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Status Report on the Childhood Immunization Initiative: National, State, and Urban Area Vaccination Coverage Levels Among Children Aged 19–35 Months — United States, 1996

The Childhood Immunization Initiative (CII), a comprehensive response to undervaccination among preschool-aged children, was initiated in the United States in 1993 (*1*). The CII established the goal of increasing vaccination coverage levels among children aged 2 years to ≥90% by 1996 for the most critical doses of each vaccine routinely recommended for children* (except hepatitis B vaccine, for which the objectives were to increase coverage to 70% by 1996 and 90% by 1998).† This report presents final 1996 estimates of coverage with vaccines targeted by CII among children aged 19–35 months,§ which indicate that in 1996 all national vaccination coverage goals were exceeded for the routinely recommended vaccines.

Vaccination coverage levels are monitored by CDC's National Immunization Survey (NIS), one element of the CII (*1, 3–5*). NIS, which was initiated in April 1994, estimates vaccination coverage among children aged 19–35 months for each of the 50 states and 28 selected urban areas (*3–5*).

Compared with the baseline year (1992) (as measured by the National Health Interview Survey [NHIS] [*6*]), national vaccination coverage during the most recent reporting period (January–December 1996) increased significantly for three or more doses of diphtheria and tetanus toxoids and pertussis vaccine (DTP) (from 83% to 95%), three or more doses of poliovirus vaccine (from 72% to 91%), one or more doses of any measles-containing vaccine (MCV) (from 83% to 91%), and three or more doses of *Haemophilus influenzae* type b (Hib) vaccine (from 28% to 92%). Coverage with three or more doses of hepatitis B vaccine increased from 8% (CDC, unpublished data) in 1992 to 82% in 1996 (Table 1). Estimated coverage with varicella vaccine¶

*Diphtheria and tetanus toxoids and pertussis vaccine/diphtheria and tetanus toxoids, poliovirus vaccine, measles-mumps-rubella vaccine (MMR), *Haemophilus influenzae* type b vaccine, and hepatitis B vaccine. As in previous reports based on National Immunization Survey data, MMR coverage is estimated by using coverage for any measles-containing vaccine.

†Progress toward CII's goal of eliminating or reducing the occurrence of vaccine-preventable diseases is presented in another report in this issue of *MMWR* (*2*).

§For this reporting period (January–December 1996), National Immunization Survey included children born during February 1993–May 1995 (median age: 27 months).

¶Licensed by the Food and Drug Administration in 1995 and included in the recommended vaccination schedule in July 1996.

Vaccination Coverage Levels — Continued

administered on or after the first birthday increased from 14% for July–September 1996 to 18% for October–December 1996.

Compared with 1992 (*6*), national vaccination coverage during 1996 increased significantly for the 4:3:1 series (i.e., four or more doses of DTP/diphtheria and tetanus toxoids [DT], three or more doses of poliovirus vaccine, and one or more doses of any MCV), from 55% to 78% (Table 1). Coverage with the 4:3:1:3 series (i.e., the 4:3:1 series plus three or more doses of Hib vaccine) increased from 72% when it was first measured in 1994 (*3*) to 77% in 1996 (Table 1).

Overall, in 1996, a total of 30 states and 14 urban areas achieved all the 1996 CII vaccination coverage goals (Table 2). A total of 48 states and 26 urban areas achieved the 1996 goal of 90% coverage with three or more doses of DTP; the remaining two states and two urban areas attained coverage levels within two percentage points below the goal. Thirty-eight states and 17 urban areas achieved the goal of

TABLE 1. Childhood Immunization Initiative (CII) goals and vaccination coverage levels among children aged 19–35 months, by selected vaccines — United States, 1992 and 1996

Vaccine/Dose	CII 1996 Goal	1992 (NHIS*)		1996 (NIS†)	
		%	(95% CI§)	%	(95% CI)
DTP/DT¶					
≥3 Doses	90%	83%	(±2.2%)	95%	(±0.4%)
≥4 Doses	—	59%	(±2.9%)	81%	(±0.7%)
Poliovirus					
≥3 Doses	90%	72%	(±2.3%)	91%	(±0.5%)
Hib**					
≥3 Doses	90%	28%	(±2.6%)	92%	(±0.5%)
MCV††					
≥1 Doses	90%	83%	(±2.3%)	91%	(±0.5%)
Hepatitis B					
≥3 Doses	70%	8%§§	(±1.7%)§§	82%	(±0.7%)
Combined series					
4 DTP/ 3 Polio/ 1 MCV¶¶	—	55%	(±2.8%)	78%	(±0.8%)
4 DTP/ 3 Polio/ 1 MCV/ 3 Hib***	—	—		77%	(±0.8%)

*National Health Interview Survey, household data only. Children in this survey were born during February 1989–May 1991.
†National Immunization Survey, household and provider data. Children in this survey were born during February 1993–May 1995.
§Confidence interval.
¶Diphtheria and tetanus toxoids and pertussis vaccine/diphtheria and tetanus toxoids.
***Haemophilus influenzae* type b vaccine.
††Any measles-containing vaccine; vaccination coverage goals are specifically for measles-mumps-rubella vaccine.
§§CDC, unpublished data, 1992.
¶¶Four or more doses of DTP/DT, three or more doses of poliovirus vaccine, and one or more doses of any MCV.
***Four or more doses of DTP/DT, three or more doses of poliovirus vaccine, one or more doses of any MCV, and three or more doses of Hib.

Vaccination Coverage Levels — Continued

90% coverage with three or more doses of poliovirus vaccine; 11 of the remaining 12 states and nine of the remaining 11 urban areas attained coverage of 85%–89%. Thirty-two states and 19 urban areas achieved the goal of 90% coverage with one or more doses of any MCV; 17 of the remaining 18 states and six of the remaining nine urban areas attained coverage of 85%–89%. Forty-one states and 19 urban areas achieved the goal of 90% coverage with three or more doses of Hib vaccine; seven of the remaining nine states and six of the remaining nine urban areas attained coverage levels of 85%–89%. Forty-eight states and 27 urban areas achieved the goal of 70% coverage with three or more doses of hepatitis B vaccine; one of the two remaining states and the only remaining urban area attained coverages within three percentage points below the goal.

During 1996, estimated state-specific coverage levels for the 4:3:1 series ranged from 64% to 88% (median: 79%) and, for the 4:3:1:3 series, from 63% to 87% (median: 77%) (Table 3). Estimated coverage levels among selected large urban areas ranged from 63% to 84% (median: 79%) for the 4:3:1 series and from 62% to 84% (median: 75%) for the 4:3:1:3 series (Table 3).

Reported by: National Center for Health Statistics; Assessment Br, Div of Data Management, National Immunization Program, CDC.

Editorial Note: The NIS data in this report indicate that all the national coverage goals established by CII for 1996 were exceeded for the vaccines routinely recommended for children—specifically, three doses of DTP, three doses of poliovirus vaccine, one dose of any MCV, three doses of Hib vaccine, and three doses of hepatitis B vaccine. In addition, this report includes the first national quarterly estimates of varicella vaccination coverage. Of the coverage estimates for all the routinely recommended vaccines, estimates for varicella (the vaccine most recently added to the pediatric schedule) were the lowest, in part, because most of the children surveyed in 1996 were aged >18 months before this vaccine was first recommended (*7*). Varicella vaccine is recommended routinely for children aged 12–18 months; however, any susceptible child can be vaccinated.

The NIS data indicate that the 1996 national vaccination coverage levels for three doses of DTP, three doses of poliovirus vaccine, and one dose of any MCV increased by 12, 19, and eight percentage points, respectively, over the pre-CII coverage levels. For three doses each of hepatitis B and Hib vaccines (which had been recently recommended when CII began), coverage increased from 8% (CDC, unpublished data, 1992) to 82% for hepatitis B vaccine and from 28% to 92% for Hib vaccine. Vaccination levels among U.S. preschool-aged children were the highest ever recorded. The achievement of these goals reflects the widespread implementation of the CII strategy by multiple public- and private-sector organizations and health-care providers at national, state, and local levels (*1*).

The findings in this report are subject to at least one important limitation. The comparison of coverage levels for 1992 and 1996 is limited by the different survey methods of the NHIS and the NIS (*3,5,6*). The 1992 NHIS employed an area probability sampling frame with face-to-face interviewing; in contrast, the NIS used random-digit dialing with telephone interviewing. Nonetheless, weighting adjustments of NIS data to account for nontelephone households have enabled the NIS data to be representative of all U.S. children aged 19–35 months (*3,5,6*). More importantly, the NIS collected information both from children's households and from their health-care

Vaccination Coverage Levels — Continued

TABLE 2. Estimated vaccination coverage with individual vaccines routinely recommended for children aged 19–35 months*, by state and selected urban area — United States, National Immunization Survey, 1996

State/ Urban area	≥3 DTP[†] %	≥3 DTP[†] (95% CI[¶¶])	≥4 DTP[§] %	≥4 DTP[§] (95% CI)	≥3 Polio[¶] %	≥3 Polio[¶] (95% CI)	≥1 MCV** %	≥1 MCV** (95% CI)	≥3 Hib[††] %	≥3 Hib[††] (95% CI)	≥3 Hepatitis B[§§] %	≥3 Hepatitis B[§§] (95% CI)
Alabama***	93	(±2.6%)	80	(±3.9%)	89	(±3.0%)	91	(±2.8%)	91	(±2.9%)	82	(±3.6%)
Jefferson County[†††]	98	(±1.6%)	84	(±4.2%)	90	(±3.5%)	94	(±2.8%)	94	(±2.8%)	87	(±3.9%)
Alaska***	90	(±3.8%)	76	(±5.2%)	88	(±4.1%)	85	(±4.4%)	84	(±4.5%)	82	(±4.3%)
Arizona***	93	(±2.2%)	75	(±3.7%)	89	(±2.7%)	86	(±3.1%)	90	(±2.6%)	80	(±3.2%)
Maricopa County***	92	(±3.3%)	75	(±5.0%)	89	(±3.6%)	87	(±3.9%)	89	(±3.7%)	81	(±4.4%)
Arkansas***	93	(±3.3%)	78	(±5.1%)	91	(±3.6%)	87	(±4.2%)	86	(±4.5%)	82	(±4.4%)
California[†††]	94	(±1.8%)	81	(±2.9%)	91	(±2.1%)	90	(±2.2%)	90	(±2.3%)	82	(±2.5%)
Santa Clara[†††]	96	(±2.0%)	86	(±3.8%)	94	(±2.5%)	92	(±2.9%)	92	(±3.0%)	85	(±3.7%)
San Diego County***	93	(±2.9%)	82	(±4.1%)	89	(±3.4%)	93	(±2.7%)	91	(±3.3%)	82	(±4.1%)
Los Angeles[†††]	94	(±2.9%)	83	(±4.6%)	91	(±3.4%)	91	(±3.5%)	91	(±3.7%)	83	(±4.3%)
Colorado***	94	(±2.8%)	82	(±4.5%)	91	(±3.5%)	89	(±3.7%)	91	(±3.4%)	74	(±5.0%)
Connecticut[†††]	99	(±0.9%)	90	(±3.3%)	95	(±2.5%)	96	(±2.0%)	98	(±1.3%)	89	(±3.5%)
Delaware[†††]	97	(±2.1%)	85	(±4.1%)	93	(±3.0%)	90	(±3.5%)	95	(±2.6%)	85	(±4.0%)
District of Columbia[†††]	98	(±1.9%)	83	(±4.6%)	94	(±2.9%)	94	(±2.8%)	93	(±3.0%)	84	(±4.3%)
Florida[†††]	96	(±1.9%)	80	(±3.8%)	92	(±2.6%)	90	(±2.9%)	92	(±2.5%)	83	(±3.3%)
Dade County[†††]	98	(±1.7%)	82	(±4.7%)	94	(±3.0%)	93	(±3.1%)	93	(±3.0%)	80	(±4.8%)
Duval County[†††]	96	(±2.3%)	79	(±4.9%)	93	(±3.1%)	91	(±3.4%)	94	(±2.8%)	83	(±4.4%)
Georgia[†††]	96	(±1.9%)	85	(±3.3%)	94	(±2.2%)	92	(±2.6%)	92	(±2.6%)	87	(±2.8%)
Fulton/DeKalb[†††] counties	97	(±1.9%)	83	(±4.8%)	93	(±3.1%)	93	(±3.2%)	92	(±3.4%)	82	(±4.8%)
Hawaii[†††]	93	(±3.1%)	81	(±4.6%)	91	(±3.4%)	92	(±3.2%)	91	(±3.3%)	86	(±4.0%)
Idaho***	89	(±3.5%)	71	(±4.8%)	86	(±3.8%)	84	(±4.0%)	86	(±3.8%)	72	(±4.5%)
Illinois***	94	(±2.3%)	79	(±3.6%)	89	(±2.8%)	90	(±2.6%)	91	(±2.6%)	78	(±3.4%)
Chicago***	96	(±2.5%)	79	(±5.2%)	88	(±4.2%)	90	(±3.6%)	90	(±4.0%)	75	(±5.5%)
Indiana***	94	(±2.2%)	77	(±3.7%)	90	(±2.6%)	87	(±3.1%)	89	(±2.9%)	74	(±3.5%)
Marion County***	91	(±3.7%)	75	(±5.3%)	87	(±4.1%)	88	(±4.0%)	89	(±3.9%)	77	(±4.9%)
Iowa[†††]	97	(±2.0%)	84	(±3.9%)	94	(±2.6%)	92	(±2.9%)	94	(±2.5%)	81	(±4.1%)
Kansas***	92	(±3.2%)	78	(±4.5%)	87	(±3.8%)	88	(±3.5%)	89	(±3.6%)	73	(±4.7%)
Kentucky[†††]	95	(±2.7%)	81	(±4.5%)	92	(±3.2%)	91	(±3.4%)	92	(±3.1%)	86	(±3.9%)
Louisiana***	95	(±2.3%)	83	(±3.7%)	92	(±2.8%)	89	(±3.1%)	94	(±2.5%)	87	(±3.3%)
Orleans Parish***	94	(±3.4%)	74	(±5.8%)	86	(±4.6%)	86	(±4.7%)	93	(±3.5%)	82	(±4.9%)
Maine[†††]	98	(±1.3%)	91	(±2.7%)	94	(±2.5%)	95	(±2.1%)	95	(±2.1%)	75	(±4.4%)
Maryland[†††]	97	(±1.5%)	83	(±3.6%)	92	(±2.6%)	91	(±2.8%)	95	(±1.8%)	80	(±3.6%)
Baltimore[†††]	95	(±2.7%)	87	(±4.2%)	91	(±3.7%)	93	(±3.2%)	91	(±3.5%)	78	(±5.1%)
Massachusetts[†††]	98	(±1.3%)	88	(±3.0%)	94	(±2.2%)	96	(±1.6%)	96	(±1.7%)	88	(±2.8%)
Boston[†††]	97	(±1.9%)	88	(±3.6%)	93	(±3.0%)	94	(±2.6%)	97	(±1.9%)	90	(±3.4%)
Michigan[†††]	94	(±2.1%)	78	(±3.8%)	90	(±2.8%)	90	(±2.8%)	91	(±2.6%)	78	(±3.5%)
Detroit[§§§]	88	(±4.2%)	67	(±6.1%)	82	(±5.1%)	83	(±4.9%)	81	(±5.2%)	69	(±6.0%)
Minnesota[†††]	97	(±1.6%)	89	(±3.2%)	92	(±2.9%)	95	(±2.1%)	94	(±2.5%)	72	(±4.7%)
Mississippi[†††]	96	(±2.1%)	83	(±4.0%)	93	(±2.8%)	93	(±2.8%)	93	(±2.8%)	78	(±4.5%)
Missouri***	92	(±3.2%)	77	(±4.7%)	89	(±3.6%)	87	(±3.7%)	91	(±3.3%)	82	(±4.1%)
Montana***	95	(±2.4%)	80	(±4.2%)	90	(±3.2%)	89	(±3.3%)	93	(±2.8%)	77	(±4.3%)
Nebraska[†††]	96	(±2.0%)	84	(±3.7%)	94	(±2.4%)	91	(±3.0%)	93	(±2.6%)	78	(±4.3%)
Nevada***	91	(±3.5%)	74	(±5.2%)	87	(±4.0%)	86	(±4.2%)	89	(±3.7%)	82	(±4.3%)
New Hampshire[†††]	97	(±1.6%)	86	(±3.8%)	90	(±3.3%)	94	(±2.6%)	95	(±2.3%)	86	(±3.5%)

* Children in this age group were born during February 1993–May 1995.
† Three or more doses of diphtheria and tetanus toxoids and pertussis vaccine/diphtheria and tetanus toxoids (DTP/DT).
§ Four or more doses of DTP/DT.
¶ Three or more doses of poliovirus vaccine.
** One or more doses of any measles-containing vaccine.
†† Three or more doses of *Haemophilus influenzae* type b vaccine.
§§ Three or more doses of hepatitis B vaccine.
¶¶ Confidence interval.
*** Did not achieve the 1996 Childhood Immunization Initiative (CII) goals for at least one of the following: three or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of MMR, or three or more doses of Hib, but achieved the 1996 goal for three or more doses of hepatitis B vaccine.
††† Achieved the 1996 CII goals for three or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of MMR, three or more doses of Hib, and three or more doses of hepatitis B vaccine.
§§§ Did not achieve the 1996 CII goals for at least one of the following: three or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of MMR, or three or more doses of Hib, and did not achieve the 1996 goal for three or more doses of hepatitis B vaccine.

Vaccination Coverage Levels — Continued

TABLE 2. Estimated vaccination coverage with individual vaccines routinely recommended for children aged 19–35 months*, by state and selected urban area — United States, National Immunization Survey, 1996 — *Continued*

State/	≥3 DTP[†]		≥4 DTP[§]		≥3 Polio[¶]		≥1 MCV**		≥3 Hib[††]		≥3 Hepatitis B[§§]	
Urban area	%	(95% CI[¶¶])	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
New Jersey[†††]	97	(±2.0%)	82	(±4.2%)	90	(±3.4%)	90	(±3.4%)	92	(±2.9%)	87	(±3.5%)
Newark***	95	(±2.9%)	67	(±6.1%)	84	(±4.9%)	87	(±4.4%)	90	(±3.9%)	80	(±5.0%)
New Mexico[†††]	95	(±2.6%)	82	(±4.6%)	92	(±3.2%)	92	(±3.2%)	93	(±3.1%)	80	(±4.3%)
New York[†††]	98	(±1.3%)	86	(±3.0%)	93	(±2.3%)	94	(±2.0%)	93	(±2.3%)	83	(±3.1%)
New York City[†††]	97	(±2.3%)	85	(±4.6%)	90	(±3.9%)	92	(±3.4%)	90	(±4.0%)	80	(±4.9%)
North Carolina***	96	(±2.4%)	81	(±4.4%)	94	(±2.6%)	89	(±3.5%)	92	(±3.1%)	87	(±3.5%)
North Dakota[†††]	96	(±2.3%)	86	(±3.7%)	92	(±3.0%)	90	(±3.3%)	93	(±2.8%)	85	(±3.7%)
Ohio[†††]	96	(±1.7%)	82	(±3.1%)	91	(±2.4%)	93	(±2.0%)	93	(±2.0%)	81	(±3.1%)
Cuyahoga County[†††]	96	(±2.3%)	83	(±4.4%)	93	(±3.2%)	94	(±2.7%)	94	(±2.8%)	86	(±3.9%)
Franklin County[†††]	95	(±3.1%)	83	(±5.0%)	90	(±4.2%)	93	(±3.5%)	91	(±4.0%)	78	(±5.3%)
Oklahoma***	93	(±3.4%)	79	(±5.2%)	90	(±3.8%)	89	(±4.0%)	90	(±3.8%)	71	(±5.5%)
Oregon***	92	(±3.1%)	74	(±4.8%)	87	(±3.8%)	86	(±3.9%)	89	(±3.5%)	78	(±4.3%)
Pennsylvania[†††]	96	(±1.8%)	83	(±3.5%)	94	(±2.2%)	92	(±2.6%)	93	(±2.4%)	84	(±3.3%)
Philadelphia***	96	(±2.5%)	82	(±4.8%)	93	(±3.1%)	91	(±3.6%)	88	(±4.2%)	89	(±3.8%)
Rhode Island[†††]	100	(±0.1%)	88	(±3.5%)	96	(±2.1%)	96	(±2.1%)	98	(±1.5%)	90	(±3.2%)
South Carolina[†††]	99	(±1.1%)	87	(±3.7%)	97	(±1.5%)	95	(±2.3%)	97	(±1.8%)	93	(±2.3%)
South Dakota[†††]	96	(±2.2%)	84	(±3.8%)	92	(±2.9%)	92	(±2.7%)	94	(±2.6%)	72	(±4.9%)
Tennessee[†††]	95	(±1.6%)	82	(±2.8%)	92	(±1.9%)	90	(±2.3%)	92	(±2.0%)	85	(±2.6%)
Davidson County[†††]	95	(±2.4%)	84	(±4.2%)	90	(±3.4%)	91	(±3.4%)	92	(±3.2%)	82	(±4.3%)
Shelby County***	90	(±3.8%)	75	(±5.1%)	86	(±4.2%)	85	(±4.3%)	87	(±4.1%)	84	(±4.0%)
Texas***	92	(±2.1%)	78	(±3.2%)	89	(±2.6%)	89	(±2.3%)	89	(±2.5%)	82	(±2.7%)
Bexar County***	95	(±2.6%)	77	(±5.0%)	91	(±3.3%)	89	(±3.6%)	92	(±3.2%)	83	(±3.9%)
Dallas County***	93	(±3.5%)	78	(±5.4%)	91	(±3.7%)	91	(±3.7%)	88	(±4.4%)	81	(±4.9%)
El Paso County***	90	(±3.8%)	67	(±5.6%)	88	(±3.9%)	82	(±4.7%)	84	(±4.5%)	80	(±4.6%)
Houston***	89	(±4.2%)	73	(±5.8%)	87	(±4.3%)	84	(±4.8%)	84	(±4.9%)	79	(±4.9%)
Utah***	88	(±3.9%)	67	(±5.3%)	84	(±4.3%)	86	(±4.0%)	84	(±4.3%)	72	(±4.9%)
Vermont[†††]	97	(±1.6%)	88	(±3.2%)	95	(±2.0%)	93	(±2.6%)	95	(±2.2%)	83	(±3.6%)
Virginia[†††]	97	(±2.1%)	81	(±4.7%)	91	(±3.4%)	90	(±3.7%)	94	(±2.8%)	85	(±3.9%)
Washington[†††]	95	(±1.9%)	81	(±3.4%)	92	(±2.4%)	91	(±2.4%)	94	(±2.1%)	81	(±3.3%)
King County[†††]	97	(±1.9%)	84	(±4.1%)	94	(±2.5%)	95	(±2.3%)	96	(±2.2%)	84	(±4.0%)
West Virginia[§§§]	96	(±2.4%)	75	(±5.0%)	88	(±3.8%)	88	(±3.8%)	92	(±3.3%)	67	(±5.2%)
Wisconsin[†††]	95	(±1.8%)	82	(±3.1%)	91	(±2.3%)	90	(±2.5%)	92	(±2.2%)	79	(±3.3%)
Milwaukee County***	93	(±3.0%)	77	(±4.9%)	89	(±3.7%)	91	(±3.3%)	87	(±3.9%)	75	(±4.9%)
Wyoming[§§§]	94	(±2.6%)	82	(±4.2%)	91	(±3.1%)	89	(±3.5%)	93	(±2.8%)	57	(±5.1%)
Total	**95**	**(±0.4%)**	**81**	**(±0.7%)**	**91**	**(±0.5%)**	**91**	**(±0.5%)**	**92**	**(±0.5%)**	**82**	**(±0.7%)**

* Children in this age group were born during February 1993–May 1995.
† Three or more doses of diphtheria and tetanus toxoids and pertussis vaccine/diphtheria and tetanus toxoids (DTP/DT).
§ Four or more doses of DTP/DT.
¶ Three or more doses of poliovirus vaccine.
** One or more doses of any measles-containing vaccine.
†† Three or more doses of *Haemophilus influenzae* type b vaccine.
§§ Three or more doses of hepatitis B vaccine.
¶¶ Confidence interval.
*** Did not achieve the 1996 Childhood Immunization Initiative (CII) goals for at least one of the following: three or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of MMR, or three or more doses of Hib, but achieved the 1996 goal for three or more doses of hepatitis B vaccine.
††† Achieved the 1996 CII goals for three or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of MMR, three or more doses of Hib, and three or more doses of hepatitis B vaccine.
§§§ Did not achieve the 1996 CII goals for at least one of the following: three or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of MMR, or three or more doses of Hib, and did not achieve the 1996 goal for three or more doses of hepatitis B vaccine.

Vaccination Coverage Levels — Continued

TABLE 3. Estimated vaccination coverage with the 4:3:1 series* and the 4:3:1:3 series† among children aged 19–35 months§, by coverage level and state and selected urban area — United States, National Immunization Survey, 1996

Coverage level/ State/Urban area	4:3:1 Series %	4:3:1 Series (95% CI¶)
≥85%		
Connecticut	88	(±3.6%)
Maine	87	(±3.4%)
Massachusetts	87	(±3.1%)
Boston	84	(±4.2%)
Minnesota	85	(±3.6%)
Rhode Island	85	(±3.8%)
South Carolina	86	(±3.7%)
Vermont	86	(±3.3%)
75%–84%		
Alabama	78	(±4.0%)
Jefferson County	80	(±4.6%)
Arkansas	75	(±5.2%)
California	78	(±3.0%)
Los Angeles County	81	(±4.8%)
San Diego County	78	(±4.3%)
Santa Clara	82	(±4.2%)
Colorado	79	(±4.8%)
Delaware	81	(±4.5%)
District of Columbia	80	(±4.8%)
Florida	78	(±3.8%)
Dade County	79	(±4.9%)
Duval County	77	(±5.1%)
Georgia	83	(±3.4%)
Fulton/DeKalb counties	79	(±5.1%)
Hawaii	78	(±4.8%)
Illinois	76	(±3.7%)
Chicago	76	(±5.4%)
Iowa	82	(±4.1%)
Kansas	76	(±4.6%)
Kentucky	79	(±4.7%)
Louisiana	80	(±3.9%)
Orleans Parish	72	(±5.9%)
Maryland	80	(±3.9%)
Baltimore	84	(±4.5%)
Michigan	76	(±3.8%)
Detroit	65	(±6.1%)
Mississippi	81	(±4.2%)
Missouri	75	(±4.8%)
Montana	78	(±4.3%)
Nebraska	82	(±3.8%)
New Hampshire	84	(±3.9%)
New Jersey	78	(±4.5%)
Newark	63	(±6.2%)
New Mexico	80	(±4.7%)
New York	82	(±3.3%)
New York City	80	(±5.1%)
North Carolina	78	(±4.6%)
North Dakota	83	(±4.0%)

Coverage level/ State/Urban area	4:3:1:3 Series %	4:3:1:3 Series (95% CI)
≥85%		
Connecticut	87	(±3.7%)
Maine	85	(±3.6%)
Massachusetts	86	(±3.2%)
Boston	84	(±4.2%)
Rhode Island	85	(±3.9%)
Vermont	85	(±3.4%)
75%–84%		
Alabama	75	(±4.1%)
Jefferson County	77	(±4.8%)
California	76	(±3.1%)
Los Angeles County	79	(±4.9%)
San Diego County	77	(±4.4%)
Santa Clara	79	(±4.4%)
Colorado	76	(±5.0%)
Delaware	80	(±4.6%)
District of Columbia	78	(±5.0%)
Florida	77	(±3.9%)
Dade County	76	(±5.2%)
Duval County	76	(±5.1%)
Georgia	80	(±3.6%)
Fulton/DeKalb counties	74	(±5.5%)
Hawaii	77	(±4.8%)
Illinois	75	(±3.7%)
Chicago	74	(±5.6%)
Iowa	80	(±4.2%)
Kentucky	76	(±4.8%)
Louisiana	79	(±4.0%)
Orleans Parish	71	(±5.9%)
Maryland	78	(±4.0%)
Baltimore	81	(±4.8%)
Minnesota	83	(±3.8%)
Mississippi	79	(±4.3%)
Montana	77	(±4.3%)
Nebraska	80	(±3.9%)
New Hampshire	83	(±4.0%)
New Jersey	77	(±4.5%)
Newark	62	(±6.2%)
New Mexico	79	(±4.8%)
New York	79	(±3.5%)
New York City	75	(±5.5%)
North Carolina	77	(±4.7%)
North Dakota	81	(±4.2%)
Ohio	77	(±3.4%)
Cuyahoga County	80	(±4.7%)
Franklin County	78	(±5.4%)
Pennsylvania	79	(±3.7%)
Philadelphia	75	(±5.4%)
South Carolina	84	(±3.9%)

* Four or more doses of diphtheria and tetanus toxoids and pertussis vaccine/diphtheria and tetanus toxoids (DTP/DT), three or more doses of poliovirus vaccine, and one or more doses of any measles-containing vaccine (MCV).
† Four or more doses of DTP/DT, three or more doses of poliovirus vaccine, one or more doses of any MCV, and three or more doses of *Haemophilus influenzae* type b vaccine.
§ Children in this age group during 1996 were born during February 1993–May 1995.
¶ Confidence interval.

Vaccination Coverage Levels — Continued

TABLE 3. Estimated vaccination coverage with the 4:3:1 series* and the 4:3:1:3 series† among children aged 19–35 months§, by coverage level and state and selected urban area — United States, National Immunization Survey, 1996 — *Continued*

Coverage level/ State/Urban area	4:3:1 Series %	(95% CI¶)	Coverage level/ State/Urban area	4:3:1:3 Series %	(95% CI)
Ohio	79	(±3.3%)	South Dakota	80	(±4.1%)
Cuyahoga County	81	(±4.5%)	Tennessee	77	(±3.0%)
Franklin County	81	(±5.2%)	Davidson County	77	(±4.7%)
Oklahoma	75	(±5.5%)	Shelby County	70	(±5.3%)
Pennsylvania	81	(±3.6%)	Virginia	77	(±5.0%)
Philadelphia	79	(±5.1%)	Washington	78	(±3.5%)
South Dakota	82	(±3.9%)	King County	81	(±4.2%)
Tennessee	79	(±2.9%)	Wisconsin	76	(±3.4%)
Davidson County	79	(±4.5%)	Milwaukee County	70	(±5.2%)
Shelby County	72	(±5.3%)	Wyoming	77	(±4.5%)
Virginia	78	(±4.9%)	**65%–74%**		
Washington	79	(±3.5%)	Alaska	69	(±5.5%)
King County	82	(±4.1%)	Arizona	70	(±3.8%)
Wisconsin	78	(±3.3%)	Maricopa County	71	(±5.1%)
Milwaukee County	74	(±5.0%)	Arkansas	72	(±5.4%)
Wyoming	79	(±4.4%)	Idaho	66	(±4.9%)
65%–74%			Indiana	70	(±3.9%)
Alaska	73	(±5.3%)	Marion County	72	(±5.4%)
Arizona	72	(±3.8%)	Kansas	73	(±4.7%)
Maricopa County	73	(±5.0%)	Michigan	74	(±3.9%)
Idaho	68	(±4.9%)	Detroit	63	(±6.1%)
Indiana	73	(±3.9%)	Missouri	74	(±4.9%)
Marion County	73	(±5.3%)	Nevada	70	(±5.3%)
Nevada	71	(±5.3%)	Oklahoma	73	(±5.6%)
Oregon	72	(±4.9%)	Oregon	70	(±5.0%)
Texas	74	(±3.4%)	Texas	72	(±3.4%)
Bexar County	74	(±5.1%)	Bexar County	74	(±5.2%)
Dallas County	75	(±5.6%)	Dallas County	71	(±5.8%)
El Paso County	64	(±5.6%)	El Paso County	62	(±5.6%)
Houston	71	(±5.8%)	Houston	68	(±5.9%)
West Virginia	72	(±5.1%)	West Virginia	71	(±5.1%)
<65%			**<65%**		
Utah	64	(±5.3%)	Utah	63	(±5.3%)
Total	**78**	**(±0.8%)**	**Total**	**77**	**(±0.8%)**

* Four or more doses of diphtheria and tetanus toxoids and pertussis vaccine/diphtheria and tetanus toxoids (DTP/DT), three or more doses of poliovirus vaccine, and one or more doses of any measles-containing vaccine (MCV).
† Four or more doses of DTP/DT, three or more doses of poliovirus vaccine, one or more doses of any MCV, and three or more doses of *Haemophilus influenzae* type b vaccine.
§ Children in this age group during 1996 were born during February 1993–May 1995.
¶ Confidence interval.

providers, while the NHIS collected only household information in 1992 (*3,5,6*). A comparison of 1994 NHIS results with and without provider information (the first year both data sets were available) suggests that the 1992 coverage levels for DTP, poliovirus, and Hib vaccines were underestimated and that the 1992 estimate for MCV was an overestimate (*3*). However, the increases in national vaccination coverage levels from 1992 to 1996 could be accounted for only in part by the differences in methodology. Therefore, despite these limitations, real increases in vaccine coverage have occurred since implementation of the CII.

In 1996, coverage among children with the 4:3:1 and the 4:3:1:3 series remained relatively low (78% and 77%, respectively). These findings reflect relatively

Vaccination Coverage Levels — Continued

low coverage with the fourth dose of DTP (81%), compared with coverage with three or more doses of poliovirus vaccine (91%), one or more doses of any MCV (91%), and three or more doses of Hib vaccine (92%). Based on these data, approximately 1 million children still need one or more of the recommended doses of vaccine to be fully protected.

Although national 1996 CII coverage goals were exceeded for all individual vaccines, coverage varied substantially among states and urban areas. Many states and urban areas did not meet the 1996 CII goals for the individual vaccines, and some had not achieved even the 1995 interim goals for the individual vaccines (*4*). In these states and urban areas, efforts will need to be intensified to ensure the uniform protection of children throughout the United States.

Achievement of the 1996 CII goals reflects substantial progress toward controlling vaccine-preventable diseases; however, achievement of these goals cannot ensure protection of children in the future. Each of the 11,000 children born each day in the United States must receive 12–16 doses of vaccine before his or her second birthday to be fully vaccinated. The achievement of the 1996 goals demonstrates the feasibility of attaining high coverage levels but does not ensure that high coverage will be maintained. Continued achievement of vaccination coverage and disease-elimination goals will require development of a fully functional vaccine-delivery system. Important components of this system remain incomplete. These components include 1) state- and community-based computerized vaccination registries that include all children from birth and can identify children in need of vaccines and recall them for missed vaccinations (*8*); 2) ongoing quality-assurance and information-feedback activities (*9*); and 3) continuous education programs for parents and health-care providers. This system should facilitate achievement and maintenance of high vaccination coverage levels and achievement of low disease levels in each cohort of children born during or after the mid-1990s.

References

1. CDC. Reported vaccine-preventable diseases—United States, 1993, and the Childhood Immunization Initiative. MMWR 1994;43:57–60.
2. CDC. Status report on the Childhood Immunization Initiative: reported cases of selected vaccine-preventable diseases—United States, 1996. MMWR 1997;46:665–71.
3. CDC. State and national vaccination coverage levels among children aged 19–35 months—United States, April–December 1994. MMWR 1995;44:613,619–23.
4. CDC. National, state, and urban area vaccination coverage levels among children aged 19–35 months—United States, January–December 1995. MMWR 1997;46:176–82.
5. CDC. Sample design and procedures to produce estimates of vaccination coverage in the National Immunization Survey. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service, CDC, National Immunization Program, April 18, 1996.
6. CDC. Vaccination coverage of 2-year-old children—United States, 1993. MMWR 1994;43:705–9.
7. CDC. Prevention of varicella: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1996;45(no. RR-11).
8. Cordero JF, Orenstein WA. The future of immunization registries. Am J Prev Med 1997; 13(suppl):S122–S124.
9. LeBaron CW, Chaney M, Baughman AL, et al. Impact of measurement and feedback on vaccination coverage in public clinics, 1988–1994. JAMA 1997;277:631–5.

Status Report on the Childhood Immunization Initiative: Reported Cases of Selected Vaccine-Preventable Diseases — United States, 1996

The Childhood Immunization Initiative (CII), a comprehensive response to undervaccination among preschool-aged children, was initiated in the United States in 1993 (*1*). The goals of the CII were to eliminate by 1996 indigenous cases of diphtheria, tetanus (among children aged <15 years), poliomyelitis, *Haemophilus influenzae* type b (Hib) invasive disease (among children aged <5 years), measles, and rubella (*1*); reduce indigenous cases of mumps to <1600; and increase vaccination coverage levels to ≥90% among children aged 2 years for the most critical doses of each vaccine routinely recommended for children (except hepatitis B vaccine). This report presents provisional 1996 data about reported cases of selected vaccine-preventable diseases.* In 1996, no cases of tetanus among children aged <15 years or of polio caused by wild poliovirus were reported in the United States; the number of reported cases of indigenously acquired mumps was substantially below the disease-reduction target; and the numbers of reported cases of diphtheria, invasive Hib disease (among children aged <5 years), rubella, and measles were at or near the lowest levels ever recorded and near the elimination targets.

The occurrence of notifiable diseases, including diphtheria, tetanus (among children aged <15 years), pertussis, polio caused by wild poliovirus, measles, rubella, and invasive Hib disease (among children aged <5 years), in the 50 states, New York City, and the District of Columbia is monitored by the National Notifiable Diseases Surveillance System (NNDSS), supplemented by data from other surveillance systems. Cases reported to NNDSS as indigenous or unknown were classified as indigenous cases. For measles and rubella, only cases classified as confirmed or of unknown case status because of missing information are included. NNDSS reports for diphtheria and invasive disease caused by Hib are supplemented by additional data from other sources. Hib cases reported to NNDSS include cases of invasive disease caused by serotype b and unknown serotypes among children aged <5 years. These data are supplemented by cases reported to the National Bacterial Meningitis and Bacteremia Reporting System (NBMBRS) and by laboratory-based active surveillance, both conducted by CDC. Probable and confirmed diphtheria cases with onset in 1996 reported to CDC's National Immunization Program (NIP) but not to NNDSS are included. All 1996 data are provisional. Because of the lack of comparable baseline data for indigenously acquired cases, total cases reported to NNDSS are presented for 1988–1992.

Overall, five states achieved all six 1996 CII disease-elimination goals, 10 states achieved five goals, 23 achieved four goals, and 12 achieved three goals. The District of Columbia and New York City achieved six and two disease-elimination goals, respectively.

Polio and tetanus. Since 1979, no indigenously acquired cases of polio caused by wild poliovirus have been reported in the United States (*3*). Of the 36 cases of tetanus reported in 1996, none occurred among children aged <15 years.

Measles. A provisional total of 443 indigenously acquired and 65 imported cases of measles were reported to the NNDSS. Of the 440 indigenously acquired cases for which data were available, 109 (25%) occurred among children aged <5 years and

*Progress toward CII's goal of increasing vaccination coverage among children aged 19–35 months is presented in another report in this issue of *MMWR* (*2*).

TABLE 1. Number of cases of vaccine-preventable diseases targeted for elimination by the Childhood Immunization Initiative — United States, 1988–1992 and 1996*

	No. reported cases					No. 1996 cases		
Disease	**1988**	**1989**	**1990**	**1991**	**1992**	**Total**	**Indigenously acquired cases**	**Cases among children aged <5 years**
Diphtheria	2	3	4	5	4	**4**†	4	0
Invasive Hib disease§	NN¶	NN	NN	1,540	592	**165**	165	165
Measles	3,396	18,193	27,786	9,643	2,237	**508****	443	109
Poliomyelitis††	0	0	0	0	0	**0**	0	0
Rubella	225	396	1,125	1,401	160	**213****	196	9
Tetanus§§	2	2	3	3	3	**0**	0	0
Mumps	4,866	5,712	5,292	4,264	2,572	**751**	725	154

* Data for 1996 are provisional as of July 23, 1997.
† Including two cases reported to CDC but not reported as 1996 cases to the National Notifiable Diseases Surveillance System.
§ Among children aged <5 years; includes *Haemophilus influenzae* cases classified as type b or of unknown serotype.
¶ Not nationally notifiable.
** Confirmed and unknown case status only.
†† Indigenously acquired cases caused by wild poliovirus.
§§ Among children aged <15 years.

Vaccine-Preventable Diseases — Continued

148 (34%), among persons aged ≥20 years. Of the 443 cases for which data were available, 325 (73%) were epidemiologically or virologically linked to imported cases. The number of indigenously acquired measles cases reported in 1996 represents a 22-fold decline from the median number reported during the 5 years preceding initiation of the CII in 1993 (Table 1). Epidemiologic and virologic data suggest that indigenous measles transmission in the United States has been repeatedly interrupted, followed by reintroduction of imported measles virus (*4*). During an 8-week period in late 1996, no indigenously acquired measles cases were reported in the United States (*5*). Twenty states and the District of Columbia reported no indigenous cases during the year (Table 2).

Rubella. In 1996, a provisional total of 196 confirmed indigenously acquired cases of rubella were reported; of these, nine (5%) occurred among children aged <5 years (Table 1). A total of 114 (58%) cases occurred among persons of Hispanic ethnicity; of these persons, 94 (82%) were aged ≥20 years. In addition, several outbreaks occurred among foreign-born persons who were natives of countries without rubella vaccination programs (*6*). The number of cases of indigenously acquired rubella reported in 1996 represents a twofold decline from the median number of cases reported during 1988–1992 (Table 1). Twenty-eight states and the District of Columbia reported no indigenously acquired rubella in 1996 (Table 2).

Diphtheria. Although two cases of diphtheria were provisionally reported to the NNDSS in 1996,[†] endemic transmission of toxigenic *Corynebacterium diphtheriae* was detected in a Northern Plains Indian community in 1996 (*7*). Therefore, at least one focus of indigenous transmission persists in the United States. Of the cases reported to NIP with onset in 1996, one occurred in a person aged 15 years and the other three, among persons aged >20 years. The low number of reported cases (a median of four cases annually during 1988–1992) may reflect low incidence of disease or lack of recognition of this rare disease. Forty-seven states and the District of Columbia reported no cases of diphtheria during 1996 (Table 2).

Hib. During 1996, a total of 49 cases of Hib invasive disease and 116 cases of *H. influenzae* of unknown serotype among children aged <5 years were provisionally reported (as of July 23, 1997) to NNDSS, NBMBRS, or through active surveillance sites. In 1996, a total of 13 states and the District of Columbia reported no cases of invasive disease caused by *H. influenzae* type b or an unknown serotype among children aged <5 years. In five of these states, however, zero cases of invasive *H. influenzae* disease of any type in any age group were reported, suggesting reporting is incomplete. Hib disease was not consistently reported to NNDSS during 1988–1992[§]. However, data from the active laboratory-based surveillance system coordinated by CDC indicate a 99% decrease during 1989–1995 in the incidence of invasive Hib disease among children aged <5 years (*8*).

Mumps. In 1996, a provisional total of 725 indigenous cases of mumps were reported; 154 (21%) cases occurred among children aged <5 years, and 380 (52%) occurred among children aged 5–19 years. In contrast, during 1988–1992, a median of 453 and 3167 cases occurred among persons aged <5 years and 5–19 years, respectively. In 1996, a total of 315 (43%) indigenous mumps cases were classified as confirmed; 194 (27%), as probable; and 216 (30%), as unknown.

[†] Two additional cases with onset in 1996 were reported to NIP but have not been reported to NNDSS.

[§] Invasive Hib disease became nationally notifiable in 1991.

Vaccine-Preventable Diseases — Continued

TABLE 2. Number of reported cases* of selected vaccine-preventable diseases, by state — United States, 1996

State	Measles†	Rubella†	Polio§	Diphtheria¶	Tetanus**	Hi type b or unknown††
Alabama	0	2	0	0	0	2
Alaska	63	0	0	0	0	5
Arizona	8	3	0	0	0	3
Arkansas	0	0	0	0	0	0§§
California	37	42	0	0	0	18
Colorado	4	3	0	0	0	2
Connecticut	2	4	0	0	0	1
Delaware	1	0	0	0	0	1
District of Columbia	0	0	0	0	0	0
Florida	0	11	0	0	0	16
Georgia	1	0	0	0	0	12
Hawaii	40	1	0	0	0	0
Idaho	1	2	0	0	0	0
Illinois	2	1	0	0	0	12
Indiana	0	0	0	1	0	3
Iowa	0	0	0	0	0	2
Kansas	1	0	0	0	0	1
Kentucky	0	0	0	1	0	1
Louisiana	0	1	0	0	0	1
Maine	0	0	0	0	0	0§§
Maryland	0	0	0	0	0	7
Massachusetts	9	17	0	0	0	3
Michigan	0	0	0	0	0	5
Minnesota	17	0	0	0	0	2
Mississippi	0	0	0	0	0	0
Missouri	3	0	0	0	0	1
Montana	0	0	0	0	0	0
Nebraska	0	0	0	0	0	1
Nevada	5	1	0	0	0	0§§
New Hampshire	0	0	0	0	0	3
New Jersey	3	2	0	0	0	9
New Mexico	17	0	0	0	0	2
New York	3	5	0	0	0	2
New York City	8	3	0	1	0	6

*Includes cases reported to the National Notifiable Disease Surveillance System (NNDSS) as indigenous or of unknown case status. Data are provisonal as of July 23, 1997.
†Confirmed and unknown case status only.
§Caused by wild virus.
¶Includes two probable or confirmed cases reported to the National Immunization Program but not reported as 1996 cases to NNDSS. Cases reported to NNDSS are supplemented by data from other surveillance systems.
**Among children aged <15 years.
††Data are not collected for indigenous versus imported cases. The total includes invasive disease caused by *Haemophilus influenzae* type b or an unknown serotype among children aged <5 years. Cases reported to NNDSS with onset dates in 1996 are supplemented by data from other surveillance systems (e.g., the National Bacterial Meningitis and Bacteremia Reporting System and laboratory-based active surveillance, both conducted by CDC's Childhood and Respiratory Diseases Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases).
§§No cases of *Haemophilus influenzae* disease (of any serotype or of unknown serotype) among any age group reported to NNDSS.

Vaccine-Preventable Diseases — Continued

TABLE 2. Number of reported cases* of selected vaccine-preventable diseases, by state — United States, 1996 — *Continued*

State	Measles†	Rubella†	Polio§	Diphtheria¶	Tetanus**	Hi type b or unknown††
North Carolina	1	72	0	0	0	8
North Dakota	0	0	0	0	0	0§§
Ohio	4	0	0	0	0	7
Oklahoma	0	0	0	0	0	3
Oregon	13	1	0	0	0	0
Pennsylvania	10	1	0	0	0	2
Rhode Island	1	0	0	0	0	1
South Carolina	0	1	0	0	0	0
South Dakota	0	0	0	1	0	0
Tennessee	2	0	0	0	0	7
Texas	24	5	0	0	0	3
Utah	117	0	0	0	0	1
Vermont	1	1	0	0	0	0
Virginia	0	2	0	0	0	3
Washington	36	15	0	0	0	4
West Virginia	0	0	0	0	0	1
Wisconsin	8	0	0	0	0	4
Wyoming	1	0	0	0	0	0§§
Total	**443**	**196**	**0**	**4**	**0**	**165**

*Includes cases reported to the National Notifiable Disease Surveillance System (NNDSS) as indigenous or of unknown case status. Data are provisonal as of July 23, 1997.
†Confirmed and unknown case status only.
§Caused by wild virus.
¶Includes two probable or confirmed cases reported to the National Immunization Program but not reported as 1996 cases to NNDSS. Cases reported to NNDSS are supplemented by data from other surveillance systems.
**Among children aged <15 years.
††Data are not collected for indigenous versus imported cases. The total includes invasive disease caused by *Haemophilus influenzae* type b or an unknown serotype among children aged <5 years. Cases reported to NNDSS with onset dates in 1996 are supplemented by data from other surveillance systems (e.g., the National Bacterial Meningitis and Bacteremia Reporting System and laboratory-based active surveillance, both conducted by CDC's Childhood and Respiratory Diseases Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases).
§§No cases of *Haemophilus influenzae* disease (of any serotype or of unknown serotype) among any age group reported to NNDSS.

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Editorial Note: The findings of this report document achievement in 1996 of two of the six disease-elimination goals established by the CII (tetanus among children aged <15 years and polio caused by wild poliovirus) and the disease-reduction goal for mumps. Factors contributing to attainment of these goals include achieving record-high vaccination coverage among preschool-aged children, increasing coverage with the second dose of measles-mumps-rubella vaccine (MMR) among school-aged children, and decreasing risk for importation of polio worldwide. Reported incidence of the other targeted vaccine-preventable diseases remained at or near the lowest ever recorded.

Vaccine-Preventable Diseases — Continued

Despite these accomplishments in eliminating vaccine-preventable diseases, four of the six disease-elimination goals established by the CII were not achieved at the national level in 1996. The reasons for this varied among the diseases targeted for elimination. For example, the epidemiology of measles and rubella has changed from that which existed before initiation of the CII. Disease-control measures and vaccination programs targeted at preschool-aged children are necessary, but not sufficient, to eliminate transmission of these diseases. Reducing susceptibility among young adults and administration of second doses of MMR to susceptible school-aged children will be critical to assure sustained elimination of transmission. Furthermore, persons who are natives of countries without rubella vaccination programs should be considered susceptible to rubella and, therefore, should be vaccinated unless they have documentation of prior vaccination or serologic evidence of immunity. Frequent importations of measles and rubella will require improved control of these diseases in other countries to reduce the risks for exposure among the remaining susceptible persons in the United States. Some populations that object to vaccination for religious or philosophic reasons continue to remain susceptible, and outbreaks among these populations may occur unless the risk for exposure to disease is minimized by reducing the risk for importation and by maintaining high vaccination levels in general populations. Cases of invasive Hib disease continue to occur among children who are too young to be fully protected with current vaccines and schedules, children who are not vaccinated at the recommended ages, and children who are not fully protected by existing vaccines (*8*). Additional efforts must be directed toward characterizing potential reservoirs of infection that are not eliminated by current vaccines and strategies to develop more effective vaccination programs. In addition, the persistent circulation of diphtheria despite high levels of vaccination (*7*) underscores the need for improved understanding of the indigenous foci of transmission to refine control strategies.

Although CII did not establish a disease-reduction goal for pertussis, the persistent ocurrence of this disease has important public health implications. Despite increasing vaccine coverage among preschool-aged children, the number of reported cases of pertussis has continued to increase: during 1988–1992, a median of 4083 cases was reported; in 1996, a provisional total of 7796 cases was reported. Although vaccine effectiveness remains high among preschool-aged children (*9*), older school-aged children now account for an increasing proportion of cases. Because pertussis vaccine is not recommended for use in persons aged ≥7 years, these cases cannot be prevented by current vaccines and vaccination strategies. Studies are under way to assess the effectiveness and potential impact of the use of acellular pertussis vaccines in older age groups.

As vaccination and other disease-control efforts reduce disease incidence, more accurate data are needed for monitoring further progress toward disease-elimination objectives. Surveillance indicators that will allow monitoring of diagnostic efforts are needed to ensure that the absence of reported cases reflects the true absence of disease rather than the absence of effort to detect disease. Adequate laboratory evaluation of suspected cases also is critical and should include increased completeness of serotyping of *H. influenzae* isolates from cases of invasive disease in children. Only 43% of reported mumps cases were confirmed; if laboratory confirmation had been sought for the remaining cases, many probably would have been ruled out as cases. Molecular typing methods can assist in characterizing the origins (indigenous or

Vaccine-Preventable Diseases — Continued

imported) of agents; these methods have been used to demonstrate the interruption of transmission of measles virus (*4*) and ongoing endemic circulation of toxigenic *C. diphtheriae* strains (*7*). Similar methods are now being applied to better define the origin of circulating rubella strains in the United States.

References

1. CDC. Reported vaccine-preventable diseases—United States, 1993, and the Childhood Immunization Initiative. MMWR 1994;43:57–60.
2. CDC. Status report on the Childhood Immunization Initiative: national, state, and urban area vaccination coverage levels among children aged 19–35 months—United States, 1996. MMWR 1997;46:657–64.
3. Strebel PM, Sutter RW, Cochi SL, et al. Epidemiology of poliomyelitis in the United States one decade after the last reported case of indigenous wild virus-associated disease. Clin Infect Dis 1992;14:568–79.
4. CDC. Measles elimination in the United States—measles eradication: recommendations from a meeting cosponsored by the World Health Organization, the Pan American Health Organization, and CDC. MMWR 1997;46(no. RR-11):12–4.
5. CDC. Measles—United States, 1996, and the interruption of indigenous transmission. MMWR 1997;46:242–6.
6. CDC. Rubella and congenital rubella syndrome—United States, 1994–1997. MMWR 1997;46:350–4.
7. CDC. Toxigenic *Corynebacterium diphtheriae*—Northern Plains Indian Community, August–October 1996. MMWR 1997;46:506–10.
8. CDC. Progress toward elimination of *Haemophilus influenzae* type b disease among infants and children—United States, 1987–1995. MMWR 1996;46:901–6.
9. Guris D, Strebel PM, Tachdjian R, Bardenheier B, Wharton M, Hadler SC. Effectiveness of pertussis vaccination program using the screening method, United States, 1992–1994. J Infect Dis 1997 (in press).

As part of its commemoration of CDC's 50th anniversary, MMWR *is reprinting selected* MMWR *articles of historical importance to public health, accompanied by current editorial notes. Reprinted below are two reports, published March 19, 1976, and June 11, 1976, respectively, concerning childhood cancer in Columbus, Ohio (acute childhood leukemia), and Winchester, Virginia (Burkitt's lymphoma). They illustrate the problem of cancer case clusters in communities and the public health approaches used in response.*

Epidemiologic Notes and Reports

Acute Childhood Leukemia — Columbus, Ohio

From August–October 1975, 8 cases of acute leukemia were diagnosed at Columbus Children's Hospital in Columbus, Ohio, in children living in that city. During any consecutive 3-month period in 1972–1974, the greatest number of cases of acute leukemia diagnosed at this hospital in Columbus children was 4 (Figure 1).

To evaluate this cluster of illness, all cases of acute leukemia diagnosed at Columbus Children's Hospital in 1972–1975 were reviewed with respect to age, race, sex, type of leukemia, date of diagnosis, and residence in and outside of Columbus

Childhood Cancer — Continued

FIGURE 1. Acute Leukemia, Columbus Children's Hospital, 1972–1975 — by Place of Residence and Date of Diagnosis

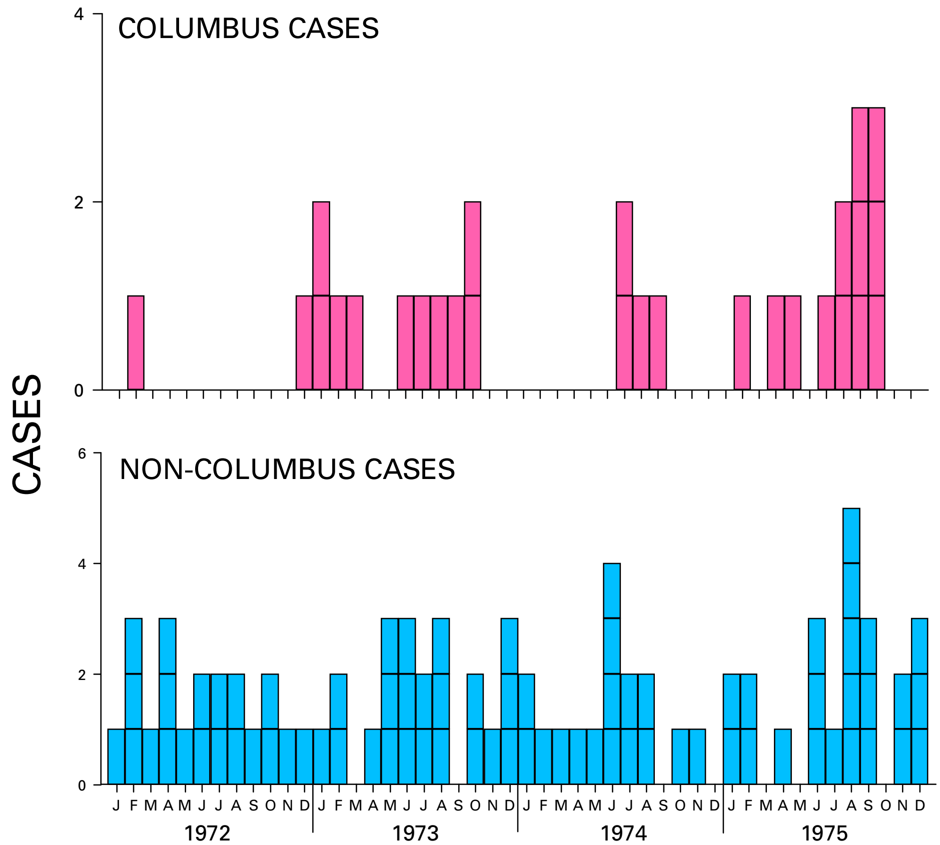


TABLE 1. Acute Leukemia, Columbus Children's Hospital, 1972–1975 — By Age, Sex, Race, Place of Residence, and Year of Diagnosis

	Year of Diagnosis			
	1972–1974		1975	
	Columbus Residents	Other	Columbus Residents	Other
Total number of cases	16	57	12	22
Mean age at diagnosis	4.5	5.4	7.0	6.5
Sex: Male	10	33	5	11
Female	6	19	7	11
Race: White	13	55	9	21
Black	3	2	0	1
Other	0	0	1	0
Unknown	0	0	2	0
Leukemic Cell Type:				
Myelocytic	3	11	3	4
Monocytic	2	2	0	0
Lymphocytic or Stem Cell	11	44	9	18

Childhood Cancer — Continued

(Table 1). The hospital provides care for most children with leukemia in Columbus and for many such patients from surrounding areas. In the 3-year period 1972–1974, an average of 5.3 cases of acute childhood leukemia were seen each year among Columbus residents (the expected number is 6.1, based on age-specific rates from the Third National Cancer Survey [*1*]). Over the 4-year period 1972–1975, 107 cases were seen, 28 among Columbus residents. Both Columbus and non-Columbus patients in 1975 were somewhat older and included relatively more females than in earlier years. Case distributions by race and leukemia cell type were not unusual.

Twelve cases were diagnosed in Columbus residents in 1975, compared with a total of 16 for all 3 preceding years. To assess the possibility of time-space clustering among Columbus cases over the entire 4-year period a statistical analysis was performed using the procedure devised by Knox (*2*). No statistically significant clustering was found; 13 case-pairs were observed in which dates of diagnosis were less than 1 year apart and places of residence 1 mile or less apart, whereas 14.4 pairs were to be expected on a random basis. Inspection of the 1975 case data showed no geographic clustering and no obvious community or family interrelationships among cases. No evidence of seasonal periodicity was found on statistical testing by month of diagnosis for pooled data from all 4 years.

Reported by I Ertel, MD, W Newton, MD, Children's Hospital, Columbus, Ohio; TJ Halpin, MD, MPH, State Epidemiologist, Ohio Department of Health; Field Services Div and Cancer and Birth Defects Div, Bur of Epidemiology, CDC.

Editorial Note: The question of time-space clustering among cases of leukemia and lymphoma has received considerable epidemiologic attention, particularly in connection with hypotheses regarding the possible viral etiology of cancer. While no evidence has been found of statistically significant time-space clustering among adult cases, several studies have suggested such a tendency among cases of childhood acute leukemia (*2–5*). The significance of such observations remains unclear. In the present investigation no evidence, statistical or otherwise, was found to suggest that the recent case cluster in Columbus might be due to factors other than chance. Further investigations of such clusters may be desirable, however, as a potential source of clues regarding the etiology of childhood tumors.

References

1. Third National Cancer Survey: Incidence Data, National Cancer Institute Monograph No. 41, 1975, pp 102–103
2. Knox G: Epidemiology of childhood leukaemia in Northumberland and Durham. Br J Prev Soc Med 18:17–24, 1964
3. Till MM, Hardesty RM, Pike MC, et al: Childhood leukaemia in greater London: A search for evidence of clustering. Br Med J 3:755–758, 1967
4. Gunz FW, Spears GFS: Distribution of acute leukaemia in time and space. Studies in New Zealand. Br Med J 4:604–608, 1968
5. Evatt BL, Chase GA, Heath CW, Jr: Time-space clustering among cases of acute leukemia in two Georgia counties. Blood 41:265–272, 1973

Childhood Cancer — Continued

Epidemiologic Notes and Reports

Burkitt's Lymphoma — Winchester, Virginia

Three cases of Burkitt's lymphoma (BL) have occurred since 1971 in young boys living in one residential section of Winchester, Virginia. Onset of illness in the first 2 cases (ages 9 and 15) occurred simultaneously in August 1971 (*1*); the third patient (age 8) first became ill in July 1975.

The first 2 patients lived 2 houses apart and the third one-half mile away. None of the 3 patients or their families was acquainted or shared common community activities, although all 3 boys had attended the same grade school at different times. All 3 patients were Caucasian.

Manifestations of disease were similar in all 3 cases. Initial symptoms in each case involved persistent sore throat progressing to peritonsillar masses in the first 2 cases and to cervical adenopathy in the third. Histologic diagnosis of BL was made on biopsy of these masses and was confirmed on pathologic review at the National Cancer Institute. Marrow aspiration was suggestive of leukemic transformation in the third case, but not in the first 2. In each case there was clinical evidence of central nervous system (CNS) tumor involvement. Despite intensive chemotherapy in all 3 cases, and radiation therapy in 2, disease was unremitting and led to death 1, 4, and 7 months after initial diagnosis. Autopsy findings in the first 2 cases showed widespread tumor involving the CNS, as well as cervical and abdominal lymph nodes. In the third case, autopsy showed residual tumor only at the original site of occurrence (the neck). Serum antibody against Epstein Barr virus (EBV) was present at low titers in 2 cases.

Epidemiologic investigation revealed no clues to suggest a possible common etiology for these cases beyond their closeness in time and place of occurrence. Although the summers of 1971 and 1975 had somewhat greater rainfall than other years, no evidence was found to link the cases to increased mosquito or other insect exposures. No unusual local patterns of leukemia, lymphoma, or infectious mononucleosis incidence were found, and no other persons with childhood cancer were identified as having been in contact with the patients or being in their particular neighborhood.

Reported by N McWilliams, MD, Medical College of Virginia; W Hatfield, MD, Lord Fairfax Health District; R Jackson, MD, State Epidemiologist, Virginia State Dept of Health; and Cancer and Birth Defects Div and Field Services Div, Bur of Epidemiology, CDC.

Editorial Note: Burkitt's lymphoma is extraordinarily rare outside certain parts of central Africa and New Guinea where it constitutes the most common tumor of childhood (*2*). Epidemiologic surveys of childhood cancer in the metropolitan areas of Atlanta, Georgia, and Houston, Texas, suggest that the annual incidence of BL in the United States is in the range of about 1 case per million children, or an expected incidence of about 1 case every 200 years for a town the size of Winchester. In this context, the occurrence of 3 cases over 5 years in one neighborhood is distinctly unusual.

The etiologic significance of such case clustering is not clear. While early studies of African BL suggested that time-space case clustering was a common feature of the disease (*3*), more recent epidemiologic work has cast doubt on the idea (*4*). Current evidence suggests that the etiology of African BL may be related to EBV infection in a host whose immunologic state has been severely affected by constant and severe

Childhood Cancer — Continued

malarial infections (*5*). The present cases, however, provide no obvious clinical or epidemiologic clues regarding their particular etiology.

References

1. Levine PH, Sandler SG, Komp DM, et al: Simultaneous occurrence of "American Burkitt's Lymphoma" in neighbors. N Engl J Med 288:562–563, 1973
2. Wright DH: The epidemiology of Burkitt's tumor. Cancer Res 27:2424–2438, 1967
3. Pike MC, Williams EH, Wright B: Burkitt's tumor in the West Nile District of Uganda 1961–5. Br Med J 1:395–399, 1967
4. Brubaker G, Geser A, Pike MC: Burkitt's lymphoma in the North Mara district of Tanzania 1964–70: Failure to find evidence of time-space clustering in a high risk isolated rural area. Br J Cancer 28:469–472, 1973
5. O'Conor GT: Persistent immunologic stimulation as a factor in oncogenesis, with special reference to Burkitt's tumor. Am J Med 48:279–285, 1970

Editorial Note—1997: Public concern can quickly rise when persons perceive an excess of cancer in their local community. Such situations are not infrequent. Each deserves prompt public health attention to address community concerns and to explore possible etiologic clues. However, it is difficult to know when field investigations are needed and how far they should proceed. The problem is neither new nor unique to cancer because similar concerns arise about other chronic or noninfectious diseases. Cases can cluster simply by chance, and random case distributions probably account for most community case clusters. It is possible that certain clusters may have community-based causes, possibly resulting from particular patterns of infectious disease occurrence or from environmental exposures. Although methodologic problems greatly limit the exploration of such possibilities, carefully designed field investigations in selected situations should be considered (*1,2*).

Reports of such investigations about cancer clusters have appeared in *MMWR*. The two reports reprinted in this issue illustrate the diversity of analytic approaches that have been used, as well as the uncertainty of conclusions. Both of these investigations involved collaborative efforts between CDC (the Chronic Diseases Division and the Field Services Division) and local/state medical and public health authorities. In the case of acute childhood leukemia in Columbus, Ohio (*3*), concern was for disease frequency in the city as a whole after eight cases were diagnosed during a 3-month period—twice the maximum number seen before. However, after further investigation, no features were observed that distinguished these cases from others, and a statistical analysis of time-space closeness indicated no evidence of unusual clustering.

The appearance of Burkitt's tumor in Winchester, Virginia, presented a different problem (*4*). This particular cancer is rare outside central Africa and New Guinea, and the two initial cases occurred in children whose diagnoses were simultaneous and who lived only two doors apart. The third patient, diagnosed 4 years later, lived nearby. Although no other links were found among the three cases, the rareness of the tumor, the time-space closeness of the first two cases, and the recurrent pattern suggested by the third case required consideration of alternate explanations to that of a chance event.

Interest in cancer case clusters has been evident in the medical literature since the late 19th century. Leukemia has received particular attention, perhaps because clusters suggest infectious disease outbreaks and because white cell elevations are asso-

Childhood Cancer — Continued

ciated with infection. The focus on leukemia intensified in the 1960s when tumor virologists, after demonstrating that leukemia viruses exist in other species, initiated an extensive search for such viruses in humans. During the 1960s and 1970s, CDC played a prominent role in that search by working closely with the National Cancer Institute in field investigations of leukemia case clusters. One of the earliest of these investigations involved eight cases of childhood leukemia in the Chicago suburb of Niles, Illinois (*5*). Seven of those cases were associated with one particular school where a parallel pattern of rheumatic-like illness had simultaneously appeared. The neighborhood was newly created, a situation later recalled when observations concerning a childhood leukemia cluster in the United Kingdom (UK) suggested that risk might be heightened in newly established communities (*6*).

Epidemiologic work continued at CDC into the 1980s, with several field investigations conducted each year in cooperation with various local and state health departments (*7*). Most studies involved time-space clusters of childhood leukemia cases in residential communities; however, some work involved adult leukemias, cancers of other types in both adults and children, multiple-case families, associations between human and animal cancers (i.e., pets and farm animals), and cancers occurring within acquaintance networks (e.g., former school mates). In addition, occasional situations were studied in which case clusters involved congenital malformations or chronic neurologic disease. Over time, emphasis gradually moved away from infectious disease hypotheses and increasingly focused on environmental exposures (e.g., hazardous waste sites, water pollution, and ionizing radiation).

In recent years, interest has been revived about clusters of childhood leukemia in residential communities. Much of the impetus has come from studies in the UK where a cluster of five cases occurred in a small town affecting children of men employed at a nearby nuclear fuel-reprocessing plant. Extensive epidemiologic studies confirmed this local increase in incidence and suggested a possible relation to increased paternal exposure to low levels of ionizing radiation in the workplace before the children were conceived (*8*).

Although studies in other human and experimental settings have not confirmed this association, nationwide studies of childhood leukemia in the UK have suggested that risk may be increased in newly settled towns, such as the one near the nuclear reprocessing plant. This observation has led to the hypothesis that infectious disease patterns among children in such new towns may be less stable than in more settled communities and may, on occasion, be reflected in unusual patterns of childhood leukemia as a rare sequel to certain infections (*6*). Again, this concept recalls the earlier Niles, Illinois, experience.

Despite frequent attention over the years to individual cancer case clusters and despite the various hypotheses generated, there has been no instance yet where a biologic cause for clustering has been convincingly demonstrated. In the rare instance when causation has been proven from studies of small groups of cases (*9*), virtually all have involved rare tumors in occupational settings where exposures were high and where reasonable evidence existed to establish individual exposure levels. The most striking example involved vinyl chloride monomer exposures causing hepatic angiosarcomas in vinyl chloride polymerization workers (*10,11*). No comparable set of data can be cited for exposures hypothesized in residential settings.

Childhood Cancer — Continued

There are clear reasons why community cluster studies are generally inconclusive. When known carcinogens are in question (either chemicals or ionizing radiation), exposures are usually very low. Many situations, however, focus on exposures, such as nonionizing radiation, for which firm evidence of carcinogenicity is lacking at any dose. Studies also are limited by the long and irregular latency of cancer, the clinical nonspecificity of cancer cases (e.g., our inability to assign specific causes to individual cases), and the relative rareness of disease at any one point in time, resulting in very small numbers on which to base epidemiologic analyses. Nonetheless, public health departments must respond in some manner when cancer case clusters come to their attention. The first step is to respond quickly and openly so that communication with community residents is effective and concerns are not neglected. The second step is to confirm the accuracy of reported diagnoses and to compare the number of observed cases with the number to be expected. Often investigations need go no further. If more work is needed, however, the next step is either to interview affected patients or their families in search of common life features or to design and conduct a more formal epidemiologic study, usually a case-control design. Here the work may not be worth the effort unless a reasonable etiologic hypothesis exists or community concern is exceptionally high. The methodologic difficulties become all too apparent, especially the weakness of such studies, limited as they are by very small numbers. Environmental studies also should be approached with caution because of their weakness in establishing clear case-exposure relations and because of their great expense.

Despite these analytic limitations, cancer case clustering deserves research attention. With the possibility of molecular marker techniques, which in the future may help determine the etiologies of individual cancer cases, it may be possible to conduct useful studies of selected clusters, whether the hypotheses are infectious or environmental. Still, the rarity of nonchance clusters must always be considered. Area-wide statistical techniques designed to measure the degree to which cases may cluster in time and space have failed to document any consistent tendency, except perhaps in childhood cancers (*12–14*). If further knowledge is to develop in this difficult area of public health practice, it is among childhood cancers that work should focus (*15*).

1997 Editorial Note by Clark W Heath, Jr, MD, Vice President for Epidemiology and Surveillance Research, American Cancer Society, Atlanta, Georgia, and former Director, Division of Chronic Diseases, Center for Disease Control. Glyn G Caldwell, MD, Clinical Coordinator, Indiana Medical Review Organization, Indianapolis, and former Chief, Cancer Branch, Bureau of Epidemiology, Center for Disease Control.

References

1. Heath CW Jr. Investigating causation in cancer clusters. Radiation and Environmental Biophysics 1996;35:133–6.
2. Bender AP, Williams AN, Johnson RA, Jagger HG. Appropriate public health responses to clusters: the art of being responsibly responsible. Am J Epidemiol 1990;132(suppl 1):S48–S52.
3. CDC. Acute childhood leukemia—Columbus, Ohio. MMWR 1976;25:77–8.
4. CDC. Burkitt's lymphoma—Winchester, Virginia. MMWR 1976;25:173.
5. Heath CW Jr, Hasterlik RJ. Leukemia among children in a suburban community. Amer J Med 1963;34:796–812.
6. Kinlen L, Clarke K, Hudson C. Evidence from population mixing in British New Towns 1946–1985 of an infective basis for childhood leukaemia. Lancet 1990;336:577–82.
7. Caldwell GG, Heath CW Jr. Case clustering in cancer. South Med J 1976;69:1598–602.
8. Gardner MJ, Snee MP, Hall AJ, Powell CA, Downes S, Terrell JD. Results of case-control study of leukaemia and lymphoma among young people near Sellafield nuclear plant in West Cumbria. Br Med J 1990;300:423–9.

Childhood Cancer — Continued

9. Caldwell GG. Twenty-two years of cancer cluster investigations at the CDC. Am J Epidemiol 1990;132(suppl 1):S43–S47.
10. Creech JL, Johnson MN. Angiosarcoma of the liver in the manufacture of polyvinyl chloride. J Occup Med 1974;16:160–1.
11. CDC. Epidemiologic notes and reports: angiosarcoma of the liver among polyvinyl chloride workers—Kentucky. MMWR 1997;46:97–101.
12. Knox G. Epidemiology of childhood leukaemia in Northumberland and Durham. Brit J Prev Soc Med 1964;18:17–24.
13. Mantel N. The detection of disease clustering and a generalized regression approach. Cancer Res 1967;27:209–20.
14. CDC. Guidelines for investigating clusters of health events. MMWR 1990;39(no. RR-11).
15. Alexander FE. Viruses, clusters, and clustering of childhood leukaemia: a new perspective? Eur J Cancer 1993;29A:1424–43.

Notice to Readers

Availability of *Case Definitions for Infectious Conditions under Public Health Surveillance* on Internet

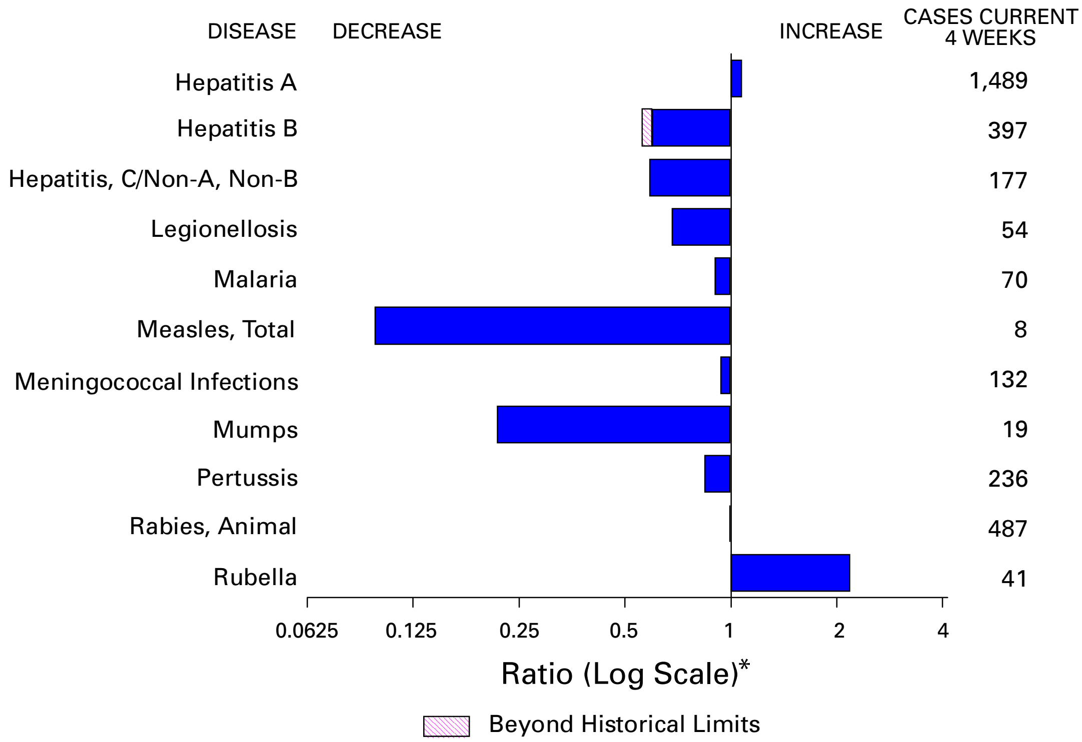
The 1997 *MMWR Recommendations and Reports*, *Case Definitions for Infectious Conditions under Public Health Surveillance* (*1*), is now available on the Internet. This document provides updated uniform criteria for state health department personnel to use when reporting notifiable diseases to CDC. The reported numbers of cases of selected notifiable diseases are printed each week in Tables I–III of *MMWR*.

Since May 2, 1997, the complete document has been available as a .pdf file (Adobe Acrobat portable document format) from CDC's *MMWR* World-Wide Web (WWW) page and from CDC's file transfer protocol server at ftp.cdc.gov/. In response to high demand from state and local health departments, case definitions for specific conditions are now accessible individually from the *Case Definitions for Infectious Conditions under Public Health Surveillance* WWW site at http://www.cdc.gov/epo/mmwr/other/case_def/about.html. To facilitate analysis of historical surveillance data, the original case definitions from the 1990 publication *Case Definitions for Public Health Surveillance* (*2*) and intermediate revisions are linked at this website to their 1997 revised versions. Revisions to these case definitions will be added to this WWW site when approved by the Council of State and Territorial Epidemiologists.

References

1. CDC. Case definitions for infectious conditions under public health surveillance. MMWR 1997;46(no. RR-10).
2. CDC. Case definitions for public health surveillance. MMWR 1990;39(no. RR-13).

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending July 19, 1997, with historical data — United States



*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 — provisional cases of selected notifiable diseases, United States, cumulative, week ending July 19, 1997 (29th Week)

	Cum. 1997		Cum. 1997
Anthrax	-	Plague	2
Brucellosis	31	Poliomyelitis, paralytic	-
Cholera	4	Psittacosis	21
Congenital rubella syndrome	2	Rabies, human	2
Cryptosporidiosis*	687	Rocky Mountain spotted fever (RMSF)	144
Diphtheria	5	Streptococcal disease, invasive Group A	921
Encephalitis: California*	4	Streptococcal toxic-shock syndrome*	22
eastern equine*	-	Syphilis, congenital¶	125
St. Louis*	1	Tetanus	23
western equine*	1	Toxic-shock syndrome	66
Hansen Disease	53	Trichinosis	3
Hantavirus pulmonary syndrome*†	9	Typhoid fever	153
Hemolytic uremic syndrome, post-diarrheal*	22	Yellow fever	-
HIV infection, pediatric*§	131		

-:no reported cases
*Not notifiable in all states.
†Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update June 24, 1997.
¶Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending July 19, 1997, and July 20, 1996 (29th Week)

Reporting Area	AIDS		Chlamydia		*Escherichia coli* O157:H7 NETSS†	*Escherichia coli* O157:H7 PHLIS§	Gonorrhea		Hepatitis C/NA,NB	
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1997	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996
UNITED STATES	30,463	36,705	227,922	220,211	881	392	142,924	163,129	1,683	1,985
NEW ENGLAND	1,277	1,554	9,112	8,919	79	34	3,076	3,455	32	52
Maine	28	22	548	U	8	-	31	24	-	-
N.H.	17	50	401	400	5	3	59	81	6	5
Vt.	23	14	214	240	4	1	27	34	-	15
Mass.	467	739	3,937	3,602	50	30	1,247	1,173	22	28
R.I.	85	94	1,069	1,120	1	-	243	283	4	4
Conn.	657	635	2,943	3,557	11	-	1,469	1,860	-	-
MID. ATLANTIC	9,745	9,666	31,243	36,640	52	14	18,421	22,847	191	169
Upstate N.Y.	1,645	1,166	N	N	34	4	3,011	3,989	148	136
N.Y. City	4,978	5,303	16,336	19,856	8	-	7,287	8,912	-	3
N.J.	1,973	1,937	4,656	6,985	10	8	3,274	4,389	-	-
Pa.	1,149	1,260	10,251	9,799	N	2	4,849	5,557	43	30
E.N. CENTRAL	2,041	2,936	32,622	48,084	175	43	20,205	31,562	308	289
Ohio	396	662	6,786	11,333	41	17	4,604	8,051	10	14
Ind.	361	390	4,673	5,251	32	10	3,129	3,455	9	7
Ill.	765	1,205	6,043	13,503	40	-	2,950	9,125	40	58
Mich.	386	521	10,372	12,089	62	6	7,484	8,286	249	210
Wis.	133	158	4,748	5,908	N	10	2,038	2,645	-	-
W.N. CENTRAL	565	838	12,988	16,775	159	86	6,207	7,762	96	53
Minn.	101	168	U	2,702	74	48	U	1,099	3	-
Iowa	70	57	2,515	1,980	24	9	686	504	19	25
Mo.	237	398	6,233	7,214	24	22	4,156	4,638	63	13
N. Dak.	7	11	457	539	5	3	34	14	2	-
S. Dak.	4	8	695	705	10	-	77	100	-	-
Nebr.	61	55	1,038	1,109	14	-	393	237	2	5
Kans.	85	141	2,050	2,526	8	4	861	1,170	7	10
S. ATLANTIC	7,504	9,281	50,313	28,327	99	43	47,696	52,355	172	101
Del.	144	166	1,276	1,148	3	3	639	799	-	-
Md.	950	1,133	3,918	U	8	3	7,268	5,434	10	1
D.C.	538	617	N	N	-	-	1,738	2,474	-	-
Va.	651	580	6,178	5,954	N	18	4,423	5,205	18	8
W. Va.	57	66	1,628	1,131	N	-	503	384	11	7
N.C.	428	471	10,269	U	28	16	9,870	10,179	33	30
S.C.	410	476	6,934	U	2	-	6,219	6,151	27	15
Ga.	965	1,409	7,105	7,101	26	-	7,775	11,862	U	-
Fla.	3,361	4,363	13,005	12,993	31	3	9,261	9,867	73	40
E.S. CENTRAL	1,022	1,208	18,169	16,487	54	7	18,046	17,582	200	355
Ky.	177	173	3,636	3,765	17	-	2,320	2,262	9	20
Tenn.	418	474	7,001	7,127	28	7	5,812	6,166	135	275
Ala.	237	364	4,541	4,548	6	-	6,356	7,293	6	2
Miss.	190	197	2,991	1,047	3	-	3,558	1,861	50	58
W.S. CENTRAL	3,187	3,905	29,224	11,326	28	5	18,413	10,795	199	201
Ark.	120	169	676	970	4	1	1,410	2,329	-	4
La.	545	878	4,904	3,811	4	3	4,581	4,057	121	117
Okla.	166	166	4,071	4,112	2	1	2,555	2,581	5	1
Tex.	2,356	2,692	19,573	2,433	18	-	9,867	1,828	73	79
MOUNTAIN	881	1,174	13,117	13,829	106	63	4,069	4,316	219	352
Mont.	22	22	498	698	7	-	20	14	12	10
Idaho	28	23	790	856	13	8	59	58	28	87
Wyo.	13	3	309	358	5	-	28	20	91	111
Colo.	210	332	1,896	1,091	48	31	1,171	994	25	33
N. Mex.	79	111	1,899	2,258	5	4	653	462	33	42
Ariz.	227	339	5,427	6,147	N	14	1,607	2,113	22	40
Utah	68	106	935	823	25	-	137	161	3	13
Nev.	234	238	1,363	1,598	3	6	394	494	5	16
PACIFIC	4,241	6,142	31,134	39,824	129	94	6,791	12,455	266	413
Wash.	380	442	5,032	5,520	25	22	1,072	1,199	17	35
Oreg.	162	279	2,219	3,073	38	40	350	455	4	6
Calif.	3,643	5,285	22,212	29,669	61	27	4,902	10,288	159	255
Alaska	22	14	790	583	5	1	216	243	-	2
Hawaii	34	122	881	979	N	4	251	270	86	115
Guam	2	4	31	228	N	-	3	39	-	6
P.R.	1,021	1,047	U	U	25	U	351	356	63	104
V.I.	52	14	N	N	N	U	-	-	-	-
Amer. Samoa	-	-	-	-	N	U	-	-	-	-
C.N.M.I.	1	-	N	N	N	U	16	11	2	-

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 Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update June 24, 1997.

†National Electronic Telecommunications System for Surveillance.

§Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending July 19, 1997, and July 20, 1996 (29th Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997
UNITED STATES	448	426	2,141	4,715	782	737	4,320	6,274	9,240	10,246	4,026
NEW ENGLAND	31	21	396	1,038	37	30	91	89	236	241	591
Maine	1	1	7	9	1	5	-	-	11	16	124
N.H.	3	-	7	16	1	1	-	1	9	8	23
Vt.	4	3	3	9	2	2	-	-	3	1	90
Mass.	9	11	88	54	15	11	43	40	138	108	127
R.I.	5	6	53	126	4	3	2	1	17	24	11
Conn.	9	N	238	824	14	8	46	47	58	84	216
MID. ATLANTIC	78	92	1,280	3,055	197	229	212	286	1,676	1,804	831
Upstate N.Y.	18	27	276	1,430	33	45	19	43	222	201	615
N.Y. City	3	7	18	168	107	130	46	91	866	952	-
N.J.	12	8	418	686	43	38	88	97	336	387	90
Pa.	45	50	568	771	14	16	59	55	252	264	126
E.N. CENTRAL	144	148	34	216	71	93	347	1,057	1,068	1,074	88
Ohio	72	49	26	12	11	8	110	401	344	164	61
Ind.	25	35	6	12	7	7	70	138	81	102	10
Ill.	5	19	2	7	27	46	38	290	429	580	5
Mich.	36	28	-	-	20	20	72	109	153	173	11
Wis.	6	17	U	185	6	12	57	119	61	55	1
W.N. CENTRAL	40	23	31	75	28	17	81	215	286	247	268
Minn.	1	2	20	12	10	5	U	25	76	64	26
Iowa	11	3	1	12	8	2	4	13	34	36	93
Mo.	10	5	7	29	5	7	53	154	116	89	11
N. Dak.	2	-	-	-	2	-	-	-	6	3	38
S. Dak.	2	2	-	-	-	-	-	-	7	13	40
Nebr.	10	9	2	1	1	-	3	8	12	13	1
Kans.	4	2	1	21	2	3	21	15	35	29	59
S. ATLANTIC	69	57	264	192	163	115	1,811	2,132	1,796	1,884	1,722
Del.	6	7	27	85	2	2	15	23	11	27	36
Md.	17	7	186	48	46	31	493	370	170	161	315
D.C.	3	4	7	1	9	7	50	86	57	78	3
Va.	12	12	11	12	37	19	146	242	165	149	339
W. Va.	N	N	1	7	-	2	3	2	29	33	50
N.C.	8	5	15	30	8	10	404	577	219	267	530
S.C.	3	4	1	3	9	8	222	235	183	203	99
Ga.	-	1	1	1	15	14	302	374	330	370	179
Fla.	20	16	15	5	37	22	176	223	632	596	171
E.S. CENTRAL	26	26	39	41	16	18	978	1,450	645	788	145
Ky.	2	2	4	13	4	3	85	77	100	135	19
Tenn.	18	12	20	13	4	8	431	479	228	274	83
Ala.	2	2	4	2	5	3	258	306	223	243	43
Miss.	4	10	11	13	3	4	204	588	94	136	-
W.S. CENTRAL	7	4	25	49	7	14	606	640	1,199	1,218	171
Ark.	-	1	6	16	2	-	66	152	118	111	27
La.	2	-	2	1	5	2	212	306	-	6	1
Okla.	2	3	5	3	-	-	67	108	104	95	66
Tex.	3	-	12	29	-	12	261	74	977	1,006	77
MOUNTAIN	26	26	9	4	44	31	87	75	295	353	74
Mont.	1	1	-	-	2	3	-	-	7	14	19
Idaho	2	-	2	-	-	-	-	2	7	5	-
Wyo.	1	3	2	3	2	3	-	2	2	3	18
Colo.	8	7	3	-	23	14	4	22	57	49	-
N. Mex.	1	1	-	-	6	1	8	4	16	55	5
Ariz.	7	7	1	-	5	4	65	38	147	130	30
Utah	5	2	-	1	3	4	3	2	13	34	-
Nev.	1	5	1	-	3	2	7	5	46	63	2
PACIFIC	27	29	63	45	219	190	107	330	2,039	2,637	136
Wash.	6	3	2	3	9	11	7	6	112	146	-
Oreg.	-	-	9	10	11	13	5	4	94	98	2
Calif.	20	24	52	31	194	159	93	318	1,691	2,240	115
Alaska	-	1	-	-	3	2	1	-	46	49	19
Hawaii	1	1	-	1	2	5	1	2	96	104	-
Guam	-	1	-	-	-	-	-	3	5	55	-
P.R.	-	-	-	-	3	1	134	135	129	105	36
V.I.	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	9	1	2	-	-

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

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending July 19, 1997, and July 20, 1996 (29th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported[†]		Total	
	Cum. 1997*	Cum. 1996	Cum. 1997	Cum. 1996	Cum. 1997	Cum. 1996	1997	Cum. 1997	1997	Cum. 1997	Cum. 1997	Cum. 1996
UNITED STATES	641	667	14,763	15,012	4,662	5,265	-	50	3	27	77	306
NEW ENGLAND	35	21	362	175	82	114	-	9	-	2	11	11
Maine	3	-	45	12	7	2	-	-	-	-	-	-
N.H.	4	10	19	8	5	8	-	1	-	-	1	-
Vt.	3	-	7	4	2	9	-	-	-	-	-	1
Mass.	22	10	139	87	33	33	-	8	-	1	9	9
R.I.	2	1	80	7	9	6	-	-	-	-	-	-
Conn.	1	-	72	57	26	56	-	-	-	1	1	1
MID. ATLANTIC	72	137	1,110	1,018	668	841	-	12	1	5	17	27
Upstate N.Y.	14	35	158	228	139	203	-	2	-	3	5	5
N.Y. City	20	35	420	318	238	299	-	4	-	1	5	9
N.J.	28	35	184	219	136	170	-	1	-	-	1	2
Pa.	10	32	348	253	155	169	-	5	1	1	6	11
E.N. CENTRAL	105	117	1,474	1,368	498	611	-	5	-	3	8	16
Ohio	60	66	207	498	48	71	-	-	-	-	-	2
Ind.	11	7	178	175	60	83	-	-	-	-	-	-
Ill.	23	32	313	342	120	185	-	5	-	1	6	3
Mich.	10	7	690	237	253	217	-	-	-	2	2	2
Wis.	1	5	86	116	17	55	-	-	-	-	-	9
W.N. CENTRAL	33	25	1,143	1,179	291	269	-	9	-	2	11	16
Minn.	23	13	104	59	23	28	-	-	-	2	2	14
Iowa	3	3	196	213	29	35	-	-	-	-	-	-
Mo.	3	6	597	606	209	164	-	1	-	-	1	1
N. Dak.	-	-	10	28	2	-	-	-	-	-	-	-
S. Dak.	2	1	14	39	-	-	-	8	-	-	8	-
Nebr.	1	1	56	86	9	20	-	-	-	-	-	-
Kans.	1	1	166	148	19	22	-	-	-	-	-	1
S. ATLANTIC	116	120	939	601	684	698	-	2	2	7	9	5
Del.	-	1	16	7	4	6	-	-	-	-	-	1
Md.	46	41	149	108	102	89	-	-	1	2	2	-
D.C.	2	5	15	18	24	26	-	-	-	1	1	-
Va.	7	5	114	88	74	85	-	-	-	1	1	2
W. Va.	3	6	6	12	9	14	-	-	-	-	-	-
N.C.	17	18	113	76	134	195	-	-	-	1	1	-
S.C.	4	3	68	30	62	47	-	-	-	-	-	-
Ga.	22	30	196	48	64	8	-	-	1	1	1	1
Fla.	15	11	262	214	211	228	-	2	-	1	3	1
E.S. CENTRAL	35	19	360	841	387	455	-	-	-	-	-	-
Ky.	4	5	45	21	24	43	-	-	-	-	-	-
Tenn.	23	8	228	574	255	262	-	-	-	-	-	-
Ala.	8	5	52	110	40	31	-	-	-	-	-	-
Miss.	-	1	35	136	68	119	U	-	U	-	-	-
W.S. CENTRAL	33	29	2,949	2,863	561	621	-	3	-	1	4	14
Ark.	1	-	150	268	33	48	-	-	-	-	-	-
La.	7	3	119	88	83	65	-	-	-	-	-	-
Okla.	20	23	939	1,227	21	24	-	-	-	-	-	-
Tex.	5	3	1,741	1,280	424	484	-	3	-	1	4	14
MOUNTAIN	66	33	2,341	2,437	503	636	-	5	-	-	5	84
Mont.	-	-	54	71	5	7	-	-	-	-	-	-
Idaho	1	1	80	140	15	64	U	-	U	-	-	1
Wyo.	2	-	20	23	21	25	-	-	-	-	-	-
Colo.	9	7	254	220	98	69	-	-	-	-	-	7
N. Mex.	8	8	188	267	168	215	-	-	-	-	-	7
Ariz.	27	12	1,229	934	116	148	-	5	-	-	5	8
Utah	3	5	370	559	57	63	-	-	-	-	-	56
Nev.	16	-	146	223	23	45	-	-	-	-	-	5
PACIFIC	146	166	4,085	4,530	988	1,020	-	5	-	7	12	133
Wash.	2	2	295	300	43	57	-	-	-	-	-	37
Oreg.	22	22	215	578	62	65	-	-	-	-	-	7
Calif.	114	136	3,476	3,572	861	886	-	2	-	7	9	24
Alaska	2	4	23	28	14	4	-	-	-	-	-	63
Hawaii	6	2	76	52	8	8	-	3	-	-	3	2
Guam	-	-	-	6	1	-	U	-	U	-	-	-
P.R.	-	1	185	118	827	554	-	-	-	-	-	2
V.I.	-	-	-	25	-	23	U	-	U	-	-	-
Amer. Samoa	-	-	-	-	-	-	U	-	U	-	-	-
C.N.M.I.	5	10	1	1	26	5	U	1	U	-	1	-

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

*Of 137 cases among children aged <5 years, serotype was reported for 75 and of those, 28 were type b.

[†]For imported measles, cases include only those resulting from importation from other countries.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending July 19, 1997, and July 20, 1996 (29th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996	1997	Cum. 1997	Cum. 1996
UNITED STATES	2,086	2,039	6	337	406	59	2,697	2,094	27	94	138
NEW ENGLAND	129	88	-	7	1	7	546	443	-	-	24
Maine	15	9	-	-	-	-	6	15	-	-	-
N.H.	13	3	-	-	-	-	64	20	-	-	-
Vt.	2	3	-	-	-	3	178	12	-	-	2
Mass.	65	33	-	2	1	4	275	391	-	-	20
R.I.	9	10	-	4	-	-	12	-	-	-	-
Conn.	25	30	-	1	-	-	11	5	-	-	2
MID. ATLANTIC	184	225	-	30	56	2	177	135	-	3	7
Upstate N.Y.	48	57	-	6	17	-	54	69	-	1	3
N.Y. City	34	35	-	-	13	-	40	21	-	2	2
N.J.	42	48	-	-	2	-	5	7	-	-	2
Pa.	60	85	-	24	24	2	78	38	-	-	-
E.N. CENTRAL	300	291	3	38	88	11	202	280	-	4	3
Ohio	116	107	1	18	28	7	85	89	-	-	-
Ind.	35	40	-	4	5	3	33	19	-	-	-
Ill.	89	83	-	7	17	1	30	63	-	1	1
Mich.	36	29	2	9	37	-	31	25	-	-	2
Wis.	24	32	-	-	1	-	23	84	-	3	-
W.N. CENTRAL	160	161	-	13	7	9	164	83	-	-	-
Minn.	24	22	-	5	3	7	108	54	-	-	-
Iowa	37	32	-	6	-	-	18	3	-	-	-
Mo.	74	62	-	-	2	2	25	15	-	-	-
N. Dak.	1	3	-	-	2	-	2	1	-	-	-
S. Dak.	4	8	-	-	-	-	2	2	-	-	-
Nebr.	6	14	-	2	-	-	4	3	-	-	-
Kans.	14	20	-	-	-	-	5	5	-	-	-
S. ATLANTIC	377	319	2	48	57	11	271	217	27	60	29
Del.	5	2	-	-	-	-	-	14	-	-	-
Md.	35	36	-	4	19	2	82	75	-	-	-
D.C.	1	4	-	-	-	-	3	-	-	-	1
Va.	34	35	1	7	7	1	32	26	-	1	2
W. Va.	14	13	-	-	-	-	5	2	-	-	-
N.C.	69	54	-	7	11	5	73	34	27	49	15
S.C.	44	41	-	10	5	-	11	15	-	9	1
Ga.	73	96	1	5	2	2	9	13	-	-	-
Fla.	102	38	-	15	13	1	56	38	-	1	10
E.S. CENTRAL	159	142	-	16	16	2	61	156	-	-	2
Ky.	37	20	-	3	-	-	14	128	-	-	-
Tenn.	61	43	-	3	1	2	24	14	-	-	-
Ala.	45	43	-	6	3	-	15	8	-	-	2
Miss.	16	36	U	4	12	U	8	6	U	-	N
W.S. CENTRAL	204	229	-	34	30	3	67	71	-	4	7
Ark.	25	27	-	-	1	1	12	2	-	-	-
La.	42	42	-	11	11	-	12	5	-	-	1
Okla.	23	23	-	-	-	2	12	5	-	-	-
Tex.	114	137	-	23	18	-	31	59	-	4	6
MOUNTAIN	120	119	-	44	18	14	764	206	-	5	6
Mont.	8	6	-	-	-	1	10	7	-	-	-
Idaho	8	17	U	2	-	U	520	65	U	1	2
Wyo.	1	3	-	1	-	-	5	1	-	-	-
Colo.	34	19	-	3	3	5	161	51	-	-	2
N. Mex.	19	20	N	N	N	3	38	33	-	-	-
Ariz.	33	30	-	30	1	-	19	12	-	4	1
Utah	11	11	-	6	3	5	9	10	-	-	-
Nev.	6	13	-	2	11	-	2	27	-	-	1
PACIFIC	453	465	1	107	133	-	445	503	-	18	60
Wash.	55	62	-	13	18	-	207	208	-	3	12
Oreg.	92	82	N	N	N	-	18	33	-	-	1
Calif.	303	314	1	82	95	-	211	248	-	8	44
Alaska	1	5	-	2	2	-	2	1	-	-	-
Hawaii	2	2	-	10	18	-	7	13	-	7	3
Guam	-	4	U	1	4	U	-	-	U	-	-
P.R.	9	10	-	5	1	-	-	2	-	-	-
V.I.	-	-	U	-	1	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	4	-	U	-	-	U	-	-

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

TABLE IV. Deaths in 122 U.S. cities,* week ending July 19, 1997 (29th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	448	319	79	35	9	6	24
Boston, Mass.	146	90	34	14	5	3	5
Bridgeport, Conn.	30	24	4	2	-	-	2
Cambridge, Mass.	19	12	5	1	1	-	1
Fall River, Mass.	38	30	5	3	-	-	1
Hartford, Conn.	U	U	U	U	U	U	U
Lowell, Mass.	22	18	3	1	-	-	-
Lynn, Mass.	18	14	2	1	1	-	-
New Bedford, Mass.	13	11	-	1	1	-	-
New Haven, Conn.	36	27	6	2	-	1	5
Providence, R.I.	U	U	U	U	U	U	U
Somerville, Mass.	6	4	2	-	-	-	-
Springfield, Mass.	37	29	3	4	-	1	3
Waterbury, Conn.	28	21	6	1	-	-	2
Worcester, Mass.	55	39	9	5	1	1	5
MID. ATLANTIC	2,325	1,596	432	200	47	50	130
Albany, N.Y.	44	32	7	2	-	3	2
Allentown, Pa.	16	15	-	1	-	-	1
Buffalo, N.Y.	70	52	15	2	-	1	1
Camden, N.J.	28	20	3	1	3	1	-
Elizabeth, N.J.	22	15	2	2	1	2	-
Erie, Pa.	47	34	7	5	-	1	1
Jersey City, N.J.	41	29	8	4	-	-	-
New York City, N.Y.	1,140	761	224	121	16	18	52
Newark, N.J.	62	26	20	9	2	5	3
Paterson, N.J.	32	17	8	5	1	1	-
Philadelphia, Pa.	400	269	74	32	16	9	33
Pittsburgh, Pa.§	87	65	17	1	2	2	8
Reading, Pa.	7	6	-	-	1	-	-
Rochester, N.Y.	120	98	17	2	2	1	8
Schenectady, N.Y.	20	13	7	-	-	-	2
Scranton, Pa.	34	30	1	3	-	-	1
Syracuse, N.Y.	111	83	18	6	2	2	13
Trenton, N.J.	28	20	2	2	1	3	5
Utica, N.Y.	16	11	2	2	-	1	-
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	2,116	1,361	429	185	65	72	120
Akron, Ohio	32	20	4	3	2	3	-
Canton, Ohio	30	22	4	1	2	1	6
Chicago, Ill.	455	248	103	48	21	31	23
Cincinnati, Ohio	113	73	24	11	3	2	15
Cleveland, Ohio	171	112	34	16	4	5	4
Columbus, Ohio	145	103	29	9	2	2	12
Dayton, Ohio	112	86	15	9	-	2	5
Detroit, Mich.	238	129	61	28	14	6	9
Evansville, Ind.	35	29	3	3	-	-	-
Fort Wayne, Ind.	77	62	6	5	3	1	5
Gary, Ind.	8	5	2	1	-	-	-
Grand Rapids, Mich.	67	42	15	5	1	4	6
Indianapolis, Ind.	177	117	36	16	4	4	16
Lansing, Mich.	45	29	14	2	-	-	1
Milwaukee, Wis.	142	97	24	14	2	5	5
Peoria, Ill.	26	16	7	3	-	-	2
Rockford, Ill.	46	29	13	3	1	-	2
South Bend, Ind.	52	34	13	1	2	2	4
Toledo, Ohio	83	70	4	4	3	2	2
Youngstown, Ohio	62	38	18	3	1	2	3
W.N. CENTRAL	632	441	114	39	24	11	29
Des Moines, Iowa	U	U	U	U	U	U	U
Duluth, Minn.	24	18	3	3	-	-	-
Kansas City, Kans.	50	27	11	7	3	2	-
Kansas City, Mo.	56	36	8	4	3	2	1
Lincoln, Nebr.	39	30	7	2	-	-	3
Minneapolis, Minn.	133	102	19	10	2	-	11
Omaha, Nebr.	86	61	15	5	4	1	5
St. Louis, Mo.	83	58	15	3	6	1	-
St. Paul, Minn.	58	46	9	1	1	1	5
Wichita, Kans.	103	63	27	4	5	4	4

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,175	729	250	127	40	29	63
Atlanta, Ga.	142	79	34	20	6	3	6
Baltimore, Md.	152	86	36	19	5	6	6
Charlotte, N.C.	82	48	19	9	4	2	7
Jacksonville, Fla.	135	93	27	10	4	1	8
Miami, Fla.	104	62	23	13	3	3	-
Norfolk, Va.	49	31	5	7	3	3	3
Richmond, Va.	69	42	11	12	4	-	6
Savannah, Ga.	44	31	9	2	-	2	8
St. Petersburg, Fla.	65	45	12	4	1	3	2
Tampa, Fla.	193	133	41	9	4	6	13
Washington, D.C.	120	65	27	22	6	-	4
Wilmington, Del.	20	14	6	-	-	-	-
E.S. CENTRAL	752	522	123	66	25	15	42
Birmingham, Ala.	185	138	29	11	5	1	11
Chattanooga, Tenn.	60	39	12	2	4	3	3
Knoxville, Tenn.	69	46	14	7	-	2	5
Lexington, Ky.	69	39	17	11	2	-	7
Memphis, Tenn.	157	113	17	16	5	6	5
Mobile, Ala.	30	24	3	2	-	1	-
Montgomery, Ala.	61	44	10	3	3	1	6
Nashville, Tenn.	121	79	21	14	6	1	5
W.S. CENTRAL	1,459	941	293	135	50	40	84
Austin, Tex.	90	57	15	8	5	5	11
Baton Rouge, La.	27	22	4	1	-	-	1
Corpus Christi, Tex.	46	33	7	6	-	-	2
Dallas, Tex.	168	101	33	20	10	4	5
El Paso, Tex.	54	42	10	1	1	-	3
Ft. Worth, Tex.	114	81	16	7	5	5	9
Houston, Tex.	390	222	97	50	10	11	23
Little Rock, Ark.	74	47	14	4	7	2	4
New Orleans, La.	132	71	34	18	4	5	-
San Antonio, Tex.	210	162	33	7	1	7	14
Shreveport, La.	56	37	9	8	1	1	7
Tulsa, Okla.	98	66	21	5	6	-	5
MOUNTAIN	869	564	167	93	24	20	43
Albuquerque, N.M.	104	64	22	16	2	-	3
Boise, Idaho	25	19	5	1	-	-	2
Colo. Springs, Colo.	51	35	10	4	2	-	3
Denver, Colo.	83	44	18	12	4	5	3
Las Vegas, Nev.	124	86	21	13	2	2	5
Ogden, Utah	32	25	4	2	-	1	4
Phoenix, Ariz.	189	116	40	22	5	5	7
Pueblo, Colo.	30	24	4	2	-	-	5
Salt Lake City, Utah	110	81	16	8	5	-	8
Tucson, Ariz.	121	70	27	13	4	7	3
PACIFIC	1,869	1,328	314	132	48	46	139
Berkeley, Calif.	14	9	4	1	-	-	-
Fresno, Calif.	76	53	12	4	4	3	7
Glendale, Calif.	34	25	8	1	-	-	4
Honolulu, Hawaii	71	53	14	-	3	1	6
Long Beach, Calif.	52	38	10	3	1	-	10
Los Angeles, Calif.	496	356	86	33	10	11	29
Pasadena, Calif.	12	10	1	1	-	-	3
Portland, Oreg.	117	83	17	8	7	2	3
Sacramento, Calif.	159	113	26	13	6	1	15
San Diego, Calif.	156	103	31	14	5	2	16
San Francisco, Calif.	129	88	24	13	1	3	13
San Jose, Calif.	229	158	36	17	4	14	15
Santa Cruz, Calif.	35	25	4	4	1	1	3
Seattle, Wash.	133	95	18	13	5	2	5
Spokane, Wash.	53	45	5	-	1	2	2
Tacoma, Wash.	103	74	18	7	-	4	8
TOTAL	11,645¶	7,801	2,201	1,012	332	289	674

U: Unavailable -: no reported cases

*Mortality data in this table are voluntarily reported from 122 cities in the United States, most of which have populations of 100,000 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 this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

¶Total includes unknown ages.

Quarterly Immunization Table

To track progress toward achieving the goals of the Childhood Immunization Initiative (CII), CDC publishes quarterly a tabular summary of the number of cases of nationally notifiable diseases preventable by routine childhood vaccination reported during the previous quarter 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 reported through the National Electronic Telecommunications System for Surveillance (NETSS).

Number of reported cases of nationally notifiable diseases preventable by routine childhood vaccination — United States, April–June 1997 and January–June 1996 and 1997*

Disease	No. cases, April–June 1997	Total cases January–June 1996	Total cases January–June 1997	No. cases among children aged <5 years† January–June 1996	No. cases among children aged <5 years† January–June 1997
Congenital rubella syndrome	0	**1**	**2**	1	2
Diphtheria	2	**1**	**5**	0	1
Haemophilus influenzae§	318	**601**	**583**	145	125
Hepatitis B¶	2267	**4673**	**4252**	29	133
Measles	52	**270**	**71**	62	27
Mumps	190	**366**	**323**	75	68
Pertussis	1268	**1891**	**2452**	845	1020
Poliomyelitis, paralytic**	0	**1**	**0**	1	0
Rubella	55	**127**	**64**	11	8
Tetanus	12	**14**	**21**	0	0

*Data for 1996 are final. Data for 1997 are provisional.
†For 1996 and 1997, age data were available for ≥96% of cases.
§Invasive disease; *H. influenzae* serotype is not routinely reported to the National Notifiable Diseases Surveillance System. Of 125 cases among children aged <5 years, serotype was reported for 64 cases, and of those, 25 were 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.
**Five cases with onset in 1996 have been confirmed; one case with onset in 1997 is under investigation.

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