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Exposure of Passengers and Flight Crew to *Mycobacterium tuberculosis* on Commercial Aircraft, 1992–1995

From January 1993 through February 1995, CDC and state health departments completed investigations of six instances in which passengers or flight crew traveled on commercial aircraft while infectious with tuberculosis (TB). All six of these investigations involved symptomatic TB patients with acid-fast bacillus (AFB) smear-positive cavitary pulmonary TB, who were highly infectious at the time of the flight(s). In two instances, *Mycobacterium tuberculosis* isolated from the index patients was resistant to both isoniazid and rifampin; organisms isolated from other cases were susceptible to all antituberculous medications. In addition, in two instances, the index patients were aware of their TB at the time of travel and were in transit to the United States to obtain medical care. However, in none of six instances were the airlines aware of the TB in these passengers. This report summarizes the investigations by CDC and state health departments and provides guidance about notification of passengers and flight crew if an exposure to TB occurs during travel on commercial aircraft.

Investigation 1. A flight attendant had documented tuberculin skin test (TST) conversion in 1989 but had not received preventive therapy (*1*). While working on numerous domestic and international flights from May through October 1992, she developed a progressively severe cough, and pulmonary TB was diagnosed in November 1992. An investigation by CDC included TSTs of 212 flight crew who worked with the flight attendant from May through October and 247 flight crew who had not been exposed to her. The prevalence of positive TSTs among flight crew exposed to the flight attendant during August through October was higher than among crew exposed from May through June (25.6% versus 4.1%; $p<0.01$) and among unexposed flight crew (1.6%; $p<0.01$). TST conversion was documented in two crew members exposed only in August and October, respectively. TST positivity and conversions were not associated with aircraft type, but were associated with cumulative flight time exposure of >12 hours. TST reactivity was assessed in 59 passengers registered in the airline's frequent flyer program who had traveled on flights worked by the flight attendant with TB during August–October. Of these, four (6.7%) were TST positive; all had traveled in October. The investigation indicated that the index patient transmitted *M. tuberculosis* to other members of the flight crew, but evidence of transmission to passengers was inconclusive (*1*).

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Investigation 2. During 1993, the Minnesota Department of Health conducted an investigation of a foreign-born (i.e., born outside the United States or Canada) passenger with pulmonary TB who traveled in the first class section of an aircraft during a 9-hour flight from London to Minneapolis in December 1992 (*2*). Of the 343 crew and passengers on the aircraft, TST results were obtained for 59 (61%) of 97 U.S. citizens and 20 (8%) of 246 non-U.S. citizens. TSTs were positive for eight (10%) persons—all of whom had received bacille Calmette-Guérin (BCG) vaccine or had a history of past exposure to *M. tuberculosis*. The investigation indicated no evidence of transmission of TB during the flight (*2*).

Investigation 3. In March 1993, a foreign-born passenger with pulmonary TB traveled on a ½-hour flight from Mexico to San Francisco. This investigation included efforts by the San Francisco Department of Public Health to obtain information by mail from all 92 passengers on the flight; 17 persons could not be contacted because of invalid addresses. TSTs were positive in 10 (45%) of the 22 persons who were contacted and completed TST screening; nine of these TST-positive persons were born outside the United States. The other was a 75-year-old passenger who may have become infected with *M. tuberculosis* while residing outside the United States or during a period when TB was prevalent in the United States. The San Francisco Department of Public Health found no conclusive evidence of transmission during this flight.

Investigation 4. In March 1993, CDC investigated a case of pulmonary TB in a refugee who traveled on flights from Frankfurt, Germany, to New York City (8½ hours) and then to Cleveland, Ohio (1½ hours) (*3*). Of 219 passengers and flight crew on both flights, 169 (77%) were U.S. residents; 142 (84%) of the U.S. residents completed TST screening. TSTs were positive in 32 (23%), including five persons who had converted from negative on initial postexposure testing to positive on follow-up testing. Of the 32 TST-positive persons, 29 had received BCG or were born and had resided in countries where TB is endemic, including all five TST converters. The five passengers who were TST converters had been seated in sections throughout the plane. Because none of the U.S.-born passengers on this flight had TST conversions, the investigation indicated that, although transmission could not be excluded, the positive TSTs and conversions probably were associated with prior *M. tuberculosis* infection, a boosted immune response from prior exposure to TB, or prior BCG vaccination.

Investigation 5. In March 1994, a U.S. citizen with pulmonary TB and an underlying immune disorder who had resided long term in Asia traveled on flights from Taiwan to Tokyo (3 hours), to Seattle (9 hours), to Minneapolis (3 hours), and to Wisconsin (½ hour). Of 661 passengers on these four flights, 345 (52%) were U.S. residents. The Wisconsin Division of Health contacted the 345 U.S. residents and received reports about TST results from 87 (25%) persons; of these, 14 (17%) had a positive TST. All 14 persons had been seated more than five rows away from the index patient; nine of these persons had been born in Asia (including two with a known prior positive TST). Of the five who were TST-positive and U.S.-born, one was known to have had a positive TST previously, two had resided in a country with increased endemic risk for TB, and two were aged ≥75 years. The investigation indicated that, although transmission of TB during flights could not be excluded, the positive TSTs may have resulted from prior *M. tuberculosis* infection.

Investigation 6. In April 1994, a foreign-born passenger with pulmonary TB traveled on flights from Honolulu to Chicago (7 hours, 50 minutes) and to Baltimore (2 hours), where she lived with friends for 1 month. During that month, her symptoms intensified; she returned to Hawaii by the same route. Investigation in Baltimore determined that TST conversion had occurred in the 22-month-old child of her friends. The four flights included a total of 925 passengers and crew who were U.S. residents, of whom 755 (82%) completed TST screening; of these, 713 (94%) were U.S.-born. The investigation by CDC indicated no evidence of transmission on the flight from Honolulu to Chicago or the flight from Chicago to Baltimore. Of the 113 persons who had traveled on the flight from Baltimore to Chicago, TSTs were positive in three (3%), including two who were foreign-born. However, of the 257 persons who traveled from Chicago to Honolulu (8 hours, 38 minutes), TSTs were positive in 15 (6%), including six who had converted; two of these six persons apparently had a boosted immune response, while the other four had been seated in the same section of the plane as the index patient. Because of TST conversions among U.S.-born passengers, the investigation indicated that passenger-to-passenger transmission of *M. tuberculosis* probably had occurred.

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Editorial Note: The investigations described in this report were undertaken to determine whether exposure to persons with infectious pulmonary TB was associated with transmission of *M. tuberculosis* to others traveling on the same aircraft. Two of these investigations indicated that transmission occurred (investigation 1, from flight attendant to other flight crew, and investigation 6, from passenger to passenger). In investigation 6, transmission occurred on the return to Hawaii, when the index passenger was most symptomatic and on the longest flight. All persons with TST conversions were seated in the same section of the aircraft as the index passenger, suggesting that transmission was associated with seating proximity. Because the origins of all foreign-born passengers were countries in which TB is endemic and/or where BCG vaccine is routinely used, TST results from these passengers do not reliably represent recent infection. Among persons who could be contacted during the other investigations, low response rates constrained the interpretation of findings from those investigations.

Investigations such as those described in this report are subject to two substantial constraints. First, because the investigation may be initiated several weeks to months following the time of the flight and exposure, passengers may not be readily located. With the exception of persons who are enrolled in frequent flyer programs, airline companies do not routinely maintain residence addresses or telephone numbers for passengers. Second, the time elapsed between the flight and when public health authorities and airline companies become aware of an exposure and when passengers are notified and tested limits the use of TSTs to assess for conversion. To interpret prevalent positive TST results, other possible reasons for a positive TST result must be considered, including prior exposure to TB, residence or birth in countries in which TB is endemic, and BCG vaccination. In the United States, an estimated 4%–6% of the total population is TST positive (*4*), and in developing countries, the estimated prevalence of *M. tuberculosis* infection ranges from 19.4% (in the Eastern Mediterranean region) to 43.8% (in the Western Pacific region) (*5*).

To prevent exposures to TB aboard aircraft, when travel is necessary, persons known to have infectious TB should travel by private transportation (i.e., not by commercial aircraft or other commercial carrier). In addition, patients with infectious TB should at least be sputum smear-negative for AFB before being placed in indoor environments conducive to transmission (*6*). Three negative sputum smear examinations of specimens on separate days in a person on effective anti-TB therapy indicate an extremely low potential for transmission, and a negative culture virtually precludes potential for transmission (*6*). Decisions about a TB patient's infectiousness and ability to travel should be made on an individual basis.

The risk for *M. tuberculosis* transmission on an aircraft does not appear to be greater than in other confined spaces. Based on a consideration of current evidence indicating low risk for transmission of TB on aircraft, need for notification of passengers and flight crew members may be guided by three criteria. First, the person with TB was infectious at the time of the flight. Persons who, at the time of flight, are symptomatic with AFB smear-positive, cavitary pulmonary TB or laryngeal TB are most likely to be infectious. Evidence of transmission to household and other close contacts also indicates infectiousness. Second, exposure was prolonged (e.g., duration of flight exceeded 8 hours). Third, priority should be given to notifying passengers and flight crew who were at greatest risk for exposure based on proximity to the index passenger (for example, depending on the aircraft design, proximity may be defined as seating or working in the same cabin section as the infected passenger). Notification should be conducted by the airline in coordination with local and state TB-control programs.

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Prevention Program for Reducing Risk for Neural Tube Defects — South Carolina, 1992–1994

Neural tube defects (NTDs) are common and serious malformations that originate early in pregnancy. In the United States, approximately 4000 pregnancies each year are affected by the two most common NTDs (spina bifida and anencephaly), and an estimated 2500 infants are born with NTDs. Based on a Public Health Service (PHS) recommendation published in September 1992, at least one half of NTDs could be prevented if all women capable of becoming pregnant consumed 0.4 mg of folic acid daily during the periconceptional period (*1*). Women who have previously had an NTD-affected pregnancy would especially benefit from folic acid supplements (*2*). In 1992, with support from a CDC cooperative agreement, the South Carolina Department of Disabilities and Special Needs implemented a prevention program to reduce the incidence of folic acid-preventable NTDs in the pregnancies of women with prior NTD-affected pregnancies. This report describes surveillance findings resulting from this program during 1992–1994.

In October 1992, the NTD prevention program initiated a pilot surveillance system to monitor the occurrence of NTDs in the Piedmont Region of the state (1990 population: 1.1 million). Data about NTD cases were collected from hospital medical records, vital records, and prenatal diagnoses procedure records. In October 1993, the surveillance system was expanded statewide (1990 population: 3.5 million). During October 1992–September 1994, the surveillance system identified 105 NTD cases and 72,493 live-born infants, representing a rate of 14.5 cases per 10,000 resident live-born infants.

Of the 105 women identified as having had NTD-affected pregnancies, 71 participated in a personal interview about use of folic acid-containing supplements during the periconceptional period (i.e., 1 month before conception through the third month of pregnancy). Overall, six (8%) of the 71 women reported using a folic acid-containing multivitamin supplement during the periconceptional period, including four (7%) of the 54 women who had a last menstrual period after the PHS recommendation was issued, and two (12%) of the 17 women who had a last menstrual period before the PHS recommendation was issued.

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Editorial Note: During 1980–1990, an estimated 18,000 infants were born in the United States with spina bifida; by 1990, approximately 5000 (28%) of these children had died. Annual medical and surgical costs in the United States for all persons with spina bifida exceed $200 million. For each person with typical severe spina bifida, the estimated lifetime direct and indirect costs are $250,000 (*3*).

In 1992, PHS estimated that, if all women capable of becoming pregnant adhered to the recommendation to consume 0.4 mg of folic acid per day, the number of cases of spina bifida and anencephaly would be reduced by 50%. Consumption of a vitamin supplement containing the prescribed amount of folic acid is one method to ensure receipt of the proper dosage of folic acid. In 1992, an estimated 20% of all U.S. women were consuming a multivitamin containing 0.4 mg of folic acid (*4*). However, the findings in this report indicate that, among women with NTD-affected pregnancies in

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South Carolina who had conceived after issuance of the PHS recommendation, only 7% had consumed 0.4 mg of folic acid during the periconceptional period. In addition, among a sample of 60 women in South Carolina who had given birth to infants without NTDs during October 1992–September 1994, seven (12%) reported using folic acid-containing vitamin supplements during the periconceptional period (Greenwood Genetic Center, Greenwood, South Carolina, unpublished data, 1994). These findings suggest that overall use of folic acid-containing supplements in South Carolina is lower than the 1992 PHS estimate of use among the total population of U.S. women (*4*).

The findings in this report underscore the need for increased efforts in South Carolina to 1) publicize the benefits and promote the use of increased folic acid consumption during the periconceptional period, 2) encourage women of childbearing age to increase their folic acid consumption, and 3) ensure that all women have the opportunity to increase their consumption of folic acid. Since promulgation of the 1992 PHS recommendation, public and private health-care and advocacy organizations in South Carolina have initiated information and education campaigns to promote consumption of folic acid among women of childbearing age. In addition, educational programs have been designed and implemented to communicate information about the protective benefits of folic acid to health professionals, public school educators, and the public.

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Vaccination Coverage of 2-Year-Old Children — United States, January–March, 1994

The Childhood Immunization Initiative (CII)* was initiated to increase vaccination coverage among 2-year-old children. The 1996 objective is to have at least 90% coverage for four of the five critical vaccines routinely recommended for children (i.e., one dose of measles-mumps-rubella vaccine [MMR] and at least three doses each of diphtheria and tetanus toxoids and pertussis vaccine [DTP], oral poliovirus vaccine, and *Haemophilus influenzae* type b vaccine [Hib]), and at least 70% coverage for three doses of hepatitis B vaccine (Hep B) (*1*). These objectives are an interim step toward the year 2000 goal of at least 90% coverage for the recommended series of vaccinations and are being monitored on an ongoing basis. This report presents national estimates of vaccination coverage among 2-year-old children derived from provi-

*The purposes of CII are to 1) improve delivery of vaccines to children; 2) reduce the cost of vaccines for parents; 3) enhance awareness, partnerships, and community participation to improve vaccination coverage; 4) monitor vaccination coverage and occurrence of disease; and 5) improve vaccines and their use.

Vaccination of Children — Continued

sional data from the National Health Interview Survey (NHIS) for the first quarter of 1994 and compares these with the last two quarters of 1993.

The NHIS, a probability sample of the civilian, noninstitutionalized U.S. population, provides quarterly data that enables calculation of national coverage estimates (*2*). Quarterly estimates for children aged 19–35 months were based on sample sizes of 483 (third quarter 1993), 490 (fourth quarter 1993), and 608 (first quarter 1994). Children included in the survey during the first quarter of 1994 were born during February 1991–August 1992; their median age was 27 months. For the last two quarters in 1993, 37% of NHIS respondents used a vaccination record for reporting vaccination information; for the first quarter of 1994, the use of vaccination records increased to 52%. For the other respondents, such records were unavailable, and information was based on parental recall. Overall, 12%–16% of respondents were excluded because they either reported not knowing whether a child had received a particular vaccination or did not know the number of doses the child had received. Confidence intervals were calculated using SUDAAN.

During the first quarter of 1994, vaccination coverage levels for children aged 19–35 months ranged from 89.6% for measles-containing vaccine (MCV) to 25.5% for Hep B vaccine (Table 1). Coverage for the most critical doses for the 1996 objective ranged from 70.6% (≥3 doses Hib) to 89.6% (MCV). Coverage for the year 2000 goal for the combined series of four doses of DTP, three doses of polio vaccine, and one dose of MCV was 66.0%.

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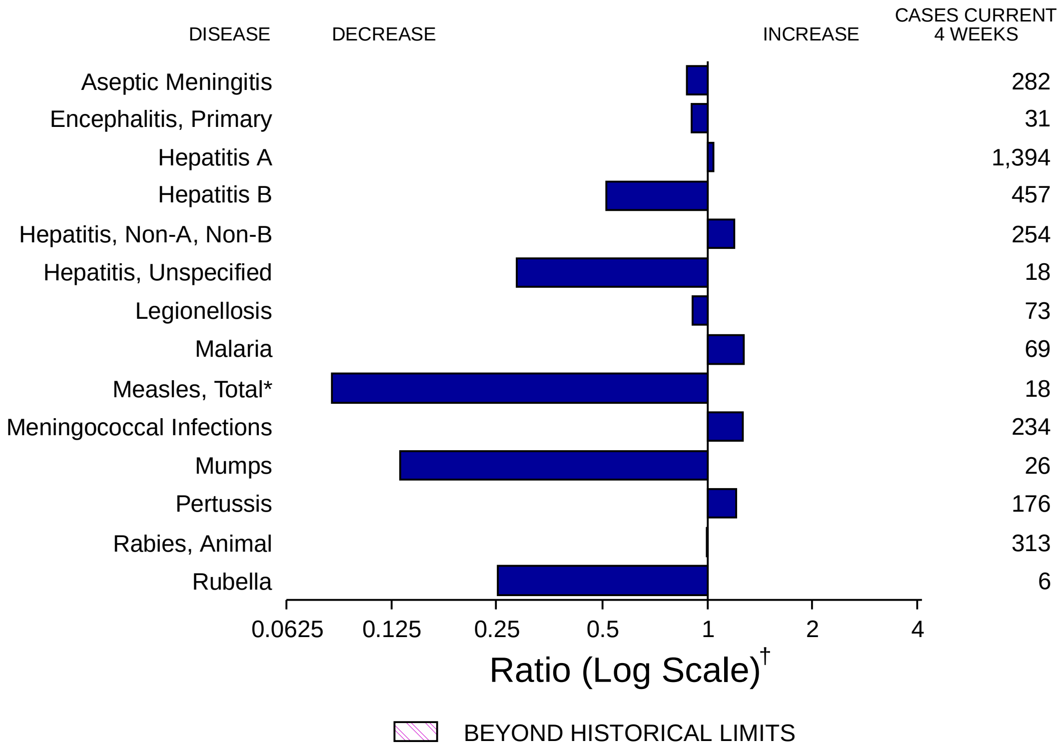
TABLE 1. Vaccination levels among children aged 19–35 months, by selected vaccines — United States, third and fourth quarters 1993 and first quarter 1994

	Third quarter 1993		Fourth quarter 1993		First quarter 1994	
Vaccine	**%**	**(95% CI*)**	**%**	**(95% CI)**	**%**	**(95% CI)**
DTP/DT†						
≥3 Doses	89.9	(86.9%–93.9%)	88.1	(84.6%–91.6%)	87.0	(83.2%–90.8%)
≥4 Doses	74.8	(69.9%–79.7%)	71.6	(66.4%–76.7%)	67.2	(62.8%–71.7%)
Poliovirus						
≥3 Doses	80.4	(75.8%–84.9%)	78.5	(73.9%–83.0%)	76.0	(71.9%–80.2%)
***Haemophilus influenzae* type b§**						
≥3 Doses	60.3	(55.0%–65.7%)	58.3	(53.1%–63.5%)	70.6	(65.9%–75.3%)
Measles-containing vaccine (MCV)	85.9	(82.0%–89.8%)	86.9	(83.3%–90.5%)	89.6	(87.0%–92.2%)
Hepatitis B¶						
≥3 Doses	15.7	(12.1%–19.2%)	22.5	(17.8%–27.1%)	25.5	(20.2%–30.8%)
3 DTP/3 Polio/1 MCV**	78.7	(74.2%–83.2%)	74.3	(69.4%–79.2%)	75.5	(71.1%–80.0%)
4 DTP/3 Polio/1 MCV††	71.6	(66.7%–76.4%)	66.4	(61.1%–71.7%)	66.0	(61.4%–70.6%)

*Confidence interval.
†Diphtheria and tetanus toxoids and pertussis vaccine/Diphtheria and tetanus toxoids.
§January–March 1994 was the first time all surveyed children were born after the recommendation for the series.
¶Children born after the recommendation for universal vaccination varied by quarter: 12% for third quarter 1993, 29% for fourth quarter 1993, and 47% for first quarter 1994.
**Three doses of DTP/DT, three doses of poliovirus, and one dose of MCV.
††Four doses of DTP/DT, three doses of poliovirus, and one dose of MCV.

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending February 25, 1995, with historical data — United States



*The large apparent decrease in the number of reported cases of measles (total) reflects dramatic fluctuations in the historical baseline.

†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.

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending February 25, 1995 (8th Week)

	Cum. 1995		Cum. 1995
Anthrax	-	Plague	-
Aseptic Meningitis	569	Poliomyelitis, Paralytic	-
Brucellosis	10	Psittacosis	4
Cholera	-	Rabies, human	-
Congenital rubella syndrome	2	Rocky Mountain Spotted Fever	15
Diphtheria	-	Syphilis, congenital, age < 1 year†	-
Encephalitis, primary	65	Tetanus	3
Encephalitis, post-infectious	13	Toxic shock syndrome	28
*Haemophilus influenzae**	214	Trichinosis	2
Hansen Disease	13	Tularemia	3
Hepatitis, unspecified	34	Typhoid fever	37
Leptospirosis	11		

*Of 209 cases of known age, 47 (22%) were reported among children less than 5 years of age.
†Updated quarterly from reports to the Division of Sexually Transmitted Diseases and HIV Prevention, National Center for Prevention Services. First quarter data not yet available.
-: no reported cases

TABLE II. Cases of selected notifiable diseases, United States, weeks ending February 25, 1995, and February 26, 1994 (8th Week)

Reporting Area	AIDS*	Gonorrhea		Hepatitis (Viral), by type: A		B		NA,NB		Legionellosis	
	Cum. 1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	5,574	50,447	56,666	2,971	2,966	906	1,694	401	576	150	236
NEW ENGLAND	312	911	1,275	24	45	33	44	7	16	1	2
Maine	15	8	5	6	3	1	-	-	-	-	-
N.H.	5	18	7	1	2	2	4	-	3	-	-
Vt.	1	4	5	-	-	-	-	-	-	-	-
Mass.	199	512	465	4	23	5	28	7	7	1	-
R.I.	9	92	69	6	10	6	2	-	6	-	2
Conn.	83	277	724	7	7	19	10	-	-	-	-
MID. ATLANTIC	1,729	2,990	5,738	119	204	87	202	42	76	13	25
Upstate N.Y.	186	730	833	23	42	35	43	22	23	3	4
N.Y. City	934	1,493	2,646	59	92	15	43	1	1	-	-
N.J.	379	759	349	20	41	23	55	13	41	4	4
Pa.	230	8	1,910	17	29	14	61	6	11	6	17
E.N. CENTRAL	484	11,929	11,156	454	330	101	227	32	61	43	94
Ohio	32	4,460	4,490	348	84	13	33	1	1	26	33
Ind.	38	1,015	1,286	22	59	20	42	1	2	6	32
Ill.	243	2,990	1,549	20	106	5	54	2	17	1	6
Mich.	140	3,102	2,767	54	46	63	59	28	41	7	16
Wis.	31	362	1,064	10	35	-	39	-	-	3	7
W.N. CENTRAL	102	2,903	3,067	105	134	37	78	12	6	11	17
Minn.	25	492	551	9	10	1	6	-	1	-	-
Iowa	4	220	146	8	5	9	3	2	-	2	13
Mo.	51	1,655	1,449	75	83	25	62	7	2	9	2
N. Dak.	-	-	3	2	1	-	-	-	-	-	-
S. Dak.	-	29	22	-	4	-	-	1	-	-	-
Nebr.	12	-	242	2	23	2	3	-	-	-	1
Kans.	10	507	654	9	8	-	4	2	3	-	1
S. ATLANTIC	1,347	17,369	15,761	152	175	151	403	52	109	32	41
Del.	29	322	241	2	3	1	3	-	-	-	-
Md.	184	2,579	2,976	30	31	30	47	3	10	10	8
D.C.	77	847	949	1	6	7	10	-	-	1	-
Va.	136	1,684	2,164	34	18	12	15	-	6	-	2
W. Va.	4	110	106	5	2	11	4	14	2	3	1
N.C.	82	4,227	4,204	17	16	43	63	12	11	7	2
S.C.	77	1,951	1,855	2	6	3	7	-	-	3	1
Ga.	235	2,406	-	5	11	5	191	6	64	2	18
Fla.	523	3,243	3,266	56	82	39	63	17	16	6	9
E.S. CENTRAL	139	6,242	6,648	63	146	79	208	70	150	4	26
Ky.	7	708	692	10	44	7	24	1	5	1	2
Tenn.	76	435	1,696	24	17	52	171	68	144	1	7
Ala.	35	3,639	2,626	23	9	20	13	1	1	1	2
Miss.	21	1,460	1,634	6	76	-	-	-	-	1	15
W.S. CENTRAL	379	4,241	6,503	248	298	93	133	57	30	3	2
Ark.	20	345	945	12	8	1	4	-	1	-	1
La.	90	1,975	2,389	10	9	6	16	3	3	1	-
Okla.	35	14	630	85	36	49	47	52	25	2	1
Tex.	234	1,907	2,539	141	245	37	66	2	1	-	-
MOUNTAIN	171	1,259	1,329	655	598	88	88	54	62	26	19
Mont.	7	19	23	10	7	4	2	2	-	1	6
Idaho	5	26	11	68	49	14	9	6	17	2	-
Wyo.	1	7	20	26	3	1	3	22	12	-	-
Colo.	76	469	530	99	55	18	17	12	17	11	4
N. Mex.	7	186	155	139	143	29	31	5	4	-	1
Ariz.	37	448	267	150	262	15	16	5	4	8	1
Utah	5	1	50	139	48	2	4	2	4	2	-
Nev.	33	103	273	24	31	5	6	-	4	2	7
PACIFIC	911	2,603	5,189	1,151	1,036	237	311	75	66	17	10
Wash.	91	405	477	43	65	12	13	11	11	-	2
Oreg.	58	18	200	206	54	14	11	3	2	-	-
Calif.	704	1,999	4,350	881	872	207	274	53	50	15	7
Alaska	18	117	74	13	38	1	1	-	-	-	-
Hawaii	40	64	88	8	7	3	12	8	3	2	1
Guam	-	3	25	-	-	-	-	-	-	-	-
P.R.	65	52	92	10	1	106	24	105	6	-	-
V.I.	-	3	4	-	-	1	1	-	-	-	-
Amer. Samoa	-	4	4	4	2	-	-	-	-	-	-
C.N.M.I.	-	-	13	-	1	-	-	-	-	-	-

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly to the Division of HIV/AIDS, National Center for Infectious Diseases; last update January 26, 1995.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending February 25, 1995, and February 26, 1994 (8th Week)

Reporting Area	Lyme Disease		Malaria		Measles (Rubeola)						Meningococcal Infections		Mumps	
					Indigenous		Imported*		Total					
	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	1995	Cum. 1995	1995	Cum. 1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	444	460	117	145	11	29	1	1	30	42	453	557	85	216
NEW ENGLAND	14	38	7	14	-	2	1	1	3	1	33	25	-	7
Maine	-	-	-	1	-	-	-	-	-	-	2	5	-	3
N.H.	-	2	-	2	-	-	-	-	-	-	6	1	-	2
Vt.	-	1	-	-	-	-	-	-	-	-	-	1	-	-
Mass.	14	7	1	4	-	-	1	1	1	1	15	8	-	-
R.I.	-	6	2	4	-	2	-	-	2	-	-	-	-	-
Conn.	-	22	4	3	-	-	-	-	-	-	10	10	-	2
MID. ATLANTIC	351	346	21	26	-	1	-	-	1	7	31	40	9	22
Upstate N.Y.	175	265	3	9	-	-	-	-	-	1	18	14	3	3
N.Y. City	-	9	9	4	-	1	-	-	1	1	-	-	-	-
N.J.	26	56	7	10	-	-	-	-	-	4	11	12	-	4
Pa.	150	16	2	3	-	-	-	-	-	1	2	14	6	15
E.N. CENTRAL	8	4	12	18	-	-	-	-	-	12	61	91	14	59
Ohio	8	4	1	2	-	-	-	-	-	9	20	21	7	8
Ind.	-	-	1	4	-	-	-	-	-	-	9	17	-	2
Ill.	-	-	9	8	-	-	-	-	-	-	24	29	-	38
Mich.	-	-	1	3	-	-	-	-	-	-	8	9	7	10
Wis.	-	-	-	1	-	-	-	-	-	3	-	15	-	1
W.N. CENTRAL	7	6	4	5	-	-	-	-	-	-	21	40	4	6
Minn.	-	1	3	-	-	-	-	-	-	-	1	1	-	-
Iowa	-	1	-	1	-	-	-	-	-	-	7	3	1	1
Mo.	-	3	1	4	-	-	-	-	-	-	9	26	3	4
N. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	-	1
S. Dak.	-	-	-	-	-	-	-	-	-	-	-	3	-	-
Nebr.	-	-	-	-	-	-	-	-	-	-	1	1	-	-
Kans.	7	1	-	-	-	-	-	-	-	-	3	6	-	-
S. ATLANTIC	50	43	32	31	-	-	-	-	-	3	91	91	13	36
Del.	1	5	1	2	-	-	-	-	-	-	1	-	-	-
Md.	39	5	5	4	-	-	-	-	-	-	2	7	-	7
D.C.	-	-	3	5	-	-	-	-	-	-	1	1	-	-
Va.	1	8	5	5	-	-	-	-	-	-	8	11	4	4
W. Va.	5	3	-	-	-	-	-	-	-	-	-	6	-	2
N.C.	3	13	4	1	-	-	-	-	-	-	11	16	3	15
S.C.	1	-	-	1	-	-	-	-	-	-	14	4	1	4
Ga.	-	9	4	5	-	-	-	-	-	-	26	12	-	2
Fla.	-	-	10	8	-	-	-	-	-	3	28	34	5	2
E.S. CENTRAL	1	6	1	4	-	-	-	-	-	15	23	76	3	8
Ky.	-	5	-	-	-	-	-	-	-	-	9	12	-	-
Tenn.	-	-	-	2	-	-	-	-	-	15	2	10	-	-
Ala.	-	1	1	1	-	-	-	-	-	-	8	17	2	-
Miss.	1	-	-	1	-	-	-	-	-	-	4	37	1	8
W.S. CENTRAL	-	-	1	4	-	-	-	-	-	1	53	51	5	35
Ark.	-	-	1	-	-	-	-	-	-	-	4	4	-	-
La.	-	-	-	-	-	-	-	-	-	-	5	2	1	1
Okla.	-	-	-	-	-	-	-	-	-	-	6	7	-	5
Tex.	-	-	-	4	-	-	-	-	-	1	38	38	4	29
MOUNTAIN	2	4	8	3	11	26	-	-	26	-	39	40	5	6
Mont.	-	-	1	-	-	-	-	-	-	-	1	2	-	-
Idaho	-	1	-	-	-	-	-	-	-	-	1	4	-	2
Wyo.	-	-	-	-	-	-	-	-	-	-	1	1	-	-
Colo.	1	-	5	1	-	-	-	-	-	-	10	3	-	-
N. Mex.	-	3	2	1	11	21	-	-	21	-	7	3	N	N
Ariz.	-	-	-	-	-	5	-	-	5	-	17	18	1	-
Utah	-	-	-	1	-	-	-	-	-	-	1	7	1	1
Nev.	1	-	-	-	-	-	-	-	-	-	1	2	3	3
PACIFIC	11	13	31	40	-	-	-	-	-	3	101	103	32	37
Wash.	-	-	4	1	-	-	-	-	-	-	13	7	1	1
Oreg.	-	-	3	1	-	-	-	-	-	-	25	19	N	N
Calif.	11	13	22	33	-	-	-	-	-	3	62	73	28	33
Alaska	-	-	1	-	-	-	-	-	-	-	-	1	2	2
Hawaii	-	-	1	5	-	-	-	-	-	-	1	3	1	1
Guam	-	-	-	-	U	-	U	-	-	1	-	-	-	1
P.R.	-	-	-	-	-	-	-	-	-	5	9	2	-	1
V.I.	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Amer. Samoa	-	-	-	-	U	-	U	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	1	U	-	U	-	-	22	-	-	-	-

*For imported measles, cases include only those resulting from importation from other countries.

N: Not notifiable U: Unavailable -: no reported cases

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending February 25, 1995, and February 26, 1994 (8th Week)

Reporting Area	Pertussis			Rubella			Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal	
	1995	Cum. 1995	Cum. 1994	1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	63	398	612	-	11	39	2,288	3,108	1,747	2,405	756	746
NEW ENGLAND	4	32	46	-	1	25	29	28	29	35	226	202
Maine	-	5	2	-	-	-	-	-	-	-	-	-
N.H.	3	4	13	-	-	-	1	-	1	1	33	20
Vt.	-	2	7	-	-	-	-	-	-	-	28	14
Mass.	-	18	20	-	1	25	12	8	11	7	108	90
R.I.	-	-	2	-	-	-	-	4	6	6	-	5
Conn.	1	3	2	-	-	-	16	16	11	21	57	73
MID. ATLANTIC	1	23	104	-	-	2	141	229	274	276	195	190
Upstate N.Y.	1	19	26	-	-	2	11	16	16	51	132	113
N.Y. City	-	4	8	-	-	-	92	147	144	143	-	-
N.J.	-	-	7	-	-	-	31	23	60	53	37	43
Pa.	-	-	63	-	-	-	7	43	54	29	26	34
E.N. CENTRAL	1	52	165	-	-	4	389	405	230	207	1	3
Ohio	1	23	49	-	-	-	121	158	41	36	1	-
Ind.	-	1	12	-	-	-	35	53	4	16	-	-
Ill.	-	-	62	-	-	4	143	81	135	113	-	-
Mich.	-	28	9	-	-	-	62	55	46	35	-	1
Wis.	-	-	33	-	-	-	28	58	4	7	-	2
W.N. CENTRAL	1	11	13	-	-	-	122	200	50	41	34	17
Minn.	-	-	-	-	-	-	6	8	10	7	2	-
Iowa	-	1	-	-	-	-	10	9	15	4	10	10
Mo.	-	2	6	-	-	-	106	181	15	22	6	2
N. Dak.	-	1	-	-	-	-	-	-	-	1	4	-
S. Dak.	1	2	-	-	-	-	-	-	-	4	7	1
Nebr.	-	-	1	-	-	-	-	2	-	-	-	-
Kans.	-	5	6	-	-	-	-	-	10	3	5	4
S. ATLANTIC	7	43	81	-	1	3	554	877	284	450	237	227
Del.	-	1	-	-	-	-	4	2	-	2	10	2
Md.	-	-	27	-	-	-	22	38	67	39	58	76
D.C.	-	1	1	-	-	-	26	32	16	18	1	1
Va.	-	-	9	-	-	-	86	102	10	52	44	51
W. Va.	-	-	1	-	-	-	-	5	13	9	11	7
N.C.	-	30	26	-	-	-	186	309	17	14	51	17
S.C.	6	7	5	-	-	-	90	100	45	68	14	18
Ga.	-	1	5	-	-	-	66	141	40	104	36	50
Fla.	1	3	7	-	1	3	74	148	76	144	12	5
E.S. CENTRAL	-	9	29	-	-	-	675	601	111	382	27	33
Ky.	-	-	3	-	-	-	40	40	19	29	3	-
Tenn.	-	-	13	-	-	-	59	140	-	42	11	16
Ala.	-	9	5	-	-	-	97	108	65	54	13	17
Miss.	-	-	8	-	-	-	479	313	27	257	-	-
W.S. CENTRAL	4	10	23	-	-	-	342	604	50	129	10	10
Ark.	-	-	-	-	-	-	94	77	24	15	-	3
La.	-	-	1	-	-	-	174	318	-	-	8	-
Okla.	-	-	19	-	-	-	20	24	1	11	2	7
Tex.	4	10	3	-	-	-	54	185	25	103	-	-
MOUNTAIN	35	154	35	-	2	-	35	37	86	81	7	13
Mont.	-	2	-	-	-	-	2	-	-	-	3	1
Idaho	-	30	14	-	-	-	-	-	2	2	-	-
Wyo.	-	-	-	-	-	-	2	-	-	-	-	4
Colo.	-	-	13	-	-	-	21	20	-	2	-	-
N. Mex.	1	4	2	-	-	-	1	1	13	15	-	-
Ariz.	33	116	5	-	2	-	9	9	38	45	4	8
Utah	-	-	1	-	-	-	-	4	3	-	-	-
Nev.	1	2	-	-	-	-	-	3	30	17	-	-
PACIFIC	10	64	116	-	7	5	1	127	633	804	19	51
Wash.	7	11	10	-	-	-	1	2	34	34	-	-
Oreg.	1	1	12	-	-	-	-	-	3	15	-	-
Calif.	2	49	91	-	7	5	-	125	564	713	18	38
Alaska	-	-	-	-	-	-	-	-	6	12	1	13
Hawaii	-	3	3	-	-	-	-	-	26	30	-	-
Guam	U	-	-	U	-	-	-	1	4	7	-	-
P.R.	-	1	-	-	-	-	32	61	-	-	8	10
V.I.	-	-	-	-	-	-	-	1	-	-	-	-
Amer. Samoa	U	-	-	U	-	-	-	-	1	-	-	-
C.N.M.I.	U	-	-	U	-	-	-	-	-	12	-	-

U: Unavailable -: no reported cases

TABLE III. Deaths in 121 U.S. cities,* week ending February 25, 1995 (8th Week)

Reporting Area	All Causes, By Age (Years)						P&I[†] Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	687	493	114	58	10	12	64
Boston, Mass.	194	125	30	25	6	8	19
Bridgeport, Conn.	37	27	7	3	-	-	5
Cambridge, Mass.	35	21	9	5	-	-	6
Fall River, Mass.	19	18	1	-	-	-	-
Hartford, Conn.	41	24	11	5	-	1	2
Lowell, Mass.	42	33	5	2	1	1	2
Lynn, Mass.	11	10	1	-	-	-	-
New Bedford, Mass.	28	23	3	2	-	-	3
New Haven, Conn.	48	32	8	6	1	1	3
Providence, R.I.	63	46	13	3	1	-	6
Somerville, Mass.	9	4	3	2	-	-	-
Springfield, Mass.	39	31	7	-	-	1	6
Waterbury, Conn.	50	41	6	2	1	-	3
Worcester, Mass.	71	58	10	3	-	-	9
MID. ATLANTIC	2,670	1,803	483	290	55	39	133
Albany, N.Y.	50	34	9	3	2	2	7
Allentown, Pa.	21	14	5	2	-	-	1
Buffalo, N.Y.	108	78	17	10	1	2	-
Camden, N.J.	26	16	6	2	1	1	2
Elizabeth, N.J.	49	33	9	6	1	-	2
Erie, Pa.[§]	43	35	8	-	-	-	2
Jersey City, N.J.	54	38	10	6	-	-	-
New York City, N.Y.	1,520	989	298	182	30	21	60
Newark, N.J.	67	37	14	14	1	1	4
Paterson, N.J.	40	21	9	10	-	-	4
Philadelphia, Pa.	216	134	37	31	10	4	13
Pittsburgh, Pa.[§]	81	58	12	5	2	4	4
Reading, Pa.	22	17	2	3	-	-	2
Rochester, N.Y.	137	115	16	2	3	1	13
Schenectady, N.Y.	30	25	3	2	-	-	2
Scranton, Pa.[§]	35	30	3	2	-	-	3
Syracuse, N.Y.	74	60	8	3	2	1	7
Trenton, N.J.	41	25	11	3	-	2	3
Utica, N.Y.	33	25	4	3	1	-	1
Yonkers, N.Y.	23	19	2	1	1	-	3
E.N. CENTRAL	2,391	1,580	439	208	110	51	168
Akron, Ohio	58	45	5	4	1	3	-
Canton, Ohio	39	29	6	2	1	1	7
Chicago, Ill.	465	214	87	89	63	12	28
Cincinnati, Ohio	145	101	38	3	1	2	14
Cleveland, Ohio	155	109	29	12	2	3	5
Columbus, Ohio	192	134	38	11	4	5	23
Dayton, Ohio	119	99	7	8	3	2	7
Detroit, Mich.	268	163	60	26	9	8	9
Evansville, Ind.	40	32	3	4	-	1	1
Fort Wayne, Ind.	59	46	11	2	-	-	3
Gary, Ind.	19	9	3	6	1	-	-
Grand Rapids, Mich.	48	36	9	1	-	1	6
Indianapolis, Ind.	206	145	40	10	5	6	21
Madison, Wis.	59	37	14	3	3	2	6
Milwaukee, Wis.	184	133	27	13	9	2	11
Peoria, Ill.	42	34	7	1	-	-	8
Rockford, Ill.	50	38	9	1	1	1	4
South Bend, Ind.	64	48	9	4	3	-	5
Toledo, Ohio	115	79	24	7	3	2	6
Youngstown, Ohio	64	49	13	1	1	-	4
W.N. CENTRAL	814	575	134	43	29	16	60
Des Moines, Iowa	86	63	18	2	2	1	13
Duluth, Minn.	22	14	4	3	1	-	6
Kansas City, Kans.	36	26	4	4	1	-	2
Kansas City, Mo.	125	72	22	9	3	3	10
Lincoln, Nebr.	33	27	5	-	1	-	7
Minneapolis, Minn.	154	111	25	11	2	5	9
Omaha, Nebr.	97	69	16	5	3	4	2
St. Louis, Mo.	145	107	22	6	8	2	-
St. Paul, Minn.	57	43	11	-	2	1	7
Wichita, Kans.	59	43	7	3	6	-	4
S. ATLANTIC	1,362	867	306	130	31	24	90
Atlanta, Ga.	193	107	54	24	6	2	9
Baltimore, Md.	172	120	29	19	2	1	12
Charlotte, N.C.	80	55	17	5	2	1	11
Jacksonville, Fla.	139	96	26	13	2	2	11
Miami, Fla.	101	58	23	15	2	3	-
Norfolk, Va.	57	38	9	8	1	1	4
Richmond, Va.	66	43	21	1	-	1	5
Savannah, Ga.	48	23	10	8	4	3	1
St. Petersburg, Fla.	56	44	7	4	1	-	3
Tampa, Fla.	216	148	49	13	2	4	26
Washington, D.C.	218	123	60	20	9	6	8
Wilmington, Del.	16	12	1	-	-	-	-
E.S. CENTRAL	828	579	148	66	18	17	69
Birmingham, Ala.	118	80	15	14	3	6	8
Chattanooga, Tenn.	72	52	9	9	1	1	6
Knoxville, Tenn.	86	64	16	4	-	2	10
Lexington, Ky.	58	39	14	1	4	-	10
Memphis, Tenn.	186	128	39	13	4	2	15
Mobile, Ala.	108	77	19	7	3	2	3
Montgomery, Ala.	58	38	11	5	3	1	10
Nashville, Tenn.	142	101	25	13	-	3	7
W.S. CENTRAL	1,453	911	303	159	58	21	97
Austin, Tex.	78	46	11	14	6	1	4
Baton Rouge, La.	55	37	12	6	-	-	1
Corpus Christi, Tex.	40	33	3	2	2	-	-
Dallas, Tex.	213	120	53	29	10	1	3
El Paso, Tex.	107	66	25	10	3	3	10
Ft. Worth, Tex.	110	67	24	15	1	2	10
Houston, Tex.	314	191	72	34	16	1	32
Little Rock, Ark.	66	38	17	5	3	3	14
New Orleans, La.	118	68	25	13	9	3	-
San Antonio, Tex.	218	148	38	23	6	3	12
Shreveport, La.	55	36	10	5	1	3	3
Tulsa, Okla.	79	61	13	3	1	1	8
MOUNTAIN	818	553	157	55	28	19	68
Albuquerque, N.M.	97	69	17	5	4	2	4
Colo. Springs, Colo.	44	30	6	2	3	3	1
Denver, Colo.	115	81	20	10	1	3	12
Las Vegas, Nev.	173	110	41	10	10	1	15
Ogden, Utah	36	21	9	3	2	1	2
Phoenix, Ariz.	82	47	18	8	-	4	8
Pueblo, Colo.	35	31	2	2	-	-	8
Salt Lake City, Utah	107	68	20	11	6	2	8
Tucson, Ariz.	129	96	24	4	2	3	10
PACIFIC	1,841	1,226	336	165	48	44	151
Berkeley, Calif.	16	13	2	1	-	-	-
Fresno, Calif.	78	47	15	12	1	3	3
Glendale, Calif.	32	20	7	5	-	-	3
Honolulu, Hawaii	72	48	16	7	-	1	9
Long Beach, Calif.	74	55	11	5	-	3	9
Los Angeles, Calif.	469	289	92	52	24	9	21
Pasadena, Calif.	26	19	3	2	2	-	3
Portland, Oreg.	134	97	24	7	3	3	5
Sacramento, Calif.	138	91	26	7	6	8	9
San Diego, Calif.	165	113	30	12	5	5	21
San Francisco, Calif.	171	101	32	17	-	2	13
San Jose, Calif.	189	127	40	13	5	4	27
Santa Cruz, Calif.	37	28	5	4	-	-	8
Seattle, Wash.	121	89	16	13	-	3	8
Spokane, Wash.	53	37	8	5	1	2	5
Tacoma, Wash.	66	52	9	3	1	1	7
TOTAL	12,864[¶]	8,587	2,420	1,174	387	243	900

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. 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 these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

[¶]Total includes unknown ages.

U: Unavailable -: no reported cases

Vaccination of Children — Continued

During the last two quarters of 1993 and the first quarter of 1994, vaccination levels have remained statistically unchanged for the combined series and individual antigens with the exception of Hib and Hep B. For the first quarter of 1994, coverage with three doses of Hib vaccine increased significantly from the third quarter of 1993 to a record high of 70.6%, and Hep B coverage increased from 15.7% in the third quarter of 1993 to 25.5% during the first quarter of 1994.

Reported by: Assessment Br, Div of Data Management, National Immunization Program, CDC.

Editorial Note: The findings in this report document recent statistically significant increases in the national vaccination levels for Hib and Hep B. In addition, vaccination levels are near the highest ever recorded for three doses of DTP, three doses of polio vaccine, and one dose of MCV and for the combined series. Despite these improved levels of coverage, however, the findings in this report indicate that coverage levels are 3–19 percentage points below the interim objectives for DTP, polio, and Hib. Coverage levels for Hep B vaccine are the furthest from the 1996 goal. However, because recommendations for universal Hep B vaccination of infants became effective in November 1991, only approximately half of the children in the survey were eligible for Hep B vaccine. An estimated 2 million children aged 19–35 months still need one or more doses of DTP, polio, or MMR vaccine to be completely vaccinated with the combined series of four doses of DTP, three doses of polio vaccine, and one dose of MCV.

The levels for three doses of DTP, three doses of polio vaccine, one dose of MCV, and for the combined series have been constant for three quarters, suggesting that coverage levels may have plateaued. However, such data should be interpreted with caution; the larger number of children in the annual samples provides greater precision for those estimates than the quarterly samples.

To achieve the interim objective for 1996, efforts to implement CII must be accelerated. In particular, as emphasized by the Standards for Pediatric Immunization Practices (*3*), providers should use all opportunities to vaccinate children, regardless of the reason for the visit (e.g., sick- or well-child visit)—taking advantage of missed opportunities potentially may increase coverage by 8–22 percentage points (*4,5*). Because health-care providers may believe coverage levels within their practices are higher than actual levels (*6*), CDC recommends that providers conduct coverage level assessments; information obtained from such assessments will assist providers in recognizing undervaccination in their practices and in instituting measures to increase coverage. In addition, providers should inform parents about the specific number of vaccine doses needed before age two years (11–15 doses), and parents should be encouraged to review their child's vaccination status at each visit to a health-care provider.

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Use of Safety Belts — Madrid, Spain, 1994

An estimated 300,000 persons die and 10–15 million persons are injured each year in traffic crashes throughout the world (*1*). In Spain, during 1993, motor-vehicle crashes accounted for 6378 deaths (16 per 100,000 population) and were the leading cause of death for persons aged 1–44 years and the leading cause of years of potential life lost (*2*). Safety belts are 40%–70% effective in preventing severe injuries and deaths associated with motor-vehicle crashes (*3*). In April 1975, the Traffic Safety Administration of Spain implemented a mandatory safety-belt–use law for persons who were front-seat passengers traveling outside city limits (i.e., interurban traffic). On June 15, 1992, the law was expanded to include all front-seat passengers traveling in vehicles in the city limits and passengers in the back seats of vehicles with manufacturer-installed safety belts (*4*). In September 1994, the Ministry of Health of Spain, in collaboration with the Traffic Safety Administration, conducted surveys to assess the impact of the expanded law. This report summarizes findings of this assessment in Madrid, including the first direct observation survey of safety-belt use by front-seat occupants and a telephone sample survey of knowledge, attitudes, and behaviors related to motor-vehicle use.

Observational Survey

The observational survey was conducted at five city intersections and five intersections at principal gates leading out of the city. At each site, two persons began observations by selecting the second vehicle in a stopped position and observing three consecutive vehicles per traffic light cycle. At each site, approximately 400 vehicles were observed, including approximately 100 observations (50 in each direction) during each of four time periods (weekday 8–10 a.m., weekday 7–9 p.m., weekend 8–10 a.m., and weekend 7–9 p.m.). Each front-seat occupant was counted separately. Vehicles exempted from the law (taxis and public service vehicles) were excluded.

Of the 4069 total observations, 2381 (58.5% [95% confidence interval (CI)=57.0%–60.1%) of front-seat occupants were using safety belts (Table 1). The overall prevalence of use at the interurban city gates was 67.2% (range: 58.2%–80.0%) while the prevalence within the city was 50.1% (range: 43.5%–59.1%) (prevalence ratio [PR]=1.3; $p<0.05$). The prevalence of safety-belt use was greater among women than men (61.9% and 56.7% [PR=1.1; $p<0.05$]) but similar when compared by intersection, day of week, hour of day, and seat position of vehicle occupant (*5,6*).

Telephone Survey

The Madrid city residential telephone directory was used to obtain a random sample of eligible potential respondents. Interviewers obtained information from respondents aged ≥18 years about the number of persons aged ≥18 years at home.

Safety Belts — Continued

TABLE 1. Prevalence of safety-belt use, by selected characteristics of front-seat occupants in an observational survey — Madrid, Spain, September 1994

Characteristic	No. observed*	Used safety belts No.	(%)	PR†	(95% CI§)
Sex					
Women	1441	892	(61.9)	1.2	(1.1–1.4)
Men	2628	1489	(56.7)		
Intersection					
Interurban¶	2018	1356	(67.2)	2.1	(1.8–2.3)
City	2049	1025	(50.0)		
Day of week					
Weekend	2042	1209	(57.9)	1.0	(0.8–1.1)
Weekday	1925	1072	(59.3)		
Hour of day					
8–10 a.m.	2030	1172	(57.7)	0.9	(0.8–1.1)
7– 9 p.m.	2037	1209	(59.3)		
Seat position					
Driver	2897	1673	(57.7)	0.9	(0.8–1.0)
Passenger	1170	708	(60.5)		
Total	**4069**	**2381**	**(58.5)**		

*Numbers may not add to totals because of missing information.
†Prevalence ratio.
§Confidence interval.
¶Outside city limits.

Of 1063 phone numbers called to identify eligible households, 294 (27.7%) could not be contacted (no one answered or the line was busy), and 185 were excluded (because either the phone number was commercial [37], or no one aged ≥18 years was in the home at the time of the call, or respondents never traveled by vehicle [185]). Categories of safety-belt use included always, almost always, sometimes, seldom, and never. Those who reported always wearing safety belts were considered users for the analysis (*7*).

Of the 584 eligible persons, 433 (74.1%) completed the interview (respondents); 232 (53.6%) were women. Follow-up calls were made to the 151 nonrespondents to obtain demographic information; of these, 91 (60.3%) agreed to an interview. The distribution by sex was similar among respondents and nonrespondents; however, a higher proportion of nonrespondents than respondents were aged ≥60 years (37% compared with 21%, $p<0.05$).

The prevalence of self-reported safety-belt use in interurban areas was 94.0% (95% CI=91.8%–96.2%); the prevalence in the city was 64.0% (95% CI=59.5%–68.5%) (Table 2). Age and sex were not associated with safety-belt use during interurban or city travel. Characteristics associated with increased city safety-belt use included history of motor-vehicle collision (PR=1.2 [95% CI=1.0–1.5]) and positive opinions of effectiveness. Risk factors associated with safety-belt nonuse in the city included history of previous motor-vehicle fine (e.g., speeding or running stop signals) (PR=3.7 [95% CI=1.3–10.5]) and negative opinion of the effectiveness of safety belts (PR=1.8 [95% CI=1.4–2.3]). The prevalence of safety-belt use in interurban areas was higher

Safety Belts — Continued

TABLE 2. Telephone survey of safety-belt use in city and interurban* areas, by selected characteristics of respondents — Madrid, Spain, September 1994

		City				Interurban			
Characteristic	**No. surveyed**	**No.**	**(%)**	**PR†**	**(95% CI§)**	**No.**	**(%)**	**PR**	**(95% CI)**
Sex									
Women	232	151	(65.1)	1.0	(0.9– 1.2)	220	(94.8)	1.0	(1.0–1.1)
Men	201	126	(62.7)			187	(93.0)		
History of collisions									
Yes	48	37	(80.4)	1.2	(1.0– 1.5)¶	47	(100.0)	1.1	(1.0–1.1)
No	385	240	(62.0)			360	(93.3)		
History of fines									
No	415	274	(66.6)	3.7	(1.3–10.5)¶	395	(95.2)	1.4	(1.0–2.0)¶
Yes	17	3	(16.7)			12	(66.7)		
Driving after drinking**									
No	240	157	(65.4)	1.4	(0.9– 2.1)	229	(95.4)	1.2	(1.0–1.5)¶
Yes	23	11	(47.8)			18	(78.2)		
Excess speed									
No	133	89	(66.9)	1.1	(0.9– 1.3)	128	(96.2)	1.0	(1.0–1.1)
Yes	135	82	(60.7)			125	(92.6)		
Opinion of safety-belt effectiveness									
Positive	320	231	(72.2)	1.8	(1.4– 2.3)¶	385	(95.1)	1.3	(1.0–1.6)¶
Negative	110	44	(40.0)			16	(76.2)		
Total	**433**	**433**	**(64.0)**		**(59.5–68.5)**	**433**	**(94.0)**		**(91.8-96.2)**

*Outside city limits.
†Prevalence ratio.
§Confidence interval.
¶p<0.05.
**Driving under the influence of alcohol at least once during the preceding month.

among respondents who reported no history of fines, who denied driving under the influence of alcohol at least once during the preceding month, and who had a positive opinion of the effectiveness of safety belts.

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Editorial Note: The findings from both the direct observational and the telephone surveys described in this report suggest that persons in Madrid are less likely to use safety belts while in vehicles traveling within the city and more likely to use safety belts in interurban areas. Potential explanations for this difference are 1) the first law enacted in 1975 applied only to travel in areas outside of the city, and the intent of the expanded law of 1992 has neither been understood nor accepted by many persons; 2) a substantial proportion of persons are unaware of the risks for collision associated with the shorter distances traveled within the city; and 3) efforts to enforce the expanded law have been more vigorous in interurban areas.

Direct observational surveys, such as that described in this report, provide valid estimates of safety-belt use. The telephone survey supplemented the observational survey by assessing knowledge, attitudes, and behaviors regarding safety-belt use.

Safety Belts — Continued

However, previous reports indicate that telephone surveys overestimate the use of safety belts, compared with estimates by observational surveys (*5,6*). In the United States, the National Highway Traffic Safety Administration has recommended the periodic use of observational probability sample surveys at the same intersections to assess changes in safety-belt use.*

In 1992, the motor-vehicle collision fatality rate in Spain (4.8 motor-vehicle deaths per 100 million kilometers [62.5 million miles] traveled) ranked second in Europe after Portugal (9.0), and was substantially higher than that in other countries, including the United Kingdom (1.1), Holland (1.3), Germany (1.9), France (2.0), and the United States (1.1) (*8*). Factors associated with the higher rate in Spain may include the quadrupling in the estimated number of motor vehicles operating since 1970; road conditions—which are being rapidly improved but lag in comparison to some other industrialized countries in Europe; and the condition of currently operating vehicles (i.e., 38% of vehicles in use are >10 years old).

Findings in this study indicated that a positive attitude toward safety-belt effectiveness was most strongly associated with safety-belt use, both for city and interurban travel. In other countries, safety-belt use has increased following intense periodic campaigns combining public education about the benefits of safety-belt use and enforcement of safety-belt–use laws (*9*). In Spain, the Ministry of Health in collaboration with the Traffic Safety Administration will use these results in planning education programs to improve traffic safety and other projects to increase safety-belt use.

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Monthly Immunization Table

To track progress toward achieving the goals of the Childhood Immunization Initiative (CII), CDC publishes monthly a tabular summary of the number of cases of all diseases preventable by routine childhood vaccination reported during the previous month and year-to-date (provisional data). In addition, the table compares provisional data with final data for the previous year and highlights the number of reported cases among children aged <5 years, who are the primary focus of CII. Data in the table are derived from CDC's National Notifiable Diseases Surveillance System.

Number of reported cases of diseases preventable by routine childhood vaccination — United States, January 1995 and 1994–1995*

Disease	No. cases, January 1995	Total cases January 1994	Total cases January 1995	No. cases among children aged <5 years† January 1994	No. cases among children aged <5 years† January 1995
Congenital rubella syndrome	1	**0**	**1**	0	1
Diphtheria	0	**0**	**0**	0	0
Haemophilus influenzae§	106	**88**	**106**	31	24
Hepatitis B¶	380	**730**	**380**	18	2
Measles	6	**5**	**6**	2	3
Mumps	51	**81**	**51**	9	12
Pertussis	198	**271**	**198**	159	104
Poliomyelitis, paralytic**	0	**0**	**0**	0	0
Rubella	11	**3**	**11**	0	5
Tetanus	1	**1**	**1**	0	0

*Data for 1994 and 1995 are provisional.

†For 1994 and 1995, age data were available for ≥90% of patients, except for 1994 age data for pertussis, which were available for 80% of patients.

§Invasive disease; *H. influenzae* serotype is not routinely reported to the National Notifiable Diseases Surveillance System. Of 41 cases among children aged <5 years, serotype was reported for only one case; that case was type b, the only serotype of *H. influenzae* preventable by vaccination.

¶Because most hepatitis B virus infections among infants and children aged <5 years are asymptomatic (although likely to become chronic), acute disease surveillance does not reflect the incidence of this problem in this age group or the effectiveness of hepatitis B vaccination in infants.

**One case with onset in 1994 has been confirmed; this case was vaccine-associated. An additional six suspected cases are under investigation. In 1993, three of 10 suspected cases were confirmed; two of the confirmed cases were vaccine-associated, and one was imported. The imported case occurred in a 2-year-old Nigerian child brought to the United States for care of his paralytic illness; no poliovirus was isolated from the child.

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