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MORBIDITY AND MORTALITY WEEKLY REPORT

Disabilities Among Children Aged ≤17 Years — United States, 1991–1992

Disabilities among children result in substantial reductions in quality of life and are associated with increased dependence on the health-care and social-service systems. To assess the prevalence of disabilities and their associated health conditions among children, CDC reviewed data from the Survey of Income and Program Participation (SIPP) for 1991–1992, which collected information about chronic conditions, including the functional limitations related to those conditions (*1,2*). This report summarizes SIPP data for children aged ≤17 years.

From October 1991 through January 1992, SIPP collected information about disabilities during personal household interviews of a sample (n=97,133 persons in 34,100 households) of the U.S. civilian, noninstitutionalized population. Measures of disability were based on definitions from the *International Classification of Impairments, Disabilities, and Handicaps* (ICIDH)* (*3*). The ICIDH extends the *International Classification of Diseases* (ICD) to include the personal and social consequences of diseases. Parents or legal guardians were asked about disabilities among their children aged ≤14 years. Children aged 15–17 years were asked directly about disabilities when they were available; however, for most children in this age group, information was obtained from their parents or guardians. For children reported to have a disability, parents were asked about the condition(s) that caused the functional limitation. Data were weighted to calculate national estimates representative of the U.S. population.

To ensure that the disability data were comprehensive and accounted for all developmental stages of children, the SIPP definitions of disability were varied by age group. For children aged 0–5 years, disability was defined as 1) limitation in the usual kind of activities done by most children the same age, or 2) receipt of therapy or diagnostic services by the child for developmental needs. For children aged ≥6 years, disability was any limitation in the ability to do regular school work. Additional indicators of disability included, for children aged 3–14 years, a long-lasting condition that limited the ability to walk, run, or use stairs, and for children aged 15–17 years,

*Based on the ICIDH, an impairment is an abnormality of an organ system, a disability is a person's limitation in function resulting from an impairment, and a handicap is the social consequence(s) or disadvantage(s) resulting from impairment and disability that a person experiences while interacting in the physical and social environment.

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measures of problems in personal care, personal management (activities of daily living[†]), and the use of assistive aids (e.g., wheelchair).

During 1991–1992, an estimated 48.9 million persons (19.4% of the total U.S. population of 251.8 million) had a disability; of these, 3.8 million (7.9%) were aged ≤17 years (*1*). For children aged <3 years, the overall estimated prevalence of disabilities was 2.2%; for those aged 3–5 years, 5.2%; for those aged 6–14 years, 6.3%; and for those aged 15–17 years, 9.3% (Table 1). In all age groups, the prevalence of disabilities was higher among boys than girls; this sex-specific difference was greatest in the 6–14-year age group.

The condition most frequently reported as a cause of functional limitation among children aged ≤17 years was learning disability (29.5%), followed by speech problems (13.1%), mental retardation (6.8%), asthma (6.4%), and mental or emotional problems or disorders (6.3%) (Table 2).

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Editorial Note: In the United States, the impact of disabilities is disproportionately higher among children because disabilities with onset during childhood account for approximately one third of the years of disability[§] in the U.S. population (*4*). Improved characterization of the magnitude and distribution of disabilities among children is important to identify needed services and to target appropriate interventions. The findings in this report further document age and sex variations in the prevalence of disabilities among children. The increase in the prevalence of disabilities with advancing age probably reflects the ability to identify more readily academic or behavioral limitations among older children and variations in the way educational systems identify children limited in the ability to do regular school work (*5*). Reasons for sex-specific differences are unclear and require further study.

The approach used in this report to estimate the prevalence of disabilities was based on limitations in function resulting from chronic conditions rather than on the diagnosis of such conditions. Previous studies may have underestimated the prevalence of disabilities among children because the definitions were restricted to certain conditions (*6*). To improve the precision of estimates of disability, the SIPP definitions were broadened to include the functional consequences of chronic conditions. The inclusion of these functional limitations enables more accurate estimates of the prevalence of disabilities. However, the SIPP data are subject to at least two limitations. First, because children living in institutions or group homes were excluded from the study, the prevalence of disabilities among children probably is underestimated. Second, age-group–specific variations in the definitions of disability limit the basis for comparison across age groups.

In SIPP, health conditions associated with disabilities comprise a combination of diseases (e.g., asthma or diabetes), impairments (e.g., missing extremities or paralysis), and primary conditions considered to be disabilities (e.g., mental

[†]Ability to 1) "get around inside the home"; 2) "get in and out of bed or a chair"; 3) "take a bath or shower, dress, and eat;" and 4) "get to and use the toilet."

[§]Years of disability are calculated by multiplying the number of persons with new cases of disabilities by the expected lifespan of each person with a disability per year. Because years of disability reflect both prevalence and duration of disability, it is useful in assessing the impact of preventive interventions.

Disabilities Among Children — Continued

TABLE 1. Number* and percentage of children aged ≤17 years with disabilities, by sex, age group, and criteria of the definition — Survey of Income and Program Participation, United States, 1991–1992†

Age group/ Criteria of definition§	Male (n=33,879)		Female (n=32,256)		Total (n=66,135)	
	No.	(%)	No.	(%)	No.	(%)
<3 yrs	**(n=6,000)**		**(n=5791)**		**(n=11,791)**	
Limited in usual kind of activities	72	(1.2)	76	(1.3)	149	(1.3)
Received services for developmental needs	106	(1.8)	77	(1.3)	183	(1.6)
With autism/cerebral palsy/ mental retardation	32	(0.5)	8	(0.1)	41	(0.4)
Total with a disability	**133**	**(2.2)**	**121**	**(2.1)**	**254**	**(2.2)**
3–5 yrs	**(n= 5,946)**		**(n= 5,565)**		**(n=11,511)**	
Limited in usual kind of activities	184	(3.1)	110	(2.0)	294	(2.6)
Received services for developmental needs	323	(5.4)	176	(3.2)	498	(4.3)
Limited in ability to walk, run, or use stairs	76	(1.3)	71	(1.3)	147	(1.3)
With autism/cerebral palsy/ mental retardation	54	(0.9)	21	(0.4)	75	(0.7)
Total with a disability	**370**	**(6.2)**	**228**	**(4.1)**	**597**	**(5.2)**
6–14 yrs	**(n=16,761)**		**(n=16,005)**		**(n=32,766)**	
Limited in ability to do regular school work	1,197	(7.1)	567	(3.5)	1,764	(5.4)
Limited in ability to walk, run, or use stairs	301	(1.8)	223	(1.4)	524	(1.6)
With autism/cerebral palsy/ mental retardation	250	(1.5)	163	(1.0)	412	(1.3)
Total with a disability	**1,373**	**(8.2)**	**689**	**(4.3)**	**2,062**	**(6.3)**
15–17 yrs	**(n= 5,172)**		**(n= 4,895)**		**(n=10,067)**	
Limited in ability to do regular school work	321	(6.2)	116	(2.4)	438	(4.4)
With autism/cerebral palsy/ mental retardation¶	151	(3.1)	150	(3.1)	309	(3.1)
Total with a disability	**558**	**(10.8)**	**374**	**(7.7)**	**933**	**(9.3)**

*In thousands.
†Unweighted sample size=66,135.
§Categories are not mutually exclusive.
¶For these older children, this category includes additional measures of limitations in functional activity.

retardation or cerebral palsy). Efforts to improve the precision of national estimates of disabilities among children should distinguish between those impairments, disabilities, and handicaps that are consequences of the disabling process. One such effort is the 1999 revision of the ICIDH, which will emphasize measures of disability

Disabilities Among Children — Continued

TABLE 2. Conditions reported as the cause of disability among children aged ≤17 years — Survey of Income and Program Participation, United States, 1991–1992

Condition	No.*	(%)
Learning disability	1435	(29.5)
Speech problems	634	(13.1)
Mental retardation	331	(6.8)
Asthma	311	(6.4)
Mental or emotional problem or disorder	305	(6.3)
Blindness or vision problems	144	(3.0)
Cerebral palsy	129	(2.7)
Epilepsy or seizure disorder	128	(2.6)
Impairment deformity of back, side, foot, or leg	121	(2.5)
Deafness or serious trouble hearing	116	(2.4)
Tonsilitis or repeated ear infections	80	(1.6)
Hay fever or other respiratory allergies	76	(1.6)
Paralysis of any kind	73	(1.5)
Missing legs, feet, toes, arms, hands, or fingers	70	(1.4)
Autism	48	(1.0)
Drug or alcohol problem or disorder	48	(1.0)
Head or spinal cord injury	45	(0.9)
Heart trouble	44	(0.9)
Impairment deformity of finger, hand, or arm	27	(0.6)
Cancer	26	(0.5)
Diabetes	14	(0.3)
Other	653	(13.4)
Total	**4858**	**(100.0)**

*In thousands.

and handicap among children (*7*) and assist in standardizing collection of information about disabilities among children.

Improved estimates of the prevalence of disabilities and their associated health consequences among children are needed to develop and evaluate prevention strategies. Estimates based on analysis of data from SIPP can assist public health planners in identifying primary services for children with disabilities and in projecting long-range needs of these children. In addition, the linking of data about primary disabling conditions among children with the functional consequences of these conditions enables more precise estimation of costs required to meet the continuing needs of these children.

References

1. McNeil JM. Americans with disabilities, 1991–1992. Washington, DC: US Department of Commerce, Economics and Statistics Administration, Bureau of the Census, 1993. (Current population reports; series p70, no. 33).
2. CDC. Prevalence of disabilities and associated health conditions. MMWR 1994;43:730–1,737–9.
3. World Health Organization. International classification of impairments, disabilities, and handicaps. Geneva: World Health Organization, 1980.
4. Houk VN, Thacker SB. Program to prevent primary and secondary disabilities in the United States. Public Health Rep 1989;104:226–31.
5. US Department of Education. 11th Annual report to Congress on the implementation of the Individuals with Disability Education Act. Washington, DC: US Department of Education, Office of Special Education and Rehabilitative Services, Office of Special Education Programs, 1989.

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6. Verbrugge LM. The disability supplement to the 1994–95 National Health Interview Survey (NHIS–Disability). Hyattsville, Maryland: US Department of Health and Human Services, Public Health Service, CDC, NCHS, 1993.
7. Badley EM. An introduction to the concepts and classifications of the *International Classification of Impairments, Disabilities, and Handicaps*. Disabil Rehabil 1993;15:161–78.

State and National Vaccination Coverage Levels Among Children Aged 19–35 Months — United States, April–December 1994

The National Immunization Survey (NIS) is a single survey providing state and national estimates of vaccination coverage levels among children aged 19–35 months. CDC implemented the NIS in April 1994 as one element of the five-part Childhood Immunization Initiative (CII) (*1*), a national strategy to achieve and maintain high vaccination levels among children during the first 2 years of life. NIS collects quarterly data from the 50 states, the District of Columbia, and 27 urban areas considered to have populations at high risk for undervaccination. This report of initial NIS findings provides the results of both national and state vaccination coverage levels for April–December 1994.

The NIS uses a two-phase sample design. For the first phase, a quarterly random sample of telephone numbers for each survey area is called, and a screening questionnaire is administered to locate households with one or more children aged 19–35 months. Vaccination information is collected for age-eligible children. All respondents are requested to refer to written records. During April–December 1994, approximately 1.2 million telephone numbers were called, and 25,247 interviews were completed (an average of 110 interviews per area per quarter). The overall response rate for eligible households was 71% (range: 60%–88% among the individual states).

In the second phase, vaccination information is requested from health-care providers of children in surveyed households because parents tend to underestimate the number of doses received for multiple-dose vaccines and to overestimate coverage for single-dose vaccines (*2,3*). Households excluded from phase two include those that use records indicating their children received all of the recommended doses for at least four vaccines* because such recorded histories are highly accurate (CDC, unpublished data, 1995). Based on these exclusions, 18,479 (73%) households were eligible for phase two. Of these, vaccination information was obtained from providers for 7594 (41%) children. The demographic characteristics and the reported vaccination histories were similar for children in households with provider information and households with parental reports only.

Overall, 57% of the children in the survey had either written records of having received all of the required doses for at least four vaccines, or had vaccination information based on provider records. The data obtained from provider records were used to improve the accuracy of the vaccination coverage estimates for the

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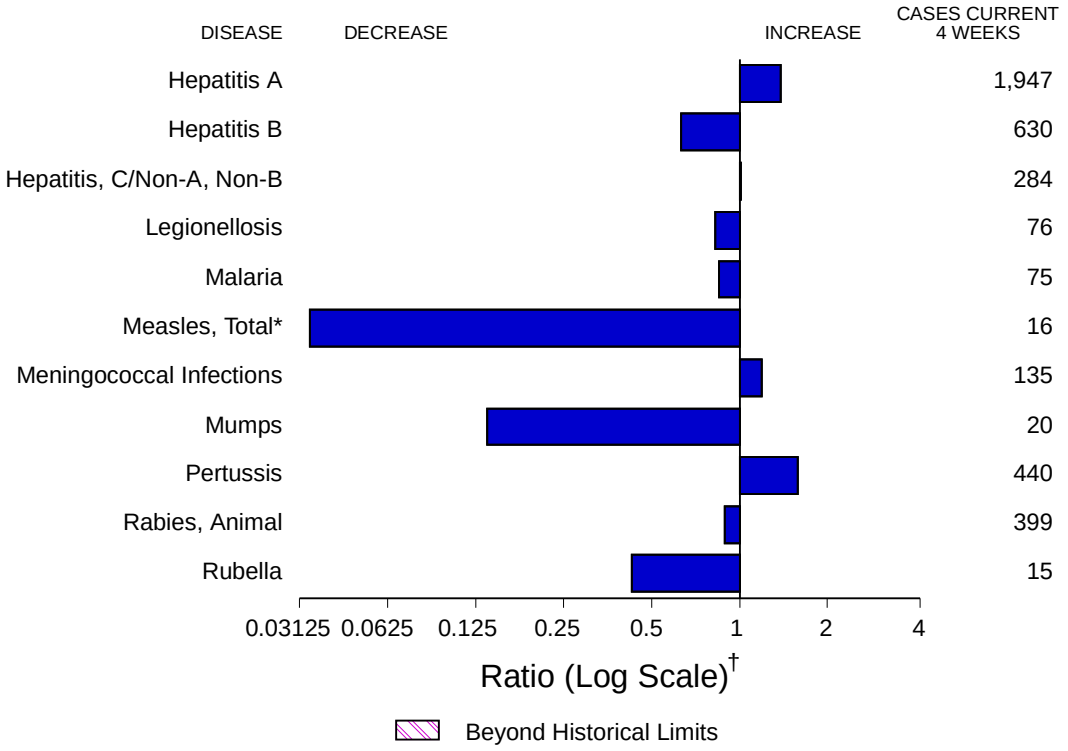
*Vaccines in this series include four doses of diphtheria and tetanus toxoids and pertussis vaccine (DTP), three doses of poliovirus vaccine, one dose of measles-mumps-rubella vaccine (MMR), and three doses of *Haemophilus influenzae* type B vaccine (Hib). Children may or may not have received three doses of hepatitis B vaccine.

FIGURE I. Notifiable disease reports, comparison of 4-week totals ending August 19, 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 August 19, 1995 (33rd Week)

	Cum. 1995		Cum. 1995
Anthrax	-	Psittacosis	41
Brucellosis	56	Rabies, human	1
Cholera	11	Rocky Mountain Spotted Fever	295
Congenital rubella syndrome	4	Syphilis, congenital, age < 1 year†	132
Diphtheria	-	Tetanus	17
*Haemophilus influenzae**	778	Toxic shock syndrome	123
Hansen Disease	86	Trichinosis	23
Plague	6	Typhoid fever	190
Poliomyelitis, Paralytic	-		

*Of 759 cases of known age, 180 (24%) 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. This total through first quarter 1995.
-: no reported cases

TABLE II. Cases of selected notifiable diseases, United States, weeks ending August 19, 1995, and August 20, 1994 (33rd Week)

Reporting Area	AIDS*	Gonorrhea		Hepatitis (Viral), by type						Legionellosis	
				A		B		C/NA,NB			
	Cum. 1995	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994	Cum. 1995	Cum. 1994
UNITED STATES	42,294	220,900	250,399	16,788	14,700	6,217	7,248	2,711	2,580	790	958
NEW ENGLAND	2,116	2,901	5,025	169	197	128	236	76	98	18	20
Maine	74	58	56	17	20	6	11	-	-	5	2
N.H.	61	72	69	6	15	14	16	11	8	1	-
Vt.	18	34	18	4	6	1	6	1	7	-	-
Mass.	937	1,817	1,924	71	79	53	141	60	63	10	10
R.I.	147	310	295	20	15	8	6	4	20	2	8
Conn.	879	610	2,663	51	62	46	56	-	-	N	N
MID. ATLANTIC	10,897	21,464	28,200	951	1,061	742	952	254	312	112	150
Upstate N.Y.	1,293	3,846	6,397	246	392	244	254	138	148	30	30
N.Y. City	5,641	7,375	10,613	441	369	219	197	1	1	2	-
N.J.	2,567	2,224	3,213	129	201	162	257	89	135	17	29
Pa.	1,396	8,019	7,977	135	99	117	244	26	28	63	91
E.N. CENTRAL	3,311	48,166	50,005	1,881	1,436	627	763	171	220	207	283
Ohio	673	14,956	13,477	1,193	497	79	110	7	17	104	135
Ind.	338	5,206	5,453	110	249	155	140	1	8	49	29
Ill.	1,408	12,830	15,282	217	361	94	202	33	61	13	25
Mich.	675	11,457	11,057	239	175	260	251	130	134	21	53
Wis.	217	3,717	4,736	122	154	39	60	-	-	20	41
W.N. CENTRAL	982	12,308	14,096	1,184	714	411	423	73	56	77	70
Minn.	219	1,782	2,028	125	153	37	42	2	11	-	2
Iowa	54	868	904	48	33	31	18	9	7	17	25
Mo.	427	7,066	7,993	841	324	295	317	43	14	41	23
N. Dak.	5	19	27	20	4	4	-	4	1	4	4
S. Dak.	9	112	113	36	24	2	-	1	-	-	-
Nebr.	75	697	881	33	95	20	23	6	10	9	11
Kans.	193	1,764	2,150	81	81	22	23	8	13	6	5
S. ATLANTIC	10,753	64,661	66,390	785	737	912	1,373	211	306	142	229
Del.	192	1,363	1,206	7	16	2	10	1	1	2	24
Md.	1,429	7,471	11,964	133	103	166	224	2	17	23	54
D.C.	640	2,813	4,584	15	16	14	36	-	-	4	5
Va.	885	6,211	8,300	124	102	67	80	9	18	13	5
W. Va.	47	471	488	12	7	34	25	36	22	3	1
N.C.	586	15,553	16,673	74	88	193	181	38	44	25	14
S.C.	569	7,953	8,231	31	30	33	23	16	6	21	9
Ga.	1,443	9,856	U	54	24	63	497	15	163	23	89
Fla.	4,962	12,970	14,944	335	351	340	297	94	35	28	28
E.S. CENTRAL	1,397	27,764	29,398	1,005	355	552	767	691	577	33	67
Ky.	178	3,081	3,073	26	104	43	59	13	19	5	8
Tenn.	562	8,585	9,188	846	144	435	657	676	548	21	33
Ala.	378	11,697	10,408	57	56	74	51	2	10	6	11
Miss.	279	4,401	6,729	76	51	-	-	-	-	1	15
W.S. CENTRAL	3,729	21,568	30,319	2,297	1,841	964	704	423	179	11	30
Ark.	166	2,183	4,357	299	80	36	18	3	6	1	6
La.	609	7,465	7,872	66	99	119	113	107	98	2	10
Okla.	174	1,456	3,044	538	175	295	84	282	39	3	10
Tex.	2,780	10,464	15,046	1,394	1,487	514	489	31	36	5	4
MOUNTAIN	1,328	5,483	6,212	2,653	2,836	521	415	290	285	89	64
Mont.	15	43	66	70	15	19	16	10	5	4	14
Idaho	31	76	53	225	216	58	62	36	61	2	1
Wyo.	7	35	51	88	18	17	17	123	93	8	3
Colo.	453	1,834	2,107	351	326	80	72	41	51	37	14
N. Mex.	111	657	636	553	712	196	132	35	38	3	3
Ariz.	351	1,938	2,004	781	1,094	80	39	24	13	7	4
Utah	87	131	177	485	298	46	42	8	11	13	6
Nev.	273	769	1,118	100	157	25	35	13	13	15	19
PACIFIC	7,781	16,585	20,754	5,863	5,523	1,360	1,615	522	547	101	45
Wash.	581	1,631	1,877	513	711	119	146	143	153	17	8
Oreg.	256	212	612	1,173	632	54	94	29	25	-	-
Calif.	6,733	13,894	17,224	4,041	3,993	1,166	1,340	340	365	79	35
Alaska	50	451	571	29	153	9	11	1	-	-	-
Hawaii	161	397	470	107	34	12	24	9	4	5	2
Guam	-	51	82	2	15	1	4	-	-	1	1
P.R.	1,635	325	339	66	40	488	221	227	115	-	-
V.I.	25	6	16	-	2	2	6	-	1	-	-
Amer. Samoa	-	18	20	5	6	-	-	-	-	-	-
C.N.M.I.	-	23	34	15	5	7	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 Prevention, National Center for Prevention Services, last update July 27, 1995.

TABLE II. (Cont'd.) Cases of selected notifiable diseases, United States, weeks ending August 19, 1995, and August 20, 1994 (33rd 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	4,410	6,968	664	635	1	218	1	16	234	831	2,060	1,885	538	970
NEW ENGLAND	1,280	1,781	29	47	-	7	-	-	7	26	97	83	9	15
Maine	15	13	3	2	-	-	-	-	-	5	6	16	4	3
N.H.	16	14	1	3	-	-	-	-	-	1	17	7	1	4
Vt.	7	9	1	2	-	-	-	-	-	3	6	2	-	-
Mass.	112	109	10	24	-	2	-	-	2	7	36	36	2	1
R.I.	210	275	3	5	-	5	-	-	5	7	-	-	-	1
Conn.	920	1,361	11	11	-	-	-	-	-	3	32	22	2	6
MID. ATLANTIC	2,419	4,020	160	117	-	6	-	4	10	209	250	196	75	83
Upstate N.Y.	1,388	2,608	38	35	-	1	-	-	1	15	79	62	21	24
N.Y. City	70	8	75	39	-	2	-	3	5	13	31	24	9	4
N.J.	372	841	34	22	-	3	-	1	4	173	71	43	6	13
Pa.	589	563	13	21	U	-	U	-	-	8	69	67	39	42
E.N. CENTRAL	55	406	72	66	-	7	1	3	10	102	263	272	91	154
Ohio	37	27	6	8	-	1	-	-	1	17	87	76	29	42
Ind.	10	11	13	9	-	-	-	-	-	1	39	38	3	6
Ill.	3	19	32	29	-	-	1	2	2	56	71	93	28	68
Mich.	5	5	13	18	-	4	-	1	5	25	54	36	31	32
Wis.	-	344	8	2	-	2	-	-	2	3	12	29	-	6
W.N. CENTRAL	90	109	17	30	-	2	-	-	2	170	129	124	31	45
Minn.	42	25	3	10	-	-	-	-	-	-	21	12	2	3
Iowa	6	10	1	4	-	-	-	-	-	7	24	16	8	11
Mo.	24	66	6	10	-	1	-	-	1	160	50	59	17	28
N. Dak.	-	-	1	1	-	-	-	-	-	-	1	1	-	2
S. Dak.	-	-	1	-	-	-	-	-	-	-	5	7	-	-
Nebr.	1	3	3	4	-	-	-	-	-	2	11	9	4	1
Kans.	17	5	2	1	-	1	-	-	1	1	17	20	-	-
S. ATLANTIC	393	493	147	117	-	10	-	1	11	53	376	277	82	145
Del.	7	61	1	3	-	-	-	-	-	-	5	5	-	-
Md.	267	149	40	46	-	-	-	1	1	4	26	25	20	40
D.C.	1	3	11	8	-	-	-	-	-	-	3	3	-	-
Va.	33	99	32	15	-	-	-	-	-	2	45	52	16	32
W. Va.	18	13	1	-	-	-	-	-	-	37	8	11	-	3
N.C.	38	56	13	5	-	-	-	-	-	3	58	42	16	35
S.C.	9	7	-	2	-	-	-	-	-	-	52	16	7	6
Ga.	12	97	14	18	-	2	-	-	2	2	74	62	8	8
Fla.	8	8	35	20	-	8	-	-	8	5	105	61	15	21
E.S. CENTRAL	30	32	11	23	-	-	-	-	-	28	132	138	13	16
Ky.	4	20	1	7	-	-	-	-	-	-	45	32	-	-
Tenn.	18	9	4	9	-	-	-	-	-	28	35	25	-	6
Ala.	6	3	5	6	-	-	-	-	-	-	29	52	4	3
Miss.	2	-	1	1	-	-	-	-	-	-	23	29	9	7
W.S. CENTRAL	74	72	17	31	-	19	-	1	20	16	261	225	34	172
Ark.	5	4	3	3	-	2	-	-	2	1	22	36	2	5
La.	2	-	2	5	-	17	-	1	18	1	39	31	8	20
Okla.	32	40	1	2	-	-	-	-	-	-	25	23	-	23
Tex.	35	28	11	21	-	-	-	-	-	14	175	135	24	124
MOUNTAIN	9	5	39	22	-	49	-	1	50	162	147	131	23	125
Mont.	-	-	3	-	-	-	-	-	-	-	2	6	1	-
Idaho	-	3	1	2	-	-	-	-	-	-	6	15	2	7
Wyo.	5	1	-	1	-	-	-	-	-	-	6	5	-	2
Colo.	1	-	17	10	-	8	-	-	8	19	37	24	1	3
N. Mex.	1	-	4	3	-	30	-	1	31	-	30	12	N	N
Ariz.	-	-	7	1	-	10	-	-	10	1	46	46	2	91
Utah	-	1	5	4	-	-	-	-	-	133	13	16	11	12
Nev.	2	-	2	1	-	1	-	-	1	9	7	7	6	10
PACIFIC	60	50	172	182	1	118	-	6	124	65	405	439	180	215
Wash.	4	-	14	18	-	16	-	4	20	3	69	68	10	14
Oreg.	3	5	7	12	-	1	-	-	1	-	62	94	N	N
Calif.	53	45	140	139	1	101	-	1	102	53	263	270	153	189
Alaska	-	-	1	1	-	-	-	-	-	5	7	2	13	2
Hawaii	-	-	10	12	U	-	U	1	1	4	4	5	4	10
Guam	-	-	-	-	U	-	U	-	-	228	3	-	3	6
P.R.	-	-	1	3	U	11	U	-	11	11	13	6	-	2
V.I.	-	-	-	-	U	-	U	-	-	-	-	-	2	3
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-	-	-	2
C.N.M.I.	-	-	1	1	U	-	U	-	-	29	-	-	-	2

*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 August 19, 1995, and August 20, 1994 (33rd 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	164	2,048	2,364	10	111	201	9,540	13,639	12,063	13,659	4,446	4,737
NEW ENGLAND	10	269	225	9	33	126	110	149	315	286	1,017	1,182
Maine	-	22	2	-	1	-	2	4	12	-	22	-
N.H.	-	21	46	-	1	-	1	3	9	13	113	111
Vt.	1	40	28	-	-	-	-	-	3	4	124	98
Mass.	7	173	125	-	6	123	41	61	175	147	322	455
R.I.	-	1	5	-	-	2	2	12	28	32	201	5
Conn.	2	12	19	9	25	1	64	69	88	90	235	513
MID. ATLANTIC	4	145	366	-	11	6	552	893	2,502	2,830	855	1,199
Upstate N.Y.	4	84	142	-	4	5	43	108	301	360	339	894
N.Y. City	-	14	74	-	7	-	261	404	1,341	1,650	-	-
N.J.	-	5	11	-	-	1	114	138	469	485	239	188
Pa.	U	42	139	U	-	-	134	243	391	335	277	117
E.N. CENTRAL	19	203	380	-	4	9	1,639	2,014	1,128	1,303	45	37
Ohio	3	82	105	-	-	-	570	785	180	201	5	-
Ind.	-	13	46	-	-	-	164	162	43	113	9	10
Ill.	2	45	78	-	1	1	614	673	615	657	3	11
Mich.	14	51	33	-	3	8	179	178	243	291	22	9
Wis.	-	12	118	-	-	-	112	216	47	41	6	7
W.N. CENTRAL	-	115	97	-	-	2	502	796	378	342	211	143
Minn.	-	43	39	-	-	-	28	26	87	78	6	14
Iowa	-	6	6	-	-	-	31	39	44	28	82	57
Mo.	-	26	28	-	-	2	425	684	145	155	19	13
N. Dak.	-	6	4	-	-	-	-	1	3	6	23	9
S. Dak.	-	8	4	-	-	-	-	1	15	17	49	23
Nebr.	-	6	7	-	-	-	9	11	17	16	4	-
Kans.	-	20	9	-	-	-	9	34	67	42	28	27
S. ATLANTIC	7	210	232	-	26	13	2,410	3,533	2,164	2,505	1,353	1,303
Del.	-	9	1	-	-	-	8	18	12	26	33	36
Md.	-	18	57	-	-	-	137	175	241	203	265	372
D.C.	-	4	5	-	-	-	74	155	67	79	10	2
Va.	-	10	23	-	-	-	369	511	146	212	259	252
W. Va.	-	-	3	-	-	-	8	8	52	59	77	53
N.C.	-	81	58	-	1	-	733	1,102	274	278	314	106
S.C.	-	17	11	-	1	-	380	505	212	230	94	119
Ga.	2	16	23	-	1	1	461	547	323	482	178	261
Fla.	5	55	51	-	23	12	240	512	837	936	123	102
E.S. CENTRAL	93	185	111	-	-	-	2,497	2,411	857	908	175	125
Ky.	-	8	55	-	-	-	134	132	190	207	17	12
Tenn.	92	146	18	-	-	-	541	661	282	265	56	34
Ala.	1	31	26	-	-	-	417	431	255	264	97	76
Miss.	-	-	12	N	N	N	1,405	1,187	130	172	5	3
W.S. CENTRAL	11	169	104	-	6	12	1,280	3,030	1,507	1,727	496	455
Ark.	2	25	18	-	-	-	92	326	113	167	21	20
La.	-	11	9	-	-	-	657	1,133	6	11	23	47
Okla.	-	22	22	-	-	4	49	105	129	157	30	24
Tex.	9	111	55	-	6	8	482	1,466	1,259	1,392	422	364
MOUNTAIN	4	337	329	-	4	4	180	190	392	330	91	93
Mont.	-	3	4	-	-	-	4	2	10	9	30	11
Idaho	-	77	42	-	-	-	-	1	9	11	1	2
Wyo.	-	1	-	-	-	-	4	-	1	4	20	14
Colo.	-	32	159	-	-	-	86	97	22	37	-	9
N. Mex.	3	63	17	-	-	-	32	18	56	43	3	2
Ariz.	-	138	91	-	3	-	22	37	206	137	27	42
Utah	1	18	14	-	1	3	4	9	19	29	7	8
Nev.	-	5	2	-	-	1	28	26	69	60	3	5
PACIFIC	16	415	520	1	27	29	370	623	2,820	3,428	203	200
Wash.	4	100	75	1	2	-	10	27	170	170	4	11
Oreg.	-	17	67	-	1	4	6	24	25	90	-	8
Calif.	12	262	363	-	21	21	353	567	2,476	2,959	195	150
Alaska	-	-	-	-	-	-	1	3	47	42	4	31
Hawaii	U	36	15	U	3	4	-	2	102	167	-	-
Guam	U	-	2	U	-	1	3	3	33	51	-	-
P.R.	U	6	2	U	-	-	160	200	123	116	25	57
V.I.	U	-	-	U	-	-	2	22	-	-	-	-
Amer. Samoa	-	-	1	-	-	-	-	1	3	3	-	-
C.N.M.I.	U	-	-	U	-	-	4	1	13	25	-	-

U: Unavailable -: no reported cases

TABLE III. Deaths in 121 U.S. cities,* week ending August 19, 1995 (33rd Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	488	333	76	56	12	11	33
Boston, Mass.	153	93	30	21	6	3	6
Bridgeport, Conn.	34	20	11	3	-	-	3
Cambridge, Mass.	28	22	4	2	-	-	4
Fall River, Mass.	19	18	1	-	-	-	-
Hartford, Conn.	31	17	5	7	2	-	-
Lowell, Mass.	15	11	-	3	-	1	2
Lynn, Mass.	10	8	-	2	-	-	-
New Bedford, Mass.	29	25	1	1	1	1	-
New Haven, Conn.	53	35	9	5	2	2	5
Providence, R.I.	U	U	U	U	U	U	U
Somerville, Mass.	5	4	1	-	-	-	1
Springfield, Mass.	53	33	10	8	-	2	6
Waterbury, Conn.	22	21	1	-	-	-	2
Worcester, Mass.	36	26	3	4	1	2	4
MID. ATLANTIC	2,591	1,707	484	275	71	54	110
Albany, N.Y.	53	40	7	3	1	2	3
Allentown, Pa.	21	19	1	1	-	-	1
Buffalo, N.Y.	100	73	12	10	3	2	-
Camden, N.J.	44	20	12	6	4	2	1
Elizabeth, N.J.	28	18	6	4	-	-	-
Erie, Pa.§	40	29	10	1	-	-	2
Jersey City, N.J.	47	28	9	7	3	-	-
New York City, N.Y.	1,347	854	277	164	29	23	48
Newark, N.J.	80	30	23	14	9	4	2
Paterson, N.J.	58	42	5	5	4	2	1
Philadelphia, Pa.	296	190	60	33	2	11	13
Pittsburgh, Pa.§	89	62	11	9	3	4	3
Reading, Pa.	33	24	6	1	2	-	1
Rochester, N.Y.	128	110	10	4	3	1	12
Schenectady, N.Y.	23	16	2	2	3	-	1
Scranton, Pa.§	31	27	3	1	-	-	2
Syracuse, N.Y.	95	65	19	5	3	3	10
Trenton, N.J.	33	27	3	3	-	-	6
Utica, N.Y.	15	12	-	1	2	-	1
Yonkers, N.Y.	30	21	8	1	-	-	3
E.N. CENTRAL	2,141	1,351	436	200	67	57	111
Akron, Ohio	48	39	6	3	-	-	-
Canton, Ohio	33	22	7	1	-	3	3
Chicago, Ill.	464	263	104	59	25	13	36
Cincinnati, Ohio	132	58	30	12	4	3	8
Cleveland, Ohio	153	100	34	11	5	3	1
Columbus, Ohio	170	107	41	11	6	5	13
Dayton, Ohio	122	89	23	5	1	4	3
Detroit, Mich.	227	121	49	38	7	11	8
Evansville, Ind.	32	20	7	1	-	-	2
Fort Wayne, Ind.	51	39	5	3	1	3	-
Gary, Ind.	25	12	6	3	4	-	-
Grand Rapids, Mich.	70	55	6	9	-	-	5
Indianapolis, Ind.	138	82	30	17	3	6	7
Madison, Wis.	108	75	23	5	4	1	5
Milwaukee, Wis.	123	91	24	6	1	1	10
Peoria, Ill.	35	25	5	2	1	2	2
Rockford, Ill.	46	36	7	2	-	1	2
South Bend, Ind.	22	18	3	1	-	-	-
Toledo, Ohio	92	70	12	5	4	1	5
Youngstown, Ohio	50	29	14	6	1	-	1
W.N. CENTRAL	678	478	107	51	26	6	20
Des Moines, Iowa	U	U	U	U	U	U	U
Duluth, Minn.	29	21	6	2	-	-	1
Kansas City, Kans.	41	25	10	3	3	-	-
Kansas City, Mo.	108	64	17	9	8	-	1
Lincoln, Nebr.	23	15	5	1	1	1	1
Minneapolis, Minn.	160	124	21	13	1	1	7
Omaha, Nebr.	92	65	11	9	3	4	4
St. Louis, Mo.	103	70	18	8	7	-	2
St. Paul, Minn.	41	34	6	1	-	-	2
Wichita, Kans.	81	60	13	5	3	-	2
S. ATLANTIC	1,271	761	251	177	43	36	56
Atlanta, Ga.	157	86	36	25	5	5	5
Baltimore, Md.	120	57	30	25	6	2	10
Charlotte, N.C.	137	90	27	12	7	1	6
Jacksonville, Fla.	121	79	23	14	3	2	6
Miami, Fla.	115	57	23	22	8	4	1
Norfolk, Va.	61	37	10	7	4	3	3
Richmond, Va.	68	40	15	10	1	2	1
Savannah, Ga.	54	34	11	3	2	4	5
St. Petersburg, Fla.	46	31	8	5	1	1	1
Tampa, Fla.	225	161	35	25	1	1	15
Washington, D.C.	159	84	31	29	4	11	3
Wilmington, Del.	8	5	2	-	1	-	-
E.S. CENTRAL	751	509	140	64	20	17	50
Birmingham, Ala.	126	76	25	14	4	6	3
Chattanooga, Tenn.	72	53	12	4	1	2	1
Knoxville, Tenn.	91	61	15	9	4	2	7
Lexington, Ky.	72	52	13	3	1	3	5
Memphis, Tenn.	146	100	33	11	2	-	15
Mobile, Ala.	69	43	12	8	3	3	6
Montgomery, Ala.	47	38	5	3	1	-	3
Nashville, Tenn.	128	86	25	12	4	1	10
W.S. CENTRAL	1,404	851	320	151	56	26	62
Austin, Tex.	62	37	11	11	3	-	4
Baton Rouge, La.	60	41	11	3	3	2	-
Corpus Christi, Tex.	56	38	10	5	2	1	2
Dallas, Tex.	182	106	48	14	11	3	6
El Paso, Tex.	49	37	6	3	1	2	1
Ft. Worth, Tex.	91	55	17	8	8	3	6
Houston, Tex.	371	204	92	60	12	3	21
Little Rock, Ark.	53	25	18	6	3	1	1
New Orleans, La.	136	86	29	10	6	5	-
San Antonio, Tex.	195	121	49	17	5	3	12
Shreveport, La.	62	41	13	4	1	3	6
Tulsa, Okla.	87	60	16	10	1	-	3
MOUNTAIN	843	518	175	87	43	20	41
Albuquerque, N.M.	87	62	9	8	6	2	2
Colo. Springs, Colo.	42	36	3	3	-	-	4
Denver, Colo.	80	40	21	14	3	2	4
Las Vegas, Nev.	165	102	45	14	2	2	7
Ogden, Utah	30	20	4	2	4	-	2
Phoenix, Ariz.	197	99	50	27	14	7	10
Pueblo, Colo.	21	17	4	-	-	-	1
Salt Lake City, Utah	100	63	13	11	10	3	7
Tucson, Ariz.	121	79	26	8	4	4	4
PACIFIC	1,859	1,210	376	176	60	33	120
Berkeley, Calif.	18	9	6	3	-	-	1
Fresno, Calif.	91	67	14	7	1	2	7
Glendale, Calif.	23	19	3	1	-	-	1
Honolulu, Hawaii	64	43	13	7	-	1	5
Long Beach, Calif.	61	41	10	5	2	3	5
Los Angeles, Calif.	511	312	106	58	25	6	22
Pasadena, Calif.	25	21	2	1	-	1	2
Portland, Oreg.	133	92	20	13	6	2	7
Sacramento, Calif.	143	97	35	8	2	1	13
San Diego, Calif.	161	106	33	14	5	3	21
San Francisco, Calif.	149	91	32	19	4	3	15
San Jose, Calif.	173	113	41	13	4	2	13
Santa Cruz, Calif.	33	21	8	3	1	-	1
Seattle, Wash.	144	97	22	15	5	5	5
Spokane, Wash.	46	31	9	1	2	3	1
Tacoma, Wash.	84	50	22	8	3	1	1
TOTAL	12,026¶	7,718	2,365	1,237	398	260	603

*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 Coverage Levels — Continued

entire sample. Standard two-phase estimation procedures (*4*) were used to estimate vaccination coverage for each surveyed area. The estimates were adjusted using natality data to create a weighted sample representative of children aged 19–35 months in the United States; in addition, adjustments were made for nonresponse and for exclusion of households without a telephone to account for the finding that children in households without telephones are less likely to be vaccinated than children in households with a telephone (CDC, unpublished data, 1995) (*5*).

Based on the NIS, among children who were born during May 1991– May 1993 and who were aged 19–35 months (median: 27 months) when surveyed, estimated vaccination coverage was 75% (confidence interval [CI]=±1.2%) for receipt of at least four doses of diphtheria and tetanus toxoids and pertussis vaccine (DTP), three doses of poliovirus vaccine, and one dose of measles-mumps-rubella vaccine (MMR) (4:3:1 series) (Table 1). However, except for hepatitis B, coverage levels for each of the vaccines individually were substantially higher: coverage with three or more doses of DTP was >90%; coverage for one dose of MMR, three or more doses of polio, and three or more doses of *Haemophilus influenzae* type B vaccine (Hib) ranged from 83% to 89%. The lower overall coverage for the 4:3:1 series was accounted for primarily by low coverage for the fourth dose of DTP (77%).

State-specific estimated coverage levels for the 4:3:1 series ranged from 61% (CI=±6.2%) to 88% (CI=±4.6%) (Table 2). Coverage levels were <65% in three states,

TABLE 1. Vaccination coverage levels among children aged 19–35 months, by selected vaccines — United States, 1994

Vaccine/Dose	1996 Goal	NHIS*		NHIS provider†		NIS§	
		%	(95% CI¶)	%	(95% CI)	%	(95% CI)
DTP/DT**							
≥3 Doses	90%	89	(±2.4)	93	(±2.2)	93	(±0.7)
≥4 Doses	—	69	(±3.0)	76	(±3.4)	77	(±1.1)
Poliovirus							
≥3 Doses	90%	78	(±2.7)	83	(±3.0)	83	(±1.0)
***Haemophilus influenzae* type b**							
≥3 Doses	90%	73	(±3.1)	89	(±2.6)	86	(±0.9)
Measles-containing (MCV)	90%	91	(±1.8)	88	(±3.8)	89	(±0.9)
Hepatitis B††							
≥3 Doses	70%	27	(±3.5)	17	(±2.8)	37	(±1.2)
Combined series							
4 DTP/3 Polio/1 MCV§§	—	67	(±3.1)	72	(±3.4)	75	(±1.2)

* 1994 National Health Interview Survey, January–June.
† 1994 National Health Interview Survey, January–June, with provider data.
§ 1994 National Immunization Survey, April–December.
¶ Confidence interval.
** Diphtheria and tetanus toxoids and pertussis vaccine/Diphtheria and tetanus toxoids.
†† The difference between the NIS and NHIS provider estimates for hepatitis B is primarily because of different time periods for the surveys and the rapid improvement in hepatitis B coverage during 1994.
§§ Four doses of DTP/DT, three doses of poliovirus vaccine, and one dose of MCV.

Vaccination Coverage Levels — Continued

TABLE 2. Estimated vaccination coverage with the 4:3:1 series,* by state — National Immunization Survey, United States, April–December 1994

State	Sample size	4:3:1 Series coverage	
		%	(95% CI†)
Alabama	622	75	(±6.1)
Alaska	318	73	(±6.9)
Arizona	649	77	(±4.8)
Arkansas	345	71	(±6.9)
California	1,304	74	(±4.9)
Colorado	331	75	(±7.2)
Connecticut	329	86	(±5.6)
Delaware	309	81	(±6.6)
District of Columbia	277	73	(±8.8)
Florida	915	76	(±6.2)
Georgia	620	79	(±5.7)
Hawaii	340	86	(±5.7)
Idaho	313	64	(±7.4)
Illinois	644	68	(±6.0)
Indiana	642	74	(±5.7)
Iowa	309	81	(±6.0)
Kansas	309	82	(±5.6)
Kentucky	342	80	(±6.1)
Louisiana	636	71	(±6.6)
Maine	302	82	(±6.0)
Maryland	633	79	(±5.4)
Massachusetts	633	82	(±5.3)
Michigan	624	61	(±6.2)
Minnesota	318	81	(±5.6)
Mississippi	331	83	(±6.1)
Missouri	317	64	(±7.5)
Montana	321	75	(±6.3)
Nebraska	325	72	(±6.6)
Nevada	322	69	(±8.0)
New Hampshire	295	83	(±6.0)
New Jersey	603	71	(±7.2)
New Mexico	326	73	(±7.4)
New York	639	77	(±5.1)
North Carolina	355	84	(±5.8)
North Dakota	326	81	(±5.0)
Ohio	970	73	(±5.2)
Oklahoma	319	76	(±7.2)
Oregon	321	71	(±6.9)
Pennsylvania	640	77	(±5.1)
Rhode Island	316	82	(±5.9)
South Carolina	328	84	(±5.7)
South Dakota	329	74	(±6.7)
Tennessee	972	74	(±4.6)
Texas	1,733	71	(±4.3)
Utah	472	70	(±5.6)
Vermont	312	88	(±4.6)
Virginia	327	81	(±6.4)
Washington	712	74	(±4.9)
West Virginia	312	66	(±8.3)
Wisconsin	647	76	(±5.1)
Wyoming	313	78	(±5.7)
Total	**25,247**	**75**	**(±1.2)**

* Four doses of diphtheria and tetanus toxoids and pertussis vaccine, three doses of poliovirus vaccine, and one dose of measles-mumps-rubella vaccine.
† Confidence interval.

Vaccination Coverage Levels — Continued

≥85% in three states, and were higher in the northeastern and southeastern regions (Figure 1).

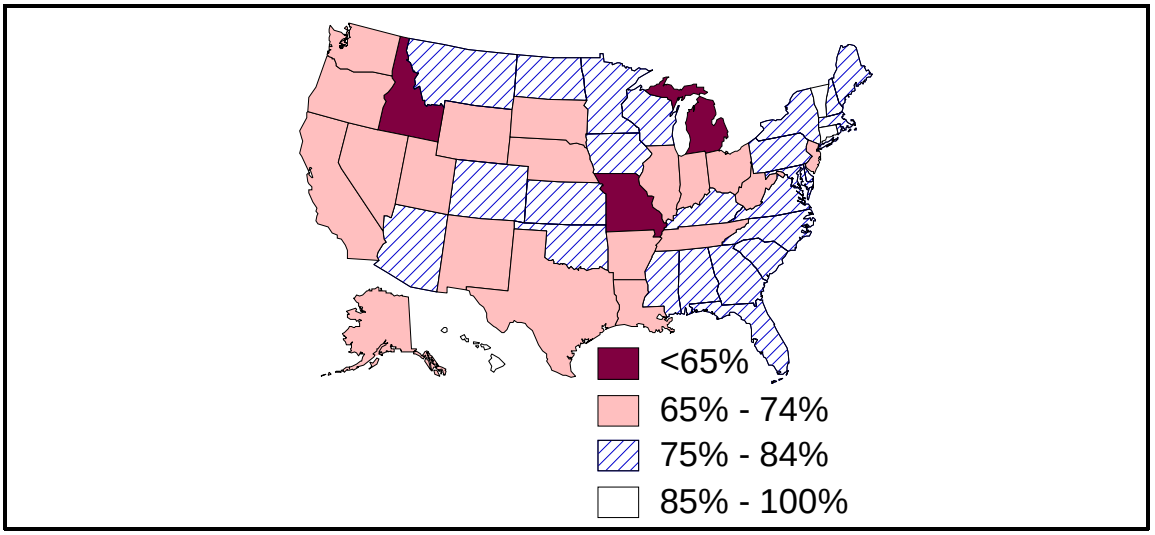
To assess the validity of estimates from the NIS, findings were compared with previously reported data from the National Health Interview Survey (NHIS) (*6,7*), a national household survey of the U.S. civilian, noninstitutionalized population. For January–June 1994, NHIS data had been supplemented with provider information in the same manner as in the NIS survey. The estimated coverage level of 75% in the NIS survey was similar to the 72% estimate obtained from the NHIS, and vaccine coverage levels for each individual vaccine (except for hepatitis B) were nearly identical (Table 1). In addition, estimates of vaccination coverage derived independently by selected states for 1994 were similar to those reported in the NIS (CDC, unpublished data, 1995).

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

Editorial Note: The NIS data provide the first current, population-based, state-specific estimates of vaccination coverage produced by a standard methodology for the United States. These findings enable valid comparisons of state efforts to deliver vaccination services. The NIS has obtained the most reliable estimates of vaccination coverage through the use of health-care provider records and the use of data from the NHIS to adjust for households without telephones. The estimate of the coverage for the 4:3:1 series based on NIS (75%) was substantially higher than that previously reported through the NHIS (67%), probably reflecting improvements in the accuracy of both NIS and NHIS data with the inclusion of information from providers rather than a true increase in coverage. CDC will continue to assess and improve the quality of national vaccination data.

The vaccination coverage rates reported in the NIS and in recent reports from the NHIS are the highest ever recorded in the United States. In particular, the findings in the NIS indicate that the CII goal for 90% coverage with three doses of DTP was

FIGURE 1. Estimated vaccination coverage with the 4:3:1 series,* by state — National Immunization Survey, United States, April–December 1994



*Four doses of diphtheria and tetanus toxoids and pertussis vaccine, three doses of poliovirus vaccine, and one dose of measles-mumps-rubella vaccine.

Vaccination Coverage Levels — Continued

exceeded, and that the 90% coverage goals for polio, measles, and Hib were nearly attained (*1*). Coverage for hepatitis B, the vaccine most recently added to the pediatric schedule, was the lowest because many children were born before the recommendations for vaccination were made.

Coverage for four doses of DTP is the lowest of the three vaccines included in the combined series. The Advisory Committee on Immunization Practices recently reaffirmed its recommendation for a fourth dose of DTP for all children aged 12–18 months (*8*). Efforts to ensure timely administration of the fourth dose of DTP vaccine must be intensified to further reduce the incidence of pertussis and should include simultaneous administration with other vaccines recommended for children aged 12–18 months.

The substantial variation in state-specific coverage levels for the 4:3:1 series underscores the need for vaccination efforts targeted at children aged <2 years; in addition, more than one million children still lack one or more doses of the recommended vaccines. One of the national health objectives for the year 2000 is to achieve series-complete coverage for at least 90% of 2-year-old children for all recommended vaccines[†] (objective 20.11) (*9*). Implementation of the five-part CII strategy will be essential to meet this goal and to build a national system that maintains high coverage levels.

Potential limitations of NIS include the possible biases associated with exclusion of households without telephones, household nonresponse, and inaccurate reporting from households and small sample sizes for some states. An adjustment for exclusion of households without telephones was made to account for findings in the 1992–1993 NHIS that coverage levels for the 4:3:1 series are approximately 10 percentage points lower among children in households without telephones (CDC, unpublished data, 1995). Although provider information was not available for all children, those children whose providers were not included in the survey were similar to children whose provider was included, suggesting that use of provider data did not introduce a bias. In addition, estimates based on small sample sizes have a larger variance; future analyses will include data for four quarters, thereby reducing the size of the sampling error.

CDC will use the NIS, with data from the NHIS, to evaluate progress toward national vaccination goals and, because of the comparability of the information in the NIS, to identify states with the highest rates (whose programs may be models for other states) and states with lower rates (which may need special attention). These coverage estimates are being used to distribute $33 million in incentive funds, with the greatest funding per fully vaccinated child to states that achieve the highest levels of coverage.

References

1. CDC. Reported vaccine-preventable diseases—United States, 1993, and the Childhood Immunization Initiative. MMWR 1994;43:57–60.
2. Goldstein KP, Kviz FJ, Daum RS. Accuracy of immunization histories provided by adults accompanying preschool children to a pediatric emergency department. JAMA 1993;270:2190–4.
3. Valadez JJ, Weld LH. Maternal recall error of child vaccination status in a developing nation. Am J Public Health 1992:82:120–2.
4. Cochran WG. Double sampling. In: Cochran WG. Sampling techniques. 3rd ed. New York: John Wiley & Sons, Inc, 1977:327–58.

[†]Series-complete coverage of all currently recommended vaccines include four doses of DTP, three doses of polio, one dose of MMR, and three doses each of Hib and hepatitis B vaccine.

Vaccination Coverage Levels — Continued

5. Massey JT, Botman SL. Weighting adjustments for random digit dialed surveys. In: Groves RM, Biemer PP, Lyberg LE, Massey JT, Nicholls WL, Waksberg J. Telephone survey methodology. New York: John Wiley & Sons, Inc, 1988:143–60.
6. CDC. Vaccination coverage of 2-year-old children—United States, January–March, 1994. MMWR 1995:44:142–3,149–50.
7. CDC. Vaccination coverage levels among children aged 19–35 months—United States, April–June 1994. MMWR 1995:44:396–8.
8. CDC. Recommended childhood immunization schedule—United States, 1995. MMWR 1995; 44(no. RR-5).
9. Public Health Service. Healthy people 2000: national health promotion and disease prevention objectives—full report, with commentary. Washington, DC: US Department of Health and Human Services, Public Health Service, 1991; DHHS publication no. (PHS)91-50212.

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