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Epidemiologic Notes and Reports

Immunodeficiency among Female Sexual Partners of Males with Acquired Immune Deficiency Syndrome (AIDS) — New York

CDC has received reports of two females with cellular immunodeficiency who have been steady sexual partners of males with the acquired immune deficiency syndrome (AIDS).

Case 1: A 37-year-old black female began losing weight and developed malaise in June 1982. In July, she had oral candidiasis and generalized lymphadenopathy and then developed fever, non-productive cough, and diffuse intestitial pulmonary infiltrates. A transbronchial biopsy revealed *Pneumocystis carinii* pneumonia (PCP). Immunologic studies showed elevated immunoglobulin levels, lymphopenia, and an undetectable number of T-helper cells. She responded to antimicrobial therapy, but 3 months after hospital discharge had lymphadenopathy, oral candidiasis, and persistent depletion of T-helper cells.

The patient had no previous illnesses or therapy associated with immunosuppression. She admitted to moderate alcohol consumption, but denied intravenous (IV) drug abuse. Since 1976, she had lived with and had been the steady sexual partner of a male with a history of IV drug abuse. He developed oral candidiasis in March 1982 and in June had PCP. He had laboratory evidence of immune dysfunction typical of AIDS and died in November 1982.

Case 2: A 23-year-old Hispanic female was well until February 1982 when she developed generalized lymphadenopathy. Immunologic studies showed elevated immunoglobulin levels, lymphopenia, decreased T-helper cell numbers, and a depressed T-helper/T-suppressor cell ratio (0.82). Common infectious causes of lymphadenopathy were excluded by serologic testing. A lymph node biopsy showed lymphoid hyperplasia. The lymphadenopathy has persisted for almost a year; no etiology for it has been found.

The patient had no previous illnesses or therapy associated with immunosuppression and denied IV drug abuse. Since the summer of 1981, her only sexual partner has been a bisexual male who denied IV drug abuse. He developed malaise, weight loss and lymphadenopathy in June 1981 and oral candidiasis and PCP in June 1982. Skin lesions, present for 6 months, were biopsied in June 1982 and diagnosed as Kaposi's sarcoma. He has laboratory evidence of immune dysfunction typical of AIDS and remains alive.

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Immunodeficiency — Continued

Editorial Note: Each reported female patient developed immunodeficiency during a close relationship, including repeated sexual contact, with a male who had AIDS. Patient 1 fits the CDC case definition of AIDS used for epidemiologic surveillance (*1*). Patient 2 does not meet this definition, but her persistent, generalized lymphadenopathy and cellular immunodeficiency suggest a syndrome described among homosexual men (*2*). The epidemiologic and immunologic features of this "lymphadenopathy syndrome" and the progression of some patients with this syndrome to Kaposi's sarcoma and opportunistic infections suggest it is part of the AIDS spectrum (*3,4*). Other than their relationships with their male sexual partners, neither patient had any apparent risk factor for AIDS. Both females specifically denied IV drug abuse.

Epidemiologic observations increasingly suggest that AIDS is caused by an infectious agent. The description of a cluster of sexually related AIDS patients among homosexual males in southern California suggested that such an agent could be transmitted sexually or through other intimate contact (*5*). AIDS has also been reported in both members of a male homosexual couple in Denmark (*6*). The present report supports the infectious-agent hypothesis and the possibility that transmission of the putative "AIDS agent" may occur among both heterosexual and male homosexual couples.

Since June 1981, CDC has received reports of 43 previously healthy females who have developed PCP or other opportunistic infections typical of AIDS. Of these 43 patients, 13 were reported as neither Haitians nor IV drug abusers. One of these 13 females is described in case 1; another four, including two wives, are reported to be steady sexual partners of male IV drug abusers. Although none of the four male partners has had an overt illness suggesting AIDS, immunologic studies of blood specimens from one of these males have shown abnormalities of lymphoproliferative response (*7*). Conceivably, these male drug abusers are carriers of an infectious agent that has not made them ill but caused AIDS in their infected female sexual partners.

References

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Formaldehyde Exposures in a Gross Anatomy Laboratory — Colorado

A recent study by the National Institute for Occupational Safety and Health (NIOSH) found significant exposures to formaldehyde in a gross anatomy laboratory at a medical school in Colorado (*1*).

In early December 1981, at the request of medical and dental students at the university,

Formaldehyde Exposures — Continued

NIOSH investigators conducted an environmental evaluation of the anatomy laboratory and a medical evaluation of the students using it. They collected 55 personal breathing-zone air samples from students dissecting cadavers (25 for determination of formaldehyde exposure and 30 for determination of phenol exposure). In addition, they performed pulmonary function tests on 23 students.

Results of the environmental sampling showed formaldehyde levels ranging from less than 0.02 mg/M^3 to 3.3 mg/M^3 (0.02 parts per million [ppm] to 2.7 ppm), indicating exposures sufficient to cause symptoms of irritation in most of the exposed students. Phenol levels ranged from less than 0.01 mg/M^3 to 12.2 mg/M^3, all within the NIOSH-recommended maximum occupational exposure level of 19.0 mg/M^3 (*2*).

Pulmonary function tests on the 23 students were normal. However, one student, tested after exposure, showed clinically significant decreases of 13.0% in forced vital capacity and 10.7% in forced expiratory volume in 1 second. This student had a history of adverse reactions to formaldehyde, presumably an allergic basis for these findings. Eleven other students who participated in post-exposure pulmonary function tests showed no significant decreases in pulmonary function.

Reported by the Hazard Evaluations and Technical Assistance Br, Div of Surveillance, Hazard Evaluations, and Field Studies, NIOSH, CDC.

Editorial Note: The sharp odor of formaldehyde can be detected at very low levels (less than 1 ppm). Exposure to concentrations ranging from 0.1 to 5.0 ppm can cause burning of the eyes, tearing, and general irritation to the upper respiratory passages. Low levels (0.3-2.7 ppm) have also been found to disturb sleep and to be irritating to some persons (*3*). Higher levels (10-20 ppm) may produce coughing, tightening in the chest, a sense of pressure in the head, and palpitations (*4-6*). Exposures of 50-100 ppm and above can cause serious injury, including pulmonary edema, pneumonitis, or death (*7*).

Dermatitis due to formaldehyde solutions or formaldehyde-containing resins is a well-recognized problem (*8*). After a few days of exposure, a sudden inflammatory skin reaction may develop on the eyelids, face, neck, scrotum, and flexor surfaces of the arms. Other surfaces of the body may also be involved, sometimes after years of repeated exposure.

Formaldehyde has been shown to induce a rare form of nasal cancer in both Fischer 344 rats and B6C3F1 mice (*9*) and may induce the same type of cancer in Sprague-Dawley rats. Although humans and animals may differ in their susceptibility to specific chemical compounds, any substance producing cancer in experimental animals, particularly in more than one species, should be viewed as a potential cancer-causing agent in humans. Formaldehyde has also demonstrated mutagenic activity in several test systems.

NIOSH recommends that formaldehyde be handled in the workplace as a potential occupational carcinogen (*3*). Safe levels of exposure to carcinogens have not been demonstrated, but decreasing exposure should reduce the possibility of developing cancer. The extent of cancer risk from exposure to formaldehyde levels at or below the current Occupational Safety and Health Administration (OSHA) standard of 3 ppm (*10*) has not yet been determined. As a prudent public health measure, NIOSH recommends that engineering controls and stringent work practices reduce occupational exposure to the lowest possible levels.

To minimize formaldehyde exposure in gross anatomy laboratories, NIOSH recommends the following:

1. Students and instructors should be aware of the potential health hazards of formaldehyde.
2. Persons handling formalin or preparing dilute formalin solutions should wear protective equipment, including rubber gloves, protective aprons, and eye and face protection.
3. Ventilation should provide a minimum of five air changes per hour to help lower formaldehyde concentrations.

Formaldehyde Exposures — Continued

References

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Acquired Immune Deficiency Syndrome (AIDS) in Prison Inmates — New York, New Jersey

CDC has received reports from New York and New Jersey of 16 prison inmates with the acquired immune deficiency syndrome (AIDS).

New York: Between November 1981 and October 1982, ten AIDS cases (nine with *Pneumocystis carinii* pneumonia [PCP] and one with Kaposi's sarcoma [KS]) were reported among inmates of New York State correctional facilities. The patients had been imprisoned from 3 to 36 months (mean 18.5 months) before developing symptoms of these two diseases.

All ten patients were males ranging in age from 23 to 38 years (mean 29.7 years). Four were black, and of the six who were white, two were Hispanic. Four of the nine patients with PCP died; the patient with KS is alive. All nine patients with PCP also developed oral candidiasis. None of the patients was known to have an underlying illness associated with immunosuppression, and no such illness was found at postmortem examination of the four patients who died. PCP was diagnosed in all nine cases by means of transbronchial or open-lung biopsy, while KS was diagnosed by biopsy of a lesion on the leg.

Evidence of cellular immune dysfunction was present in the nine patients with PCP: eight were lymphopenic, and all nine were anergic to multiple cutaneous recall antigens. An abnormally low ratio of T-helper to T-suppressor cells was present in six of seven patients tested, and in vitro lymphocyte proliferative responses to a variety of mitogens and antigens were significantly depressed or negative in the six patients tested. The one patient with KS had cutaneous anergy and a decreased proportion of T-cells in his peripheral blood. The ratio of T-helper to T-suppressor cells was normal; studies of lymphoproliferative response were not done.

All ten patients reported that they were heterosexual before imprisonment; one is known to have had homosexual contacts since confinement. However, the nine patients with PCP were regular users of intravenous (IV) drugs (principally heroin and cocaine) in New York City

Acquired Immune Deficiency Syndrome — Continued

before imprisonment. The seven patients who were extensively interviewed denied regular IV drug use since confinement, although two reported occasional use of IV drugs while in prison. The ten patients were housed in seven different prisons when they first developed PCP or KS. Three patients who developed symptoms of PCP within 1 month of each other were confined in the same facility. However, they were housed in separate buildings, and each denied any social interaction (including homosexual contact and drug use) with the other patients.

All inmates of the New York State correctional system receive a medical evaluation when transferred from local or county jails; this usually includes a leukocyte count. Of the nine AIDS patients who initially had leukocyte counts, seven did not then have symptoms of AIDS. Four of these seven asymptomatic males had leukocyte counts below 4000/mm^3. For these four, the time between leukocyte counts and development of clinical PCP symptoms ranged from 4 to 19 months (mean 11.5 months).

New Jersey: Of the 48 AIDS cases reported from New Jersey since June 1981, six have involved inmates of New Jersey State correctional facilities. All six had PCP. They were imprisoned from 1 to 36 months (mean 17.5 months) before onset of symptoms.

All six patients were males ranging in age from 26 to 41 years (mean 32 years). Three were black; three, white. Four of the six died within 1-8 months of onset of their illnesses. None of the six was known to have underlying illness associated with immune deficiency. Immunologic studies of the two survivors have shown cutaneous anergy, leukopenia, lymphopenia, and increased circulating immune complexes. T-cell studies were not done.

All six patients have histories of chronic IV drug abuse. Of the five for whom sexual orientation was reported, four were heterosexual, and one was homosexual. The two living patients have denied both IV drug use and homosexual activity since imprisonment. No two of the six patients had been confined in the same facility at the same time.

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Editorial Note: Since male homosexuals and IV drug abusers are known to be at increased risk for AIDS (*1*), the occurrence of AIDS among imprisoned members of these groups might have been anticipated. Increasingly, epidemiologic observations suggest that AIDS is caused by an infectious agent transmitted sexually or through exposure to blood or blood products. Because of the difficulties inherent in interviewing prisoners, data elicited in such interviews must be viewed cautiously. Given this caution, the histories obtained from the inmates indicate that all or most of their drug use, and, by inference, their exposure to a blood-borne agent, occurred before confinement.

The presence of leukopenia in some of the prisoners tested on admission to the prison system may imply that laboratory evidence of immune dysfunction may precede clinical illness by months.

Health care personnel for correctional facilities should be aware of the occurrence of AIDS in prisoners, particularly prisoners with histories of IV drug abuse. AIDS cases identified in prisoners should be reported to local and state correctional and health departments and to CDC.

Reference

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Update: Influenza — United States

Since mid-December 1982, influenza outbreaks have been confirmed by virus isolation in Michigan and Minnesota. At a nursing home in Genesee County, Michigan, 19 (11%) of 167 residents have experienced influenza-like illness since December 13, and three type A(H3N2) viruses have been isolated from four respiratory specimens. In Crawford County, Michigan, 26% and 21% absenteeism rates associated with influenza-like illness have been reported in an elementary school and a high school, respectively; five type A(H3N2) viruses have been isolated.

A virus isolate in Minnesota was recovered from a 2-year-old child in a Hennepin County day-care center, where about 40% of the approximately 100 children have experienced influenza-like illness since December 6. Several central Minnesota schools reported increased absenteeism due to influenza-like illness just before the winter vacation.

Since October, influenza type A(H3N2) viruses have been isolated in 15 states (Alaska, Arizona, Georgia, Hawaii, Michigan, Minnesota, Montana, New York, Oregon, Pennsylvania, Tennessee, Texas, Utah, Virginia, and Washington) and outbreaks or community spread reported in five states (Alaska, Michigan, Minnesota, Montana, and New York). Through the end of 1982, pneumonia and influenza deaths reported from 121 cities indicated no significant elevation. All virus isolates submitted to CDC for characterization have been influenza type A(H3N2) closely related to A/Bangkok/1/79 (H3N2).

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

Disease	52nd Week Ending			Cumulative, First 52 Weeks		
	January 1, 1983	January 2, 1982	Median 1977-1981	January 1, 1983	January 2, 1982	Median 1977-1981
Aseptic meningitis	115	163	120	9,156	9,521	7,774
Brucellosis	-	5	5	154	184	184
Encephalitis: Primary (arthropod-borne & unspec.)	18	40	23	1,448	1,540	1,185
Post-infectious	-	1	4	63	80	214
Gonorrhea: Civilian	11,872	13,954	16,944	949,237	992,446	1,000,256
Military	343	550	294	25,400	28,261	26,477
Hepatitis: Type A	345	727	744	22,652	25,761	29,450
Type B	358	652	356	21,532	21,118	16,454
Non A, Non B	58	N	N	2,395	N	N
Unspecified	150	284	255	8,777	10,975	10,666
Legionellosis	7	N	N	556	N	N
Leprosy	7	15	5	231	253	178
Malaria	8	36	18	1,008	1,360	849
Measles (rubeola)	8	55	151	1,697	3,012	13,600
Meningococcal infections: Total	52	114	80	2,913	3,550	2,622
Civilian	52	113	79	2,900	3,536	2,602
Military	-	1	1	13	14	19
Mumps	74	249	249	5,196	4,970	13,920
Pertussis	36	28	32	1,784	1,253	1,660
Rubella (German measles)	16	25	47	2,283	2,083	11,680
Syphilis (Primary & Secondary): Civilian	413	441	415	32,553	30,876	25,114
Military	4	1	4	431	361	319
Tuberculosis	456	865	846	25,728	27,525	28,058
Tularemia	7	11	6	254	289	196
Typhoid fever	5	10	7	400	583	517
Typhus fever, tick-borne (RMSF)	3	11	11	979	1,192	1,131
Rabies, animal	106	85	71	6,066	7,077	4,978

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1982		Cum. 1982
Anthrax	-	Poliomyelitis: Total	7
Botulism	78	Paralytic	7
Cholera	-	Psittacosis (Idaho 1, Wash. 1)	120
Congenital rubella syndrome	7	Rabies, human	-
Diphtheria	3	Tetanus (La. 1, Tex. 1)	81
Leptospirosis	73	Trichinosis (Vt. 3, Idaho 1, Calif. 1)	90
Plague	18	Typhus fever, flea-borne (endemic, murine)	45

TABLE III. Cases of specified notifiable diseases, United States, weeks ending January 1, 1983 and January 2, 1982 (52nd week)

Reporting Area	Aseptic Meningitis	Brucellosis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	1982	Cum. 1982	Cum. 1982	Cum. 1982	Cum. 1982	Cum. 1981	1982	1982	1982	1982	1982	Cum. 1982
UNITED STATES	115	154	1,448	63	949,237	992,446	345	358	58	150	7	231
NEW ENGLAND	5	3	56	6	23,152	24,027	8	15	1	10	1	2
Maine	-	-	-	-	1,224	1,308	-	1	-	-	-	-
N.H.	-	-	8	-	739	886	2	1	-	-	-	-
Vt.	2	-	-	-	419	429	1	-	-	-	1	-
Mass.	1	-	26	-	10,368	10,224	1	1	-	10	-	-
R.I.	1	-	-	1	1,572	1,504	4	2	-	-	-	-
Conn.	1	3	22	5	8,830	9,676	-	10	1	-	-	2
MID. ATLANTIC	19	3	154	14	121,766	120,553	57	89	7	16	-	34
Upstate N.Y.	8	3	62	3	20,060	21,655	8	20	4	3	-	3
N.Y. City	6	-	21	-	49,798	48,820	18	41	-	7	-	29
N.J.	2	-	25	-	22,306	22,656	15	20	3	4	-	1
Pa.	3	-	46	11	29,602	27,422	16	8	-	2	-	1
E.N. CENTRAL	6	7	359	12	132,234	149,200	18	16	-	6	-	10
Ohio	4	1	141	5	35,760	45,765	7	2	-	2	-	-
Ind.	2	-	96	3	16,703	12,673	4	6	-	-	-	-
Ill.	-	5	20	2	35,112	44,916	7	8	-	4	-	8
Mich.	U	1	73	-	32,597	32,582	U	U	U	U	U	-
Wis.	-	-	29	2	12,062	13,264	-	-	-	-	-	2
W.N. CENTRAL	4	17	102	4	44,684	47,248	9	15	-	2	-	8
Minn.	-	1	27	1	6,467	7,475	3	1	-	-	-	4
Iowa	1	5	54	1	4,868	5,155	2	4	-	-	-	-
Mo.	1	4	9	-	21,162	21,953	1	1	-	2	-	2
N. Dak.	1	1	-	-	566	603	-	-	-	-	-	-
S. Dak.	-	1	-	1	1,123	1,279	-	-	-	-	-	1
Nebr.	-	2	7	-	2,648	3,520	2	5	-	-	-	1
Kans.	1	3	5	1	7,850	7,263	1	4	-	-	-	-
S. ATLANTIC	14	30	206	10	248,175	244,430	35	79	7	10	3	11
Del.	1	-	-	-	4,180	3,949	-	-	1	-	-	-
Md.	1	-	25	-	31,369	29,223	1	16	2	2	1	4
D.C.	-	-	-	-	15,167	13,801	2	-	-	-	-	-
Va.	2	10	45	1	19,869	22,266	1	-	1	1	1	1
W. Va.	-	-	16	-	2,788	3,539	1	6	-	-	-	-
N.C.	-	-	31	1	39,668	37,015	2	6	-	1	-	-
S.C.	-	2	2	-	23,999	23,795	10	11	-	-	-	-
Ga.	2	4	14	1	48,337	50,488	5	25	-	-	1	1
Fla.	8	14	73	7	62,798	60,354	13	15	3	6	-	5
E.S. CENTRAL	6	14	69	6	82,436	82,334	11	20	1	1	1	-
Ky.	-	-	1	-	11,026	10,336	8	3	-	-	-	-
Tenn.	2	9	32	1	32,510	31,538	2	7	1	1	-	-
Ala.	4	4	18	5	24,401	24,478	1	10	-	-	1	-
Miss.	-	1	18	-	14,499	15,982	-	-	-	-	-	-
W.S. CENTRAL	12	45	229	1	130,994	129,419	51	17	1	65	1	31
Ark.	-	7	21	-	10,323	9,822	-	-	-	4	-	-
La.	1	8	31	-	24,574	23,486	-	-	-	-	-	-
Okla.	1	8	40	-	14,529	14,289	4	4	1	9	1	-
Tex.	10	22	137	1	81,568	81,822	47	13	-	52	-	31
MOUNTAIN	2	3	57	2	31,894	39,385	47	18	5	11	1	2
Mont.	-	2	-	-	1,337	1,421	-	-	-	-	-	-
Idaho	-	1	-	-	1,524	1,809	3	-	-	1	-	1
Wyo.	-	-	1	-	969	1,025	-	-	-	-	-	-
Colo.	1	-	20	1	8,445	10,514	-	-	-	-	-	-
N. Mex.	-	-	1	-	4,379	4,474	8	-	-	1	-	-
Ariz.	1	-	11	-	8,339	11,665	32	14	3	6	-	-
Utah	-	-	19	1	1,583	1,933	1	-	2	1	1	1
Nev.	-	-	5	-	5,318	6,544	3	4	-	2	-	-
PACIFIC	47	32	216	8	133,902	155,850	109	89	36	29	-	133
Wash.	3	1	14	1	11,393	13,204	-	9	1	-	-	15
Oreg.	2	-	4	-	7,818	9,161	2	5	1	-	-	2
Calif.	36	30	180	7	108,636	126,408	106	75	34	28	-	78
Alaska	-	1	12	-	3,449	4,046	-	-	-	-	-	1
Hawaii	6	-	6	-	2,606	3,031	1	-	-	1	-	37
Guam	U	-	-	1	118	122	U	U	U	U	U	1
P.R.	1	-	1	3	2,548	3,235	1	4	-	2	-	3
V.I.	-	-	-	-	255	252	-	-	-	-	-	-
Pac. Trust Terr.	U	-	-	-	388	445	U	U	U	U	U	44

N: Not notifiable U: Unavailable

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending January 1, 1983 and January 2, 1982 (52nd week)

Reporting Area	Malaria		Measles (Rubeola)			Meningococcal Infections (Total)		Mumps		Pertussis	Rubella		
	1982	Cum. 1982	1982	Cum. 1982	Cum. 1981	1982	Cum. 1982	1982	Cum. 1982	1982	1982	Cum. 1982	Cum. 1981
UNITED STATES	8	1,008	8	1,697	3,012	52	2,913	74	5,196	36	16	2,283	2,083
NEW ENGLAND	-	51	-	16	86	4	162	1	196	2	1	20	123
Maine	-	-	-	-	5	-	12	-	43	-	-	-	33
N.H.	-	2	-	3	9	1	21	-	18	-	1	12	54
Vt.	-	-	-	2	3	1	12	-	7	-	-	-	-
Mass.	-	28	-	5	59	-	45	-	84	2	-	2	23
R.I.	-	3	-	-	-	-	16	-	18	-	-	1	-
Conn.	-	18	-	6	10	2	56	1	26	-	-	5	13
MID. ATLANTIC	-	174	5	175	1,044	16	530	5	348	12	-	109	232
Upstate N.Y.	-	33	-	113	228	4	180	3	102	-	-	53	117
N.Y. City	-	69	5	49	108	4	105	1	48	5	-	36	55
N.J.	-	35	-	6	61	4	108	-	55	3	-	18	47
Pa.	-	37	-	7	647	4	137	1	143	4	-	2	13
E.N. CENTRAL	1	86	-	84	92	4	390	32	2,580	4	2	216	436
Ohio	-	13	-	1	20	1	133	19	1,775	3	-	4	3
Ind.	-	4	-	2	9	-	44	1	50	-	1	31	137
Ill.	1	37	-	24	26	3	102	8	222	-	-	82	124
Mich.	U	26	U	57	34	U	80	U	401	U	U	53	44
Wis.	-	6	-	-	3	-	31	4	132	1	1	46	128
W.N. CENTRAL	1	33	-	49	10	2	146	13	655	1	2	64	87
Minn.	-	5	-	-	3	-	32	-	456	-	-	7	9
Iowa	-	8	-	-	1	1	13	2	65	-	-	-	5
Mo.	1	11	-	2	1	-	43	-	21	-	-	38	2
N. Dak.	-	2	-	-	-	-	6	-	-	-	-	-	-
S. Dak.	-	-	-	-	-	-	11	-	1	-	-	1	-
Nebr.	-	4	-	3	4	1	15	-	1	-	-	-	1
Kans.	-	3	-	44	1	-	26	11	111	1	2	18	70
S. ATLANTIC	1	135	-	242	494	8	600	5	329	5	-	97	154
Del.	-	4	-	-	-	-	1	-	12	-	-	1	2
Md.	-	20	-	4	5	-	44	-	34	-	-	34	1
D.C.	-	4	-	1	1	-	5	-	-	-	-	-	-
Va.	-	41	-	14	18	1	73	-	44	-	-	12	9
W. Va.	-	7	-	3	9	-	10	4	123	1	-	3	23
N.C.	-	8	-	2	3	1	114	-	23	2	-	2	5
S.C.	-	4	-	-	2	-	70	-	18	-	-	1	8
Ga.	-	18	-	-	111	4	121	1	29	1	-	18	39
Fla.	1	29	-	218	345	2	162	-	46	1	-	26	67
E.S. CENTRAL	-	11	-	12	6	2	173	-	67	2	-	49	41
Ky.	-	5	-	1	2	-	25	-	22	1	-	31	27
Tenn.	-	-	-	6	2	1	79	-	25	-	-	2	13
Ala.	-	2	-	2	2	1	56	-	10	-	-	-	1
Miss.	-	4	-	3	-	-	13	-	10	1	-	16	-
W.S. CENTRAL	1	67	1	172	887	5	335	7	269	4	-	129	196
Ark.	-	4	-	-	26	-	15	1	9	-	-	1	7
La.	-	5	-	15	4	-	67	-	6	-	-	1	9
Okla.	-	8	-	30	6	1	34	-	-	-	-	3	4
Tex.	1	50	1	127	851	4	219	6	254	4	-	124	176
MOUNTAIN	-	38	-	28	39	1	122	7	129	6	9	103	102
Mont.	-	1	-	-	-	-	7	-	8	-	-	7	3
Idaho	-	2	-	-	1	-	7	-	5	-	-	7	4
Wyo.	-	-	-	1	1	1	6	-	2	-	-	8	15
Colo.	-	19	-	7	11	-	51	-	21	-	-	6	30
N. Mex.	-	3	-	-	9	-	15	-	-	-	-	6	5
Ariz.	-	9	-	17	7	-	21	7	63	6	7	29	22
Utah	-	4	-	3	-	-	13	-	22	-	2	28	12
Nev.	-	-	-	-	10	-	2	-	8	-	-	12	11
PACIFIC	4	413	2	919	354	10	455	4	623	-	2	1,496	712
Wash.	-	24	-	42	3	4	57	-	102	-	-	58	108
Oreg.	-	15	-	24	5	-	84	-	-	-	-	7	55
Calif.	4	366	2	847	339	6	298	3	484	-	2	1,416	533
Alaska	-	1	-	1	-	-	12	1	16	-	-	5	1
Hawaii	-	7	-	5	7	-	4	-	21	-	-	10	15
Guam	U	1	U	6	6	U	2	U	5	U	U	2	3
P.R.	-	4	-	138	306	-	9	-	100	-	-	13	6
V.I.	-	-	-	-	24	-	2	-	3	-	-	2	1
Pac. Trust Terr.	U	-	U	1	1	U	5	U	6	U	U	-	2

U: Unavailable

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending January 1, 1983 and January 2, 1982 (52nd week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Tuberculosis		Tula-remia	Typhoid Fever		Typhus Fever (Tick-borne) (RMSF)		Rabies, Animal
	Cum. 1982	Cum. 1981	1982	Cum. 1982	Cum. 1982	1982	Cum. 1982	1982	Cum. 1982	Cum. 1982
UNITED STATES	32,553	30,876	456	25,728	254	5	400	3	979	6,066
NEW ENGLAND	608	598	36	772	7	-	18	-	12	42
Maine	8	5	3	58	-	-	-	-	-	26
N.H.	5	16	-	30	-	-	-	-	1	1
Vt.	8	17	-	12	-	-	2	-	-	2
Mass.	408	384	30	495	7	-	14	-	6	7
R.I.	27	36	-	36	-	-	-	-	2	-
Conn.	152	140	3	141	-	-	2	-	3	6
MID. ATLANTIC	4,413	4,437	76	4,305	7	1	70	-	45	204
Upstate N.Y.	436	455	18	744	7	-	12	-	16	114
N.Y. City	2,593	2,631	30	1,622	-	1	37	-	3	-
N.J.	666	617	11	845	-	-	13	-	14	17
Pa.	718	734	17	1,094	-	-	8	-	12	73
E.N. CENTRAL	1,816	2,354	29	3,787	1	1	37	-	87	602
Ohio	333	319	24	621	-	-	11	-	76	80
Ind.	199	315	2	469	-	-	2	-	2	74
Ill.	902	1,250	U	1,628	-	1	9	-	8	304
Mich.	279	379	U	855	-	U	12	U	-	7
Wis.	103	91	3	214	1	-	3	-	1	137
W.N. CENTRAL	540	684	16	771	41	1	18	-	34	1,197
Minn.	145	189	6	147	-	-	8	-	-	217
Iowa	34	38	1	73	4	-	1	-	4	390
Mo.	282	398	8	377	27	-	5	-	13	124
N. Dak.	7	12	-	15	-	-	-	-	-	97
S. Dak.	2	2	-	33	1	-	-	-	4	101
Nebr.	16	11	-	32	4	-	2	-	2	123
Kans.	54	34	1	94	5	1	2	-	11	145
S. ATLANTIC	8,925	8,159	110	5,362	15	2	50	-	521	1,321
Del.	25	17	-	49	-	-	-	-	-	2
Md.	498	570	-	619	3	-	10	-	50	102
D.C.	477	649	2	250	-	-	-	-	-	-
Va.	624	696	-	595	5	-	4	-	73	745
W. Va.	31	32	2	156	-	2	6	-	8	58
N.C.	724	633	37	824	-	-	3	-	225	66
S.C.	564	560	-	513	6	-	3	-	106	66
Ga.	1,828	1,963	29	885	-	-	3	-	52	213
Fla.	4,154	3,039	40	1,471	1	-	21	-	7	69
E.S. CENTRAL	2,259	2,003	21	2,326	8	-	22	1	99	643
Ky.	133	107	8	612	-	-	4	-	1	133
Tenn.	656	683	7	764	6	-	5	-	59	357
Ala.	835	615	-	618	-	-	10	1	19	146
Miss.	635	598	6	332	2	-	3	-	20	7
W.S. CENTRAL	8,597	7,336	63	3,100	128	-	48	2	161	1,166
Ark.	217	159	19	369	76	-	8	2	21	157
La.	1,852	1,672	8	481	4	-	3	-	2	33
Okla.	191	177	-	338	35	-	3	-	76	191
Tex.	6,337	5,328	36	1,912	13	-	34	-	62	785
MOUNTAIN	834	785	13	727	36	-	14	-	14	282
Mont.	5	11	-	42	4	-	-	-	5	97
Idaho	25	20	2	31	1	-	-	-	4	11
Wyo.	16	20	-	10	5	-	-	-	1	21
Colo.	236	249	-	108	7	-	3	-	1	48
N. Mex.	197	132	4	123	5	-	-	-	1	23
Ariz.	221	187	2	300	-	-	8	-	-	60
Utah	25	32	4	47	13	-	2	-	-	18
Nev.	109	134	1	66	1	-	1	-	2	4
PACIFIC	4,561	4,520	92	4,578	11	-	123	-	6	609
Wash.	160	196	15	301	1	-	10	-	-	8
Oreg.	113	122	3	194	3	-	4	-	1	5
Calif.	4,162	4,115	74	3,741	6	-	105	-	5	508
Alaska	18	14	-	89	1	-	1	-	-	88
Hawaii	108	73	-	253	-	-	3	-	-	-
Guam	1	-	U	39	-	U	-	U	-	-
P.R.	784	648	-	467	-	-	3	-	-	50
V.I.	27	16	-	1	-	-	-	-	-	-
Pac. Trust Terr.	-	-	U	114	-	U	1	U	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending January 1, 1983 (52nd week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	710	498	135	34	17	26	50
Boston, Mass.	167	100	37	14	5	11	21
Bridgeport, Conn.	48	34	8	4	-	2	3
Cambridge, Mass.	18	18	-	-	-	-	-
Fall River, Mass.	32	24	6	2	-	-	-
Hartford, Conn.	66	55	6	2	-	3	1
Lowell, Mass.	30	21	7	2	-	-	1
Lynn, Mass.	17	15	-	1	1	-	1
New Bedford, Mass.	25	20	4	1	-	-	-
New Haven, Conn.	62	40	11	1	5	5	9
Providence, R.I.	77	50	20	3	2	2	5
Somerville, Mass.	5	3	2	-	-	-	-
Springfield, Mass.	59	40	14	1	2	2	4
Waterbury, Conn.	45	35	8	-	2	-	3
Worcester, Mass.	59	43	12	3	-	1	2
MID. ATLANTIC	2,462	2,050	222	55	59	52	100
Albany, N.Y.	56	42	13	-	1	-	1
Allentown, Pa. §	19	19	-	-	-	-	-
Buffalo, N.Y.	138	97	27	5	3	6	15
Camden, N.J.	32	22	10	-	-	-	-
Elizabeth, N.J.	18	16	2	-	-	-	-
Erie, Pa.†	40	25	12	2	-	1	-
Jersey City, N.J.	36	30	4	2	-	-	-
N.Y. City, N.Y. §	1,492	1,377	11	17	35	28	50
Newark, N.J.	49	21	20	4	1	3	4
Paterson, N.J.	38	20	10	3	3	2	1
Philadelphia, Pa.†	96	58	26	2	7	3	5
Pittsburgh, Pa.†	48	30	13	4	-	1	1
Reading, Pa.	46	36	4	4	2	-	3
Rochester, N.Y.	119	87	22	5	2	3	10
Schenectady, N.Y.	27	25	2	-	-	-	1
Scranton, Pa.†	29	22	4	1	1	1	2
Syracuse, N.Y.	93	64	22	2	3	2	3
Trenton, N.J.	31	20	7	2	1	1	1
Utica, N.Y.	18	17	1	-	-	-	1
Yonkers, N.Y.	37	22	12	2	-	1	2
E.N. CENTRAL	2,076	1,407	433	108	48	76	67
Akron, Ohio	56	39	10	-	1	6	-
Canton, Ohio	50	37	10	2	1	-	2
Chicago, Ill†	473	275	126	31	21	20	13
Cincinnati, Ohio	111	67	30	12	1	1	9
Cleveland, Ohio	139	86	33	12	4	4	1
Columbus, Ohio	133	81	37	7	3	5	3
Dayton, Ohio	88	54	25	5	2	2	1
Detroit, Mich. §	269	245	1	6	6	7	6
Evansville, Ind.	58	38	13	2	1	4	5
Fort Wayne, Ind.	33	21	8	1	-	3	2
Gary, Ind.	25	12	9	2	1	1	1
Grand Rapids, Mich.	50	41	8	-	-	1	4
Indianapolis, Ind.	147	84	45	5	4	9	3
Madison, Wis.	25	12	8	4	-	1	2
Milwaukee, Wis.	112	88	18	4	2	-	5
Peoria, Ill.	30	24	3	-	-	3	2
Rockford, Ill.	65	48	11	6	-	-	4
South Bend, Ind.	52	36	15	1	-	-	2
Toledo, Ohio	88	69	10	3	1	5	2
Youngstown, Ohio	72	50	13	5	-	4	-
W.N. CENTRAL	607	406	136	27	20	18	39
Des Moines, Iowa	44	29	9	3	2	1	6
Duluth, Minn.	15	8	6	1	-	-	2
Kansas City, Kans.	25	17	5	1	1	1	-
Kansas City, Mo.	92	60	23	6	3	-	5
Lincoln, Nebr.	27	21	5	1	-	-	4
Minneapolis, Minn.	68	49	15	2	2	-	2
Omaha, Nebr.	54	39	12	1	1	1	4
St. Louis, Mo.	172	114	39	5	7	7	5
St. Paul, Minn.	39	28	8	1	-	2	3
Wichita, Kans.	71	41	14	6	4	6	8

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,129	709	286	65	33	36	47
Atlanta, Ga.	160	92	42	12	3	11	2
Baltimore, Md.	193	122	49	12	8	2	1
Charlotte, N.C.	87	47	26	6	5	3	7
Jacksonville, Fla.	95	53	34	4	2	2	8
Miami, Fla.	133	91	28	8	5	1	4
Norfolk, Va.	42	26	13	2	1	-	1
Richmond, Va.	88	54	25	3	4	2	5
Savannah, Ga.	42	23	12	5	1	1	4
St. Petersburg, Fla.	103	87	10	2	-	4	4
Tampa, Fla.	58	43	6	5	-	4	2
Washington, D.C.	87	44	30	4	4	5	3
Wilmington, Del.	41	27	11	2	-	1	6
E.S. CENTRAL	615	402	141	34	27	11	25
Birmingham, Ala.	103	65	27	3	6	2	1
Chattanooga, Tenn.	54	34	12	4	3	1	2
Knoxville, Tenn.	53	37	12	3	1	-	2
Louisville, Ky.	78	51	19	2	4	2	5
Memphis, Tenn.	139	82	44	7	3	3	5
Mobile, Ala.	63	49	5	5	3	1	5
Montgomery, Ala.	48	32	8	5	2	1	1
Nashville, Tenn.	77	52	14	5	5	1	4
W.S. CENTRAL	961	531	236	89	60	45	35
Austin, Tex.	34	15	9	4	-	6	-
Baton Rouge, La.	17	11	4	2	-	-	-
Corpus Christi, Tex.	28	11	9	4	4	-	1
Dallas, Tex.	186	105	43	14	13	11	8
El Paso, Tex.	71	41	16	7	4	3	5
Fort Worth, Tex.	78	51	12	5	5	5	5
Houston, Tex.	66	33	17	9	5	2	-
Little Rock, Ark.	59	33	21	2	1	2	6
New Orleans, La.	127	65	31	14	12	5	1
San Antonio, Tex.	155	86	41	11	11	6	4
Shreveport, La.	58	37	15	5	1	-	-
Tulsa, Okla.	82	43	18	12	4	5	5
MOUNTAIN	508	324	121	38	10	15	15
Albuquerque, N.Mex.	60	37	13	7	-	3	1
Colo. Springs, Colo.	36	24	7	1	1	3	2
Denver, Colo.	65	37	18	7	1	2	4
Las Vegas, Nev.	61	32	17	8	4	-	-
Ogden, Utah	17	11	6	-	-	-	-
Phoenix, Ariz.	135	97	25	8	3	2	3
Pueblo, Colo.	28	18	9	1	-	-	2
Salt Lake City, Utah	49	32	9	4	-	4	2
Tucson, Ariz.	57	36	17	2	1	1	1
PACIFIC	1,429	960	317	91	30	30	91
Berkeley, Calif.	23	16	5	-	-	2	1
Fresno, Calif.	70	53	12	2	-	3	5
Glendale, Calif.	19	16	3	-	-	-	1
Honolulu, Hawaii	57	37	15	4	1	-	4
Long Beach, Calif.	77	45	17	7	-	8	-
Los Angeles, Calif.	243	157	63	15	4	4	9
Oakland, Calif.	43	32	7	3	-	1	2
Pasadena, Calif.	37	28	7	1	1	-	3
Portland, Oreg.	103	72	23	6	1	1	13
Sacramento, Calif.	66	45	11	5	3	2	5
San Diego, Calif.	130	87	22	11	7	2	12
San Francisco, Calif.	169	107	49	9	2	2	4
San Jose, Calif.	165	99	43	11	8	4	13
Seattle, Wash.	136	108	16	9	2	1	12
Spokane, Wash.	56	32	20	3	1	-	2
Tacoma, Wash.	35	26	4	5	-	-	5
TOTAL	10,497††	7,287	2,027	541	304	309	469

* 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 4 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 4 weeks.

Influenza — Continued

Reported by W Moon, MD, Crawford County, B Berman, MD, Genesee County, Michigan; C Hedberg, V Thelen, Hennepin County, Minnesota; State Laboratory Directors and State Epidemiologists, Consolidated Surveillance Activity, Epidemiology Program Office, WHO Collaborating Center for Influenza, Influenza Br, Div of Viral Diseases, Center for Infectious Diseases, CDC.

Classification of Measles Cases and Categorization of Measles Elimination Programs

With next week's issue of the MMWR, Tables I and III will reflect a new system of classification for measles cases. This system, and the categorization of immunization programs, has been developed by the Division of Immunization in conjunction with the directors of each immunization program and the Conference of State and Territorial Epidemiologists.

Because the number of reported measles cases has decreased dramatically during the last several years, the need to develop clinical, epidemiologic, and programmatic classifications of measles cases to more effectively implement measles elimination programs has increased. Careful differentiation of cases as to their preventability and accessibility, and whether they represent spread within a state or from another state or importation from abroad, becomes important. It is essential to establish uniform criteria for categorization of measles elimination programs to determine whether programs have interrupted indigenous measles transmission and whether their program elements are sufficiently institutionalized to permit maintenance of the gains.

CLASSIFICATION OF MEASLES CASES

I. **Clinical classification**: A clinical case of measles* is 1) a generalized maculopapular rash lasting 3 or more days, 2) temperature of 38.3 C (101 F) or greater, and 3) one of the following: cough, coryza, conjunctivitis. Such a standard case definition was adopted to avoid the requirement that cases be confirmed virologically or serologically before being considered reportable measles cases, thus enabling health departments to act promptly on cases of rash illnesses and institute control measures rapidly.

Not all states have accepted this definition. Some have suggested a more specific clinical case definition. Several require serologic confirmation before reporting cases officially. As the measles incidence rate falls, serologic confirmation becomes increasingly important to the diagnosis. Dependence on seroconfirmation for reporting, however, may decrease the number of cases reported and might delay outbreak control and interstate notification. The Immunization Practices Advisory Committee recommends that all rash illness with fever be investigated and a single case meeting the clinical case definition be considered an outbreak and sufficient reason to begin control measures. The consequences of overdiagnosing or accepting non-measles cases of rash illness with fever are less serious than those of not acting promptly on a true case. With the availability of the capillary filter paper technique, seroconfirmation has become progressively more accessible; however, seroconfirmation should continue to be used only as a retrospective tool to confirm measles. Generally, serology cannot be used to rule out measles. A diagnosis should be considered confirmed in the presence

*In April 1979, the Conference of State and Territorial Epidemiologists agreed to adopt a standard case definition of measles to permit more uniformity in their reporting of clinically confirmed measles cases.

Measles — Continued

of good clinical and/or epidemiologic evidence, even in the absence of confirmatory serology.

Since the measles case definition is sensitive but not very specific, the need for quantifying the degree of certainty in the diagnosis of measles becomes increasingly important as cases become fewer. Cases are to be classified as:

A. A *suspect case* is any rash illness with fever;

B. A *probable case* meets the clinical case definition, is not epidemiologically linked to another probable or confirmed case, and has no or noncontributory serologic testing;

C. A *confirmed case* meets the clinical case definition and is epidemiologically linked to another confirmed or probable case or is serologically confirmed. A serologically confirmed case does not need to meet the clinical case definition.

It is possible that two epidemiologically linked cases may occur without serologic confirmation and would appropriately be considered confirmed. However, ideally there should be at least one serologically confirmed case in each chain of identified transmission, and each isolated case should be serologically confirmed. As of January 1, 1983, weekly telephone reports to the *MMWR* should include only confirmed cases; they may be designated as either imported or indigenous.

II. **Epidemiologic classification:** The differentiation between imported cases and indigenous cases becomes increasingly important as success at interrupting indigenous transmission of measles is assessed. For a given state, a case that may be indigenous to the United States may, in fact, represent an out-or-state importation.

A. An *indigenous case* is defined as a case of measles within a state unrelated to an imported case or with onset occurring more than two generations after an imported case to which it is epidemiologically linked. Any case that cannot be proven as imported or spread from an imported case should be classified as indigenous.

B. An *imported case* has its source outside the state. Rash onset occurs within 18 days of entering the state, and illness cannot be linked to local transmission. Imported cases are to be classified as:

1. *International*—Importation from another country.
2. *Out-of-state*—Importation from another state. Designation of an out-of-state importation requires documented face-to-face contact with a person with measles outside the state or documented evidence that the person was out-of-state for the entire period during which she or he might have become infected. A resident of one state who acquires infection from another state (but becomes ill in the state of residence) should be reported as imported by the state of residence.

C. An *importation-spread case* is directly traceable to a known imported case within two generations.

Table I will list total measles cases and note the number that represents international importations and their spread cases. Table III will include out-of-state importations and their spread cases, along with international importations and their spread cases.

Differentiation between indigenous, imported, and importation-spread cases will permit analysis of sources in a systematic fashion. Classifications are limited because the potential exists for misclassification of cases (e.g. when an undetected importation leads to spread that will, of necessity, be classified as indigenous).

III. **Programmatic classification**: To assess program effectiveness under current guidelines, it is necessary to determine the proportion of cases preventable by immunization and to examine the reasons these cases were not prevented. CDC differentiates between preventable and nonpreventable cases and determines the accessibility and relationship of the case to the health care system. Cases are to be classified as follows:

Measles — Continued

A. A case is considered *preventable* if measles illness occurs in a U. S. citizen: (1) at least 16 months of age, (2) born after 1956, (3) lacking adequate evidence of immunity to measles,* (4) without a medical contraindication to receiving vaccine, and (5) with no religious or philosophical exemption under state law.
   1. An *accessible case* occurs in a child enrolled in a school (ages 5-19 years) or day-care center who, with appropriate application of state law, could have been vaccinated.
   2. A *hard-to-reach case* occurs in a child at least 16 months of age, born after 1956, who has received at least one other immunization in the United States but who is not in a school or day-care center affected by state law. This child is considered to have once entered the health care system, and, therefore, could have been vaccinated.
   3. Other or unknown

B. A case is considered *not preventable* under current program guidelines if measles illness occurs in a person: (1) less than 16 months of age, (2) born before 1957, (3) with adequate evidence of immunity, (4) with a medical contraindication to receiving vaccine, or (5) with a religious or philosophical exemption under state law.

CATEGORIZATION OF IMMUNIZATION PROGRAMS

Just as it is important to standardize measles case definitions, it is essential to establish uniform criteria to categorize measles elimination programs. As measles elimination is accomplished, a mechanism for "certifying" or categorizing programs' achievements is necessary. The absence of measles does not in itself guarantee the maintenance of a measles-free state; therefore, a series of performance criteria that are integral to the elimination of measles and assure the maintenance of that achievement has been developed. In addition, these elements provide a basis for the control of other vaccine-preventable diseases.

I. **Program impact**: No indigenous cases of measles have occurred within the preceding 12 months.

II. **Program elements**

A. **Surveillance**: A surveillance system is in place; all public and private health providers know measles is a reportable disease, understand the reporting procedures, and are aware of the need for prompt reporting.
   1. Performance criteria:
      a. At least a sample of schools and day-care centers are involved in routine reporting, which could include negative reporting in high-risk areas at least until December 31, 1983.
      b. At least semi-annual contact is made with reporting sources to emphasize the need for rapid reporting and provide them with a specific telephone number to report suspect cases.

B. **Case investigation, confirmation, and containment**
   1. Investigation
      a. Performance criteria: Investigation of all suspect cases is initiated within 1 work day after initial report using standardized investigation forms.
   2. Confirmation
      a. Performance criteria: A uniform and standard clinical case definition is in use. Laboratory confirmation is sought on all cases not directly traceable to a source.

*Documented receipt of live measles vaccine on or after the first birthday or a physician-diagnosed measles disease.

Measles – Continued

3. Containment
   a. Performance criteria: Containment procedures are initiated within 3 calendar days of identification of a probable or confirmed case.
      (1) School exclusion procedures are utilized and strictly enforced.
      (2) Interstate notification occurs within 1 work day of identification of a probable or confirmed case.
      (3) A specific outbreak control manual is available and routinely followed in containment activities.
      (4) Spread is limited to two generations beyond the index case.*
      (5) Serologic data are interpreted accurately.
      (6) Source† identification is made in at least 50% of index cases.
      (7) Cases are correctly classified and reported as outlined in the previous section.
      (8) Routine tracking of time lapses between onset, reporting, and action phases is maintained.

C. **Operational elements**
1. Enforcement of laws/regulations
   a. Performance criteria:
      (1) A licensed day-care facility immunization law/regulation is in place, requiring proof of immunity of all enrollees.§
      (2) A school enterer/attendance law is in place, requiring proof of immunity of all kindergarten and/or first grade students in both public and private schools.§
      (3) The school and day-care laws/regulations are strictly enforced§ by the state and local authorities so that a child is denied admission or excluded for noncompliance.
2. Assessment of immunization status
   a. Performance criteria:
      (1) An annual assessment of the immunization status of all kindergarten and/or first grade attendees is conducted.
      (2) An annual assessment of the immunization status of all day-care center attendees is conducted.
      (3) Kindergarten and/or first grade assessments are completed by December 31 of each year.
      (4) Licensed day-care center assessments are completed annually.
      (5) These assessments demonstrate more than 95% vaccinated according to state requirements.
      (6) Validation surveys are conducted annually to verify assessment data in at least a sample of kindergarten and/or first grade and licensed day-care facilities.
3. Service delivery
   a. Performance criteria:
      (1) Tickler/recall systems are in place in at least 50% of public clinics to ensure

*Index case: A probable or confirmed case of measles that is not part of a previously identified chain of transmission.

†Source: The case or outbreak to which a case of measles is epidemiologically linked. A foreign country may be considered a source even without identifying specific exposure to an outbreak within that country.

§Where state law permits or exists

Measles — Continued

that all children under 2 years of age are appropriately immunized in the project area.

(2) Prototype tickler/recall systems are introduced and promoted through state and local chapters of appropriate professional organizations.

(3) Immunization services are promoted for susceptible adolescents in high school and college.

4. Immunization records
   a. Performance Criteria:
      (1) Antigen-specific information is recorded at least by month and year on standard records for all new school and licensed day-care center enrollees.
      (2) Standard parent-maintained personal immunization records are presented to parents in all public clinics and made available to private physicians and promoted as part of education activities.

EVALUATION PROCESS

A two-stage evaluation process is planned for the certification of immunization programs related to the absence of indigenous measles: an internal and an external evaluation. For the internal assessment, a self-assessment protocol is to be made available for an immunization program to evaluate itself. This will be followed by an external evaluation.

The infrastructure for a complete immunization program may not be in place at the time of evaluation. Therefore, minimal performance standards will be applied against the above described criteria to delineate the degree to which each has been carried out and the validity of each assessment.

Reported by Div of Immunization, Center for Prevention Svcs, CDC.

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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: ATTN: Editor, *Morbidity and Mortality Weekly Report,* Centers for Disease Control, Atlanta, Georgia 30333.

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