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### Malaria in Refugees from Tanzania — King County, Washington, 2007

Recent immigrants and refugees constitute a substantial proportion of malaria cases in the United States, accounting for nearly one in 10 imported malaria cases involving persons with known resident status in 2006 (1). This report describes three cases of *Plasmodium falciparum* malaria and two cases of *Plasmodium ovale* malaria that occurred during June 27–October 15, 2007 in King County, Washington. The infections were diagnosed in Burundian refugees who had recently arrived in the United States from two refugee camps in Tanzania. Since 2005, CDC has recommended presumptive malaria treatment with artemisinin-based combination therapy (ACT) (e.g., artemether-lumefantrine) for refugees from sub-Saharan Africa before their departure for the United States (2). Rising levels of resistance to the previous mainstays of treatment, chloroquine and sulfadoxine-pyrimethamine, prompted CDC to make this recommendation. Implementation has been delayed in some countries, including Tanzania, where predeparture administration of presumptive ACT for refugees started in July 2007. The cases in this report highlight the need for health-care providers who care for recently arrived Burundian and other refugee populations to be vigilant for malaria, even among refugees previously treated for the disease.

Washington state law requires health-care providers, hospitals, and laboratories to report malaria and certain other conditions to the local health department.\* This report summarizes the findings from five cases reported to the local health department by health-care providers and laboratories (Table). After these cases were reported, the patients' medical records were obtained from two local hospitals and reviewed to assist in case investigations. Initial investigations were limited to case investigation forms completed by public health officials based on available medical records.

**Case 1.** A female aged 3 years was diagnosed with *P. falciparum* malaria in May 2007 while in Tanzania. At that time, she was placed on a quinine-based regimen (formulation, date of administration, and method of administration unknown) and clinically recovered. During an overseas predeparture exam, a requirement for entry into the United States, she received presumptive malaria treatment, with a course of sulfadoxine-pyrimethamine. She arrived in the United States on June 12, 2007, and became ill on June 25, 2007, with fevers, chills, and cough. On June 27, 2007, she was admitted to the local children's hospital. A blood smear revealed 7% hyperparasitemia (>5% = hyperparasitemia) with *P. falciparum*. Other laboratory findings included anemia, thrombocytopenia, and elevated aspartate aminotransferase. She received oral atovaquone-proguanil, clinically improved, and was discharged July 2, 2007 after 5 days in the hospital.

**Case 2.** A female aged 9 years arrived in the United States on July 23, 2007. Before leaving Tanzania, she received presumptive 3-day treatment of twice daily artemether-lumefantrine; the last doses were administered on July 19, 2007. She became ill on August 11, 2007, with fever, headache, malaise, and cough. She was evaluated in the local county hospital emergency department on August 14, 2007. Blood smear (percent parasitemia unknown) and polymerase chain reaction (PCR) test results were positive for *P. ovale*. Other

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\*Notifiable conditions. Ch. 246-101, Washington Administrative Code. Available at <http://apps.leg.wa.gov/wac/default.aspx?cite=246-101>.

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laboratory findings included anemia, elevated alanine and aspartate aminotransferase, and hypoalbuminemia. The patient recovered after outpatient treatment with mefloquine and primaquine.

**Case 3.** A male aged 6 years arrived in the United States on July 23, 2007. Before leaving Tanzania, he received presumptive 3-day treatment of twice daily artemether-lumefantrine, with last doses given on July 19, 2007. He became ill on August 13, 2007, with fever, headache, and malaise. He was evaluated in the local county hospital emergency department on August 15, 2007. Laboratory evaluation revealed anemia and *P. ovale* on blood smear (percent parasitemia unknown) and by PCR. He was treated with chloroquine and primaquine as an outpatient and recovered.

**Case 4.** A male aged 6 years arrived in the United States on September 28, 2007. He received presumptive treatment of artemether-lumefantrine before departure from Tanzania. The last doses were administered on September 24, 2007. He became ill on October 1, 2007, with fever, cough, and decreased energy. He was admitted to a local children's hospital on October 15, 2007. A blood smear revealed *P. falciparum* with 6.3% hyperparasitemia. Anemia was the other notable laboratory finding. The patient received quinine and clindamycin, recovered, and was transitioned to atovaquone-proguanil before discharge. He was discharged on October 19, 2007 after spending 4 days in the hospital.

**Case 5.** A female aged 2 years arrived in the United States on September 28, 2007. She received artemether-lumefantrine as presumptive treatment before departure from Tanzania, with the last doses administered on September 24, 2007. She became ill on October 8, 2007, with fever, vomiting, and nonbloody diarrhea. She worsened clinically over the following week, eventually developing respiratory distress and lethargy. She was admitted to the intensive care unit of a local children's hospital on October 15, 2007. Her blood smear revealed 7.4% hyperparasitemia with *P. falciparum*. Other laboratory findings included anemia, thrombocytopenia, and elevated alanine and aspartate aminotransferase. The patient was treated with quinidine and clindamycin, recovered, and was transitioned to atovaquone-proguanil before discharge on October 19, 2007. She spent a total of 4 days in the hospital.

Blood smears from cases 2 through 5 were sent to CDC for confirmation of test results. In cases 2 and 3, blood smears were positive for *Plasmodium* spp. (without percent parasitemia noted), and PCR was positive for *P. ovale*. In case 4, the blood smear was notable for a 10% *P. falciparum* hyperparasitemia. In case 5, the blood smear was negative, but PCR was positive for *P. falciparum*.

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**TABLE. Clinical findings, laboratory results, and treatment of malaria in Burundian refugees from Tanzania — King County, Washington, June 27, 2007–October 15, 2007**

Characteristic	Case 1	Case 2	Case 3	Case 4	Case 5
Patient age (yrs)	3	9	6	6	2
Sex	Female	Female	Male	Male	Female
Arrival in United States	June 12, 2007	July 23, 2007	July 23, 2007	September 28, 2007	September 28, 2007
Symptom onset	June 25, 2007	August 11, 2007	August 13, 2007	October 1, 2007	October 8, 2007
Signs/Symptoms	Fever, chills, cough	Fever, headache, malaise, cough	Fever, headache, malaise	Fever, cough	Fever, vomiting, diarrhea, respiratory distress, lethargy
<b>Laboratory findings</b>					
Blood smear	<i>Plasmodium falciparum</i>	<i>Plasmodium spp.</i>	<i>Plasmodium spp.</i>	<i>P. falciparum</i>	<i>P. falciparum</i>
% Parasitemia	7%	—	—	6.3%*	7.4%†
Polymerase chain reaction (PCR)	N/A	<i>Plasmodium ovale</i>	<i>P. ovale</i>	N/A	<i>P. falciparum</i>
Hematocrit	29%	30%	34%	32%	18%
Platelets	59,000	210,000	160,000	202,000	29,000
Aspartate aminotransferase	68	118	31	—	122
Alanine aminotransferase	43	150	18	—	61
P <sub>a</sub> O <sub>2</sub> §	49	—	—	—	24
<b>Treatment</b>					
Predeparture	sulfadoxine pyrimethamine	artemether-lumefantrine	artemether-lumefantrine	artemether-lumefantrine	artemether-lumefantrine
In the United States	atovaquone-proguanil	mefloquine and primaquine	chloroquine and primaquine	quinidine and clindamycin, followed by atovaquone-proguanil	quinidine and clindamycin, followed by atovaquone-proguanil

\* Confirmation at CDC revealed 10% hyperparasitemia.

† Smear negative, but PCR test positive at CDC.

§ Partial pressure of oxygen in arterial blood.

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**Editorial Note:** CDC recommends presumptive treatment of *P. falciparum* malaria in United States-bound refugees at high risk for infection rather than waiting for development of symptoms and risking severe complications or death after arrival in the United States (2). To be considered adequate presumptive therapy, the regimen must be completed no sooner than 3 days before departure (2). This approach reduces the risk for malaria-related morbidity and mortality among these refugees. Refugees are typically a medically underserved population with difficulty accessing care, which can lead to delays in diagnosis and treatment. Even if refugees are able to obtain care, health-care providers in the United States might not be familiar with recommended malaria treatment regimens. For example, the patient in case 1 did not receive adequate treatment for severe infection with *P. falciparum*. Instead, she received oral atovaquone-proguanil,

which would have been appropriate for uncomplicated malaria. The recommended regimens for severe infection with *P. falciparum* include either intravenous quinidine or artesunate (3). The latter is available from CDC via an investigational new drug protocol. Presumptive predeparture treatment for malaria in a geographically clustered population of refugees, as in a refugee camp, is easier logistically and less costly than treatment of symptomatic cases dispersed throughout the United States after arrival. Presumptive treatment also can reduce the risk for reintroduction of malaria into the United States. Reintroduction is a concern given that the malaria vector, the female *Anopheles* mosquito, is widespread in the United States. A recent malaria outbreak in the Caribbean resulting from reintroduction is an example of this possibility (4).

The International Organization for Migration (IOM) is an intergovernmental agency that screens and treats most refugees bound for the United States. This is done at the request of the United States in an effort to reduce the incidence of infectious disease among refugees after they reach the United States. IOM administers presumptive treatment against *P. falciparum* malaria (and intestinal parasites) to refugees resettling from Tanzania before departure for the United States. In 2005, CDC

recommended ACT as presumptive *P. falciparum* treatment for refugees resettling in the United States from sub-Saharan Africa. However, presumptive *P. falciparum* malaria treatment using sulfadoxine-pyrimethamine was used for Tanzanian refugees until July 7, 2007.

CDC surveillance data indicate that among 1,805 Burundian refugees from Tanzania who resettled to 34 U.S. states during May 4–July 7, 2007, 29 symptomatic cases of malaria were identified in 12 states, including Washington. Twenty-six of these refugees (including the patient in case 1) were infected with *P. falciparum* alone, and two had mixed infections (*P. falciparum* and *P. ovale* or *Plasmodium malariae*). Speciation was not performed for the remaining case. Twenty-four of the 29 (82%) patients were hospitalized; none died (CDC, unpublished data). These 29 refugees departed for the United States before July 7, 2007, the date when IOM implemented the CDC recommendations that refugees from Tanzania receive presumptive treatment with 6-dose artemether-lumefantrine within 3 days before departure for the United States. Instead, they all received sulfadoxine-pyrimethamine before departure; high rates of resistance to sulfadoxine-pyrimethamine have been reported (5), but the artemether-lumefantrine regimen has been effective in field settings in Africa (6).

Two of the patients in this report who were infected with *P. falciparum*, the patients in cases 4 and 5, were resettled to the United States after July 7, 2007, the date when IOM instituted the change to artemether-lumefantrine treatment. These two patients received a complete artemether-lumefantrine presumptive treatment course before departure from Tanzania, yet both were diagnosed with *P. falciparum* after arrival in the United States. Possible explanations include incomplete treatment or nonadherence to the medication regimen (only 3 of 6 doses were directly observed in these two patients, and in the patients in cases 2 and 3), poor medication absorption, reinfection after treatment, or treatment during a time in the parasite's lifecycle when it would be unaffected by this regimen. In response to such continuing cases, IOM now directly observes all 6 doses of artemether-lumefantrine treatment and provides milk with each dose to improve absorption.

Current IOM policy targets infection with *P. falciparum* only. However, cases 2 and 3 in this series involved relapses of *P. ovale* after arrival in the United States. Infection with *P. ovale* (or *Plasmodium vivax*) generally results in less severe disease than infection with *P. falciparum*. Hypnozoites of *P. ovale* or *P. vivax* can remain dormant in the liver for months or years before causing relapse, and primaquine is the only agent available that can eliminate malaria parasites at this stage of their life cycle (7,8). However, predeparture presumptive

treatment with primaquine to prevent relapse of *P. ovale* or *P. vivax* currently is not recommended because the cost, logistics of implementing a 14-day medication course, and risk for severe hemolytic anemia in glucose-6-phosphate dehydrogenase (G6PD)–deficient patients outweigh the potential benefit of avoiding a small number of non-*P. falciparum* malaria cases.

Up to 10,000 Burundian refugees from Tanzania will have been resettled in the United States during 2007–2008 (9). Health-care providers in the United States caring for refugee populations resettling from malarial regions should remain aware of the possibility of malaria in these groups, regardless of prior treatment.

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## Syphilis Testing Algorithms Using Treponemal Tests for Initial Screening — Four Laboratories, New York City, 2005–2006

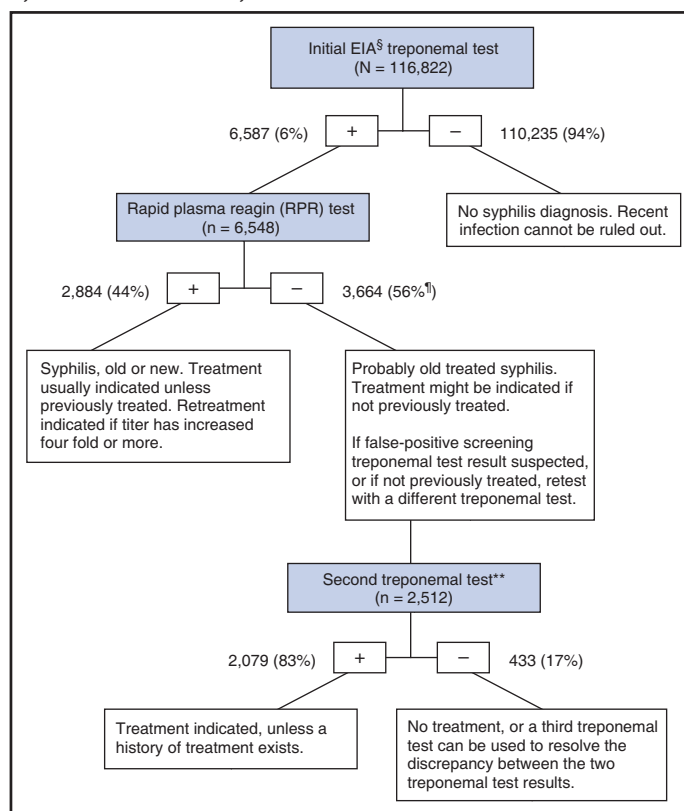
In the United States, testing for syphilis traditionally has consisted of initial screening with an inexpensive nontreponemal test, then retesting reactive specimens with a more specific, and more expensive, treponemal test. When both test results are reactive, they indicate present or past infection. However, for economic reasons, some high-volume

clinical laboratories have begun using automated treponemal tests, such as automated enzyme immunoassays (EIAs) or immunochemoluminescence tests, and have reversed the testing sequence: first screening with a treponemal test and then retesting reactive results with a nontreponemal test. This approach has introduced complexities in test interpretation that did not exist with the traditional sequence. Specifically, screening with a treponemal test sometimes identifies persons who are reactive to the treponemal test but nonreactive to the nontreponemal test. No formal recommendations exist regarding how such results derived from this new testing sequence should be interpreted, or how patients with such results should be managed. To begin an assessment of how clinical laboratories are addressing this concern, CDC reviewed the testing algorithms used and the test interpretations provided in four laboratories in New York City. Substantial variation was found in the testing strategies used, which might lead to confusion about appropriate patient management. A total of 3,664 (3%) of 116,822 specimens had test results (i.e., reactive treponemal test result and nonreactive nontreponemal test result) that would not have been identified by the traditional testing algorithms, which end testing if the nontreponemal test result is nonreactive. If they have not been previously treated, patients with reactive results from treponemal tests and nonreactive results from nontreponemal tests should be treated for late latent syphilis.

Four New York City laboratories that routinely conduct syphilis testing using EIA treponemal screening tests were able to provide their testing algorithms, test volume, and test results for a convenience sample of specimens. Each laboratory used a slightly different testing algorithm and tested approximately 26,000–130,000 specimens for syphilis per year. CDC reviewed test results from a convenience sample of 116,822 specimens tested at these four laboratories during October 1, 2005–December 1, 2006.

In all four laboratories, no further testing was done on specimens that were nonreactive with the treponemal screening EIA. In all four laboratories, specimens considered reactive by EIA test were next tested with a rapid plasma reagin (RPR) test. However, the approach to follow-up testing then differed. At two laboratories, specimens that were reactive with EIA and nonreactive with RPR were retested using a different treponemal test: *Treponema pallidum* particle agglutination (TP-PA) or fluorescent treponemal antibody (FTA-ABS). At a third laboratory, specimens that were reactive to both the EIA test and the RPR test were retested using a different treponemal test (i.e., FTA-ABS or TP-PA). At the fourth laboratory, no further testing was done after the EIA and RPR tests.

**FIGURE. Composite results of syphilis testing algorithms using treponemal tests for initial screening and likely interpretations\* — four laboratories, New York City, October 1, 2005–December 1, 2006†**



\* One laboratory provided limited interpretation of the test results; the other three summarized the results without interpretation. No formal recommendations exist regarding the interpretation of results derived from testing algorithms using treponemal tests as the initial test.

† Using a convenience sample of 116,822 specimens. The four laboratories used different testing algorithms. Data shown are a composite of results from all four laboratories.

§ Enzyme immunoassay.

¶ Reactive with EIA treponemal test but nonreactive with RPR test.

\*\* Using *Treponema pallidum* particle agglutination or fluorescent treponemal antibody tests.

Of the 116,822 specimens included in the convenience sample, 6,587 (6%) were initially reactive to the EIA test (Figure). When 6,548 of the EIA-reactive specimens were tested with an RPR test, 2,884 (44%) were reactive and 3,664 (56%) were nonreactive to the RPR test. Further testing with FTA-ABS or TP-PA tests on 2,512 of the specimens reactive to the EIA test but nonreactive to the RPR test found 2,079 (83%) specimens reactive to the second treponemal tests (i.e., FTA-ABS or TP-PA). In addition, the one laboratory that performed TP-PA testing on specimens that were reactive to both the EIA and RPR tests found 78 of 80 (98%) specimens were reactive to the TP-PA test.

One laboratory provided limited interpretation of the various permutations of syphilis test results. The other three laboratories gave providers an objective summary of the test results (e.g., EIA reactive, RPR reactive, or EIA reactive and RPR nonreactive) with no interpretation. No additional information was available from the four laboratories regarding patient treatment.

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**Editorial Note:** In the four New York City laboratories studied, reversing the traditional order of screening and confirmatory tests for syphilis resulted in 3,664 (3%) of 116,822 specimens with test results (i.e., reactive treponemal test result and nonreactive nontreponemal test result) that would not have been identified by the traditional testing algorithm. The importance of these test results is unclear because no specific prognostic information exists to guide patient evaluation and treatment.

Treponemal tests detect antibodies specific to *T. pallidum*. In addition to *T. pallidum pallidum*, which causes syphilis, other treponemal subspecies (e.g., *pertenue*, which causes yaws, and *carateum*, which causes pinta) also can produce reactive results to treponemal tests, but these subspecies are rare in the United States (1). A reactive treponemal test result indicates that treponemal infection has occurred at some point in the past but cannot distinguish between treated and untreated infections. As such, treponemal tests, such as the *T. pallidum* EIA test, TP-PA test, and FTA-ABS test, can produce reactive results for life, even after adequate treatment for syphilis.

Nontreponemal tests, such as the RPR test and venereal disease research laboratory (VDRL) test, detect antibodies to cardiolipin and are not specific for treponemal infection. Nontreponemal tests are more likely than treponemal tests to produce nonreactive results after treatment; therefore, reactive results from nontreponemal tests are more reliable indicators of untreated infection. Quantitative nontreponemal tests also are used to monitor responses to treatment or to indicate new infections. False-positive nontreponemal tests occur in 1%–2% of the U.S. population, and have been associated with multiple conditions, including pregnancy, human immunodeficiency virus (HIV) infection, intravenous drug use, tuberculosis, rickettsial infection, spirochetal infection other than syphilis, bacterial endocarditis, and disorders of immunoglobulin production (2,3). Nontreponemal test results might be falsely negative in longstanding latent infection (4). Both treponemal and nontreponemal tests can produce nonreactive results when the infection has been acquired recently; approxi-

mately 20% of test results are negative when patients have primary syphilis (4).

The four New York City laboratories in this report used various algorithms to evaluate specimens that were reactive to treponemal tests and nonreactive to nontreponemal tests. The different algorithms might lead to confusion in the interpretation of test results and, in turn, in the management and treatment of patients. Test results that would not have been identified by the traditional algorithm were obtained for 3% of the specimens tested for syphilis; thus, such results might be expected to occur several thousand times per year in New York City alone.

When results are reactive to both treponemal and RPR tests, persons should be considered to have untreated syphilis unless it is ruled out by treatment history. Persons who were treated in the past are considered to have a new syphilis infection if quantitative testing on an RPR test or another nontreponemal test reveals a four fold or greater increase in titer (health departments maintain registries of past positive tests). When results are reactive to the treponemal test but nonreactive to the RPR test, persons with a history of previous treatment will require no further management. For persons without a history of treatment, a second, different treponemal test should be performed (5). If the second treponemal test is nonreactive, the clinician may decide that no further evaluation or treatment is indicated, or may choose to perform a third treponemal test to help resolve the discrepancy.

If the second treponemal test is reactive, clinicians should discuss the possibility of infection and offer treatment to patients who have not been previously treated. Unless history or results of a physical examination suggest a recent infection, such patients are unlikely to be infectious and should be treated for late latent infections, even though they do not meet the surveillance case definition (7). Treatment can prevent severe (i.e., tertiary) complications that can result from untreated syphilis, although the probability of such complications occurring without treatment, while unknown, likely is small (6). Treatment also allows patients to report that they have been treated for syphilis if they ever receive similar results from future treponemal screening tests. Public health departments determine their own priorities for partner notification and other prevention activities; however, because late infections are unlikely to be infectious, they would likely be considered low priority for health department intervention activities.

Reversal of the traditional syphilis screening sequence has been driven by economics. For high-volume laboratories, an automated treponemal test can be less expensive than using an RPR test for the initial screening. An important consequence of this reversal is the identification of a combination

of reactive and nonreactive test results that would not otherwise have been identified. The clinical interpretation of these results is complicated by the lack of standardized follow-up testing algorithms among the four laboratories, and by the lack of an evidence base with which to judge the merits of each algorithm. Consequently, use of a reversed sequence of syphilis testing might result in overdiagnosis and overtreatment of syphilis in some clinical settings.

The recommendations in this report might not be appropriate in countries with different patterns of seroreactivity, systems of health care, and epidemiology of disease. Furthermore, additional analyses are needed that further elucidate the use and total costs of these alternative screening approaches for syphilis, given the anticipated increase in use of treponemal tests for screening in the United States.

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## Infection Control Requirements for Dialysis Facilities and Clarification Regarding Guidance on Parenteral Medication Vials

In April 2008, the Centers for Medicare and Medicaid Services (CMS) published in the *Federal Register* its final rule on *Conditions for Coverage for End-Stage Renal Disease (ESRD) Facilities* (1). The rule establishes new conditions dialysis facilities must meet to be certified under the Medicare program and is intended to update CMS standards for delivery of quality care to dialysis patients. CDC's 2001 *Recommendations for Preventing Transmission of Infections among Chronic Hemodialysis Patients* (2) have been incorporated by reference into the new CMS conditions for coverage. Thus, effective October 14, 2008, all ESRD facilities are expected to follow

the CDC recommendations as a condition for receiving Medicare payment for outpatient dialysis services.

In recent years, outbreak investigations in dialysis and other health-care settings have demonstrated that mishandling of parenteral medication vials can contribute to the risk for hepatitis C virus (HCV) infection and bacterial and other infections (3–7). In 2002, a CDC communication to CMS suggested that reentry into single-use parenteral medication vials (i.e., to administer medication to more than one patient), when performed on a limited basis and under strict conditions in hemodialysis settings, likely would result in low risk for bacterial infection (8). However, the 2002 communication did not address risks for bloodborne viral infections (e.g., HCV and hepatitis B virus infection). This report is intended to clarify and restate CDC's recommendation on parenteral medication to include bloodborne viral infections. The recommendations in this report supersede the 2002 CDC communication to CMS.

To prevent transmission of both bacteria and bloodborne viruses in hemodialysis settings, CDC recommends that all single-use injectable medications and solutions be dedicated for use on a single patient and be entered one time only. Medications packaged as multidose should be assigned to a single patient whenever possible. All parenteral medications should be prepared in a clean area separate from potentially contaminated items and surfaces. In hemodialysis settings where environmental surfaces and medical supplies are subjected to frequent blood contamination, medication preparation should occur in a clean area removed from the patient treatment area. Proper infection control practices must be followed during the preparation and administration of injected medications (9). This is consistent with official CDC recommendations for infection control precautions in hemodialysis (2) and other health-care settings (9).

Health departments and other public health partners should be aware of the new CMS conditions for ESRD facilities. All dialysis providers are advised to follow official CDC recommendations regarding Standard Precautions and infection control in dialysis settings (2,9). Specifically, CDC has recommended the following: "Intravenous medication vials labeled for single use, including erythropoietin, should not be punctured more than once. Once a needle has entered a vial labeled for single use, the sterility of the product can no longer be guaranteed" (2). Additional guidance on safe injection practices can be found in the *Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings* 2007 (9).

Dialysis providers also should be aware of their responsibility to report clusters of infections or other adverse events to

the appropriate local or state public health authority. Failure to report illness clusters to public health authorities can result in delays in recognition of disease outbreaks (10) and implementation of control measures. Additional information regarding the new CMS *Conditions for Coverage for End-Stage Renal Disease Facilities* is available at [http://www.cms.hhs.gov/cfcsandcops/13\\_esrd.asp](http://www.cms.hhs.gov/cfcsandcops/13_esrd.asp).

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#### Notice to Readers

### **Preventive Medicine Residency Application Deadline — October 1, 2008**

CDC's Preventive Medicine Residency (PMR) program is accepting applications from physicians with public health and applied epidemiology experience. Application materials must be postmarked by October 1, 2008 for the 12-month program that begins in mid-June 2009.

The PMR prepares physicians for leadership roles in public health at federal, state, and local levels through instruction and supervised practical experiences focused on translating epidemiology to public health practice, management, and policy and program development. Residents spend the practicum year at CDC or in a state or local health department.

PMR alumni occupy leadership positions at CDC, at state and local health departments, in academia, and in private-sector agencies. Completion of the residency, which is accredited by the Accreditation Council for Graduate Medical Education for 12 months of practicum training, qualifies graduates to apply for certification by the American Board of Preventive Medicine in Public Health and General Preventive Medicine.

Additional information regarding the residency, eligibility criteria, and application process is available at <http://www.cdc.gov/epo/dapht/pmr/pmr.htm> or by calling 404-498-6140.

### **Erratum: Vol. 57, No. SS-6**

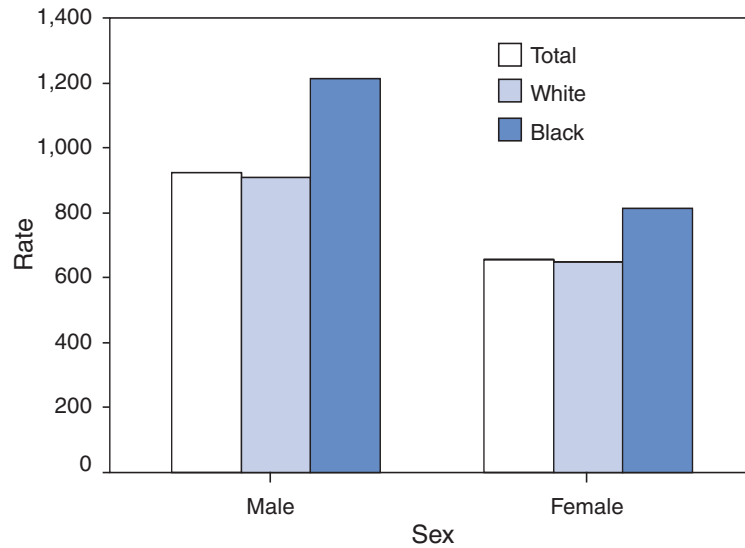
In the *MMWR Surveillance Summary* (Vol. 57, No. SS-6), "Epilepsy Surveillance Among Adults — 19 States, Behavioral Risk Factor Surveillance System," 2005, an error occurred on page 1 in the fourth sentence of the second paragraph of the Results/Interpretation. The sentence should read, "Among adults with active epilepsy with recent seizures, 16.1% reported not currently taking their epilepsy medication, and 65.1% reported having had more than one seizure in the past **3 months**."



# QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

## Age-Adjusted Death Rates\* by Race and Sex — United States, 2006†



\* Per 100,000 standard population.

† Preliminary data.

In 2006, age-adjusted death rates were higher for males (924.6 per 100,000 population) than females (657.8 per 100,000 population) overall and within black and white populations. By race, death rates were higher for blacks than for whites.

**SOURCE:** Heron MP, Hoyert DL, Xu JQ, Scott C, Tejada-Vera B. Deaths: preliminary data for 2006. Natl Vital Stat Rep 2008;56(16). Available at [http://www.cdc.gov/nchs/data/nvsr/nvsr56/nvsr56\\_16.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr56/nvsr56_16.pdf) and <http://www.cdc.gov/nchs/data/statab/hist001r.pdf>.

**TABLE I. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending August 9, 2008 (32nd Week)\***

Disease	Current week	Cum 2008	5-year weekly average†	Total cases reported for previous years					States reporting cases during current week (No.)
				2007	2006	2005	2004	2003	
Anthrax	—	—	—	1	1	—	—	—	
Botulism:									
foodborne	—	6	1	32	20	19	16	20	
infant	1	48	2	85	97	85	87	76	FL (1)
other (wound & unspecified)	—	9	1	27	48	31	30	33	
Brucellosis	1	46	3	131	121	120	114	104	CA (1)
Chancroid	—	24	0	23	33	17	30	54	
Cholera	—	—	0	7	9	8	6	2	
Cyclosporiasis§	6	87	4	92	137	543	160	75	MD (1), FL (5)
Diphtheria	—	—	—	—	—	—	—	1	
Domestic arboviral diseases§¶:									
California serogroup	—	10	6	55	67	80	112	108	
eastern equine	—	1	1	4	8	21	6	14	
Powassan	—	—	0	7	1	1	1	—	
St. Louis	—	5	1	9	10	13	12	41	
western equine	—	—	—	—	—	—	—	—	
Ehrlichiosis/Anaplasmosis§¶¶:									
<i>Ehrlichia chaffeensis</i>	25	312	20	828	578	506	338	321	OH (3), MN (4), MO (2), MD (2), VA (2), GA (1), TN (11)
<i>Ehrlichia ewingii</i>	—	3	—	—	—	—	—	—	
<i>Anaplasma phagocytophilum</i>	9	134	20	834	646	786	537	362	MN (9)
undetermined	4	33	5	337	231	112	59	44	MO (1), TN (3)
<i>Haemophilus influenzae</i> ††									
invasive disease (age <5 yrs):									
serotype b	—	16	0	22	29	9	19	32	
nonserotype b	—	103	2	199	175	135	135	117	
unknown serotype	3	136	4	180	179	217	177	227	NY (1), PA (1), TN (1)
Hansen disease§	—	39	2	101	66	87	105	95	
Hantavirus pulmonary syndrome§	—	7	0	32	40	26	24	26	
Hemolytic uremic syndrome, postdiarrheal§	4	89	7	292	288	221	200	178	TN (2), CA (2)
Hepatitis C viral, acute	4	474	16	849	766	652	720	1,102	OH (1), CO (1), WA (1), CA (1)
HIV infection, pediatric (age <13 yrs)§§	—	—	4	—	—	380	436	504	
Influenza-associated pediatric mortality§§¶¶	—	87	0	77	43	45	—	N	
Listeriosis	5	322	22	808	884	896	753	696	NY (1), MD (1), VA (1), FL (1), CA (1)
Measles***	—	123	1	43	55	66	37	56	
Meningococcal disease, invasive†††:									
A, C, Y, & W-135	2	182	4	325	318	297	—	—	IN (2)
serogroup B	2	109	2	167	193	156	—	—	IN (2)
other serogroup	—	22	0	35	32	27	—	—	
unknown serogroup	3	415	8	550	651	765	—	—	NY (1), MO (1), NC (1)
Mumps	1	259	14	800	6,584	314	258	231	CA (1)
Novel influenza A virus infections	—	—	0	1	N	N	N	N	
Plague	—	1	0	7	17	8	3	1	
Poliomyelitis, paralytic	—	—	—	—	—	1	—	—	
Poliovirus infection, nonparalytic§	—	—	—	—	N	N	N	N	
Psittacosis§	—	6	0	12	21	16	12	12	
Q fever§,§§ total:	—	63	3	171	169	136	70	71	
acute	—	58	—	—	—	—	—	—	
chronic	—	5	—	—	—	—	—	—	
Rabies, human	—	—	0	1	3	2	7	2	
Rubella¶¶¶	1	9	0	12	11	11	10	7	AZ (1)
Rubella, congenital syndrome	—	—	—	—	1	1	—	1	
SARS-CoV§,§§§	—	—	—	—	—	—	—	8	

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

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

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

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

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

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

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

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

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

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

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

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

¶¶¶¶ The one rubella case reported for the current week was unknown.

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

**TABLE I. (Continued) Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending August 9, 2008 (32nd Week)\***

Disease	Current week	Cum 2008	5-year weekly average†	Total cases reported for previous years					States reporting cases during current week (No.)
				2007	2006	2005	2004	2003	
Smallpox§	—	—	—	—	—	—	—	—	—
Streptococcal toxic-shock syndrome§	—	94	1	132	125	129	132	161	—
Syphilis, congenital (age <1 yr)	—	113	7	430	349	329	353	413	—
Tetanus	1	6	1	28	41	27	34	20	FL (1)
Toxic-shock syndrome (staphylococcal)§	1	40	2	92	101	90	95	133	PA (1)
Trichinellosis	—	5	0	5	15	16	5	6	—
Tularemia	2	55	4	137	95	154	134	129	ND (1), AR (1)
Typhoid fever	—	208	9	434	353	324	322	356	—
Vancomycin-intermediate <i>Staphylococcus aureus</i> §	—	6	0	28	6	2	—	N	—
Vancomycin-resistant <i>Staphylococcus aureus</i> §	—	—	—	2	1	3	1	N	—
Vibriosis (noncholera <i>Vibrio</i> species infections)§	14	174	10	447	N	N	N	N	MD (1), VA (1), FL (4), TN (1), CA (7)
Yellow fever	—	—	—	—	—	—	—	—	—

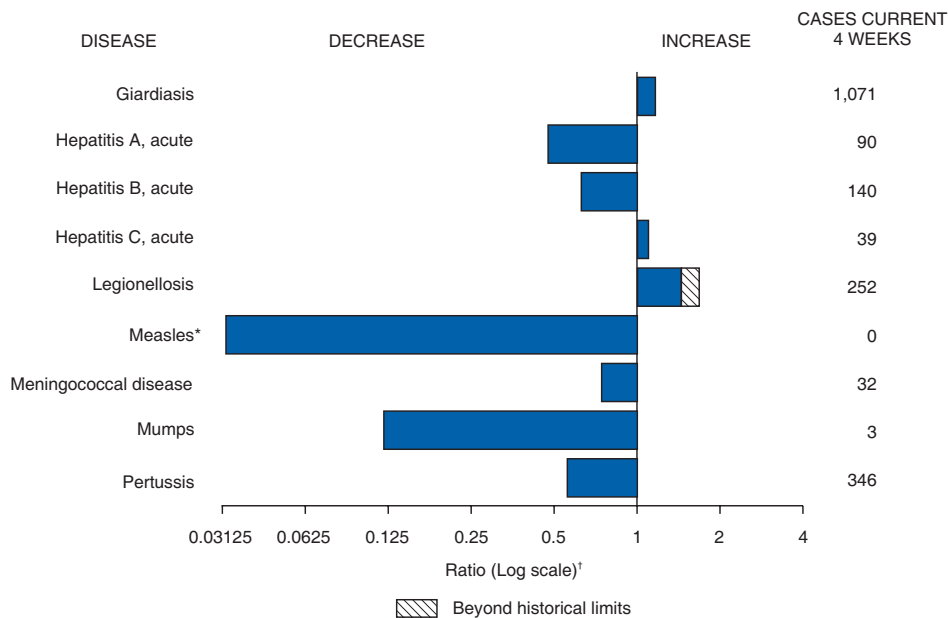
—: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts.

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

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

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

**FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals August 9, 2008, with historical data**



\* No measles cases were reported for the current 4-week period yielding a ratio for week 32 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.

**Notifiable Disease Data Team and 122 Cities Mortality Data Team**  
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TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending August 9, 2008, and August 11, 2007 (32nd Week)\*

Reporting area	Streptococcal disease, invasive, group A					<i>Streptococcus pneumoniae</i> , invasive disease, nondrug resistant†				
	Current week	Previous 52 weeks		Cum 2008	Cum 2007	Current week	Previous 52 weeks		Cum 2008	Cum 2007
		Med	Max				Med	Max		
<b>United States</b>	44	90	259	3,616	3,748	6	36	166	1,013	1,139
<b>New England</b>	—	6	31	270	292	—	2	14	48	91
Connecticut	—	0	26	83	90	—	0	11	—	12
Maine <sup>§</sup>	—	0	3	20	21	—	0	1	1	1
Massachusetts	—	3	8	125	142	—	1	5	37	60
New Hampshire	—	0	2	18	22	—	0	1	7	8
Rhode Island <sup>§</sup>	—	0	8	14	2	—	0	1	2	8
Vermont <sup>§</sup>	—	0	2	10	15	—	0	1	1	2
<b>Mid. Atlantic</b>	12	17	43	762	720	—	4	19	131	207
New Jersey	—	3	11	128	132	—	1	6	27	41
New York (Upstate)	5	6	17	254	221	—	2	14	68	75
New York City	—	3	10	133	179	—	1	12	36	91
Pennsylvania	7	5	16	247	188	N	0	0	N	N
<b>E.N. Central</b>	6	19	63	789	748	1	6	23	216	202
Illinois	—	5	16	196	230	—	1	6	46	48
Indiana	3	2	11	102	86	1	0	14	25	12
Michigan	1	3	10	124	156	—	1	5	51	56
Ohio	1	5	14	208	174	—	1	5	36	44
Wisconsin	1	2	42	159	102	—	1	9	58	42
<b>W.N. Central</b>	2	5	39	285	245	1	2	16	87	58
Iowa	—	0	0	—	—	—	0	0	—	—
Kansas	—	0	6	38	26	—	0	3	13	—
Minnesota	—	0	35	130	116	—	0	13	33	35
Missouri	—	2	10	64	65	1	1	2	26	15
Nebraska <sup>§</sup>	2	0	3	27	20	—	0	3	6	7
North Dakota	—	0	5	10	11	—	0	2	4	1
South Dakota	—	0	2	16	7	—	0	1	5	—
<b>S. Atlantic</b>	17	19	34	622	875	1	5	13	128	196
Delaware	—	0	2	6	8	—	0	0	—	—
District of Columbia	—	0	2	15	16	—	0	1	1	2
Florida	6	6	11	177	199	1	1	4	40	40
Georgia	4	5	12	158	169	—	1	5	21	43
Maryland <sup>§</sup>	4	0	6	13	153	—	0	4	2	48
North Carolina	2	2	10	98	119	N	0	0	N	N
South Carolina <sup>§</sup>	—	1	5	40	80	—	1	4	35	25
Virginia <sup>§</sup>	1	3	12	92	111	—	0	6	24	32
West Virginia	—	0	3	23	20	—	0	1	5	6
<b>E.S. Central</b>	1	4	9	117	156	—	2	11	65	62
Alabama <sup>§</sup>	N	0	0	N	N	N	0	0	N	N
Kentucky	—	1	3	26	32	N	0	0	N	N
Mississippi	N	0	0	N	N	—	0	3	16	5
Tennessee <sup>§</sup>	1	3	7	91	124	—	2	9	49	57
<b>W.S. Central</b>	5	8	85	300	217	1	5	66	162	159
Arkansas <sup>§</sup>	—	0	2	4	17	—	0	2	4	9
Louisiana	—	0	1	3	14	—	0	2	2	28
Oklahoma	—	2	19	76	51	—	1	7	48	34
Texas <sup>§</sup>	5	6	65	217	135	1	3	58	108	88
<b>Mountain</b>	1	10	22	371	401	2	5	12	166	153
Arizona	—	4	9	140	150	1	2	8	83	73
Colorado	—	2	8	103	103	1	1	4	46	31
Idaho <sup>§</sup>	—	0	2	11	9	—	0	1	3	2
Montana <sup>§</sup>	N	0	0	N	N	—	0	1	4	1
Nevada <sup>§</sup>	1	0	2	7	2	N	0	0	N	N
New Mexico <sup>§</sup>	—	2	7	66	68	—	0	3	14	27
Utah	—	1	5	39	64	—	0	3	15	19
Wyoming <sup>§</sup>	—	0	2	5	5	—	0	1	1	—
<b>Pacific</b>	—	3	10	100	94	—	0	2	10	11
Alaska	—	0	5	29	18	N	0	0	N	N
California	—	0	0	—	—	N	0	0	N	N
Hawaii	—	2	10	71	76	—	0	2	10	11
Oregon <sup>§</sup>	N	0	0	N	N	N	0	0	N	N
Washington	N	0	0	N	N	N	0	0	N	N
American Samoa	—	0	12	30	4	N	0	0	N	N
C.N.M.I.	—	—	—	—	—	—	—	—	—	—
Guam	—	0	3	—	7	—	0	0	—	—
Puerto Rico	N	0	0	N	N	N	0	0	N	N
U.S. Virgin Islands	—	0	0	—	—	N	0	0	N	N

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

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

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

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

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



TABLE II. (Continued) Provisional cases of selected notifiable diseases, United States, weeks ending August 9, 2008, and August 11, 2007 (32nd Week)\*

Table with columns for Reporting area, Varicella (chickenpox), West Nile virus disease (Neuroinvasive and Nonneuroinvasive), and Cumulative counts for 2008 and 2007. Rows list various states and territories.

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

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

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

† Updated weekly from reports to the Division of Vector-Borne Infectious Diseases, National Center for Zoonotic, Vector-Borne, and Enteric Diseases (ArboNET Surveillance). Data for California serogroup, eastern equine, Powassan, St. Louis, and western equine diseases are available in Table I.

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

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

TABLE III. Deaths in 122 U.S. cities,\* week ending August 9, 2008 (32nd Week)

Reporting Area	All causes, by age (years)							P&I <sup>†</sup> Total	Reporting Area	All causes, by age (years)							P&I <sup>†</sup> Total
	All Ages	≥65	45-64	25-44	1-24	<1	All Ages			≥65	45-64	25-44	1-24	<1			
<b>New England</b>	440	298	91	32	11	8	35	<b>S. Atlantic</b>	950	571	246	66	32	34	53		
Boston, MA	134	86	30	11	4	3	13	Atlanta, GA	73	45	20	2	5	1	—		
Bridgeport, CT	15	9	5	1	—	—	—	Baltimore, MD	153	80	47	11	11	4	13		
Cambridge, MA	10	7	3	—	—	—	1	Charlotte, NC	117	80	21	10	5	1	7		
Fall River, MA	23	16	4	3	—	—	1	Jacksonville, FL	U	U	U	U	U	U	U		
Hartford, CT	43	31	9	1	1	1	6	Miami, FL	91	57	22	5	3	4	6		
Lowell, MA	16	12	3	—	1	—	—	Norfolk, VA	44	33	3	3	2	3	1		
Lynn, MA	12	7	3	1	1	—	—	Richmond, VA	63	37	17	5	2	2	2		
New Bedford, MA	18	14	3	1	—	—	2	Savannah, GA	54	34	15	3	—	2	—		
New Haven, CT	U	U	U	U	U	U	U	St. Petersburg, FL	49	34	10	3	—	2	3		
Providence, RI	56	40	11	3	2	—	4	Tampa, FL	194	120	51	15	3	5	16		
Somerville, MA	1	—	—	1	—	—	—	Washington, D.C.	104	44	39	9	1	10	4		
Springfield, MA	32	23	4	5	—	—	3	Wilmington, DE	8	7	1	—	—	—	1		
Waterbury, CT	26	14	9	1	—	2	3	<b>E.S. Central</b>	810	527	216	34	18	15	59		
Worcester, MA	54	39	7	4	2	2	2	Birmingham, AL	176	117	44	8	4	3	10		
<b>Mid. Atlantic</b>	1,986	1,340	448	141	23	33	92	Chattanooga, TN	85	54	26	3	1	1	5		
Albany, NY	49	37	5	4	1	2	3	Knoxville, TN	80	51	22	—	2	5	6		
Allentown, PA	15	14	1	—	—	—	2	Lexington, KY	63	45	13	3	1	1	5		
Buffalo, NY	70	49	15	5	1	—	4	Memphis, TN	134	89	34	5	3	3	14		
Camden, NJ	38	21	7	4	3	3	—	Mobile, AL	65	40	19	6	—	—	5		
Elizabeth, NJ	17	13	3	1	—	—	—	Montgomery, AL	59	42	11	5	1	—	3		
Erie, PA	39	30	8	1	—	—	3	Nashville, TN	148	89	47	4	6	2	11		
Jersey City, NJ	28	14	3	7	3	1	2	<b>W.S. Central</b>	1,318	784	340	116	50	27	66		
New York City, NY	994	691	221	61	7	13	43	Austin, TX	82	54	16	7	3	2	4		
Newark, NJ	39	16	13	6	—	4	—	Baton Rouge, LA	U	U	U	U	U	U	U		
Paterson, NJ	16	5	8	—	2	1	2	Corpus Christi, TX	38	28	9	—	—	1	4		
Philadelphia, PA	268	152	74	30	3	9	11	Dallas, TX	187	109	44	18	11	5	9		
Pittsburgh, PA <sup>‡</sup>	33	19	13	1	—	—	2	El Paso, TX	83	61	17	3	2	—	3		
Reading, PA	24	12	11	1	—	—	—	Fort Worth, TX	170	93	52	16	3	6	8		
Rochester, NY	108	88	16	4	—	—	9	Houston, TX	349	175	105	45	17	6	13		
Schenectady, NY	23	20	1	2	—	—	1	Little Rock, AR	U	U	U	U	U	U	U		
Scranton, PA	24	19	2	3	—	—	1	New Orleans, LA <sup>§</sup>	U	U	U	U	U	U	U		
Syracuse, NY	143	98	36	8	1	—	7	San Antonio, TX	202	130	51	10	5	6	11		
Trenton, NJ	19	14	4	—	1	—	—	Shreveport, LA	76	46	17	9	4	—	5		
Utica, NY	20	16	2	2	—	—	1	Tulsa, OK	131	88	29	8	5	1	9		
Yonkers, NY	19	12	5	1	1	—	1	<b>Mountain</b>	956	628	200	76	26	26	52		
<b>E.N. Central</b>	1,904	1,215	472	146	31	38	97	Albuquerque, NM	111	65	31	7	4	4	2		
Akron, OH	54	35	13	4	1	1	—	Boise, ID	49	37	6	5	1	—	6		
Canton, OH	27	19	7	1	—	—	2	Colorado Springs, CO	40	30	8	—	1	1	1		
Chicago, IL	264	144	84	26	6	2	15	Denver, CO	92	60	18	8	—	6	2		
Cincinnati, OH	83	42	23	8	3	7	2	Las Vegas, NV	259	159	61	24	8	7	19		
Cleveland, OH	221	152	52	12	3	2	8	Ogden, UT	30	19	7	4	—	—	1		
Columbus, OH	193	117	48	21	4	3	13	Phoenix, AZ	81	49	19	9	2	2	6		
Dayton, OH	89	66	16	5	2	—	8	Pueblo, CO	26	19	4	3	—	—	—		
Detroit, MI	168	98	47	17	4	2	3	Salt Lake City, UT	128	91	19	9	5	4	7		
Evansville, IN	49	37	10	2	—	—	7	Tucson, AZ	140	99	27	7	5	2	8		
Fort Wayne, IN	77	52	19	3	—	3	4	<b>Pacific</b>	1,263	846	270	86	28	33	123		
Gary, IN	15	6	6	2	—	1	—	Berkeley, CA	11	8	2	—	—	1	1		
Grand Rapids, MI	47	33	6	5	1	2	4	Fresno, CA	U	U	U	U	U	U	U		
Indianapolis, IN	198	119	45	21	5	8	12	Glendale, CA	24	21	3	—	—	—	5		
Lansing, MI	47	39	5	2	1	—	—	Honolulu, HI	76	52	19	3	1	1	7		
Milwaukee, WI	79	45	25	6	—	3	2	Long Beach, CA	63	43	15	2	1	2	8		
Peoria, IL	49	37	10	—	—	2	8	Los Angeles, CA	252	162	50	20	8	12	34		
Rockford, IL	64	41	20	3	—	—	2	Pasadena, CA	13	8	5	—	—	—	—		
South Bend, IN	52	38	10	2	—	2	—	Portland, OR	101	73	17	7	3	1	10		
Toledo, OH	85	61	19	4	1	—	4	Sacramento, CA	U	U	U	U	U	U	U		
Youngstown, OH	43	34	7	2	—	—	3	San Diego, CA	144	99	26	16	2	1	11		
<b>W.N. Central</b>	502	313	104	40	22	23	29	San Francisco, CA	115	66	32	8	3	6	17		
Des Moines, IA	23	14	4	3	1	1	4	San Jose, CA	180	125	41	9	2	3	16		
Duluth, MN	20	16	4	—	—	—	1	Santa Cruz, CA	25	17	7	—	1	—	1		
Kansas City, KS	11	6	4	1	—	—	1	Seattle, WA	106	74	20	7	3	2	7		
Kansas City, MO	85	51	21	6	5	2	6	Spokane, WA	57	36	13	3	1	4	4		
Lincoln, NE	40	32	7	1	—	—	2	Tacoma, WA	96	62	20	11	3	—	2		
Minneapolis, MN	56	30	7	9	1	9	3	<b>Total</b>	10,129**	6,522	2,387	737	241	237	606		
Omaha, NE	77	56	16	4	—	1	2										
St. Louis, MO	93	40	26	10	12	5	5										
St. Paul, MN	37	26	6	2	1	2	2										
Wichita, KS	60	42	9	4	2	3	3										

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.





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