0	6	—	—	—	0	2	3	5
Indiana	—	0	4	—	—	—	0	1	—	—
Michigan	—	1	7	2	1	—	0	2	—	5
Ohio	—	1	5	1	7	—	0	3	3	2
Wisconsin	—	10	148	3	21	—	0	2	3	2
<b>W.N. Central</b>	7	13	99	8	4	—	1	5	4	7
Iowa	—	1	8	—	3	—	0	1	—	2
Kansas	—	0	3	1	1	—	0	1	—	1
Minnesota	6	9	96	6	—	—	0	3	2	1
Missouri	1	0	2	1	—	—	0	3	1	3
Nebraska†	—	0	1	—	—	—	0	2	—	—
North Dakota	—	0	0	—	—	—	0	0	—	—
South Dakota	—	0	1	—	—	—	0	1	1	—
<b>S. Atlantic</b>	2	32	125	75	130	2	6	15	28	22
Delaware	—	9	37	28	53	—	0	1	—	1
District of Columbia	—	0	2	1	1	—	0	2	—	—
Florida	1	1	8	4	7	—	1	6	3	3
Georgia	—	0	1	—	—	1	0	6	9	6
Maryland	1	16	86	37	60	—	1	9	9	7
North Carolina	—	0	5	5	5	—	0	8	3	2
South Carolina†	—	0	3	—	3	1	0	2	1	—
Virginia†	—	3	20	—	1	—	0	5	3	2
West Virginia	—	0	6	—	—	—	0	2	—	1
<b>E.S. Central</b>	—	1	4	—	2	—	0	2	—	3
Alabama†	—	0	1	—	—	—	0	1	—	1
Kentucky	—	0	1	—	—	—	0	2	—	1
Mississippi	—	0	0	—	—	—	0	0	—	—
Tennessee†	—	0	4	—	2	—	0	2	—	1
<b>W.S. Central</b>	—	1	8	—	3	—	1	9	4	10
Arkansas	—	0	2	—	—	—	0	2	—	1
Louisiana	—	0	2	—	1	—	0	1	—	—
Oklahoma	—	0	0	—	—	—	0	6	1	—
Texas†	—	0	7	—	2	—	1	9	3	9
<b>Mountain</b>	—	0	4	—	—	1	0	6	5	10
Arizona	—	0	4	—	—	—	0	4	—	2
Colorado	—	0	1	—	—	—	0	3	2	4
Idaho†	—	0	1	—	—	—	0	0	—	—
Montana	—	0	0	—	—	—	0	0	—	—
Nevada†	—	0	2	—	—	—	0	2	—	—
New Mexico†	—	0	1	—	—	—	0	1	—	1
Utah	—	0	1	—	—	1	0	2	3	2
Wyoming	—	0	1	—	—	—	0	1	—	1
<b>Pacific</b>	3	3	11	19	8	2	4	12	21	25
Alaska	—	0	1	—	—	—	0	1	1	1
California	3	2	10	19	7	2	3	9	16	23
Hawaii	N	0	0	N	N	—	0	4	—	—
Oregon†	—	0	2	—	1	—	0	2	2	1
Washington	—	0	3	—	—	—	0	4	2	—
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).



**TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending February 11, 2006, and February 12, 2005 (6th Week)\***

Reporting area	Rabies, animal					Rocky Mountain spotted fever					Salmonellosis				
	Current week	Previous 52 weeks		Cum 2006	Cum 2005	Current week	Previous 52 weeks		Cum 2006	Cum 2005	Current week	Previous 52 weeks		Cum 2006	Cum 2005
		Med	Max				Med	Max				Med	Max		
<b>United States</b>	24	105	160	209	644	4	34	98	157	52	205	858	1,449	2,342	2,586
<b>New England</b>	6	13	33	38	69	—	0	1	—	—	5	40	76	106	109
Connecticut	3	3	13	8	10	—	0	0	—	—	—	9	25	25	22
Maine	1	1	4	4	4	N	0	0	N	N	—	3	8	1	7
Massachusetts	2	5	22	22	46	—	0	1	—	—	4	20	38	67	67
New Hampshire	—	0	3	1	2	—	0	1	—	—	1	2	12	7	6
Rhode Island	—	0	4	1	—	—	0	1	—	—	—	0	15	4	—
Vermont†	—	1	7	2	7	—	0	0	—	—	—	1	10	2	7
<b>Mid. Atlantic</b>	10	18	40	61	56	—	2	8	—	3	19	94	184	218	296
New Jersey	N	0	0	N	N	—	0	6	—	1	—	16	45	—	64
New York (Upstate)	10	12	24	40	21	—	0	2	—	—	15	22	129	46	41
New York City	—	0	3	—	4	—	0	2	—	1	—	24	43	66	93
Pennsylvania	—	7	22	21	31	—	1	6	—	1	4	30	61	106	98
<b>E.N. Central</b>	—	3	19	2	4	—	0	3	—	1	34	93	243	232	311
Illinois	—	1	4	—	1	—	0	1	—	—	—	29	160	13	86
Indiana	—	0	3	—	1	—	0	1	—	—	8	10	71	30	11
Michigan	—	0	4	1	1	—	0	1	—	—	2	17	35	49	70
Ohio	—	0	13	1	1	—	0	3	—	1	24	22	52	101	76
Wisconsin	—	0	3	—	—	—	0	1	—	—	—	15	45	39	68
<b>W.N. Central</b>	2	7	23	9	26	—	1	16	1	3	19	43	91	149	156
Iowa	—	1	10	2	4	—	0	2	—	—	—	7	18	13	37
Kansas	—	1	5	3	4	—	0	2	—	—	5	7	17	21	14
Minnesota	1	1	5	1	9	—	0	1	—	—	9	10	31	35	32
Missouri	1	1	7	1	4	—	1	14	1	3	4	14	40	62	47
Nebraska†	—	0	0	—	—	—	0	2	—	—	1	2	8	11	15
North Dakota	—	0	4	2	—	—	0	0	—	—	—	0	5	—	2
South Dakota	—	1	6	—	5	—	0	2	—	—	—	2	11	7	9
<b>S. Atlantic</b>	5	30	49	65	383	4	16	94	155	40	74	251	511	787	713
Delaware	—	0	0	—	—	—	0	2	—	—	—	2	9	5	6
District of Columbia	—	0	0	—	—	—	0	1	—	—	2	1	7	7	—
Florida	4	0	14	18	201	1	0	1	2	2	54	99	230	353	292
Georgia	1	5	9	1	25	3	1	9	14	—	18	32	76	144	103
Maryland	—	6	16	5	32	—	2	7	4	1	—	14	39	51	61
North Carolina	—	9	19	21	47	—	5	87	133	35	—	28	114	183	133
South Carolina†	—	0	1	—	4	—	1	6	2	2	—	21	146	28	58
Virginia†	—	9	18	14	72	—	1	10	—	—	—	19	66	15	52
West Virginia	—	0	13	6	2	—	0	2	—	—	—	2	13	1	8
<b>E.S. Central</b>	1	2	9	14	8	—	5	25	1	1	11	55	134	149	155
Alabama†	1	1	5	5	8	—	0	9	—	—	9	13	39	71	56
Kentucky	—	0	3	—	—	—	0	1	—	—	—	7	26	21	17
Mississippi	—	0	1	—	—	—	0	3	—	—	—	13	66	12	21
Tennessee†	—	1	3	9	—	—	3	19	1	1	2	15	40	45	61
<b>W.S. Central</b>	—	14	42	5	71	—	2	32	—	1	1	79	157	216	199
Arkansas	—	0	3	1	6	—	0	32	—	—	1	12	67	25	26
Louisiana	—	0	0	—	—	—	0	2	—	1	—	15	42	12	53
Oklahoma	—	1	7	4	8	—	0	23	—	—	—	7	26	17	19
Texas†	—	12	39	—	57	—	0	7	—	—	—	43	121	162	101
<b>Mountain</b>	—	4	19	10	23	—	0	8	—	2	12	49	112	123	172
Arizona	—	3	11	10	20	—	0	8	—	—	—	13	28	—	60
Colorado	—	0	2	—	—	—	0	1	—	—	5	10	45	48	47
Idaho†	—	0	12	—	—	—	0	2	—	—	—	2	17	11	11
Montana	—	0	3	—	—	—	0	1	—	—	—	2	16	13	7
Nevada†	—	0	2	—	—	—	0	0	—	—	—	3	8	14	21
New Mexico†	—	0	1	—	1	—	0	1	—	—	—	4	11	11	11
Utah	—	0	5	—	—	—	0	1	—	2	4	6	31	21	9
Wyoming	—	0	2	—	2	—	0	1	—	—	3	1	12	5	6
<b>Pacific</b>	—	4	15	5	4	—	0	2	—	1	30	101	274	362	475
Alaska	—	0	3	1	—	—	0	0	—	—	3	1	5	12	9
California	—	3	15	4	4	—	0	1	—	1	27	77	242	301	377
Hawaii	—	0	0	—	—	—	0	0	—	—	—	5	15	21	53
Oregon†	—	0	1	—	—	—	0	1	—	—	—	7	23	22	22
Washington	U	0	0	U	U	—	0	0	—	—	—	9	31	6	14
American Samoa	U	0	0	U	U	U	0	0	U	U	U	0	2	U	—
C.N.M.I.	U	0	0	U	U	U	0	0	U	U	U	0	0	U	U
Guam	—	0	0	—	—	—	0	0	—	—	—	0	0	—	—
Puerto Rico	—	2	6	9	9	N	0	0	N	N	1	8	23	4	26
U.S. Virgin Islands	—	0	0	—	—	—	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).







**TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending February 11, 2006, and February 12, 2005 (6th 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			
<b>United States</b>	—	1	153	—	—	—	1	203	—	2
<b>New England</b>	—	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	—	—
<b>Mid. Atlantic</b>	—	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	—	—
<b>E.N. Central</b>	—	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	—	—
<b>W.N. Central</b>	—	0	26	—	—	—	0	78	—	—
Iowa	—	0	3	—	—	—	0	5	—	—
Kansas	—	0	2	—	—	N	0	2	N	N
Minnesota	—	0	5	—	—	—	0	5	—	—
Missouri	—	0	4	—	—	—	0	3	—	—
Nebraska§	—	0	9	—	—	—	0	22	—	—
North Dakota	—	0	4	—	—	—	0	15	—	—
South Dakota	—	0	7	—	—	—	0	33	—	—
<b>S. Atlantic</b>	—	0	5	—	—	—	0	4	—	—
Delaware	—	0	1	—	—	—	0	0	—	—
District of Columbia	—	0	0	—	—	—	0	0	—	—
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	0	—	—
West Virginia	—	0	0	—	—	N	0	0	N	N
<b>E.S. Central</b>	—	0	10	—	—	—	0	5	—	—
Alabama§	—	0	1	—	—	—	0	2	—	—
Kentucky	—	0	1	—	—	—	0	0	—	—
Mississippi	—	0	9	—	—	—	0	5	—	—
Tennessee§	—	0	3	—	—	—	0	1	—	—
<b>W.S. Central</b>	—	0	31	—	—	—	0	21	—	2
Arkansas	—	0	3	—	—	—	0	2	—	—
Louisiana	—	0	20	—	—	—	0	8	—	2
Oklahoma	—	0	6	—	—	—	0	3	—	—
Texas§	—	0	16	—	—	—	0	13	—	—
<b>Mountain</b>	—	0	16	—	—	—	0	39	—	—
Arizona	—	0	8	—	—	—	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	—	—
<b>Pacific</b>	—	0	50	—	—	—	0	89	—	—
Alaska	—	0	0	—	—	—	0	0	—	—
California	—	0	50	—	—	—	0	88	—	—
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).

TABLE III. Deaths in 122 U.S. cities,\* week ending February 11, 2006 (6th Week)

Reporting Area	All causes, by age (years)							Reporting Area	All causes, by age (years)						
	All Ages	≥65	45-64	25-44	1-24	<1	P&I† Total		All Ages	≥65	45-64	25-44	1-24	<1	P&I† Total
<b>New England</b>	559	410	90	39	6	14	40	<b>S. Atlantic</b>	1,330	844	319	109	32	25	77
Boston, MA	134	97	20	13	2	2	10	Atlanta, GA	117	68	34	13	—	2	6
Bridgeport, CT	30	19	11	—	—	—	6	Baltimore, MD	205	120	58	19	7	—	19
Cambridge, MA	17	14	2	1	—	—	3	Charlotte, NC	100	67	24	8	—	1	15
Fall River, MA	26	23	3	—	—	—	1	Jacksonville, FL	166	102	43	14	4	3	4
Hartford, CT	72	49	15	7	1	—	7	Miami, FL	196	133	42	17	3	1	8
Lowell, MA	25	21	4	—	—	—	1	Norfolk, VA	52	30	12	3	4	3	2
Lynn, MA	5	5	—	—	—	—	1	Richmond, VA	49	26	15	5	3	—	3
New Bedford, MA	26	22	2	2	—	—	—	Savannah, GA	53	39	11	1	1	1	1
New Haven, CT	U	U	U	U	U	U	U	St. Petersburg, FL	66	38	15	3	2	8	10
Providence, RI	66	44	12	5	1	4	5	Tampa, FL	193	137	32	17	3	4	5
Somerville, MA	1	1	—	—	—	—	—	Washington, D.C.	109	63	31	9	4	2	2
Springfield, MA	41	26	6	2	—	7	1	Wilmington, DE	24	21	2	—	1	—	2
Waterbury, CT	31	23	4	3	—	1	—	<b>E.S. Central</b>	957	624	243	51	23	16	82
Worcester, MA	85	66	11	6	2	—	5	Birmingham, AL	231	157	50	15	9	—	22
<b>Mid. Atlantic</b>	2,210	1,545	480	117	31	37	130	Chattanooga, TN	78	51	23	2	—	2	8
Albany, NY	37	20	10	4	1	2	1	Knoxville, TN	103	62	32	5	2	2	4
Allentown, PA	24	21	3	—	—	—	3	Lexington, KY	55	31	21	2	—	1	7
Buffalo, NY	90	61	22	2	2	3	6	Memphis, TN	160	105	43	6	3	3	17
Camden, NJ	34	17	13	1	—	3	1	Mobile, AL	93	58	20	5	4	6	5
Elizabeth, NJ	10	9	1	—	—	—	1	Montgomery, AL	84	53	20	8	3	—	9
Erie, PA	38	26	10	2	—	—	1	Nashville, TN	153	107	34	8	2	2	10
Jersey City, NJ	4	4	—	—	—	—	—	<b>W.S. Central</b>	1,565	986	402	103	46	28	102
New York City, NY	1,114	774	251	65	16	8	63	Austin, TX	92	60	27	4	1	—	8
Newark, NJ	56	30	18	6	1	1	5	Baton Rouge, LA	36	28	3	3	2	—	—
Paterson, NJ	19	12	2	3	—	2	—	Corpus Christi, TX	41	24	14	2	—	1	5
Philadelphia, PA	342	226	82	20	5	9	9	Dallas, TX	221	121	62	22	9	7	21
Pittsburgh, PA§	32	23	8	—	—	1	1	El Paso, TX	117	83	22	9	2	1	4
Reading, PA	31	30	1	—	—	—	—	Fort Worth, TX	158	101	46	6	5	—	15
Rochester, NY	118	87	24	3	3	1	9	Houston, TX	369	213	106	33	10	7	14
Schenectady, NY	29	24	4	1	—	—	6	Little Rock, AR	74	41	23	2	7	1	2
Scranton, PA	22	20	1	1	—	—	2	New Orleans, LA¶	U	U	U	U	U	U	U
Syracuse, NY	150	119	23	4	1	3	19	San Antonio, TX	257	180	54	10	6	7	20
Trenton, NJ	22	11	4	2	1	4	1	Shreveport, LA	75	53	13	5	1	3	9
Utica, NY	18	15	2	—	1	—	2	Tulsa, OK	125	82	32	7	3	1	4
Yonkers, NY	20	16	1	3	—	—	—	<b>Mountain</b>	1,164	756	257	89	26	33	96
<b>E.N. Central</b>	2,042	1,357	451	147	41	46	129	Albuquerque, NM	187	127	44	7	5	4	20
Akron, OH	51	36	10	2	1	2	2	Boise, ID	73	48	17	3	4	1	5
Canton, OH	38	27	9	1	—	1	1	Colorado Springs, CO	52	36	13	2	1	—	4
Chicago, IL	320	196	81	30	7	6	17	Denver, CO	103	62	20	13	2	6	7
Cincinnati, OH	74	43	23	3	2	3	8	Las Vegas, NV	309	198	74	27	3	7	19
Cleveland, OH	220	160	45	7	5	3	9	Ogden, UT	37	30	4	2	1	—	1
Columbus, OH	206	138	44	18	3	3	14	Phoenix, AZ	212	132	49	14	7	7	20
Dayton, OH	131	99	20	10	2	—	9	Pueblo, CO	33	26	6	1	—	—	4
Detroit, MI	166	92	47	18	6	3	7	Salt Lake City, UT	158	97	30	20	3	8	16
Evansville, IN	39	32	4	3	—	—	4	Tucson, AZ	U	U	U	U	U	U	U
Fort Wayne, IN	52	37	9	5	—	1	3	<b>Pacific</b>	1,739	1,233	348	92	34	32	157
Gary, IN	21	12	5	—	2	2	—	Berkeley, CA	18	11	4	1	—	2	1
Grand Rapids, MI	58	42	12	1	1	2	7	Fresno, CA	55	35	13	6	—	1	5
Indianapolis, IN	196	115	50	15	6	10	7	Glendale, CA	17	15	1	—	1	—	2
Lansing, MI	54	34	12	7	—	1	1	Honolulu, HI	66	57	8	1	—	—	—
Milwaukee, WI	111	76	24	8	1	2	17	Long Beach, CA	79	51	19	6	3	—	12
Peoria, IL	36	31	3	1	1	—	5	Los Angeles, CA	307	213	63	21	5	5	24
Rockford, IL	49	29	11	4	1	4	5	Pasadena, CA	20	11	8	1	—	—	4
South Bend, IN	61	44	8	7	—	2	1	Portland, OR	104	69	24	6	2	3	3
Toledo, OH	104	71	24	5	3	1	9	Sacramento, CA	214	151	47	6	5	5	22
Youngstown, OH	55	43	10	2	—	—	3	San Diego, CA	181	126	32	12	4	7	19
<b>W.N. Central</b>	547	358	119	44	15	11	33	San Francisco, CA	133	93	25	10	3	2	21
Des Moines, IA	33	26	6	—	1	—	4	San Jose, CA	207	162	32	6	5	2	24
Duluth, MN	29	23	6	—	—	—	1	Santa Cruz, CA	32	26	3	2	1	—	2
Kansas City, KS	32	17	11	3	—	1	3	Seattle, WA	139	91	37	7	1	3	9
Kansas City, MO	73	49	19	2	3	—	4	Spokane, WA	56	42	11	2	1	—	3
Lincoln, NE	34	26	6	2	—	—	2	Tacoma, WA	111	80	21	5	3	2	6
Minneapolis, MN	51	35	8	4	1	3	2	<b>Total</b>	12,113**	8,113	2,709	791	254	242	846
Omaha, NE	98	67	20	9	—	2	9								
St. Louis, MO	48	10	16	17	4	1	1								
St. Paul, MN	58	43	9	3	2	1	3								
Wichita, KS	91	62	18	4	4	3	4								

U: Unavailable. —: No reported cases.

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

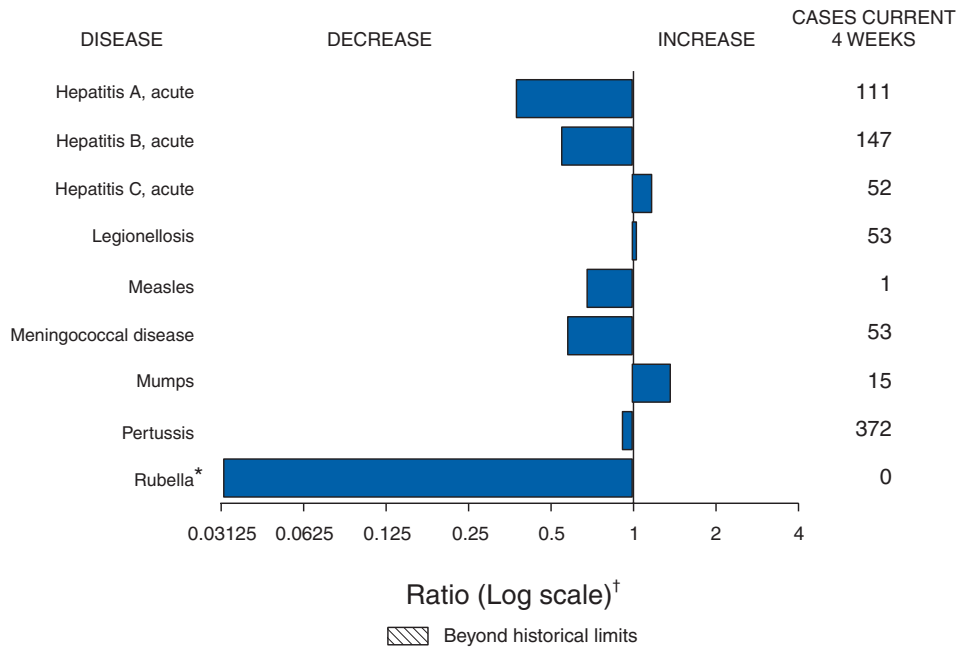
† Pneumonia and influenza.

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

¶ Because of Hurricane Katrina, weekly reporting of deaths has been temporarily disrupted.

\*\* Total includes unknown ages.

**FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals February 11, 2006, with historical data**



\* No rubella cases were reported for the current 4-week period yielding a ratio for week 6 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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