



Possible West Nile Virus Transmission to an Infant Through Breast-Feeding—Michigan, 2002

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West Nile Virus Activity—United States, September 26–October 2, 2002, and Investigations of West Nile Virus Infections in Recipients of Blood Transfusion and Organ Transplantation

MMWR. 2002;51:884,895

1 figure omitted

THIS REPORT SUMMARIZES WEST NILE VIRUS (WNV) surveillance data reported to CDC through ArboNET and by states and other jurisdictions as of 7 AM Mountain Daylight Time, October 2, 2002, and updates preliminary demographic and clinical information on cases of WNV infections in recipients of blood transfusion and organ transplantation reported to CDC during August 28–October 2, 2002.

WNV Surveillance

During the reporting period of September 26–October 2, a total of 409 laboratory-positive human cases of WNV-associated illness were reported from Illinois (n=81), Michigan (n=73), Ohio (n=56), Indiana (n=53), Nebraska (n=32), Louisiana (n=26), Missouri (n=17), Kentucky (n=13), Pennsylvania (n=eight), Iowa (n=seven), Minnesota (n=seven), Mississippi (n=six), Alabama (n=five), New York (n=five), Tennessee (n=five), Wisconsin (n=five), Maryland (n=four), Colorado (n=two), New Jersey (n=two), South Dakota (n=one), and Texas (n=one). During the same period, WNV infec-

tions were reported in 684 dead crows and 441 other dead birds. A total of 1,027 veterinary cases were reported (1,026 equine and one other species). During the same period, 521 WNV-positive mosquito pools were reported.

During 2002, a total of 2,530 human cases with laboratory evidence of recent WNV infection have been reported from Illinois (n=599), Michigan (n=343), Ohio (n=288), Louisiana (n=287), Mississippi (n=163), Indiana (n=157), Missouri (n=131), Texas (n=92), Nebraska (n=80), New York (n=51), Kentucky (n=40), Tennessee (n=31), Alabama (n=30), Minnesota (n=26), Pennsylvania (n=26), Iowa (n=25), South Dakota (n=24), Georgia (n=19), Wisconsin (n=19), Virginia (n=16), North Dakota (n=15), Arkansas (n=11), Maryland (n=10), Massachusetts (n=10), Florida (n=8), Connecticut (n=seven), the District of Columbia (n=six), New Jersey (n=six), Oklahoma (n=four), Colorado (n=three), California (n=one), North Carolina (n=one), and South Carolina (n=one). Among the 2,132 patients for whom data were available, the median age was 56 years (range: 1 month–99 years); 1,150 (54%) were male, and the dates of illness onset ranged from June 10 to September 23. A total of 116 human deaths have been reported. The median age of decedents was 79 years (range: 27–99 years); 70 (60%) deaths were among men. In addition, 5,633 dead crows and 4,216 other dead birds with WNV infection were reported from 42 states, New York City, and the District of Columbia; 4,377 WNV infections in mammals (4,369 equines, three canines, and five other species) have been reported from 33 states (Alabama, Arkansas, Colorado, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Jersey, New Mexico, New York, North Dakota, Ohio,

Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, and Wyoming). During 2002, WNV seroconversions have been reported in 310 sentinel chicken flocks from Florida, Iowa, Nebraska, Pennsylvania, and New York City; 3,874 WNV-positive mosquito pools have been reported from 26 states (Alabama, Arkansas, Connecticut, Delaware, Georgia, Illinois, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Mississippi, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, South Dakota, Texas, Vermont, and Virginia), New York City, and the District of Columbia.

WNV Infections in Recipients of Blood Transfusion and Organ Transplantation

CDC, the Food and Drug Administration, and the Health Resources and Services Administration, in collaboration with blood collection agencies and state and local health departments, continue to investigate WNV infections in recipients of blood transfusion and organ transplantation. During August 28–October 2, CDC received reports from 10 states of 15 patients with confirmed West Nile meningoencephalitis (WNME) or meningitis diagnosed after receiving blood components within 1 month of illness onset. CDC has been notified of additional cases among transfusion recipients, but demographic and clinical information is pending. All 15 of these patients resided in areas with high levels of WNV activity. Investigations are ongoing to determine whether transfusion was the source of WNV transmission.

Of the 15 cases, eight (53%) were reported since September 25. One patient, an organ donor from Georgia, was positive for WNV at the time of organ recovery following receipt of multiple blood transfusions (1). The onset of

symptoms for the remaining 14 patients began in July (two patients), August (five patients), and September (seven patients). The reasons for hospitalization included a surgical procedure or obstetric delivery (four patients) and solid organ transplantation (three patients who received an organ from different donors who did not have evidence of WNV infection at the time the organs were recovered). Five patients had hematologic conditions, three patients had myelodysplasia, and two patients had acute myelogenous leukemia. These 15 patients received blood components from a median of 18 donors (range: 2-185 donors). WNME was the probable cause of death for at least three of the four patients who died.

Some of these investigations provide evidence that WNV can be transmitted through blood transfusion. Two patients tested positive for WNV infection after receiving different blood products derived from a single blood donation subsequently found to have evidence of WNV (2). In another case, WNV was isolated from a unit of frozen plasma that had been withdrawn as a result of the investigation, indicating that the virus can survive in some blood components (1). In addition to these patients, investigations in Georgia and Florida have demonstrated transmission of WNV in four recipients of solid organs from a single donor (1, 3, 4).

Patients with WNV infection who have received blood transfusions or organs within the 4 weeks preceding the onset of symptom should be reported to CDC through local public health authorities. Serum or tissue samples should be retained for later studies. In addition, the Public Health Service is expanding an earlier recommendation (1) to request that cases of WNV infection in patients who had onset of symptoms within 2 weeks of blood or organ donation be reported. Prompt reporting of these cases will facilitate withdrawal of potentially infected blood components.

Additional information about WNV activity is available from CDC at <http://www.cdc.gov/ncidod/dvbid/westnile/index.htm> and http://www.cindi.usgs.gov/hazard/event/west_nile/west_nile.html.

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Possible West Nile Virus Transmission to an Infant Through Breast-Feeding—Michigan, 2002

MMWR. 2002;51:877-878

CDC AND THE MICHIGAN DEPARTMENT of Community Health (MDCH) continue to investigate West Nile Virus (WNV) infection in a woman, who received a blood product later found with evidence of WNV, and in her child, who was exposed to breast milk later found to be WNV positive by TaqMan®.¹ This report updates the findings of this investigation.

On September 2, 2002, a woman aged 40 years delivered a healthy infant but required transfusion of two units of packed red blood cells (RBC) for anemia. The patient received the first unit 6 hours after delivery and the second on the following day. The second transfusion was derived from the same donation as a unit of platelets given to a liver transplant recipient who developed confirmed West Nile meningoencephalitis (WNME); the blood donor's original tubing segment from this common donation was WNV positive by TaqMan®.¹ Approximately 2 hours after delivery, the patient developed a migraine headache, photophobia, and anomia. The patient had a history of mi-

graine headaches. When she was discharged 2 days after delivery, her headache was resolving. Eight days later, the patient developed a severe, persistent headache that differed qualitatively from her migraine headache. Twelve days after delivery, the patient reported developing fever, and 3 days later she was admitted with a fever of 102.8°F (39.3°C) and peripheral white blood count (WBC) of 2,900/mm³ (normal: 3,900-11,100/mm³). Laboratory examination of the cerebrospinal fluid (CSF) revealed a WBC count of 134/mm³ (normal: <10/mm³) with 10% neutrophils, a protein concentration of 57 mg/dL (normal: 12-60 mg/dL), and a glucose concentration of 57 mg/dL (normal: 40-70 mg/dL). Computerized tomography of the head was normal. A CSF sample tested at MDCH was positive for WNV-specific IgM. The woman recovered from WNME and was discharged from the hospital.

On the day of delivery, the mother began breast-feeding her child and continued (i.e., 6 days after symptom onset) through the second day of the hospitalization for WNME. An undiluted sample of breast milk obtained 16 days after delivery tested positive for WNV by TaqMan® and for WNV-specific IgM and IgG antibody at CDC. Virus culture of this specimen is pending. Testing of a second sample of breast milk collected 24 days after the implicated transfusion was WNV RNA-negative by TaqMan® at MDCH and CDC. A 1:400 dilution of this sample was again WNV-specific IgM-positive at CDC. Although the infant has remained afebrile and healthy, a serum sample from the infant at age 25 days was WNV-specific IgM-positive in testing performed at MDCH and CDC. No cord blood or other products of conception were available for testing. The mother reported that the infant has had little outdoor or other exposure to mosquitoes.

Reported by: A Ognjan, DO, Mount Clemens General Hospital, Mount Clemens, Michigan; ML Boulton, MD, P Somsel, DrPH, MG Stobierski, DVM, G Stoltman, PhD, F Downes, DrPH, K Smith, Michigan Dept of Community Health. L Chapman, MD, Div of AIDS, STD, and TB Laboratory Research; L Petersen,

MD, A Marfin, MD, G Campbell, MD, R Lanciotti, PhD, J Roehrig, PhD, D Gubler, ScD, Div of Vector-Borne Infectious Diseases; M Chamberland, MD, Div of Viral and Rickettsial Diseases; J Montgomery, MD, CA Arole, MD, EIS officers, CDC.

CDC Editorial Note: Since WNV was first recognized in the United States in 1999, the infant in this report is the youngest person reported with WNV-specific IgM. Although clinically well, this child was born to a woman who developed WNME 9 days after receiving WNV-contaminated blood after delivery and was breast-fed for the first 17 days. IgM antibodies might be expressed in human milk at low concentrations, but passive transfer of IgM antibodies through breast milk is inefficient.² As a result, the presence of measurable WNV-specific IgM in the infant suggests independent IgM production by the infant as a result of WNV infection.

Although WNV genetic material was present transiently in breast milk, the specific timing and source of the infant's infection remain unclear. Because neither WNV nor WNV-specific nucleic acids have been identified previously in human breast milk, the implications of this finding are unknown. In addition, maternal infection probably occurred when the mother received a transfusion during the immediate postpartum period, making it unlikely that infection occurred *in utero*. Because of the infant's minimal outdoor exposure, it is unlikely that infection was acquired from a mosquito. Therefore, breast milk must be considered as the most likely source of infection.

WNV illnesses in children aged <1 year appear to be infrequent. During 1999-2001, no cases were reported to CDC. In 2002, four infants with WNV illnesses have been reported (ages 2, 3, 9, and 11 months) to ArboNET (CDC, unpublished data, 2002). Retrospective investigations are under way to determine if these infants were potentially infected with WNV through breast-feeding. Laboratory investigations, including attempts to culture WNV from additional breast milk samples, are under way. Until live vi-

rus is cultured from breast milk, or until definitive data are obtained to document WNV transmission through breast milk, the findings described in this report should be interpreted with caution.

The infant described in this report remains healthy. Because the health benefits of breast-feeding are well established¹ and the risk for WNV transmission through breast-feeding is unknown, these findings do not suggest a change in breast-feeding recommendations.

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2 available

Nonfatal Sports- and Recreation-Related Injuries Treated in Emergency Departments—United States, July 2000–June 2001

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1 figure, 2 tables omitted

EACH YEAR IN THE UNITED STATES, AN estimated 30 million children and adolescents participate in organized sports,¹ and approximately 150 million adults participate in some type of nonwork-related physical activity.² Engaging in these activities has numerous health benefits but involves a risk for injury. CDC analyzed data from the National Electronic Injury Surveillance System All Injury Program (NEISS-AIP) to characterize sports- and recreation-related injuries among the U.S. population. This report summarizes the results of that analysis, which indicate that during July 2000–June 2001 an estimated 4.3 million nonfatal sports- and recreation-related injuries were treated in U.S. hospital emergency departments (EDs). Injury rates varied by sex and age and were highest for boys aged

10-14 years. Effective prevention strategies, including those tailored to specific activities and those aimed at children, adolescents, and adults, are needed to reduce sports- and recreation-related injuries in the United States.

NEISS-AIP is operated by the U.S. Consumer Product Safety Commission (CPSC) and collects data on initial visits for all types and causes of injuries treated in U.S. EDs. NEISS-AIP data are drawn from a nationally representative subsample of 66 out of 100 NEISS hospitals, which were selected as a stratified probability sample of hospitals in the United States and its territories with a minimum of six beds and a 24-hour ED. NEISS-AIP provides data on approximately 500,000 injury- and consumer product-related ED cases each year.

Sports- and recreation-related injuries included those occurring during organized and unorganized activities, whether work-related or not. An injury was defined as bodily harm resulting from exposure to an external force or substance. Each case was classified into one of 39 mutually exclusive sports- and recreation-related groups based on an algorithm that considered both the consumer products involved (e.g., bicycles or accessories, swings or swing sets, or in-line skating [activity, apparel, or equipment]) and the narrative description of the incident. Cases were excluded if (1) the principal diagnosis was an illness, pain only, psychological harm only, contact dermatitis associated with consumer products or plants, or unknown; (2) the ED visit resulted from the adverse effects of therapeutic drugs or surgical care; or (3) the injury was violence-related, including intentional self-harm, assault, or legal intervention. Because deaths are not captured completely by NEISS-AIP, persons who were dead on arrival or who died in the ED also were excluded.

Each case was assigned a sample weight based on the inverse probability of selection; these weights were added to provide national estimates of sports- and recreation-related injuries. Estimates were based on weighted

data for 70,060 sports- and recreation-related ED visits during July 2000–June 2001. Confidence intervals (CIs) were calculated by using a direct variance estimation procedure that accounted for the sample weights and complex sample design. Rates were calculated by using averaged 2000-2001 U.S. Census Bureau population data.

During July 2000–June 2001, an estimated 4.3 million (95% CI=3.7-4.8 million) sports- and recreation-related injuries were treated in U.S. hospital EDs, comprising 16% of all unintentional injury-related ED visits. The percentage of all unintentional injury-related ED visits that were sports- and recreation-related was highest for persons aged 10-14 years (51.5% for boys, 38.0% for girls), and lowest for persons aged ≥45 years (6.4% for men, 3.1% for women). The overall rate of sports- and recreation-related injuries was 15.4 per 1,000 population. Rates were highest among persons aged 10-14 years (75.4 for boys, 36.3 for girls), and lowest among persons aged 0-4 years (11.1 for boys, 6.8 for girls) and persons aged ≥45 years (4.3 for men, 2.2 for women). Among all ages, rates were higher for males than for females.

Types of sports- and recreation-related activities in which persons were engaged when injured varied by age and sex. For persons aged 0-9 years, the leading types were playground- and bicycle-related injuries. Both scooter- and trampoline-related injuries ranked among the top seven types of injuries for both boys and girls aged 0-9 years. For males aged 10-19 years, football-, basketball-, and bicycle-related injuries were most common. For females aged 10-19 years, basketball-related injuries ranked highest. For persons aged 20-24 years, basketball- and bicycle-related injuries ranked among the three leading types of injuries. Basketball-related injuries ranked highest for men aged 25-44 years. Exercise (e.g., weight lifting, aerobics, stretching, walking, jogging, and running) was the leading injury-related activity for women aged ≥20 years and ranked among the top four types of injuries for men aged ≥20 years.

The most frequent injury diagnoses were strains/sprains (29.1%; 95% CI=25.2%-33.0%), fractures (20.5%; 95% CI=16.5%-24.5%), contusions/abrasions (20.1%; 95% CI=17.5%-22.8%), and lacerations (13.8%; 95% CI=11.9%-15.8%). The body parts injured most commonly were ankles (12.1%; 95% CI=10.9%-13.4%), fingers (9.5%; 95% CI=8.2%-10.8%), face (9.2%; 95% CI=7.9%-10.5%), head (8.2%; 95% CI=6.4%-10.1%), and knees (8.1%; 95% CI=6.8%-9.4%). Of an estimated 350,734 (95% CI=270,417-431,051) persons with sports- and recreation-related head injuries, approximately 199,050 (95% CI=127,947-270,153) had a brain injury diagnosed (i.e., diagnosis of concussion or internal injury). Overall, 2.3% (95% CI=1.5%-3.0%) of persons with sports- and recreation-related injuries were hospitalized.

Reported by: K Gotsch, JL Annest, PhD, P Holmgren, MS, Office of Statistics and Programming; J Gilchrist, MD, Div of Unintentional Injury Prevention, National Center for Injury Prevention and Control, CDC.

CDC Editorial Note: This report indicates that an estimated 4.3 million sports- and recreation-related injuries are treated each year in U.S. EDs. These injuries occur among all population groups and account for more ED visits annually than injuries involving motor-vehicle occupants (3.5 million).

Effective prevention efforts are needed to reduce the risk for these injuries among all population groups. Interventions to reduce the risk for sports- and recreation-related injuries can be classified into three categories: personal countermeasures (e.g., use of safety gear), behavioral interventions (e.g., proper conditioning), and environmental modifications (e.g., use of padded goal posts). Specific prevention recommendations vary by sport and recreation activity, and some activity-specific interventions can decrease the risk for injury. For example, wearing helmets while bicycling reduces the risk for head injury by 85%,⁴ and using break-away bases decreases the number of sliding-related baseball and softball inju-

ries by 96%.⁵ Further studies are needed to identify effective interventions for other activities and injury types.

Data on sports- and recreation-related injuries from other national and state hospital-based data systems are limited because the *International Classification of Diseases, Ninth Revision, Clinical Modification* external cause-of-injury codes (E codes) typically do not specify the type of activity in which the person was engaged at the time of injury. In comparison, these types of injuries can be classified from NEISS-AIP data by using the consumer product codes and a narrative description of the incident. This approach makes NEISS-AIP a useful surveillance tool for characterizing and monitoring sports- and recreation-related injuries and identifying emerging injury problems requiring further investigation.

Estimates in this report are higher than those found during 1997-1998 by the National Hospital Ambulatory Medical Care Survey, which indicated that an estimated 3.7 million ED visits were made annually to treat sports- and recreation-related injuries.⁶ Although this estimate was based on a review of narrative fields, no consumer product codes were collected, which might have resulted in an underestimation of the number of ED visits. Sports- and recreation-related injuries treated in EDs represent only a portion of these types of injuries that receive medical attention; many more of these injuries are treated in other settings (e.g., health-care providers' offices and clinics).⁷

The findings in this report are subject to at least five limitations. First, injury rates were based on the U.S. population; data on exposure time or frequency of participation were not collected. Because of the lack of exposure data, these estimates cannot be used to compare relative risks for different sports or for different age groups or sexes. Second, NEISS-AIP captures only injuries treated in hospital EDs. Third, it could not be determined whether a sports- and recreation-related injury was a new injury or an aggravation of an injury sustained previously. Fourth,

NEISS-AIP narrative descriptions do not provide detailed information about injury circumstances (e.g., whether or not the activity was organized, whether the injury occurred during training or competition, or whether protective equipment was used). Finally, NEISS-AIP is designed to provide national estimates but not state or local estimates.

The national health objectives for 2010⁸ and *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity*⁹ emphasize the importance of physical activity. The benefits of physical activity are substantial; however, persons engaging in such activity should be aware of their risk for injury. Additional information about safe participation in sports- and recreation-related activities are available at <http://www.cdc.gov/safeusa/siteindex.htm>.

Acknowledgments

This report was based on data contributed by T Schroeder, MS, C Downs, A McDonald, MA, and other staff of the Div of Hazard and Injury Data Systems, U.S. Consumer Product Safety Commission; and with the assistance of L Doll, PhD, E Sogolow, PhD, G Ryan, PhD, National Center for Injury Prevention and Control, CDC.

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Update: Influenza Activity— United States and Worldwide, June-September, 2002

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DURING JUNE-SEPTEMBER 2002, INFLUENZA A (H3N2) and B viruses circulated worldwide and were associated with mild to moderate levels of disease activity. Influenza B viruses predominated in Africa, and both influenza A (H3N2) and B viruses circulated widely in Asia, Oceania, and Latin America, except in Chile and Taiwan, where A (H1)[†] viruses predominated. In North America, sporadic isolates of

influenza A (H3N2), A (H1), and B viruses were identified. This report summarizes influenza activity in the United States and worldwide during June-September 2002.† Influenza activity in North America typically peaks during December-March, which underscores the need to begin vaccinating against influenza in October and to continue vaccination into December and throughout the influenza season.¹

United States

Influenza surveillance is conducted by a network comprising four components, including approximately 700 sentinel providers and approximately 120 U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories.² During previous influenza seasons, active surveillance was conducted only from October to mid-May. In 2002, approximately 120 sentinel providers and approximately 60 U.S. WHO and NREVSS collaborating laboratories continued to submit weekly reports after mid-May. During May 19–September 21, the weekly percentage of patient visits to sentinel providers for influenza-like illness ranged from 1.0% in mid-May to 0.5% in mid-September. During this period, WHO and NREVSS collaborating laboratories tested 10,370 respiratory specimens for influenza viruses, of which 145 (1.4%) were positive. Of the positive results, 138 (95.2%) were influenza B viruses and seven (4.8%) were influenza A viruses. Influenza viruses were reported each week from mid-May through mid-July and during the weeks ending July 27 and August 31. No influenza viruses have been reported for September.

From mid-May through early June, outbreaks of influenza B viruses were reported in schools in Hawaii, Oregon, and Texas. In mid-August, a cluster of five influenza A (H3N2) cases associated with a cruise and land tour in Alaska and the Yukon was reported by Health Canada. Ongoing surveillance conducted by the tour company detected no increase in respiratory illness.³

Worldwide

During June-September, influenza A (H3N2) and B viruses circulated widely in Asia and Oceania; influenza A (H1) viruses were identified infrequently and were not associated with widespread activity, except in Taiwan, where they predominated. In Africa, influenza B viruses predominated. However, Madagascar reported an outbreak of influenza A (H3N2) viruses associated with elevated morbidity and mortality.⁴ In Latin America, influenza A (H3N2) and B viruses circulated widely and were associated with outbreaks. Influenza A (H1) viruses were identified less frequently, except in Chile, where they predominated. Influenza B viruses predominated in Argentina and were associated with an outbreak in August among school-aged children and their contacts. Influenza A (H3N2) and B viruses circulated widely in Brazil and Peru. In Canada, an outbreak in a long-term-care facility in August was associated with influenza A (H3N2) viruses; influenza A (H3N2), A (H1), and B viruses were identified sporadically throughout the summer.

Characterization of Influenza Virus Isolates

WHO's Collaborating Center for Surveillance, Epidemiology, and Control of Influenza at CDC analyzes influenza virus isolates from laboratories worldwide. Of 23 influenza A (H1) viruses that were collected worldwide during June-September and characterized antigenically at CDC, all were similar to A/New Caledonia/20/99, the H1N1 component of the 2002-03 influenza vaccine; 21 isolates were from Latin America, one was from Asia, and one was from Oceania. Of the 42 influenza A (H3N2) viruses that were characterized antigenically, all were similar to A/Panama/2007/99, the H3N2 component of the 2002-03 influenza vaccine; 21 were from Latin America, 13 were from Oceania, seven were from Asia, and one was from the United States.

Influenza B viruses circulating worldwide can be divided into two antigenically distinct lineages represented by

B/Yamagata/16/88 and B/Victoria/2/87. Viruses of the B/Yamagata lineage have circulated worldwide since 1990. From late 1991 to early 2001, no viruses of the B/Victoria lineage were identified outside Asia. Since March 2001, B/Victoria-lineage viruses have been identified in many countries, including the United States. The B component of the 2002-03 influenza vaccine belongs to the B/Victoria lineage. Of the 96 influenza B isolates that were collected worldwide during June-September and characterized antigenically at CDC, 93 belonged to the B/Victoria lineage and three belonged to the B/Yamagata lineage. All 93 B/Victoria-lineage viruses were similar to B/Hong Kong/330/01, the B component of the 2002-03 influenza vaccine. Of the 93 B/Victoria-lineage viruses, 65 were from Latin America, 13 were from Asia, eight were from the United States, and seven were from Oceania. Of the three B/Yamagata-lineage viruses, two were from Latin America and one was from Asia.

Reported by: WHO Collaborating Center for Surveillance, Epidemiology, and Control of Influenza; E Murray, MSPH, A Postema, MPH, L Brammer, MPH, C Bridges, MD, H Hall, A Klimov, PhD, K Fukuda, MD, N Cox, PhD, Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases, CDC.

CDC Editorial Note: During June-September 2002, influenza A (H1N1), A (H3N2), and B viruses circulated worldwide. In North America, sporadic cases of influenza were identified each month. The identification of influenza isolates and sporadic influenza outbreaks in the summer and fall is not unusual. Although the number of influenza viruses reported to CDC this summer is greater than the number reported in the previous 12 summers, this increase probably reflects the institution of systematic reporting rather than a true increase in summer influenza activity.

Although the influenza virus type/subtype that will predominate and the onset, peak, and severity of influenza-related disease activity for the 2002-03 influenza season cannot be predicted, the optimal time to receive influenza vaccine is October-November. Per-

sons at high risk for influenza-related complications (e.g., persons aged ≥ 65 years and persons aged 6 months-64 years with certain medical conditions), health-care workers, household members of persons at high risk, and children aged 6 months to < 9 years receiving influenza vaccine for the first time are recommended to receive vaccine beginning in October.¹ Because children aged 6-23 months are at increased risk for influenza-related hospitalizations, starting this fall, the Advisory Committee on Immunization Practices is encouraging, when feasible, the vaccination of all children aged 6-23 months and their household contacts and out-of-home caretakers beginning in October.^{1,5,6} Other healthy persons, including those aged 50-64 years, are recommended to begin receiving vaccine in November. Influenza vaccine should continue to be offered to all unvaccinated persons in December and throughout the influenza season, as long as vaccine supplies are available.¹

The three manufacturers distributing influenza vaccine in the United States are expected to produce approximately 94 million doses combined, the largest number of trivalent influenza vaccine doses ever projected for a single season. Vaccine manufacturers estimate that approximately 80% of the 94 million doses of influenza vaccine will be distributed by the end of October.

Each February, WHO recommends influenza virus strains for inclusion in the following season's Northern Hemisphere influenza vaccine.⁷ In the United States, the Food and Drug Administration's Vaccines and Related Biological Products Advisory Committee selects vaccine strains to be used by vaccine manufacturers that distribute influenza vaccine in the United States. Substitution of an antigenically equivalent virus with better growth or processing properties for one or more of the WHO-recommended vaccine components occurs frequently. For the 2002-03 influenza season, WHO recommended A/New Caledonia/20/99-like (H1N1),

A/Moscow/10/99-like (H3N2), and B/Hong Kong/330/01-like viruses for inclusion in the Northern Hemisphere influenza vaccine.⁷ Influenza vaccines sold in the United States will use A/New Caledonia/20/99 for the H1N1 component and the antigenically equivalent strains of A/Panama/2007/99 (H3N2) for the A/Moscow/10/99-like strain and B/Hong Kong/330/01 or B/Hong Kong/1434/02 for the B/Hong Kong/330/01-like strain.

Influenza surveillance reports for the United States are published weekly during October-May and are available through CDC's voice (telephone, 888-232-3228) and fax (telephone, 888-232-3299, document number 361100) information systems and at <http://www.cdc.gov/ncidod/diseases/flu/weekly.htm>. The first surveillance report for the 2002-03 season will be available October 11, 2002. Additional information about influenza viruses and influenza surveillance is available at <http://www.cdc.gov/ncidod/diseases/flu/fluvirus.htm>, and additional information on influenza vaccine is available at <http://www.cdc.gov/nip/flu/default.htm>.

Acknowledgments

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*Includes both the A (H1N1) and A (H1N2) influenza virus subtypes. The influenza A (H1N2) strain appears to have resulted from the reassortment of the genes of currently circulating influenza A (H1N1) and A (H3N2) subtypes. Because the hemagglutinin proteins of the A (H1N2) viruses are similar to those of currently circulating A (H1N1) viruses and the neuraminidase proteins are similar to currently circulating A (H3N2) viruses, the 2002-03 influenza vaccine should provide protection against A (H1N2) viruses.

†Data reported as of September 27, 2002.