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### Evaluation of a Fruit and Vegetable Distribution Program — Mississippi, 2004–05 School Year

Although diets high in fruit and vegetables are associated with decreased risk for many chronic diseases (1), consumption of fruit and vegetables among children is below recommended levels (2). During the 2004–05 school year, the Mississippi Department of Education Child Nutrition Program initiated the Mississippi Fresh Fruit and Vegetable Pilot Program. The program was designed to 1) increase student access to fresh fruit and vegetables, 2) increase the degree of student preference for fruit and vegetables, and 3) increase fruit and vegetable consumption. The 25 schools selected to participate in the program distributed fresh fruit and vegetables free of charge during the school day and provided nutrition education activities to promote and support consumption of fruit and vegetables. An evaluation of the program was conducted using a pretest in the fall (before the program was implemented by the schools) and a posttest in the spring (at the end of the school year). This report summarizes the findings of that evaluation, which indicated that the program might have 1) increased the variety of fruit and vegetables ever tried by students from all three grades sampled (5th, 8th, and 10th); 2) increased the degree of preference for fruit among 8th-grade and 10th-grade students; 3) promoted positive attitudes toward eating fruit among 8th-grade students; 4) increased consumption of fruit, but not vegetables, among 8th-grade and 10th-grade students; and 5) decreased preference for fruit and vegetables, the belief that they could eat more vegetables, and willingness to try new fruit and vegetables among 5th-grade students. The results of this evaluation suggest that the distribution of fresh fruit at school free of charge to secondary school students might be an effective component of a comprehensive approach for improving student dietary behaviors; however, distribution of fresh vegetables might be more effective with changes in program implementation.

Evaluation of the pilot program featured a one-group (no comparison) pretest-posttest design involving students in

grades 5, 8, and 10 from five of the 25 schools\* participating in the pilot program. The five evaluation schools were selected on the basis of grade levels served, geographic area, urbanicity, and racial composition but were not intended to be representative of students in the pilot program or of students in the entire state.

The evaluation of the pilot program consisted of a survey and a 24-hour dietary recall interview. The survey assessed changes in the following during the school year: 1) the variety of fruit and vegetables ever eaten by students, 2) their attitudes toward fruit and vegetables, 3) their willingness to try fruit and vegetables, 4) their degree of preference for and familiarity with fruit and vegetables, and 5) their intentions to eat fruit and vegetables. The survey was administered by trained data collectors during the school day to 725 students in grades 5, 8, and 10 in the five selected schools. The 24-hour dietary recall interview was conducted to assess changes in student consumption of fruit and vegetables during the school year. Dietitians and trained nutrition interviewers interviewed a random sample of 207 students in grades 8 and 10 representing three of the five selected schools.<sup>†</sup> They

\*The 25 schools were selected competitively by the Mississippi Department of Education from among those that applied for funds for the Fresh Fruit and Vegetable Pilot Program.

<sup>†</sup> Because young children might not be able to provide reliable data on dietary recall interviews, only 8th-grade and 10th-grade students were administered these interviews.

#### INSIDE

- 961 Update: Delayed Onset *Pseudomonas fluorescens* Bloodstream Infections After Exposure to Contaminated Heparin Flush — Michigan and South Dakota, 2005–2006
- 963 Measles Outbreak and Response — Fiji, February–May 2006
- 966 Notices to Readers
- 968 QuickStats

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collected information about student dietary intake for the previous 24 hours by using an adaptation of the Child and Adolescent Trial for Cardiovascular Health (CATCH) intervention study's 24-Hour Dietary Recall Interview (3). All baseline data were collected in fall 2004, before the pilot program was initiated, and follow-up data were collected in spring 2005, at the end of the school year. Follow-up response rates were 91% for the student survey and 92% for the dietary recall interviews, yielding a final survey sample of 660 students and a final dietary recall interview sample of 191 students (Table 1). All parents provided consent, and all students agreed to participate.

Dietary recall responses were analyzed for fruit and vegetable servings based on the U.S. Department of Agriculture (USDA) Pyramid Servings Database (Version 2) (4). Recall data also were analyzed for selected vitamins, minerals, and macronutrients with the Food Intake Analysis System (FIAS), which uses the 1994–1996 and 1998 USDA Continuing Survey of Food Intakes by Individuals (CSFII) nutrient database (5,6). Changes in student survey data and dietary recall data between baseline and follow-up were compared using paired *t* tests.

The variety of fruit and vegetables ever eaten increased significantly among students in all three grades (Table 2). However, only 8th-grade students had significant increases in positive attitudes toward eating fruit and vegetables ( $p < 0.01$ ), in their beliefs that they could eat more fruit ( $p < 0.01$ ), and in their willingness to try new fruit ( $p < 0.01$ ). The willingness of 5th-grade students to try new fruit and new vegetables declined significantly ( $p = 0.01$  and  $p = 0.03$ , respectively), as did their belief that they could eat more vegetables ( $p = 0.04$ ).

Changes in degree of student preference for fruit and vegetables also varied by grade. Degree of preference for fruit increased significantly among 8th-grade and 10th-grade students ( $p = 0.01$  and  $p < 0.01$ , respectively) but decreased significantly among 5th-grade students ( $p = 0.03$ ). Degree of preference for vegetables decreased significantly among 5th-grade and 8th-grade students ( $p < 0.01$  and  $p = 0.01$ , respectively) but remained unchanged among 10th-grade students. Intention to eat fruit increased significantly among 10th-grade students ( $p = 0.01$ ) but not among 5th-grade and 8th-grade students. Significant changes in intention to eat vegetables were not detected among students in any of the grades.

Student consumption of fruit in school and overall increased significantly by 0.34 and 0.61 servings per day, respectively ( $p < 0.01$ ) (Table 3) among the 8th-grade and 10th-grade students who participated in dietary recall interviews. Student consumption of vegetables in school decreased significantly ( $p = 0.05$ ), but consumption of vegetables overall did not change. Intake of vitamin C increased overall, and intake of

**TABLE 1. Baseline demographic characteristics of students (n = 660) in grades 5, 8, and 10 who participated in a survey on fruit and vegetables and students (n = 191) in grades 8 and 10 who participated in a 24-hour dietary recall interview — Mississippi Fresh Fruit and Vegetable Pilot Program, 2004–05 school year**

Assessment/Grade(s)	Sex		Race			Mean age (yrs)
	Female (%)	Male (%)	Black (%)	White (%)	Other (%)	
Survey/Grade 5 (n = 168)	57.7	42.3	53.0	35.1	11.9	10.4
Survey/Grade 8 (n = 277)	53.1	46.9	76.5	18.4	5.1	13.4
Survey/Grade 10 (n = 215)	51.6	48.4	71.2	27.4	1.4	15.5
Dietary recall interview/Grades 8 and 10 (n = 191)	47.4	52.6	62.0	35.0	3.1	14.4

**TABLE 2. Pretest to posttest change in familiarity with, attitudes toward, preferences for, and intentions to eat fruit and vegetables among students (n = 660), by grade and survey topic — Mississippi Fresh Fruit and Vegetable Pilot Program, 2004–05 school year**

Topic	Grade	Sample size	Pretest mean score	Posttest mean score	Change*	p value†
<b>Familiarity with fruit and vegetables</b>						
Variety of fruit ever eaten (proportion score§)	5	167	0.85	0.86	+	0.05
	8	274	0.90	0.92	+	<0.01
	10	215	0.89	0.91	+	<0.01
Variety of vegetables ever eaten (proportion score)	5	168	0.61	0.66	+	0.01
	8	271	0.66	0.71	+	<0.01
	10	214	0.64	0.68	+	0.02
<b>Attitudes toward fruit and vegetables</b>						
Positive attitudes toward eating fruit and vegetables (score range: 1–5¶)	5	168	4.10	4.09	NS	0.92
	8	273	4.00	4.11	+	<0.01
	10	213	4.01	4.02	NS	0.83
Student believes that they can eat more fruit (score range: 1–5)	5	166	4.38	4.36	NS	0.69
	8	275	4.21	4.41	+	<0.01
	10	213	4.36	4.35	NS	0.90
Student believes that they can eat more vegetables (score range: 1–5)	5	166	3.71	3.50	–	0.04
	8	274	3.51	3.52	NS	0.80
	10	214	3.36	3.44	NS	0.30
Willingness to try new fruit (score range: 1–5)	5	167	4.06	3.89	–	0.01
	8	270	3.69	3.86	+	<0.01
	10	212	3.77	3.72	NS	0.37
Willingness to try new vegetables (score range: 1–5)	5	166	3.42	3.22	–	0.03
	8	273	3.13	3.13	NS	0.95
	10	214	3.03	3.08	NS	0.43
<b>Preferences for fruit and vegetables</b>						
Fruit (score range: 0–2¶)	5	167	1.44	1.39	–	0.03
	8	273	1.41	1.44	+	0.01
	10	213	1.32	1.37	+	<0.01
Vegetables (score range: 0–2)	5	166	0.85	0.68	–	<0.01
	8	263	0.73	0.68	–	0.01
	10	199	0.59	0.61	NS	0.39
<b>Intentions to eat fruit and vegetables</b>						
Intentions fruit (score range: 1–4¶)	5	163	3.27	3.21	NS	0.21
	8	275	3.05	3.12	NS	0.07
	10	215	2.98	3.10	+	0.01
Intentions vegetables (score range: 1–4)	5	165	2.55	2.44	NS	0.14
	8	272	2.18	2.16	NS	0.76
	10	211	1.94	2.03	NS	0.07

\* A significant positive (+) or negative (–) change in the mean from pretest to posttest. NS = no significant change from pretest to posttest.

† p values from within-group pretest-posttest (no comparison group) paired *t* tests.

§ Number of types of fruit or vegetables that students have ever eaten divided by the total number of types of fruit and vegetables asked about in the survey.

¶ Higher numbers on ranges refer to more positive attitudes and stronger beliefs, more willingness, stronger preferences, and stronger intentions.

**TABLE 3. Pretest to posttest change in fruit, vegetables, and nutrients consumed in and consumed in and out of school among students (n = 191) in grades 8 and 10, by food and nutrient — Mississippi Fresh Fruit and Vegetable Pilot Program, 2004–05 school year**

Food/Nutrient	Consumed in school				Consumed in and out of school			
	Pretest mean	Posttest mean	Change*	p value†	Pretest mean	Posttest mean	Change	p value
Fruit (servings)	0.49	0.83	+	<0.01	1.01	1.62	+	<0.01
Vegetables (servings)	1.31	0.93	–	0.05	2.80	2.78	NS	0.93
Vitamin A (IU)	996.9	1,269.1	NS	0.18	3,568.1	4,151.6	NS	0.28
Carotene (retinol equivalents)	41.8	73.3	NS	0.11	210.0	273.4	NS	0.22
Vitamin C (mg)	29.7	36.3	NS	0.22	89.7	111.8	+	0.03
Dietary fiber (g)	4.4	5.4	+	0.02	11.9	12.6	NS	0.36
Folate (μg)	108.1	101.4	NS	0.39	337.8	332.6	NS	0.78
Potassium (mg)	1,055.3	1,028.2	NS	0.67	2,444.9	2,456.0	NS	0.92

\* A significant positive (+) or negative (–) change in the mean from pretest to posttest. NS = no significant change from pretest to posttest.

† p values from within-group pretest-posttest (no comparison group) paired t tests.

dietary fiber increased in school. Consumption of other nutrients did not change significantly.

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**Editorial Note:** The results of this evaluation suggest that the Mississippi Fresh Fruit and Vegetable Pilot Program might have helped to increase the variety of fruit and vegetables ever eaten by students in all three grades. The program also might have increased the positive attitudes of 8th-grade students toward eating fruit and vegetables, their willingness to try new types of fruit, and their degree of preference for fruit. Among 10th-grade students, the program might have increased their preferences for fruit and their intentions to eat fruit. Students in the 8th grade expressed significantly less preference for vegetables after the program than before. Students in grades 8 and 10 also increased their consumption of fruit but not vegetables during the school year. Other evaluations of programs to improve fruit and vegetable consumption have noted similar findings (7). This program appeared to be more successful with 8th-grade and 10th-grade students than with 5th-grade students, whose reported willingness to try new fruit and vegetables and degree of preference for fruit and vegetables decreased. The findings among 5th-grade students are consistent with results of research on food preferences across the lifespan, which indicates that younger children tend to prefer sweeter, more energy-dense foods (i.e., foods with high calorie content by weight, such as butter) rather than energy-dilute foods (i.e., foods with low calorie content by weight,

such as vegetables or plain popcorn), but that these preferences begin to change at puberty (8). These results are also consistent with research that indicates that younger children dislike an increasing number of foods as they taste new foods (9).

The findings in this report are subject to at least three limitations. First, because of the one-group pretest-posttest design and limited sample size for the dietary recall interviews, the study results do not indicate whether the findings are attributable to the program alone or might have been influenced by seasonality and other unknown trends. Second, the intervention itself was modest in intensity because the only required element was the distribution of fresh fruit and vegetables free of charge to students. Although schools did augment the distribution with various nutrition education activities, the intensity of these activities varied from school to school. Finally, this was a new program for Mississippi schools, many of which experienced start-up and implementation challenges that might have affected the overall impact of the program.

The results of this evaluation suggest that the distribution of fresh fruit at school free of charge to secondary school students might be an effective component of a comprehensive approach for improving student dietary behaviors; however, distribution of fresh vegetables might be more effective with changes in program implementation. Further research is needed to determine the effectiveness of this type of program among youths.

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## Update: Delayed Onset *Pseudomonas fluorescens* Bloodstream Infections After Exposure to Contaminated Heparin Flush — Michigan and South Dakota, 2005–2006

In March 2005, CDC reported a multistate outbreak of *Pseudomonas fluorescens* bloodstream infections associated with use of syringes preloaded with heparin intravenous catheter flush (1). The heparin flush became contaminated during preparation by IV Flush, LLC (Rowlett, Texas). Thirty-six patients in four states were identified who had been exposed to the contaminated flush and subsequently experienced *P. fluorescens* bloodstream infection during December 2004–February 2005 (1). Based on a recommendation by the Food and Drug Administration (FDA), IV Flush voluntarily recalled the preloaded syringes in late January (1); on January 31 and February 4, 2005, FDA issued nationwide alerts recommending that consumers and institutions stop using and return the preloaded syringes to IV Flush or the distributor (Pinnacle Medical Supply, Rowlett, Texas). Approximately 3 months after the product was recalled, patients in Michigan and South Dakota were identified with *P. fluorescens* bloodstream infections. As of April 2006, a total of 15 patients in Michigan and 13 in South Dakota had been identified with delayed onset *P. fluorescens* bloodstream infections, with occurrences ranging from 84 to 421 days after their last potential exposure to the contaminated flush. **The patients all had indwelling cen-**

**tral venous catheters and received treatment during October 2005–February 2006 at clinics known to have used the contaminated flush.** This report describes the investigation of these cases, which determined that these were delayed onset cases of *P. fluorescens* bloodstream infection from a past exposure to contaminated flush, and provides recommendations for ongoing surveillance for delayed *P. fluorescens* bloodstream infections among similarly exposed patients.

In October 2005, the Michigan Department of Community Health (MDCH) was notified by a hospital infection-control practitioner of a case of *P. fluorescens* bloodstream infection in a woman aged 51 years with breast cancer. She was receiving chemotherapy through an implantable venous port (a type of indwelling central venous catheter) and was being treated at the only Michigan clinic that had used the product manufactured by IV Flush. The patient's bloodstream infection was identified 233 days after her last potential exposure to the contaminated flush. After consultation with CDC, MDCH became aware of additional cases of delayed onset *P. fluorescens* bloodstream infection at the only clinic in South Dakota that had used the implicated flush. After being contacted by MDCH, the South Dakota clinic and the South Dakota Department of Health provided case information.

In this report, a case is defined as illness in a Michigan or South Dakota resident with 1) culture-confirmed *P. fluorescens*\* bloodstream infection† diagnosed during February 4, 2005–March 31, 2006, and 2) who had received treatment at a clinic known to have used the contaminated flush before it was recalled. MDCH requested the Michigan and South Dakota clinics that had used the contaminated flush to review all microbiology records and report all cases of *P. fluorescens* bloodstream infection diagnosed after the product was recalled in January 2005. Medical records of all patients with a diagnosis of *P. fluorescens* bloodstream infection were reviewed, with a focus on determining last potential exposure to the contaminated heparin flush.

Local and state laboratories recovered *P. fluorescens* isolates from blood samples provided by the clinics and hospital emergency departments. CDC laboratories tested catheters that had been removed surgically from the patients and shipped to CDC with assistance from the health departments; in some instances, *P. fluorescens* bloodstream infection had already been diagnosed after a positive blood culture, and in others, blood cultures were negative for patients who had known exposures

\* Including two patients with isolates identified as *Pseudomonas fluorescens-putida* group.

† Confirmation of *P. fluorescens* presence through positive blood or catheter culture in a symptomatic patient (e.g., a patient with at least one of the following signs or symptoms: chills, fever, nausea, or vomiting).

to the contaminated flush and later had onset of bloodstream infection symptoms. Catheter sections were prerinse to remove nonadherent cells and cultured for the presence of *P. fluorescens* biofilms. CDC compared blood and catheter isolates by using pulsed-field gel electrophoresis (PFGE) and used scanning electron microscopy to confirm the presence of *P. fluorescens* biofilms.

A total of 28 patients from Michigan and South Dakota had illness consistent with the case definition, with diagnosis dates ranging from April 29, 2005, to March 10, 2006. Median age was 58 years (range: 24–79 years). Twenty (71%) patients were female. All had cancer and were outpatients with implantable venous ports. Of the 28 patients, 27 (96%) experienced chills  $\leq 8$  hours after receiving a port flushing (i.e., with uncontaminated flush); other signs and symptoms included fever in 14 (50%) patients and nausea or vomiting in 10 (36%). Twenty-two (79%) patients were treated with oral antibiotics; some received antibiotics when bloodstream infection was suspected because of clinical symptoms (especially if they had been to an emergency department) or when they had a positive blood culture. Because some patients had negative blood cultures and did not receive diagnoses until catheter removal and culture, they received antibiotics later. All 28 had their ports (i.e., catheters) removed surgically. No deaths were reported. The mean time from last potential exposure to the contaminated flush until diagnostic specimen collection was 237 days (range: 84–421 days).

*P. fluorescens* was recovered from port catheters in 17 (81%) of 21 patients,<sup>§</sup> from blood cultures in 15 (79%) of 19 patients, and from both blood and catheter cultures in four (33%) of 12 patients. PFGE was performed on 19 available *P. fluorescens* isolates from blood or catheter cultures. PFGE patterns indicated that all 19 isolates were genetically indistinguishable from or closely related to isolates from the March 2005 investigation (1). Catheter specimens were sent to CDC for examination by scanning electron microscopy, which indicated the presence of biofilms with bacilli adhering to catheter lumens.

On-site investigations in Michigan and South Dakota confirmed that the clinics were no longer using and had returned the recalled flush. Cultures of the new flush being used in Michigan and South Dakota did not recover any organisms. Surveillance for additional cases of delayed onset *P. fluorescens* bloodstream infection continues at the Michigan and South Dakota clinics described in this report. IV Flush, the manufacturer of the contaminated product, has ceased operation.

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**Editorial Note:** This report describes the first known cases of substantially delayed bloodstream infections (i.e., 84–421 days) after exposure to a contaminated intravenous solution. PFGE analysis linking *P. fluorescens* isolates from the current investigation both to one another and to those of the original investigation (March 2005) confirmed that these were delayed onset cases from past exposure to the contaminated heparin flush.

*P. fluorescens* is an aerobic, gram-negative bacterial rod that grows best at temperatures of approximately 77°F–86°F (25°C–30°C) and grows poorly at the standard hospital microbiology incubation temperature of approximately 97°F (36°C) (1,2). Therefore, identification of *P. fluorescens* can be difficult, depending on laboratory capabilities. The bacteria typically thrive in moist environments (including water, soil, and foods) and are not a frequent cause of human infections. However, *P. fluorescens* has been reported to cause occasional cases of transfusion-associated septicemia in blood recipients, including fatal reactions (3), and catheter-related bacteremia in patients with cancer (4).

At least four factors contributed to the delayed onset of symptoms and diagnosis of bloodstream infection in the patients described. First, *P. fluorescens* colonized catheter lumens by forming biofilms (as confirmed by electron microscopy at CDC); previous electron microscopy studies have indicated that nearly all indwelling vascular catheters become colonized by microorganisms embedded in a biofilm layer (5). Biofilm is composed of these microorganisms and a structural matrix of extracellular polymers, primarily polysaccharides, produced by the microorganisms. *P. fluorescens* in the contaminated heparin flush either colonized preexisting catheter lumen biofilms or initiated new biofilm formation; heparin might have stimulated biofilm formation, which has been reported in vitro with another bacterial species (6). Although *P. fluorescens* might not have entered patient bloodstreams in sufficient quantities to cause symptoms on initial exposure to the contaminated flush, biofilm formation enabled the bacteria to persist in patient port catheters. The bacteria might have proliferated in the biofilm, from which they were disrupted by subsequent, uncontaminated flushes and released into the bloodstream, finally causing symptoms. Second, 12 patients who were no longer receiving chemotherapy received catheter flushes infrequently and consequently did not have frequent flush-related bloodstream infection symptoms. Third, patients still receiving chemotherapy ini-

<sup>§</sup>The remaining seven catheters either were discarded by surgeons or hospital laboratorians before they could be transported to CDC or were available but not sent.

tially assumed bloodstream infection symptoms were chemotherapy side effects because some symptoms are similar. Finally, isolating *P. fluorescens* from clinical specimens initially was difficult because of its growth requirements.

The data in this report are subject to at least four limitations. First, cases might have been missed because of false-negative blood cultures at local laboratories. Second, information on South Dakota cases might be inaccurate or incomplete because investigators in Michigan performed South Dakota chart reviews by proxy. Third, recall bias might have resulted in incomplete or inaccurate information from patients regarding symptoms (e.g., type, onset date, or timing of onset relative to flushes). Finally, the case-finding methods varied between the South Dakota and Michigan clinics.

The data in this report indicate that patients with implantable venous ports who receive heparin flushes contaminated with *P. fluorescens* are at risk for bloodstream infection up to 14 months after last receiving the contaminated flush. Subsequent episodic catheter flushing with uncontaminated flush might physically disrupt biofilms causing symptomatic, intermittent bacteremia. Health-care providers should conduct ongoing surveillance and be aware of possible bloodstream infection in patients with indwelling catheters who have received contaminated injections, even several months after exposure. Catheter removal in such instances is strongly recommended, especially among immunocompromised patients, because antibiotic therapy alone might not eradicate *P. fluorescens* from catheter biofilms. Providers should alert laboratories when bacterial species with atypical growth requirements are suspected clinically.

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## Measles Outbreak and Response — Fiji, February–May 2006

In September 2005, the 37 countries and areas of the World Health Organization (WHO) Western Pacific Region (WPR) established a goal to eliminate measles in the region by 2012. After multiple outbreaks in 1996 and 1997, measles supplementary immunization activities (SIAs) in 1997 and 1998 resulted in apparent interruption of measles transmission in WPR. Since then, importations have resulted in limited outbreaks in French Polynesia and Guam, a large outbreak in the Marshall Islands in 2003, and an outbreak in Fiji during February–May 2006. This report describes the epidemiologic findings, public health response, and potential causes of the 2006 outbreak that produced 132 measles cases in Fiji (2006 estimated population: 832,432), the most populous country in the South Pacific.

### Background

To achieve and sustain measles elimination and prevent importation-associated outbreaks, the WPR office of WHO recommends that countries achieve and maintain vaccination coverage of  $\geq 95\%$  with 2 doses of measles vaccine in every district. The WPR office further recommends that countries ensure measles surveillance that 1) detects one or more suspected measles cases per 100,000 population per year in  $\geq 80\%$  of districts, 2) tests serum samples from  $\geq 80\%$  of persons with suspected measles, and 3) obtains a viral isolate from every chain of measles transmission (1).

Fiji's Expanded Program on Immunization introduced measles vaccine in 1982 as a single dose for children aged 9 months. From 1982 to 1998, reported routine measles vaccination coverage increased from 20% to 80%. Measles SIAs were conducted in 1998, targeting children aged 9 months–14 years and achieving an administrative vaccination coverage rate\* of 85%, and in 2001, targeting children aged 9 months–5 years and achieving an administrative coverage of 86%.

In 2003, Fiji introduced a 2-dose schedule for measles-rubella vaccine, with doses administered at ages 1 year and 6 years, the latter at school entry. An SIA with measles-rubella vaccine targeting children aged 6–11 years was conducted during 2003–2004; administrative vaccination coverage was not reported. During 2001–2004, routine vaccination coverage with 1 dose of measles-rubella vaccine averaged 83% annu-

\* Calculated by dividing the number of doses of vaccine reported administered through the immunization campaign by the number of persons in the target population.

ally. Findings from a 2005 survey of children aged 12–23 months indicated nationwide vaccination coverage of 80% with 1 dose of measles-rubella vaccine, although pockets of lower coverage were identified.

Before 2006, the last laboratory-confirmed measles outbreak in Fiji occurred during September 1997–April 1998, when 955 measles cases were reported, of which 86% were in children aged <15 years. Since late 1998, Fiji had been considered measles-free. Isolated clinical measles cases had been reported, and rubella, but not measles, had been confirmed by laboratory testing.

## Outbreak

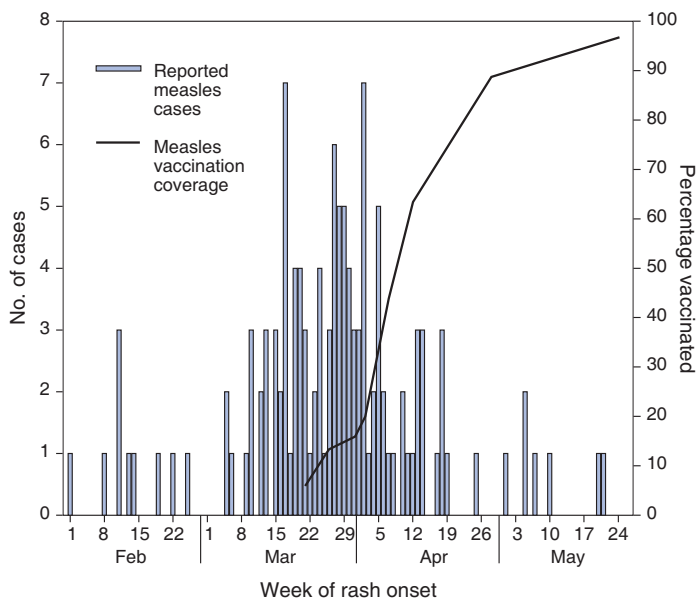
On February 17, 2006, the Ministry of Health (MOH) in Fiji received a report of three infants, with rash onsets on February 8 and 11, who had been admitted to a divisional hospital because of suspected measles and pneumonia. The three infants lived near the international airport at Nadi in the Western Division. On February 23, measles was confirmed by serologic testing for the presence of anti-measles virus immunoglobulin M (IgM) at the national laboratory in Fiji and verified on February 28 by the WHO Measles Regional Reference Laboratory at the Victorian Infectious Diseases Reference Laboratory in Australia, where an isolate was identified as measles genotype H1.

During February 17–June 9, a total of 132 suspected measles cases were reported to MOH, including 22 that were laboratory confirmed (anti-measles virus IgM positive) (Figure). Among the 132 measles patients, 119 (90%) resided in the Western Division and 13 (10%) in the Central and Eastern divisions. Within the Western Division, one subdivision had 58 (44%) of the measles cases. Routine vaccination coverage with 1 dose of measles-rubella vaccine in this subdivision had been reported as 49% in 2004 and 68% in 2005. A total of 76 (58%) patients were aged <5 years; the highest incidence (378 cases per 100,000 population) was among children aged 6–11 months (Table). Thirty-one (23%) patients required hospitalization; no deaths were reported. For 41 children aged 12–59 months for whom MOH could obtain detailed case investigation data, 12 (29%) had received 1 dose of measles-rubella vaccine, 10 (24%) had not been vaccinated, and 19 (46%) had unknown vaccination status. As of August 8, no additional laboratory-confirmed measles cases had been reported with rash onset after May 21.

## Outbreak Control Measures

**Enhanced surveillance.** Reporting of acute fever and rash cases was intensified in Fiji's 21-hospital sentinel surveillance network, initially created for acute flaccid paralysis surveil-

**FIGURE. Number of reported measles cases and percentage of children\* vaccinated during outbreak-response immunization campaign, by week of rash onset — Fiji, 2006**



\* Aged 6 months to <6 years.

**TABLE. Number, percentage, and incidence rate\* of reported measles cases, by age group — Fiji, February 17–June 9, 2006**

Age group	No. of cases	% of total cases	Total population	Incidence rate
<6 mos	5	3.8	8,784	57
6–11 mos	33	25.0	8,722	378
1–4 yrs	38	28.8	69,475	55
5–9 yrs	10	7.6	95,049	11
10–14 yrs	10	7.6	101,499	10
15–19 yrs	8	6.1	91,654	9
20–24 yrs	3	2.3	73,323	4
25–29 yrs	14	10.6	67,552	21
30–34 yrs	5	3.8	66,618	8
≥35 yrs	6	4.5	249,756	2
<b>Total</b>	<b>132</b>	<b>100.0</b>	<b>832,432</b>	<b>16</b>

\* Per 100,000 population in age group, during February 17–June 9, 2006.

lance as part of the global poliomyelitis eradication initiative. Daily telephone calls were made to all sentinel hospitals for reports on new patients. Illnesses with rash and fever were confirmed as measles if they met the WHO measles clinical case definition.<sup>†</sup> To encourage case reporting, the national coordinator of the Expanded Program on Immunization pro-

<sup>†</sup> Fever with rash and at least one of the following: cough, coryza, or conjunctivitis.



vided daily surveillance summaries by e-mail and fax to all hospitals, selected health centers, and partner agencies.

**Case management.** Triage and measles treatment recommendations, based on WHO Integrated Management of Childhood Illnesses guidelines (2), were distributed to all health facilities and health workers to ensure that suspected measles cases were managed appropriately and to prevent measles virus transmission in health-care facilities. Vitamin A, a key part of WHO case-management guidelines to reduce measles morbidity and mortality, was distributed in capsules to all hospitals and health centers in late March.

**Social mobilization.** A multiphase social mobilization and communication plan was developed using WHO's Communication-for-Behavioral-Impact approach (3), to prompt individual and family action. The initial phase, "Beware," informed the public about the measles outbreak and promoted reporting of suspected cases. The second phase, "Vaccinate," promoted an immunization campaign, prompting parents and guardians to bring children in the targeted age group to vaccination sites made visible by large banners. Activities included distribution of 60,000 fact sheets to schools and community and religious organizations, announcements on television and radio, and advertisements in cinemas and newspapers.

**Outbreak-response immunization (ORI).** To protect children in the age groups accounting for >60% of cases and most at risk for severe outcomes, 91,595 children aged 6 months to <6 years were targeted with measles-rubella vaccine during March 20–May 3, 2006. A goal of  $\geq 95\%$  vaccination coverage was set for all administrative levels. Plans at the subdivisional level were developed for budget estimates and distribution of bundled vaccine and injection-safety items.<sup>§</sup> Campaign training workshops, including classes on vaccination safety, were conducted for health-care workers throughout the country. Vaccination-coverage rates with measles-rubella vaccine were reported twice weekly from all vaccination sites to promptly identify areas needing external assistance. Rapid vaccination-coverage monitoring, using a 20-household convenience sample format, was conducted in urban and other areas at risk for measles. If two or more homes contained unvaccinated children, the area was targeted for repeat vaccinations. Of 32 areas surveyed, 12 (38%) required follow-up.

MOH subsequently reported that 89,747 (98%) of targeted children had received measles-rubella vaccine as of May 24. Among 20 Fijian subdivisions, two had reported coverage <95%: Suva (91%) in the Central Division and Macuata

(90%) in the Northern Division. No serious adverse events from vaccination were reported.

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**Editorial Note:** The measles outbreak in Fiji described in this report, like the 2003 outbreak in the Marshall Islands, underscores that absence of measles virus transmission should not create a false sense of security and that high population immunity is essential to preventing future outbreaks (4). As an island, Fiji's isolation from countries where measles is endemic, combined with its small population, likely contributed to the lack of reported measles cases from late 1998 through 2005 (5,6). Low routine vaccination coverage, combined with persistent pockets of susceptible adolescents and adults despite previous SIAs and outbreaks, might have left the country vulnerable to an outbreak via importation.

Achieving  $\geq 95\%$  population immunity (i.e., through high vaccination coverage with 2 doses of measles vaccine) will halt measles transmission within a population (7). In Fiji, the high incidence of measles in a single subdivision with historically low routine measles vaccination coverage and the occurrence of measles in all age groups highlight the importance of monitoring measles vaccination coverage at subnational levels and in older age groups (i.e., aged >15 years) to ensure that pockets of measles susceptibility do not develop.

The first identified cases of measles in this outbreak were in children already hospitalized with pneumonia. Because recognition of measles might decrease after measles virus transmission has been interrupted for long periods, national programs should remind clinicians to be vigilant and to report suspected cases, particularly in areas of low vaccination coverage. To increase sensitivity and timeliness of surveillance, primary-care facilities and outpatient departments might be included as reporting sites, and community-based informants used to report suspected measles cases.

The findings in this report are subject to at least three limitations. First, surveillance was conducted through sentinel site reporting and, as a result, all suspected measles cases might not have been reported. Second, not all suspected measles cases were laboratory confirmed; therefore, some suspected cases might have had etiologies other than measles. Finally, the estimated vaccination coverage achieved in the ORI was based on administrative data. Because uncertainties often exist regarding the denominator used to calculate administrative coverage, these data generally are less reliable than survey-based coverage estimates.

<sup>§</sup> Bundling of vaccine, diluent, auto-disable syringes, vaccine-reconstitution syringes, and safety boxes.

Targeting children aged 6 months to <6 years during the ORI was important because this group accounted for >60% of cases and was more vulnerable to severe measles outcomes. The Fijian MOH rapidly achieved high vaccination coverage with measles vaccine. At the same time, a sharp decrease in reported cases among all age groups occurred. The effectiveness of the ORI is greater when the intervention occurs early in the course of an outbreak (8). In Fiji, the campaign began 6 weeks after the first case was reported; 8 weeks later, the last case was reported. The commitment by MOH and its partners to reach  $\geq 95\%$  of targeted children was essential to interrupting measles virus transmission and preventing spread of the measles virus to other vulnerable Pacific Islands.

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### Notice to Readers

#### Public Health Notification Regarding Concern Over Recovered Human Tissues — United States, 2006

On August 30, 2006, the Food and Drug Administration (FDA) issued a Public Health Notification\* to inform the health-care community that human tissues, recovered by a tissue recovery company called Donor Referral Services (DRS) (Raleigh, North Carolina) and subsequently used in transplant procedures, might not have met FDA requirements for donor eligibility. Tissue products used for transplantation typically include bone, demineralized bone matrix, skin, and soft tissue (e.g., tendons) (1).

On August 18, FDA issued to DRS an Order to Cease Manufacturing and to Retain Human Cells, Tissues and Cellular and Tissue-Based Products.† Since then, an ongoing FDA investigation has obtained additional information regarding manufacturing and blood-screening practices at DRS that has heightened concern for all recipients of tissue recovered by DRS. The four tissue banks that received and distributed tissue initially recovered by DRS have conducted recalls: Alamo Tissue Services (San Antonio, Texas); Lost Mountain Tissue Bank (Kennesaw, Georgia); TissueNet of Orlando, Florida; and U.S. Tissue and Cell (USTC) (Cincinnati, Ohio; Allosource [Centennial, Colorado] acquired USTC in March 2006 and is performing all recall and physician notification activities for USTC). These four firms have voluntarily recalled all unused tissues remaining in inventory and continue to work with FDA to notify health-care facilities that received these tissues so that health-care providers can inform their patients who received transplants and offer testing.

No adverse reactions related to these tissue transplants have been reported to FDA. After recovery by DRS, the tissues underwent processing steps at other sites that are designed to reduce the risk for disease transmission. However, because the actual risk for infection is unknown, FDA and CDC strongly recommend that health-care providers inform their patients who received tissues recovered by DRS that assessment of eligibility of the tissue donors might not have been performed adequately. In addition, FDA and CDC recommend that health-care providers offer patients access to appropriate testing for infectious diseases. The relevant communicable diseases for which a tissue donor is required to be tested are human immunodeficiency virus (HIV)-1 and HIV-2, hepatitis B virus, hepatitis C virus, and syphilis. Health-care facilities that received tissues from DRS should notify clinicians who implanted the tissues so that patient notifications can be initiated. Further information regarding tissue transplants and specific testing recommendations is available at <http://www.cdc.gov/ncidod/dhqp/tissuetransplantsfaq.html>.

State and local health department officials who seek to determine whether tissues recovered by DRS were distributed to facilities in their jurisdictions should contact the four tissue banks identified. Health-care providers who have concerns or questions about the source of their patients' tissue transplants should contact the health-care facilities where the procedures were performed. Tissue recipients who are concerned that they might have received tissue recovered by DRS should contact the health-care providers who performed their implants.

\* Available at <http://www.fda.gov/cber/safety/drs083006.htm>.

† Available at <http://www.fda.gov/cber/compl/drs081806.htm>.

FDA's Current Good Tissue Practice Rules,<sup>§</sup> effective May 25, 2005, require manufacturers to prevent introduction, transmission, or spread of infectious diseases through human cells, tissue, and cellular and tissue-based products. On August 30, 2006, FDA announced formation of a Human Tissue Task Force<sup>¶</sup> to assess the effectiveness of the implementation of these new tissue regulations, to review recently reported findings that certain recovery establishments were not following federal requirements for tissue recovery, and to develop an action plan for proposed changes to existing policies. Health-care providers should report any adverse reaction that might be related to a tissue transplant to the appropriate processing or distributing firms; patients with suspected adverse reactions should contact their health-care providers or the health-care facilities where the procedures were performed. These reactions also should be reported to FDA's MedWatch system (by telephone, 800-FDA-1088; fax, 800-FDA-0178; mail, MedWatch, Food and Drug Administration, 5600 Fishers Lane, Rockville, MD 20857-9787; or online, <http://www.fda.gov/medwatch>). Adverse reactions also can be reported to CDC by telephone, 800-893-0485, or to state or local health departments.

#### Reference

1. CDC. Investigation into recalled human tissue for transplantation—United States, 2005–2006. *MMWR* 2006;55:564–6.

<sup>§</sup> Available at <http://www.fda.gov/bbs/topics/news/2004/new01137.html>.

<sup>¶</sup> Available at <http://www.fda.gov/bbs/topics/news/2006/new01440.html>.

#### Notice to Readers

### World Suicide Prevention Day

September 10 is World Suicide Prevention Day. Suicide was the 11th overall leading cause of death in the United States in 2003 (the most recent year for which final death data are available) and was responsible for 31,484 deaths (1), which equates to one suicide every 17 minutes. In addition, suicide attempts and other acts of self-harm that result in nonfatal injuries affect the health of many persons and families. In 2004 (the most recent year for which final ambulatory hospital data are available), approximately 535,000 visits to U.S. emergency departments were made after attempted suicides or because of other self-inflicted injuries (2).

Reducing the overall suicide rate of the population and the number of suicide attempts among adolescents are two of the 2010 national health objectives (objectives 18-1 and 18-2, respectively) (3). Integrated prevention strategies that address multiple relevant topics (e.g., substance-abuse prevention, family and peer support, and access to health services) are likely to be more effective in reducing suicidal behavior than programs that focus on a single factor (4). Additional information about suicide prevention is available from the National Center for Injury Prevention and Control at <http://www.cdc.gov/injury>. Additional information about World Suicide Prevention Day is available at <http://www.med.uio.no/iasp>.

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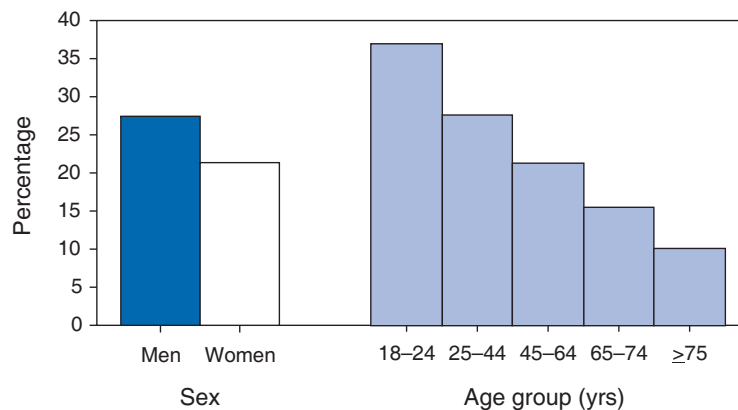
### Erratum: Vol. 55, No. 34

The following error occurred in certain copies of the *MMWR* issue dated September 1, 2006. In the report, “Youth Exposure to Alcohol Advertising on Radio — United States, June–August 2004,” an error occurred in the second footnote to Tables 1 and 2 on pages 939 and 940, respectively. The footnote should read: “The > proportion than local population programs were those in which the proportion of the audience aged 12–20 years was **greater than** the proportion of those aged 12–20 years in the general population of the local market. >15% programs were those in which >15% of listeners were aged 12–20 years. >30% programs were those in which >30% of listeners were aged 12–20 years.”

## QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

### Percentage of Adults\* Who Engaged in Any Leisure-Time Strengthening Activity,<sup>†</sup> by Sex and Age Group — United States, 2005



\* Aged ≥18 years.

<sup>†</sup> Data are based on household interviews of a sample of the civilian, noninstitutionalized population. Participants were asked: "How often do you do leisure-time physical activities specifically designed to strengthen your muscles such as lifting weights or doing calisthenics?"

In 2005, approximately one fourth of all adults reported participating in any leisure-time strengthening activity, a component of overall physical fitness. Men were more likely than women to engage in leisure-time strengthening activities. The percentage of adults who engaged in these activities decreased with age, from 37% among persons aged 18–24 years to 10% among persons aged ≥75 years.

**SOURCE:** National Health Interview Survey, 2005. Available at <http://www.cdc.gov/nchs/nhis.htm>.

**TABLE 1. Provisional cases of infrequently reported notifiable diseases (<1,000 cases reported during the preceding year) — United States, week ending September 2, 2006 (35th Week)\***

Disease	Current week	Cum 2006	5-year weekly average†	Total cases reported for previous years					States reporting cases during current week (No.)
				2005	2004	2003	2002	2001	
Anthrax	—	1	—	—	—	—	2	23	
Botulism:									
foodborne	—	3	1	19	16	20	28	39	
infant	1	58	2	90	87	76	69	97	TN (1)
other (wound & unspecified)	1	42	1	33	30	33	21	19	CA (1)
Brucellosis	1	67	2	122	114	104	125	136	GA (1)
Chancroid	—	20	1	17	30	54	67	38	
Cholera	—	5	0	8	5	2	2	3	
Cyclosporiasis§	4	86	4	734	171	75	156	147	GA (1), FL (3)
Diphtheria	—	—	0	—	—	1	1	2	
Domestic arboviral diseases§¶:									
California serogroup	—	12	8	78	112	108	164	128	
eastern equine	—	4	1	21	6	14	10	9	
Powassan	—	1	—	1	1	—	1	N	
St. Louis	—	2	4	10	12	41	28	79	
western equine	—	—	—	—	—	—	—	—	
Ehrlichiosis§:									
human granulocytic	5	229	13	790	537	362	511	261	NY (2), GA (2), FL (1)
human monocytic	3	235	10	522	338	321	216	142	NY (1), NC (1), SC (1)
human (other & unspecified)	1	70	2	122	59	44	23	6	MD (1)
<i>Haemophilus influenzae</i> ,**									
invasive disease (age <5 yrs):									
serotype b	—	5	1	9	19	32	34	—	
nonserotype b	—	57	3	135	135	117	144	—	
unknown serotype	1	137	2	217	177	227	153	—	PA (1)
Hansen disease§	1	43	1	88	105	95	96	79	NH (1)
Hantavirus pulmonary syndrome§	—	21	0	29	24	26	19	8	
Hemolytic uremic syndrome, postdiarrheal§	5	120	6	221	200	178	216	202	MN (1), TN (2), CA (2)
Hepatitis C viral, acute	5	513	33	771	713	1,102	1,835	3,976	NY (1), NE (1), KS (1), TN (1), CA (1)
HIV infection, pediatric (age <13 yrs)§,††	—	52	4	380	436	504	420	543	
Influenza-associated pediatric mortality§,§§,¶¶	—	41	0	49	—	N	N	N	
Listeriosis	11	391	19	892	753	696	665	613	ME (1), NY (1), PA (2), OH (1), IN (1), NC (1), SC (1), FL (1), CA (2)
Measles	—***	31	1	66	37	56	44	116	
Meningococcal disease,††† invasive:									
A, C, Y, & W-135 serogroup B	1	147	3	297	—	—	—	—	NY (1)
other serogroup	—	98	1	157	—	—	—	—	
other serogroup	—	13	0	27	—	—	—	—	
Mumps	7	5,587	5	314	258	231	270	266	MI (1), KS (2), FL (1), CA (3)
Plague	—	7	0	8	3	1	2	2	
Poliomyelitis, paralytic	—	—	—	1	—	—	—	—	
Psittacosis§	2	15	0	19	12	12	18	25	PA (1), CA (1)
Q fever§	—	97	1	139	70	71	61	26	
Rabies, human	—	1	0	2	7	2	3	1	
Rubella	—	6	0	11	10	7	18	23	
Rubella, congenital syndrome	—	1	—	1	—	1	1	3	
SARS-CoV§,§§	—	—	—	—	—	8	N	N	
Smallpox§	—	—	—	—	—	—	—	—	
Streptococcal toxic-shock syndrome§	—	73	1	129	132	161	118	77	
<i>Streptococcus pneumoniae</i> ,§									
invasive disease (age <5 yrs)	5	731	6	1,257	1,162	845	513	498	OH (1), MN (1), OK (2), TX (1)
Syphilis, congenital (age <1 yr)	—	168	8	361	353	413	412	441	
Tetanus	—	15	1	27	34	20	25	37	
Toxic-shock syndrome (other than streptococcal)§	2	63	2	96	95	133	109	127	NY (1), OH (1)
Trichinellosis	1	10	0	19	5	6	14	22	FL (1)
Tularemia§	—	55	4	154	134	129	90	129	
Typhoid fever	5	178	10	324	322	356	321	368	NY (1), FL (2), CA (2)
Vancomycin-intermediate <i>Staphylococcus aureus</i> §	—	2	0	2	—	N	N	N	
Vancomycin-resistant <i>Staphylococcus aureus</i> §	—	—	—	3	1	N	N	N	
Yellow fever	—	—	—	—	—	—	1	—	

—: No reported cases. N: Not notifiable. Cum: Cumulative year-to-date counts.  
 \* Incidence data for reporting years 2005 and 2006 are provisional, whereas data for 2001, 2002, 2003, and 2004 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 Zoonotic, Vector-Borne, and Enteric Diseases (proposed) (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, Viral Hepatitis, STDs, and Tuberculosis Prevention (proposed). 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 Zoonotic, Vector-Borne, and Enteric Diseases (proposed).  
 ¶¶ A total of 46 cases were reported since the beginning of the 2005-06 flu season (October 2, 2005 [week 40]).  
 \*\*\* 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 September 2, 2006, and September 3, 2005 (35th 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>	253	248	2,153	10,352	15,431	12	24	125	778	930
<b>New England</b>	50	37	780	1,824	2,733	—	1	11	40	47
Connecticut	18	8	753	1,336	382	—	0	5	10	10
Maine†	23	2	8	77	197	—	0	1	3	4
Massachusetts	—	2	54	33	1,949	—	0	3	18	26
New Hampshire	4	5	45	325	149	—	0	3	8	4
Rhode Island	—	0	5	—	25	—	0	8	—	2
Vermont†	5	1	8	53	31	—	0	1	1	1
<b>Mid. Atlantic</b>	158	152	1,176	5,945	8,961	2	4	13	123	255
New Jersey	—	23	123	1,101	2,925	—	1	3	28	64
New York (Upstate)	139	78	1,150	2,647	2,404	2	1	11	23	31
New York City	—	1	15	10	301	—	2	8	46	134
Pennsylvania	19	40	212	2,187	3,331	—	1	3	26	26
<b>E.N. Central</b>	3	11	96	837	1,485	1	2	7	77	108
Illinois	—	0	3	—	115	—	1	5	28	61
Indiana	1	0	3	14	23	—	0	3	8	3
Michigan	2	1	6	34	38	—	0	2	13	18
Ohio	—	1	5	31	38	1	0	3	21	16
Wisconsin	—	10	91	758	1,271	—	0	3	7	10
<b>W.N. Central</b>	1	9	91	312	472	1	0	32	31	34
Iowa	—	1	8	61	76	—	0	1	1	5
Kansas	—	0	2	3	3	—	0	2	5	4
Minnesota	—	6	88	231	381	—	0	30	14	11
Missouri	—	0	3	8	10	—	0	2	5	13
Nebraska†	1	0	2	8	—	1	0	2	4	1
North Dakota	—	0	3	—	—	—	0	1	1	—
South Dakota	—	0	1	1	2	—	0	1	1	—
<b>S. Atlantic</b>	26	30	100	1,173	1,615	3	7	15	230	202
Delaware	—	8	27	347	525	—	0	1	5	3
District of Columbia	2	0	7	33	8	—	0	2	3	8
Florida	1	1	5	29	25	—	1	6	41	34
Georgia	1	0	1	2	5	2	1	6	63	40
Maryland†	14	16	56	559	846	—	1	5	50	71
North Carolina	—	0	5	21	35	1	0	8	19	21
South Carolina†	—	0	3	7	12	—	0	2	7	6
Virginia†	8	3	25	168	152	—	1	9	40	18
West Virginia	—	0	44	7	7	—	0	2	2	1
<b>E.S. Central</b>	2	0	4	14	23	—	0	3	19	20
Alabama†	—	0	1	5	—	—	0	2	8	4
Kentucky	2	0	2	4	3	—	0	2	3	5
Mississippi	—	0	0	—	—	—	0	1	3	—
Tennessee†	—	0	4	5	20	—	0	2	5	11
<b>W. S. Central</b>	—	0	3	10	62	—	2	31	51	77
Arkansas	—	0	1	—	4	—	0	1	1	5
Louisiana	—	0	0	—	3	—	0	1	1	2
Oklahoma	—	0	0	—	—	—	0	6	7	3
Texas†	—	0	3	10	55	—	1	29	42	67
<b>Mountain</b>	—	0	4	14	15	—	1	9	41	37
Arizona	—	0	4	3	3	—	0	9	15	6
Colorado	—	0	1	2	—	—	0	2	9	20
Idaho†	—	0	1	2	2	—	0	0	—	—
Montana	—	0	0	—	—	—	0	1	2	—
Nevada†	—	0	1	1	3	—	0	1	1	2
New Mexico†	—	0	1	1	2	—	0	1	1	3
Utah	—	0	1	5	2	—	0	2	13	5
Wyoming	—	0	0	—	3	—	0	1	—	1
<b>Pacific</b>	13	4	22	223	65	5	4	13	166	150
Alaska	—	0	1	2	4	—	0	4	21	3
California	13	4	21	211	40	5	3	10	115	111
Hawaii	N	0	0	N	N	—	0	2	4	14
Oregon†	—	0	2	7	17	—	0	2	8	9
Washington	—	0	3	3	4	—	0	5	18	13
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	—	3
U.S. Virgin Islands	—	0	0	—	—	—	0	0	—	—

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

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

\* Incidence data for reporting years 2005 and 2006 are provisional.

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





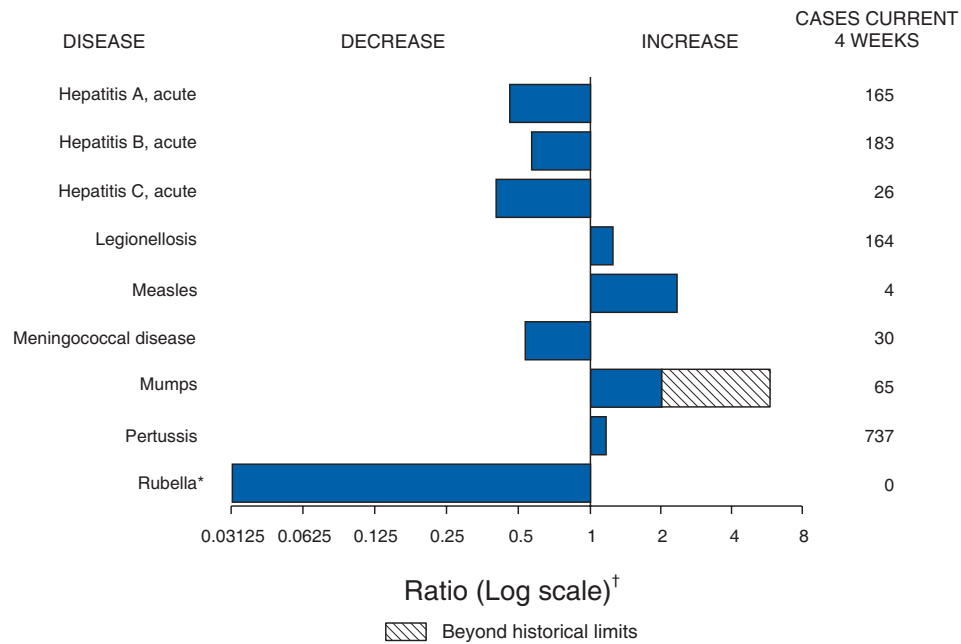








**FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals September 2, 2006, with historical data**



\* No rubella cases were reported for the current 4-week period yielding a ratio for week 35 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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