CENTERS FOR DISEASE CONTROL

February 2, 1990 / Vol. 39 / No. 4

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Health Objectives for the Nation

Progress Toward Achieving the 1990 Objectives for the Nation for Sexually Transmitted Diseases

Eleven of the 1990 Objectives for the Nation (*1*) addressed sexually transmitted diseases (STDs). When the objectives were established in 1979, five involved national priority areas: syphilis, gonorrhea, gonococcal pelvic inflammatory disease, provider proficiency, and student awareness. The other six objectives addressed nongonococcal urethritis, chlamydial pneumonia, neonatal herpes, condom use, STD screening in the workplace, and STD reporting levels; however, because of data limitations in 1979, these objectives were considered lower priority. This article summarizes progress through December 1988 toward the five priority objectives.

By 1990, reported incidence of primary and secondary syphilis should be reduced to a rate of seven cases per 100,000 population per year, with a reduction in congenital syphilis to 1.5 cases per 100,000 children under 1 year of age.

This objective is unlikely to be met. Although crude rates of primary and secondary syphilis decreased markedly between 1982 and 1986, they subsequently increased and, by 1988, reached their highest level in 40 years (Figure 1). However, trends differed among races and genders. In white males, reported cases decreased during the 1980s; for black males and females, rates increased. Reported rates of congenital syphilis also increased (Figure 2), as did the number of states reporting cases during the 1980s.

By 1990, reported gonorrhea incidence should be reduced to a rate of 280 cases per 100,000 population.

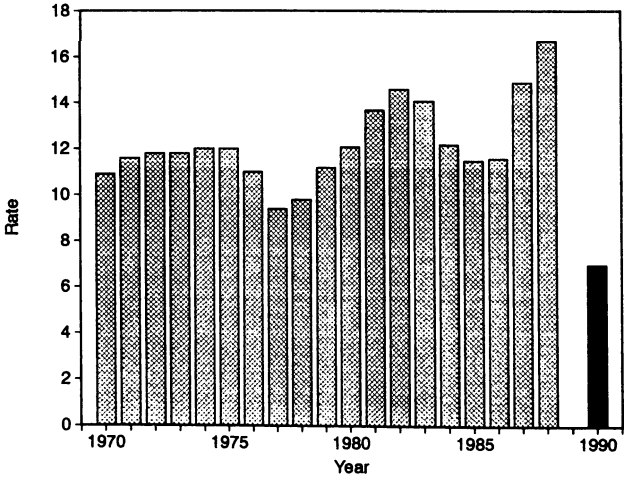
This objective is likely to be met (Figure 3). However, two concerns are that: 1) although overall gonorrhea rates decreased substantially from 1980 to 1988, rates remained stable among blacks and declined more slowly among teenagers than among persons in older age groups (*2*); and 2) the number and percentage of gonococcal strains resistant to standard therapies, primarily penicillin, increased substantially (*3*).

1990 Objectives — Continued

By 1990, reported incidence of gonococcal pelvic inflammatory disease should be reduced to a rate of 60 cases per 100,000 females.

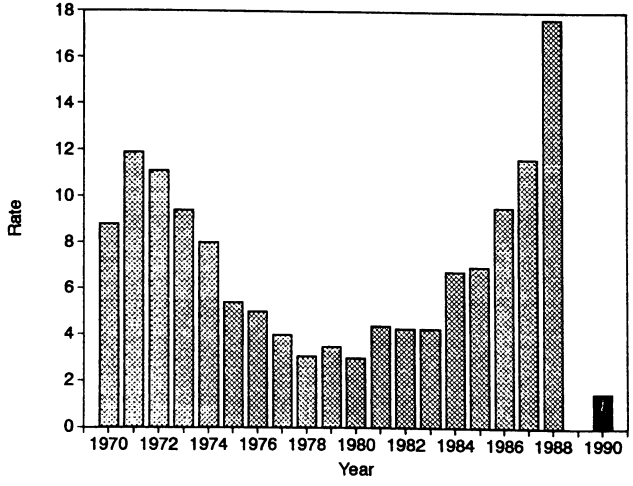
This objective is likely to be met. Nationwide, however, gonococcal pelvic inflammatory disease accounts for <50% of all pelvic inflammatory disease (PID). Therefore, in 1985, CDC began to monitor all diagnosed cases of PID. Using a more complete measure of PID, CDC added a target of 560 PID cases per 100,000 females by 1990

FIGURE 1. Rates of primary and secondary syphilis per 100,000 population — United States, 1970–1988 and 1990 objective*



*1990 objective: 7.0 cases per 100,000 population.

FIGURE 2. Rates of congenital syphilis for infants <1 year of age per 100,000 live infants — United States, 1970–1988 and 1990 objective*



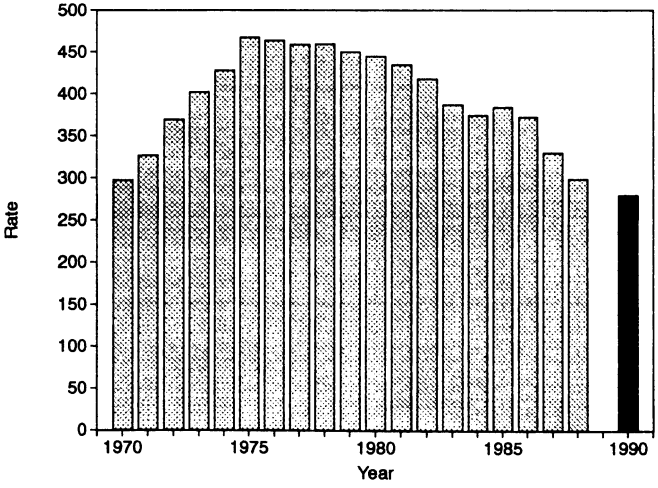
*1990 objective: 1.5 cases per 100,000 live infants.

1990 Objectives — Continued

(1985 incidence was approximately 680 per 100,000). This goal is also likely to be achieved (Figure 4).

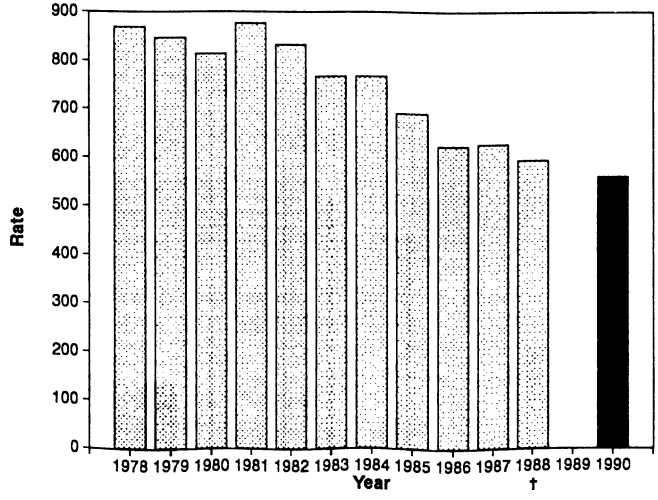
By 1990, at least 95% of health care providers seeing patients with suspected cases of sexually transmitted diseases should be capable of diagnosing and treating all currently recognized sexually transmitted diseases.

FIGURE 3. Rates of gonorrhea per 100,000 population — United States, 1970–1988 and 1990 objective*



*1990 objective: 280.0 cases per 100,000 population.

FIGURE 4. Rates of pelvic inflammatory disease per 100,000 women — United States, 1979–1988 and 1990 objective*



*1990 CDC objective: 560.0 cases per 100,000 women.
†Estimated.

1990 Objectives — Continued

This objective is unlikely to be met. In 1985, nearly two thirds of 407 physicians presented with a typical case profile for gonorrhea would not have implemented traditional spousal notification (*4*). Only 10% of primary-care providers regularly assessed the sexual behaviors of their patients (*5*), and 70% of clinicians did not prescribe the combinations of antibiotics recommended to treat polymicrobial PID (*6*). In 1985, nearly half of U.S. medical schools offered no clinical curricula on STDs (CDC, unpublished data).

By 1990, every junior and senior high school student in the United States should be receiving accurate, timely education about sexually transmitted diseases.

This objective is unlikely to be met. Although 95% of schools reported offering at least one class on STDs as part of their standard curricula (*7*), only 77% of teenagers surveyed in 1988 reported receiving STD education by age 18 (CDC, unpublished data). In addition, awareness by students of STD symptoms, signs, and approaches to prevention is low.

Reported by: Office of Disease Prevention and Health Promotion, Office of the Assistant Secretary for Health, Public Health Service, US Department of Health and Human Services. Div of STD/HIV Prevention, Center for Prevention Svcs, CDC.

Editorial Note: Since the development of the 1990 objectives, a new sexually transmitted agent, human immunodeficiency virus (HIV), has become a major contributor to STD. Counseling and testing for HIV is routinely recommended as part of STD services in the United States. In addition, the variety and burden of STDs have increased markedly. The incidence of genital-ulcer diseases—including syphilis, genital herpes, and chancroid—has increased. Genital chlamydial infection has become the most common bacterial sexually transmitted infection; its relatively mild symptoms, higher screening and diagnostic costs, and longer course of therapy make chlamydia especially difficult to control. For example, many women with serologic evidence of past chlamydial infection and current infertility due to fallopian-tube occlusion report having no prior history of PID. Finally, specific strains of the human papillomavirus have been strongly associated with the development of cervical cancer (*8,9*).

Sexual behaviors have also changed during the 1980s. Homosexual men have apparently adopted safer sexual behaviors in response to HIV prevention recommendations; these changes, in turn, have lowered the level of other STDs in this population. However, in 1988, a larger percentage of teenagers were initiating sexual intercourse at younger ages than in 1982 (CDC, unpublished data).

In the 1980s, crack cocaine became an important contributor to high-risk sexual activity, such as the exchange of sex for drugs (*10*). Cocaine use has been associated with high rates of syphilis in childbearing women (*11*).

Those circumstances have contributed to the failure to meet some of the 1990 objectives for STDs. As a result, the level of morbidity from STDs and their sequelae remains high. Objectives for the year 2000 for the prevention and control of STDs and HIV infection are currently being established (*12*). These objectives will be broader than those formulated in 1979 and closely linked to other priority areas such as sexual behavior, immunization and infectious diseases, substance abuse, and surveillance.

References

1. Public Health Service. Promoting health/preventing disease: objectives for the nation. Washington, DC: US Department of Health and Human Services, Public Health Service, 1980:26–7.

1990 Objectives — Continued

2. Rice RJ, Aral SO, Blount JH, Zaidi AA. Gonorrhea in the United States 1975–1984: is the giant only sleeping? Sex Transm Dis 1987;14:83–7.
3. Whittington WL, Knapp JS. Trends in resistance of *Neisseria gonorrhoeae* to antimicrobial agents in the United States. Sex Transm Dis 1988;15:202–10.
4. Novack DH, Detering BJ, Arnold R, Forrow L, Ladinsky M, Pezzullo JC. Physicians' attitudes toward using deception to resolve difficult ethical problems. JAMA 1989;261:2980–5.
5. Lewis CE, Freeman HE. The sexual history-taking and counseling practices of primary care physicians. West J Med 1987;147:165–7.
6. Grimes DA, Blount JH, Patrick J, Washington AE. Antibiotic treatment of pelvic inflammatory disease: trends among private physicians in the United States, 1966 through 1983. JAMA 1986;256:3223–6.
7. Forrest JD, Silverman J. What public school teachers teach about preventing pregnancy, AIDS, and sexually transmitted diseases. Fam Plann Perspect 1989;21:65–72.
8. Koutsky LA, Galloway DA, Holmes KK. Epidemiology of genital human papillomavirus infection. Epidemiol Rev 1988;10:122–63.
9. Reeves WC, Rawls WE, Brinton LA. Epidemiology of genital papillomaviruses and cervical cancer. Rev Infect Dis 1989;11:426–39.
10. des Jarlais DC, Friedman SR. Intravenous cocaine, crack, and HIV infection. JAMA 1988; 259:1945–6.
11. CDC. Congenital syphilis—New York City, 1986–1988. MMWR 1989;38:825–9.
12. CDC. Year 2000 national health objectives. MMWR 1989;38:629–33.

Current Trends

Pertussis Surveillance — United States, 1986–1988

During 1986–1988, state health departments reported 10,468 pertussis cases to the *MMWR* (4195 in 1986, 2823 in 1987, and 3450 in 1988), for an average crude annual incidence rate of 1.4 cases per 100,000 population (1.7, 1.2, and 1.4 in 1986, 1987, and 1988, respectively). The average incidence represents a 17% increase over that for 1984 and 1985 (1.2 per 100,000). Age-specific incidence rates were highest among children <1 year of age and declined with increasing age (Figure 1). Pertussis cases were reported from all 50 states and the District of Columbia; the highest average annual incidence rates were reported in Idaho (17.1 per 100,000), Kansas (17.0 per 100,000), Delaware (12.5 per 100,000), Hawaii (10.7 per 100,000), and New Hampshire (6.6 per 100,000), each of which reported one large outbreak during the 3-year period.

Supplemental detailed case reports on 8682 (83%) patients were received through the Supplemental Pertussis Surveillance System (SPSS).* The age distribution of these patients was similar to that of patients reported to the *MMWR* (Table 1, page 64). The following data are from the SPSS.

Of the 8682 patients, 2345 (27%) had culture-confirmed pertussis; 6125 (71%) had cough for ≥14 days and/or had culture confirmation of pertussis. In early 1988, the Council of State and Territorial Epidemiologists (CSTE) approved clinical case definitions for uniform reporting of outbreak-related and sporadic pertussis cases: in

*Pertussis reports are submitted to CDC using two separate reporting mechanisms. The *MMWR* system includes basic demographic and disease occurrence information, which is the same for all diseases reported. *MMWR* cases are compiled by date of report. In the SPSS, introduced in 1979, reports on pertussis cases are submitted to CDC by state health departments. The reports contain more complete disease-specific information on age, sex, vaccination status, date of onset, clinical symptoms and signs, complications, and results of laboratory tests. SPSS cases are compiled by date of onset.

Pertussis Surveillance — Continued

an outbreak, a cough illness lasting ≥14 days is considered a case; a sporadic case includes this criterion and paroxysms, whoop, or post-tussive vomiting. These case definitions, however, have not yet been implemented by all states. Overall, of 6000 patients for whom cough duration was known, 81% were reported to have had cough for ≥14 days; this proportion was the same for patients with and without culture confirmation. Direct fluorescent antibody (DFA) testing of nasopharyngeal secretions was reported for 6449 (74%) patients. Of 4426 patients for whom cough duration was known, the clinical case definition of cough for ≥14 days was met by 73% of those with a positive DFA test without culture confirmation and by 89% of those with a negative DFA test.

Percentages of hospitalization and complications (e.g., pneumonia, seizures, and encephalopathy) were highest for children <6 months of age and tended to decline with increasing age (Table 2, page 64). Of the 26 (0.3%) patients who died, 14 were <6 months of age (case-fatality rate in this group: 0.5%).

(Continued on page 63)

TABLE I. Summary — cases of specified notifiable diseases, United States

Disease	4th Week Ending			Cumulative, 4th Week Ending		
	Jan. 27, 1990	Jan. 28, 1989	Median 1985-1989	Jan. 27, 1990	Jan. 28, 1989	Median 1985-1989
Acquired Immunodeficiency Syndrome (AIDS)	136	U*	458	3,349	2,083	1,397
Aseptic meningitis	78	81	83	344	280	302
Encephalitis: Primary (arthropod-borne & unspec)	7	7	13	42	42	56
Post-infectious	1	1	2	6	6	5
Gonorrhea: Civilian	10,046	12,974	15,896	47,451	48,303	61,061
Military	211	257	301	713	740	1,044
Hepatitis: Type A	382	748	541	1,614	2,142	1,636
Type B	286	381	414	1,102	1,289	1,440
Non A, Non B	35	34	44	134	166	207
Unspecified	35	52	69	127	144	235
Legionellosis	18	13	15	69	58	57
Leprosy	2	-	3	9	7	14
Malaria	20	11	11	68	53	42
Measles: Total†	16	43	30	328	233	82
Indigenous	12	42	29	234	225	72
Imported	4	1	1	94	8	8
Meningococcal infections	52	51	56	201	168	198
Mumps	74	127	78	289	380	257
Pertussis	34	44	38	157	165	130
Rubella (German measles)	1	7	3	22	16	17
Syphilis (Primary & Secondary): Civilian	591	999	705	2,603	2,581	2,515
Military	9	6	3	15	23	13
Toxic Shock syndrome	5	10	8	22	23	19
Tuberculosis	351	337	369	1,232	1,181	1,048
Tularemia	-	2	2	4	7	7
Typhoid Fever	3	2	5	22	19	19
Typhus fever, tick-borne (RMSF)	1	1	1	4	4	4
Rabies, animal	46	104	73	202	262	247

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1990		Cum. 1990
Anthrax	-	Leptospirosis	-
Botulism: Foodborne	-	Plague	-
Infant (Pa. 1)	2	Poliomyelitis, Paralytic,§	-
Other	-	Psittacosis ((Iowa 1, Ala. 2, Nev. 1)	16
Brucellosis	2	Rabies, human	-
Cholera	-	Tetanus (Va. 1, Calif. 1)	4
Congenital rubella syndrome	-	Trichinosis (Upstate N.Y. 1)	4
Congenital syphilis, ages < 1 year	-		
Diphtheria	-		

*Because AIDS cases are not received weekly from all reporting areas, comparison of weekly figures may be misleading.
†Four of the 16 reported cases for this week were imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.
§No cases of suspected poliomyelitis have been reported in 1990; none of 13 suspected cases in 1989 have been confirmed to date. Nine of 14 suspected cases in 1988 were confirmed and all were vaccine-associated.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending January 27, 1990 and January 28, 1989 (4th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1989	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990
UNITED STATES	3,349	344	42	6	47,451	48,303	1,614	1,102	134	127	69	9
NEW ENGLAND	151	28	3	-	1,718	1,621	30	88	4	9	1	-
Maine	8	1	-	-	12	27	-	3	-	1	-	-
N.H.	21	1	-	-	239	13	1	6	-	1	-	-
Vt.	-	2	-	-	8	8	1	2	1	-	-	-
Mass.	80	9	1	-	464	604	21	69	3	7	1	-
R.I.	1	13	-	-	81	125	2	7	-	-	-	-
Conn.	41	2	2	-	914	844	5	1	-	-	-	-
MID. ATLANTIC	1,341	66	1	-	4,691	5,927	282	154	21	4	17	3
Upstate N.Y.	247	24	1	-	657	643	41	44	4	-	5	-
N.Y. City	821	5	-	-	2,056	1,800	13	39	1	-	1	2
N.J.	142	-	-	-	1,219	698	37	21	9	-	3	1
Pa.	131	37	-	-	759	2,786	191	50	7	4	8	-
E.N. CENTRAL	193	60	6	1	9,954	8,401	80	159	12	10	19	-
Ohio	41	18	-	1	3,273	2,224	23	34	4	2	7	-
Ind.	23	14	1	-	941	610	10	59	2	4	3	-
Ill.	75	3	2	-	2,917	2,076	4	3	-	-	-	-
Mich.	44	25	3	-	2,560	2,629	35	51	6	4	5	-
Wis.	10	-	-	-	263	862	8	12	-	-	4	-
W.N. CENTRAL	126	11	1	-	2,857	2,247	42	17	4	1	1	-
Minn.	15	-	-	-	381	198	6	2	1	-	-	-
Iowa	1	-	1	-	252	174	18	5	1	-	-	-
Mo.	83	2	-	-	1,483	1,339	6	2	-	-	1	-
N. Dak.	-	-	-	-	14	12	1	-	-	-	-	-
S. Dak.	1	1	-	-	23	24	3	1	1	-	-	-
Nebr.	3	7	-	-	99	191	8	5	1	-	-	-
Kans.	23	1	-	-	605	309	-	2	-	1	-	-
S. ATLANTIC	705	69	13	-	14,691	14,044	176	227	23	16	10	-
Del.	11	3	-	-	165	201	10	4	1	-	-	-
Md.	109	19	3	-	1,604	1,409	110	46	3	1	5	-
D.C.	48	1	-	-	365	921	2	1	1	-	-	-
Va.	158	15	4	-	1,335	1,260	3	21	2	13	1	-
W. Va.	12	1	-	-	111	151	2	13	-	-	-	-
N.C.	55	9	5	-	2,890	2,071	21	59	12	-	2	-
S.C.	43	-	-	-	1,586	1,653	8	62	2	2	2	-
Ga.	13	1	1	-	3,458	2,385	11	12	-	-	-	-
Fla.	256	20	-	-	3,177	3,993	9	9	2	-	-	-
E.S. CENTRAL	79	17	4	-	3,936	4,549	23	71	8	1	8	-
Ky.	16	4	-	-	445	373	11	27	2	1	1	-
Tenn.	29	1	1	-	696	1,280	3	28	3	-	4	-
Ala.	17	9	3	-	1,865	1,594	9	16	3	-	3	-
Miss.	17	3	-	-	930	1,302	-	-	-	-	-	-
W.S. CENTRAL	122	7	-	1	4,140	5,160	93	50	2	4	4	5
Ark.	7	-	-	-	749	535	28	5	1	-	-	-
La.	80	1	-	-	756	765	7	16	-	-	1	-
Okla.	27	2	-	1	392	554	37	15	1	-	3	-
Tex.	8	4	-	-	2,243	3,306	21	14	-	4	-	5
MOUNTAIN	102	18	2	-	977	951	224	94	8	15	5	-
Mont.	3	1	-	-	10	15	3	4	-	-	-	-
Idaho	2	-	-	-	5	18	5	8	1	-	-	-
Wyo.	-	1	1	-	12	9	4	2	-	-	-	-
Colo.	38	3	-	-	199	118	3	10	1	4	-	-
N. Mex.	3	2	-	-	80	86	25	11	-	-	-	-
Ariz.	33	6	1	-	405	306	156	29	5	6	2	-
Utah	15	1	-	-	31	50	7	1	-	2	-	-
Nev.	8	4	-	-	235	349	21	29	1	3	3	-
PACIFIC	530	68	12	4	4,487	5,403	664	242	52	67	4	1
Wash.	82	-	1	-	509	509	27	11	2	1	-	-
Oreg.	16	-	-	-	216	214	81	26	4	2	-	-
Calif.	415	62	11	3	3,626	4,541	531	199	46	64	4	-
Alaska	5	-	-	-	120	114	2	2	-	-	-	-
Hawaii	12	6	-	1	16	25	23	4	-	-	-	1
Guam	1	-	-	-	10	10	2	1	-	1	-	-
P.R.	133	8	1	-	-	44	2	4	-	-	-	-
V.I.	1	-	-	-	27	31	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	8	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	6	-	-	-	-	-	-

N: Not notifiable U: Unavailable C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending January 27, 1990 and January 28, 1989 (4th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1990	1990	Cum. 1990	1990	Cum. 1990	Cum. 1989	Cum. 1990	1990	Cum. 1990	1990	Cum. 1990	Cum. 1989	1990	Cum. 1990	Cum. 1989
UNITED STATES	68	12	234	4	94	233	201	74	289	34	157	165	1	22	16
NEW ENGLAND	12	-	-	1	1	1	16	2	3	7	37	9	1	1	-
Maine	-	-	-	-	-	-	3	-	-	-	1	2	-	-	-
N.H.	-	-	-	1†	1	-	-	-	1	-	-	5	-	-	-
Vt.	2	-	-	-	-	-	1	-	-	-	1	-	-	-	-
Mass.	8	-	-	-	-	1	11	2	2	7	35	-	-	-	-
R.I.	-	-	-	-	-	-	-	-	-	-	-	2	1	1	-
Conn.	2	-	-	-	-	-	1	-	-	-	-	-	-	-	-
MID. ATLANTIC	11	2	15	1	8	6	32	10	21	3	12	19	-	1	1
Upstate N.Y.	2	-	2	-	1	-	10	5	8	3	6	2	-	-	1
N.Y. City	4	1	1	1†	1	1	2	-	-	-	-	-	-	-	-
N.J.	2	-	-	-	-	4	10	-	-	-	-	16	-	1	-
Pa.	3	1	12	-	6	1	10	5	13	-	6	1	-	-	-
E.N. CENTRAL	4	-	89	-	76	46	28	8	27	1	38	17	-	4	1
Ohio	2	-	-	-	-	45	7	-	-	-	-	1	-	-	-
Ind.	-	-	3	-	-	-	4	-	4	-	26	-	-	-	-
Ill.	-	-	22	-	-	-	7	-	3	-	-	4	-	4	-
Mich.	1	-	-	-	76	-	7	7	15	1	8	2	-	-	-
Wis.	1	-	64	-	-	1	3	1	5	-	4	10	-	-	1
W.N. CENTRAL	-	-	19	-	-	125	8	6	8	-	1	2	-	-	1
Minn.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iowa	-	-	19	-	-	-	1	-	2	-	-	2	-	-	-
Mo.	-	-	-	-	-	125	2	-	-	-	-	-	-	-	1
N. Dak.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S. Dak.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Nebr.	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-
Kans.	-	-	-	-	-	-	3	6	6	-	-	-	-	-	-
S. ATLANTIC	10	10	13	2	8	4	35	19	106	9	21	5	-	-	-
Del.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Md.	4	4	7	1†	6	3	7	9	65	5	10	-	-	-	-
D.C.	2	U	-	U	-	1	-	U	2	U	1	-	U	-	-
Va.	2	2	2	1†	2	-	4	-	5	-	1	1	-	-	-
W. Va.	-	-	-	-	-	-	-	5	6	3	3	-	-	-	-
N.C.	1	-	-	-	-	-	6	5	11	1	4	1	-	-	-
S.C.	-	-	-	-	-	-	5	-	8	-	-	-	-	-	-
Ga.	-	-	-	-	-	-	4	-	-	-	2	-	-	-	-
Fla.	1	4	4	-	-	-	9	-	9	-	-	3	-	-	-
E.S. CENTRAL	1	-	5	-	-	1	6	1	17	2	9	4	-	-	-
Ky.	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
Tenn.	-	-	-	-	-	-	1	-	3	-	1	2	-	-	-
Ala.	1	-	-	-	-	1	2	-	2	2	8	2	-	-	-
Miss.	-	-	5	-	-	-	-	N	N	-	-	-	-	-	-
W.S. CENTRAL	-	-	-	-	-	-	7	19	58	-	5	1	-	-	-
Ark.	-	-	-	-	-	-	-	5	18	-	-	1	-	-	-
La.	-	-	-	-	-	-	-	8	17	-	1	-	-	-	-
Okla.	-	-	-	-	-	-	3	-	12	-	4	-	-	-	-
Tex.	-	-	-	-	-	-	4	6	11	-	-	-	-	-	-
MOUNTAIN	1	-	6	-	-	14	5	8	22	6	8	79	-	-	1
Mont.	-	-	-	-	-	13	3	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-	2	11	-	-	6	-	-	-
Wyo.	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-
Colo.	-	-	-	-	-	-	1	1	2	-	1	3	-	-	-
N. Mex.	-	-	-	-	-	-	-	N	N	6	6	1	-	-	-
Ariz.	1	-	6	-	-	1	-	2	5	-	1	68	-	-	-
Utah	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Nev.	-	-	-	-	-	-	1	1	1	-	-	1	-	-	1
PACIFIC	29	-	87	-	1	36	64	1	27	6	26	29	-	16	12
Wash.	-	-	-	-	-	-	4	1	2	2	2	1	-	-	-
Oreg.	2	-	-	-	-	-	6	N	N	1	2	-	-	-	-
Calif.	27	-	87	-	1	34	53	-	24	3	20	28	-	14	12
Alaska	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	2	-	-	1	-	2	-	-	2	-
Guam	1	U	-	U	-	-	-	U	-	U	-	1	U	-	-
P.R.	-	-	-	-	-	33	1	-	2	-	-	-	-	-	-
V.I.	-	U	-	U	-	-	-	U	1	U	-	-	U	-	-
Amer. Samoa	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending January 27, 1990 and January 28, 1989 (4th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1990	Cum. 1989	Cum. 1990	Cum. 1990	Cum. 1989	Cum. 1990	Cum. 1990	Cum. 1990	Cum. 1990
UNITED STATES	2,603	2,581	22	1,232	1,181	4	22	4	202
NEW ENGLAND	142	138	2	7	31	-	-	-	-
Maine	1	-	-	-	1	-	-	-	-
N.H.	23	-	-	1	4	-	-	-	-
Vt.	-	-	-	-	1	-	-	-	-
Mass.	39	52	1	-	5	-	-	-	-
R.I.	-	5	-	1	9	-	-	-	-
Conn.	79	81	1	5	11	-	-	-	-
MID. ATLANTIC	460	521	3	349	272	1	7	-	55
Upstate N.Y.	19	23	1	7	15	-	4	-	2
N.Y. City	308	115	-	278	196	-	-	-	-
N.J.	108	113	-	28	29	1	3	-	19
Pa.	25	270	2	36	32	-	-	-	34
E.N. CENTRAL	119	111	6	157	134	-	1	1	3
Ohio	38	4	3	9	33	-	1	-	-
Ind.	1	3	-	11	6	-	-	-	-
Ill.	54	40	-	87	52	-	-	-	-
Mich.	7	59	3	41	40	-	-	1	-
Wis.	19	5	-	9	3	-	-	-	3
W.N. CENTRAL	29	29	1	25	36	1	-	-	23
Minn.	11	1	-	10	9	-	-	-	19
Iowa	3	6	-	1	6	-	-	-	-
Mo.	14	13	-	7	7	1	-	-	-
N. Dak.	1	-	-	1	4	-	-	-	1
S. Dak.	-	-	-	2	3	-	-	-	-
Nebr.	-	9	1	4	1	-	-	-	-
Kans.	-	-	-	-	6	-	-	-	3
S. ATLANTIC	1,117	908	-	166	186	1	1	1	64
Del.	13	5	-	1	-	-	-	-	2
Md.	86	55	-	26	11	-	1	-	25
D.C.	-	72	-	-	15	-	-	-	-
Va.	56	46	-	13	29	-	-	-	14
W. Va.	1	2	-	3	5	-	-	-	-
N.C.	128	48	-	15	16	1	-	1	1
S.C.	82	56	-	31	36	-	-	-	9
Ga.	310	206	-	20	13	-	-	-	13
Fla.	441	418	-	57	61	-	-	-	-
E.S. CENTRAL	171	178	2	51	90	-	-	1	4
Ky.	-	4	-	30	30	-	-	-	2
Tenn.	-	56	-	-	16	-	-	1	-
Ala.	94	68	2	21	33	-	-	-	2
Miss.	77	50	-	-	11	-	-	-	-
W.S. CENTRAL	314	295	-	79	53	-	1	-	20
Ark.	20	25	-	24	4	-	-	-	1
La.	144	60	-	-	7	-	-	-	-
Okla.	19	4	-	2	-	-	-	-	5
Tex.	131	206	-	53	42	-	1	-	14
MOUNTAIN	35	69	3	26	38	1	-	-	8
Mont.	-	-	-	-	-	-	-	-	2
Idaho	1	-	-	-	-	-	-	-	-
Wyo.	-	-	1	-	-	-	-	-	4
Colo.	4	4	-	-	-	-	-	-	-
N. Mex.	7	1	1	12	8	1	-	-	1
Ariz.	22	14	1	6	24	-	-	-	-
Utah	1	4	-	-	-	-	-	-	-
Nev.	-	46	-	8	6	-	-	-	1
PACIFIC	216	332	5	372	341	-	12	1	25
Wash.	-	23	-	19	11	-	-	-	-
Oreg.	4	15	-	10	9	-	-	-	-
Calif.	209	294	4	330	306	-	11	1	22
Alaska	-	-	-	-	3	-	-	-	3
Hawaii	3	-	1	13	12	-	1	-	-
Guam	-	2	-	4	7	-	-	-	-
P.R.	-	12	-	1	6	-	-	-	11
V.I.	-	1	-	-	1	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	1	-	-	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending January 27, 1990 (4th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	751	540	126	57	9	19	63
Boston, Mass.	183	97	46	26	3	11	19
Bridgeport, Conn.	54	39	7	6	-	2	3
Cambridge, Mass.	22	17	4	1	-	-	4
Fall River, Mass.	34	27	5	-	1	1	2
Hartford, Conn.	68	49	8	6	2	3	7
Lowell, Mass.	35	26	5	3	1	-	-
Lynn, Mass.	30	25	2	3	-	-	3
New Bedford, Mass.	40	37	3	-	-	-	2
New Haven, Conn.	35	28	5	2	-	-	7
Providence, R.I.	53	39	10	2	2	-	5
Somerville, Mass.	16	15	1	-	-	-	2
Springfield, Mass.	63	48	12	1	-	2	6
Waterbury, Conn.	39	29	7	3	-	-	3
Worcester, Mass.	79	64	11	4	-	-	-
MID. ATLANTIC	3,176	2,091	618	318	56	91	252
Albany, N.Y.	48	33	10	3	-	2	5
Allentown, Pa.	24	20	4	-	-	-	-
Buffalo, N.Y.	96	73	18	5	-	-	9
Camden, N.J.	26	15	4	4	1	2	2
Elizabeth, N.J.	51	40	8	2	-	1	4
Erie, Pa.†	53	40	8	3	2	-	8
Jersey City, N.J.	71	50	12	7	-	2	6
N.Y. City, N.Y.	1,772	1,121	342	225	33	51	115
Newark, N.J.	94	46	20	15	2	9	8
Paterson, N.J.	35	16	13	5	-	1	2
Philadelphia, Pa.	392	249	92	31	9	11	28
Pittsburgh, Pa.†	88	68	15	3	1	1	7
Reading, Pa.	39	32	5	1	1	-	10
Rochester, N.Y.	134	96	23	5	4	6	17
Schenectady, N.Y.	26	18	5	-	2	1	-
Scranton, Pa.†	37	32	5	-	-	-	5
Syracuse, N.Y.	83	64	14	2	1	2	9
Trenton, N.J.	43	24	13	4	-	2	4
Utica, N.Y.	22	18	4	-	-	-	3
Yonkers, N.Y.	42	36	3	3	-	-	10
E.N. CENTRAL	2,769	1,859	581	177	67	85	198
Akron, Ohio	119	84	22	8	4	1	4
Canton, Ohio	32	24	5	2	1	-	7
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	256	181	52	12	1	10	27
Cleveland, Ohio	194	114	53	14	5	8	9
Columbus, Ohio	246	174	44	15	3	10	16
Dayton, Ohio	136	95	27	7	5	2	17
Detroit, Mich.	289	162	70	30	16	11	12
Evansville, Ind.	57	45	7	2	3	-	4
Fort Wayne, Ind.	66	44	16	5	1	-	4
Gary, Ind.	26	12	7	5	1	1	2
Grand Rapids, Mich.	75	55	15	-	2	3	10
Indianapolis, Ind.	173	101	51	8	6	7	9
Madison, Wis.	40	28	8	1	2	1	4
Milwaukee, Wis.	136	109	19	7	1	-	13
Peoria, Ill.	46	35	8	2	1	-	6
Rockford, Ill.	43	31	8	1	1	2	7
South Bend, Ind.	59	41	13	3	1	1	5
Toledo, Ohio	135	102	20	6	3	4	16
Youngstown, Ohio	77	60	11	4	-	2	10
W.N. CENTRAL	1,093	799	176	59	25	33	90
Des Moines, Iowa	102	74	15	6	5	2	5
Duluth, Minn.	27	23	3	1	-	-	1
Kansas City, Kans.	26	20	4	2	-	-	1
Kansas City, Mo.	129	94	25	5	4	1	19
Lincoln, Nebr.	55	41	12	1	1	-	10
Minneapolis, Minn.	341	251	51	20	8	11	29
Omaha, Nebr.	93	70	14	5	-	4	5
St. Louis, Mo.	166	116	33	9	2	6	12
St. Paul, Minn.	89	66	11	3	4	5	3
Wichita, Kans.	65	44	8	7	1	4	5
S. ATLANTIC	1,561	983	321	160	41	53	89
Atlanta, Ga.	241	135	55	35	10	6	8
Baltimore, Md.§	236	152	51	23	6	4	19
Charlotte, N.C.	116	57	33	18	4	4	9
Jacksonville, Fla.	129	90	22	10	3	4	5
Miami, Fla.	144	92	26	20	1	5	4
Norfolk, Va.	94	53	27	8	3	3	9
Richmond, Va.	82	58	12	9	2	1	9
Savannah, Ga.	61	44	12	3	-	2	10
St. Petersburg, Fla.	81	65	8	5	1	2	6
Tampa, Fla.	94	60	20	4	3	5	6
Washington, D.C.	240	144	47	23	8	17	4
Wilmington, Del.	43	33	8	2	-	-	-
E.S. CENTRAL	907	643	174	54	18	18	84
Birmingham, Ala.§	110	82	17	6	2	3	4
Chattanooga, Tenn.	103	82	13	3	3	2	10
Knoxville, Tenn.	123	89	23	9	1	1	20
Louisville, Ky.	102	75	18	3	2	4	8
Memphis, Tenn.	181	112	44	15	6	4	27
Mobile, Ala.§	66	47	12	4	2	1	1
Montgomery, Ala.§	56	45	7	2	1	1	3
Nashville, Tenn.	166	111	40	12	1	2	11
W.S. CENTRAL	2,187	1,402	454	208	66	57	171
Austin, Tex.	84	60	9	12	2	1	13
Baton Rouge, La.	114	72	22	15	3	2	11
Corpus Christi, Tex.	79	58	15	2	1	3	10
Dallas, Tex.	266	157	61	24	12	12	19
El Paso, Tex.	56	39	11	3	3	-	2
Fort Worth, Tex	162	116	24	12	6	4	21
Houston, Tex.§	734	436	169	89	24	16	18
Little Rock, Ark.	96	57	28	10	1	-	8
New Orleans, La.	98	54	20	9	4	11	-
San Antonio, Tex.	291	199	60	20	7	5	47
Shreveport, La.	74	51	17	4	2	-	10
Tulsa, Okla.	133	103	18	8	1	3	12
MOUNTAIN	945	667	163	62	28	24	92
Albuquerque, N. Mex.	83	56	10	6	9	1	5
Colo. Springs, Colo.	49	38	6	2	1	2	5
Denver, Colo.	182	127	33	15	5	2	15
Las Vegas, Nev.	128	85	28	10	4	1	15
Ogden, Utah	26	21	1	2	1	1	5
Phoenix, Ariz.	264	187	43	17	4	13	28
Pueblo, Colo.	24	20	2	2	-	-	8
Salt Lake City, Utah	33	17	9	2	3	2	1
Tucson, Ariz.	156	116	31	6	1	2	10
PACIFIC	2,264	1,501	410	210	61	72	176
Berkeley, Calif.	30	22	3	3	1	1	1
Fresno, Calif.	109	72	20	7	5	4	12
Glendale, Calif.	34	24	6	3	-	1	1
Honolulu, Hawaii	75	44	22	6	1	2	7
Long Beach, Calif.	76	42	24	2	5	3	13
Los Angeles Calif.	595	395	96	66	26	4	22
Oakland, Calif.	81	43	20	8	3	7	4
Pasadena, Calif.	41	35	4	2	-	-	4
Portland, Oreg.	141	97	19	11	4	10	6
Sacramento, Calif.	160	109	35	9	2	5	23
San Diego, Calif.	247	161	39	28	5	13	38
San Francisco, Calif.	200	116	39	38	-	7	5
San Jose, Calif.	172	115	37	9	5	6	23
Seattle, Wash.	178	126	29	14	3	6	7
Spokane, Wash.	69	54	9	4	1	1	7
Tacoma, Wash.	56	46	8	-	-	2	3
TOTAL	15,653††	10,485	3,023	1,305	371	452	1,215

*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.

§Data not available. Figures are estimates based on average of past available 4 weeks.

Pertussis Surveillance — Continued

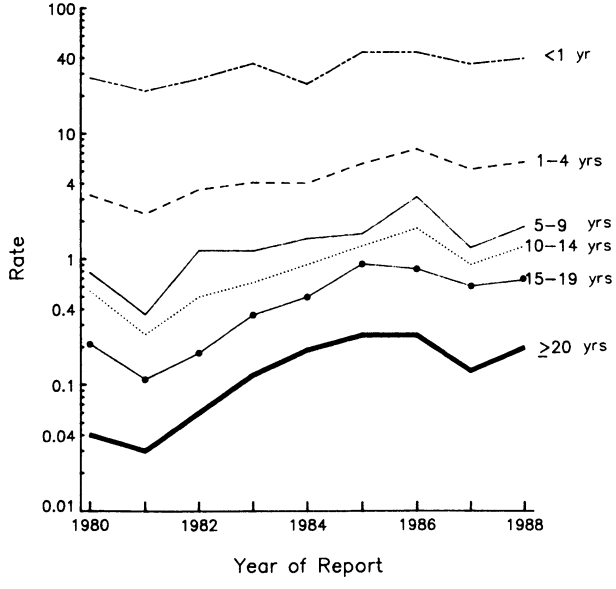
Based on the Immunization Practices Advisory Committee (ACIP) recommendations, children are appropriately immunized if they have received one dose of diphtheria and tetanus toxoids and pertussis vaccine (DTP) by 3 months of age, two doses by 5 months of age, three doses by 7 months of age, and four doses by 19 months of age (*1*). Of 3793 patients aged 3 months through 4 years with known vaccination status, 63% were not appropriately immunized; 34% had not received any doses.

Of the 8373 persons for whom information on therapy was available, 85% had received erythromycin, which is recommended by the ACIP. Of 5178 patients for whom initial date of therapy was known, 36% started therapy within 7 days after cough onset; 65% within 14 days; and 80% within 21 days. Of 5743 patients for whom duration of therapy was known, 51% completed the recommended 14-day course of erythromycin.

Reported by: State and territorial epidemiologists. Div of Immunization, Center for Prevention Svcs, CDC.

Editorial Note: The increase in incidence of reported pertussis in 1986—especially among older children (Figure 1)—may be explained in part by an outbreak that occurred in Kansas in that year. The Kansas outbreak was the largest reported in the United States in the last 10 years and accounted for 1030 cases (31% of all cases reported to the SPSS in 1986). In this outbreak, an unusually large proportion (63%) of reported cases occurred in children 5–9 years of age. Only 4% of cases were confirmed by culture; 87% of patients had a positive DFA test without culture confirmation. Cough duration of ≥14 days was reported for 107 (40%) of 268 patients for whom cough duration was known.

FIGURE 1. Age-specific incidence rates per 100,000 population of reported pertussis cases* — United States, 1980–1988



*Reports submitted to the *MMWR* surveillance system.

Pertussis Surveillance — Continued

For 1987 and 1988, the age-specific incidence rates were similar to those for 1984 and 1985. From 1986 through 1988, as in previous years, infants were at highest risk for pertussis and pertussis-associated complications. Two thirds of the pertussis cases reported during that period in children aged 7 months to 4 years could potentially have been prevented by age-appropriate vaccination.

Erythromycin, recommended for patients with clinical pertussis and for selected contacts of pertussis patients, decreases infectivity and may limit secondary spread (*1*). Secondary spread of pertussis in households and on wards in a facility for persons with developmental disabilities has been attributed to an approximate 14-day delay between cough onset and initiation of erythromycin therapy and/or prophylaxis in the patients with primary cases (*2–4*).

An estimated 5%–10% of pertussis cases in the United States are reported to CDC each year (*5*); reporting is disproportionately greater for hospitalized patients with classical, laboratory-confirmed, and hence, more severe, cases. Diagnostic limitations

TABLE 1. Age distribution of patients with reported pertussis — United States, 1986–1988

Age group (yrs)	Cases			
	Reported to SPSS*		Reported to *MMWR*†	
	No.	(%)	No.	(%)
<1	4,024	(46.4)	4,394	(42.0)
1–4	1,805	(20.8)	2,602	(24.9)
5–9	1,421	(16.4)	1,042	(10.0)
10–14	395	(4.6)	627	(6.0)
≥15	979	(11.3)	1,331	(12.7)
Unknown	58	(0.7)	472	(4.5)
Total	**8,682**	**(100.0)**	**10,468**	**(100.0)**

*Supplementary Pertussis Surveillance System, compiled by date of onset.
†Compiled by date of report.

TABLE 2. Number and percentage of pertussis patients* hospitalized and/or with complications, by age of patient — United States, 1986–1988

Age group	No.	Hospitalized		Complication					
				Pneumonia†		Seizures		Encephalopathy	
		No.	(%)	No.	(%)	No.	(%)	No.	(%)
<6 mos	3061	2129	(69.6)	522	(17.1)	79	(2.6)	32	(1.1)
6–11 mos	963	473	(49.1)	149	(15.5)	21	(2.2)	6	(0.6)
1–4 yrs	1805	451	(25.0)	187	(10.4)	37	(2.1)	7	(0.4)
5–9 yrs	1421	83	(5.8)	39	(2.8)	9	(0.6)	5	(0.4)
10–14 yrs	395	24	(6.1)	12	(3.0)	1	(0.3)	3	(0.8)
≥15 yrs	979	36	(3.7)	27	(2.8)	10	(1.0)	3	(0.3)
All ages§	**8682**	**3230**	**(37.2)**	**945**	**(10.9)**	**159**	**(1.8)**	**57**	**(0.7)**

*Supplementary Pertussis Surveillance System.
†Radiographically confirmed.
§Includes 58 patients of unknown ages.

Pertussis Surveillance — Continued

restrict assessment of the full public health impact of pertussis. The routinely available methods for laboratory diagnosis of pertussis are culture and DFA testing of nasopharyngeal secretions. Culture of *Bordetella pertussis* is specific as a diagnostic test but may be insensitive (*6*); it is most useful for confirming the presence of *B. pertussis* in the community. Culture of *B. pertussis* is particularly insensitive when specimens are obtained late in the course of the illness (*7*) or from persons who have been treated with antimicrobials effective against *B. pertussis* (erythromycin, trimethoprim-sulfamethoxazole, or tetracycline) (*8*). Thus, negative culture results may be misleading. Because DFA testing for pertussis has been shown in some studies to have low sensitivity (18%) (*6*), variable specificity (*9*), and a positive predictive value of 56% (*6*), it should not be relied on for diagnosing and reporting pertussis. DFA testing was performed on nearly three fourths of patients reported to the SPSS, but a positive test did not predict the presence of cough for ≥14 days.

Cough for ≥14 days was relatively sensitive (84%) and specific (63%) for identifying patients with a positive pertussis culture during outbreaks in 1985 and 1986. Based on pertussis serology as the diagnostic standard, this case definition was 91% sensitive and 90% specific (*10*). Thus, clinical criteria may be especially useful when cultures are not obtained or when culture results are negative.

In a 1984 survey of state and territorial epidemiologists (*11*), 42% employed a case definition for pertussis; however, the case definitions varied widely. Forty-one percent counted cases of physician-reported pertussis if laboratory studies were negative; 51% counted physician-reported pertussis if laboratory studies were not done. With such reporting practices, many patients meeting the CSTE case definitions may go unreported if laboratory tests are negative or not done.

Newer serologic tests for pertussis are being developed (*6,7*) but are not yet available for routine use. In the interim, judicious use of laboratory tests, combined with standard clinical criteria, should improve the uniformity, completeness, and specificity of pertussis reporting.

References

1. ACIP. Diphtheria, tetanus, and pertussis: guidelines for vaccine prophylaxis and other preventive measures. MMWR 1985;34:405–14,419–26.
2. Sprauer MA, Cochi SL, Patriarca PA, et al. Use of erythromycin in preventing secondary transmission of pertussis [Abstract]. In: Program and abstracts of the twenty-ninth Interscience Conference on Antimicrobial Agents and Chemotherapy. Washington, DC: American Society for Microbiology, 1989:199.
3. Biellik RJ, Patriarca PA, Mullen JR, et al. Risk factors for community- and household-acquired pertussis during a large-scale outbreak in central Wisconsin. J Infect Dis 1988; 157:1134–41.
4. Steketee RW, Wassilak SGF, Adkins WN, et al. Evidence for a high attack rate and efficacy of erythromycin prophylaxis in a pertussis outbreak in a facility for the developmentally disabled. J Infect Dis 1988;157:434–40.
5. Hinman AR, Koplan JP. Pertussis and pertussis vaccine: reanalysis of benefits, risks, and costs. JAMA 1984;251:3109–13.
6. Halperin SA, Bortolussi R, Wort AJ. Evaluation of culture, immunofluorescence, and serology for the diagnosis of pertussis. J Clin Microbiol 1989;27:752–7.
7. Steketee RW, Burstyn DG, Wassilak SG, et al. A comparison of laboratory and clinical methods for diagnosing pertussis in an outbreak in a facility for the developmentally disabled. J Infect Dis 1988;157:441–9.
8. Cherry JD, Brunell PA, Golden GS, et al. Report of the Task Force on Pertussis and Pertussis Immunization—1988. Pediatrics 1988;81:S939–84.

Pertussis Surveillance — Continued

9. Broome CV, Fraser DW, English WJ. Pertussis—diagnostic methods and surveillance. In: Manclark CR, Hill JC, eds. International Symposium on Pertussis. Bethesda, Maryland: National Institutes of Health, 1978:19–22.
10. Patriarca PA, Biellik RJ, Sanden G, et al. Sensitivity and specificity of clinical case definitions for pertussis. Am J Public Health 1988;78:833–6.
11. Sacks JJ. Utilization of case definitions and laboratory reporting in the surveillance of notifiable communicable diseases in the United States. Am J Public Health 1985;75:1420–3.

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The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333; telephone (404) 332-4555.

☆U.S. Government Printing Office: 1990-731-103/02053 Region IV

HHS Publication No. (CDC) 90-8017