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Epidemiologic Notes and Reports

Diffuse, Undifferentiated Non-Hodgkins Lymphoma among Homosexual Males — United States

A recent outbreak of Kaposi's sarcoma, *Pneumocystis carinii* pneumonia, and other opportunistic infections (KSOI) involving homosexual males and associated with an acquired cellular immunodeficiency syndrome has been described (*1,2*). While the pathogenesis of these disorders among homosexual males in San Francisco was being studied, 4 cases of diffuse, undifferentiated non-Hodgkins lymphoma (DUNHL) were diagnosed between March 1981 and January 1982. Because of the rarity of this malignancy and the potential relationship of these cases to the KSOI syndrome, they are reported here.

Patient 1: A 28-year-old hospital clerk complained of back and shoulder pain starting in early March 1981. Within a few days he had swelling of the right eye and an unsteady gait, and he was hospitalized on March 21. "Shotty" peripheral lymphadenopathy was present. A biopsy of an orbital mass and an enlarged cervical lymph node disclosed DUNHL. A myelogram revealed a T4-T6 block by an extradural mass. Radiation and chemotherapy led to complete remission. In September 1981, another tumor in the spinal cord was treated with radiation. The ensuing remission was temporary, and the patient died with disseminated DUNHL on January 15, 1982.

Patient 2: A 33-year-old nurse developed a tumor in his left lower jaw in October 1981. Penicillin was given for a suspected abscess, but the mass enlarged. A biopsy on November 24 disclosed DUNHL. Tumor cells contained surface IgM, kappa type, indicating a B-cell tumor. The tumor involved a left axillary lymph node, the retroperitoneum, the bone marrow, and the meninges. Generalized "reactive" lymphadenopathy and mild splenomegaly were present. Systemic and intrathecal chemotherapy led to temporary tumor regression; the patient relapsed and died in March 1982.

Patient 3: A 35-year-old janitor developed an enlarged cervical lymph node in October 1981. A dental extraction was performed for a suspected abscess, but lymphadenopathy persisted. A biopsy on December 12 revealed DUNHL. Tumor cells contained surface IgM, kappa type. Tumor was detected in the mediastinum, retroperitoneum, both kidneys, bone marrow, and meninges. Moderate generalized lymphadenopathy and splenomegaly were present. Systemic and intrathecal chemotherapy led to rapid tumor regression; however, this patient has recently relapsed.

Patient 4: A 24-year-old clerk developed backache and fatigue in November 1981. On January 21, 1982, an exploratory laparotomy showed DUNHL with extensive retroperitoneal involvement. Tumor cells contained surface IgM, kappa type. Combination chemotherapy has led to complete remission.

All these patients were homosexual males living in San Francisco. They had no known contact with each other, had no known sexual partners in common, and had no known contact

Non-Hodgkins Lymphoma – Continued

with patients with Kaposi's sarcoma (KS). Each gave a history of a life style that included use of such drugs as nitrite inhalants, amphetamines, and marijuana. Medical histories indicated that all 4 patients had had 1 or more of such infections as hepatitis B, anal warts, gonorrhea, and syphilis. All patients had generalized lymphadenopathy, and 3 had splenomegaly of uncertain duration. Detailed virology and immunology studies are in progress.

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Editorial Note: Since July 1981, CDC has received reports of 162 cases of Kaposi's sarcoma among young homosexual males; the above report documents the possible appearance of a second unusual malignancy among this group of young males—i.e., DUNHL, a B-cell lymphoma (*3*).

The difficulty in distinguishing DUNHL histologically from Burkitt's lymphoma (BL) (*3*), a tumor often associated with Epstein-Barr virus, and the lack of consensus on the classification of non-Hodgkin's lymphoma (NHL) (*4*) make the precise determination of incidence difficult. About 0.7%-2.4% of all cases of NHL are DUNHL (*4,5*)—for a crude incidence rate of 0.06-0.21/100,000 population/year. No cases of DUNHL and only 1 case of BL were reported in 1977-1980 among 20-39 year olds to the Surveillance Epidemiology and End Results Cancer Registry in the San Francisco-Oakland-Standard Metropolitan Statistical Area, emphasizing the unusual occurrence of 4 cases within 10 months in the San Francisco homosexual male population. CDC has also recently received a report from Chicago of another case of DUNHL affecting a young homosexual male.

Underlying immune deficiency appears to be the common denominator for the development of the opportunistic infections and tumors associated with the KSOI syndrome (*6-8*). A similar syndrome, with an increased risk for NHL but a different time course and spectrum of opportunistic diseases, appears among renal allograft recipients (*4,9*). Lymphoreticular tumors also occur much more frequently among patients with primary immunodeficiency disorders (*4*). The cause of the acquired cellular immunodeficiency among homosexual males is being studied.

This report of DUNHL suggests that more than one kind of tumor may occur in association with the KSOI syndrome; assessment of these patients' immunologic findings will help to document the relationship between such tumors and the KSOI syndrome. The full range of potential outcomes (i.e., opportunistic tumors and infections) is probably only now being elucidated. There have also been recent case reports of other malignancies affecting the homosexual population, including carcinoma of the anal rectum (*10*) and squamous cell carcinoma of the oral cavity (*11,12*). The excess of carcinoma of the anus and anal rectum appears to antedate the onset of KSOI syndrome (*13*). The relationship between these malignancies and the KSOI syndrome is uncertain.

Many homosexual males with persistent, unexplained, generalized lymphadenopathy and biopsies reportedly demonstrating only reactive hyperplasia have also been reported to CDC and are under active investigation (*14*). Homosexual males with clinical findings similar to DUNHL or lymphadenopathic KS (*15*) should be carefully evaluated and followed.

Non-Hodgkins Lymphoma — Continued

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Recommendation of the Immunization Practices Advisory Committee (ACIP)

Supplementary Statement on Pre-Exposure Rabies Prophylaxis by the Intradermal Route

These revised ACIP pre-exposure rabies prophylaxis recommendations represent an update of the previous recommendations (MMWR 1981;30:535-6) to include current information about vaccine use and optional dose regimens.

The Immunization Practices Advisory Committee (ACIP) has examined data on the use of intradermal (ID) vaccination for pre-exposure rabies prophylaxis with Merieux Institute's human diploid cell strain rabies vaccine (HDCV). Over 1,500 persons have received intradermal HDCV as pre-exposure vaccination; all those who received a 3-dose regimen developed adequate antibody. It appears that, with this vaccine, the 0.1-ml intradermal (ID) regimen is

ACIP Recommendation — Rabies

an acceptable alternative to the currently approved 1.0-ml intramuscular (IM) regimen for pre-exposure prophylaxis (*1,2*). Although the accepted pre-exposure vaccination regimen is 3 doses of vaccine, 1.0 ml IM each, given on days 0, 7, and 21 or 28, apparently the 0.1-ml ID regimen will be an acceptable alternative after Merieux Institute produces a product with appropriate packaging and labelling changes. Intradermal vaccination should be administered in the lateral aspect of the upper arm over the deltoid. Booster vaccination (either 1.0 ml IM or 0.1 ml ID) should still be given every 2 years to persons such as veterinarians, animal handlers, and laboratory diagnosticians who are at continuing risk. Laboratory workers in rabies biologics production or in rabies research laboratories who might be at high risk of high-dose inapparent exposure should still receive a booster dose every 6 months or be tested for rabies antibody and vaccinated when antibody level falls below 16 as measured with the rapid fluorescent focus inhibition (RFFI) test.

Except as noted above or in the case of persons suspected of being immunocompromised, the ACIP suggests that routine serologic testing to confirm a satisfactory antibody response is not necessary regardless of whether the recommended IM or ID regimens are used (*3*). Reaction rates following ID vaccination have been comparable with those following IM vaccination except that a slight increase in transient local reactions has been observed following ID vaccination, especially when the vaccine is given in the forearm rather than in the lateral aspect of the upper arm.

(Continued on page 285)

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

DISEASE	21st WEEK ENDING			CUMULATIVE, FIRST 21 WEEKS		
	May 29 1982	May 30 1981	MEDIAN 1977-1981	May 29 1982	May 30 1981	MEDIAN 1977-1981
Aseptic meningitis	43	76	55	1,534	1,427	1,023
Brucellosis	6	2	3	49	51	70
Encephalitis: Primary (arthropod-borne & unspec.)	7	9	9	292	277	244
Post-infectious	2	4	5	28	41	81
Gonorrhea: Civilian	14,248	17,257	18,426	359,250	391,559	378,065
Military	219	301	451	10,464	11,431	10,952
Hepatitis: Type A	293	479	494	8,850	10,211	11,474
Type B	289	352	286	8,103	7,868	6,515
Non A, Non B	30	N	N	826	N	N
Unspecified	128	208	204	3,592	4,431	4,071
Legionellosis	15	N	N	151	N	N
Leprosy	1	5	5	75	88	68
Malaria	16	28	20	321	520	212
Measles (rubeola)	37	171	657	628	1,701	9,042
Meningococcal infections: Total	50	62	57	1,447	1,866	1,339
Civilian	49	61	57	1,442	1,860	1,325
Military	1	1	1	5	6	10
Mumps	193	170	563	3,168	2,242	8,369
Pertussis	15	23	23	422	413	439
Rubella(German measles)	29	70	647	1,322	1,236	8,173
Syphilis (Primary & Secondary): Civilian	579	578	424	13,089	12,137	9,739
Military	8	13	9	163	149	128
Tuberculosis	451	505	566	10,113	10,358	10,836
Tularemia	3	6	5	43	60	46
Typhoid fever	2	11	11	140	185	160
Typhus fever, tick-borne (RMSF)	25	59	33	135	216	144
Rabies, animal	98	141	122	2,397	3,005	1,885

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1982		CUM. 1982
Anthrax	–	Poliomyelitis: Total	1
Botulism (Pa. 1)	28	Paralytic	1
Cholera	–	Psittacosis (Tex. 1)	40
Congenital rubella syndrome	5	Rabies, human	–
Diphtheria	–	Tetanus	27
Leptospirosis (Hawaii 2)	26	Trichinosis (N.J. 1, Pa. 1)	48
Plague (Ariz. 1)	4	Typhus fever, flea-borne (endemic, murine) (Tex. 1)	8

N: Not notifiable

TABLE III. Cases of specified notifiable diseases, United States, weeks ending May 29, 1982 and May 30, 1981 (21st 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	43	49	292	28	359,250	391,559	293	289	30	128	15	75
NEW ENGLAND	1	3	14	4	8,916	9,529	8	17	1	12	4	1
Maine	1	–	–	–	399	483	2	–	–	–	–	–
N.H.	–	–	–	–	251	338	–	–	–	–	1	–
Vt.	–	–	–	–	188	167	2	–	–	–	–	–
Mass.	–	–	4	–	4,207	3,865	4	4	–	10	–	–
R.I.	–	–	–	–	596	476	–	4	–	–	–	–
Conn.	–	3	10	4	3,275	4,200	–	9	1	2	3	1
MID. ATLANTIC	7	–	43	6	44,859	46,227	31	68	2	15	8	4
Upstate N.Y.	2	–	16	1	7,291	7,355	13	13	1	3	–	1
N.Y. City	1	–	9	–	18,838	19,354	10	29	–	2	1	1
N.J.	1	–	10	–	8,102	8,898	8	26	1	10	–	1
Pa.	3	–	8	5	10,628	10,620	–	–	–	–	7	1
E.N. CENTRAL	7	–	59	6	49,384	61,423	48	32	2	12	2	1
Ohio	1	–	17	4	14,924	21,058	14	10	1	6	2	–
Ind.	4	–	15	2	6,116	5,653	16	4	1	2	–	–
Ill.	–	–	–	–	10,902	17,022	2	1	–	1	–	1
Mich.	2	–	25	–	12,532	12,553	16	17	–	3	–	–
Wis.	–	–	2	–	4,910	5,137	–	–	–	–	–	–
W.N. CENTRAL	2	4	15	3	17,369	18,147	7	17	–	4	–	–
Minn.	–	–	1	1	2,605	2,903	4	4	–	1	–	–
Iowa	–	1	8	1	1,917	1,849	1	2	–	–	–	–
Mo.	2	1	4	–	7,948	8,217	2	4	–	1	–	–
N. Dak.	–	–	–	–	242	249	–	–	–	–	–	–
S. Dak.	–	–	–	1	498	525	–	1	–	–	–	–
Nebr.	–	–	1	–	1,047	1,445	–	6	–	2	–	–
Kans.	–	2	1	–	3,112	2,959	–	–	–	–	–	–
S. ATLANTIC	14	12	40	5	87,472	96,185	26	74	11	22	–	5
Del.	–	–	–	–	1,484	1,426	1	2	–	–	–	–
Md.	1	–	10	–	12,019	10,644	–	14	–	1	–	2
D.C.	–	–	–	–	5,089	6,051	1	3	–	–	–	–
Va.	2	3	10	–	8,186	8,640	6	21	4	8	–	1
W. Va.	U	–	–	–	1,049	1,455	U	U	U	U	U	–
N.C.	4	–	4	1	15,392	14,949	2	3	–	5	–	–
S.C.	4	2	–	–	9,048	9,167	5	7	–	–	–	–
Ga.	–	1	–	–	9,483	19,239	8	17	2	4	–	–
Fla.	3	6	16	4	25,722	24,614	3	7	5	4	–	2
E.S. CENTRAL	4	6	16	1	31,179	31,657	28	21	1	2	–	–
Ky.	1	–	–	–	4,200	4,095	5	–	–	–	–	–
Tenn.	–	4	9	–	12,101	12,057	8	10	–	2	–	–
Ala.	1	1	5	1	9,290	9,588	6	8	1	–	–	–
Miss.	2	1	2	–	5,588	5,917	9	3	–	–	–	–
W.S. CENTRAL	5	14	32	–	52,556	51,893	106	30	–	53	–	8
Ark.	–	3	1	–	4,299	3,642	1	1	–	6	–	–
La.	–	2	4	–	9,553	8,389	19	9	–	7	–	–
Okla.	1	3	9	–	5,624	5,424	17	10	–	3	–	–
Tex.	4	6	18	–	33,080	34,438	69	10	–	37	–	8
MOUNTAIN	1	–	15	1	13,209	15,409	21	15	6	7	1	2
Mont.	–	–	–	–	538	535	1	–	–	–	–	–
Idaho	–	–	–	–	619	673	–	–	–	–	–	1
Wyo.	–	–	–	–	371	344	1	–	–	–	–	–
Colo.	–	–	5	1	3,457	4,134	7	3	–	1	–	–
N. Mex.	1	–	–	–	1,654	1,685	1	–	1	–	–	–
Ariz.	–	–	6	–	3,611	4,742	7	6	3	4	–	–
Utah	–	–	–	–	604	720	2	3	1	1	–	1
Nev.	–	–	4	–	2,355	2,576	2	3	1	1	1	–
PACIFIC	2	10	58	2	54,306	61,089	18	15	7	1	–	54
Wash.	–	–	5	–	4,717	5,220	13	8	6	1	–	6
Oreg.	–	–	1	–	3,176	3,952	3	6	1	–	–	–
Calif.	U	9	48	2	44,046	49,207	U	U	U	U	U	28
Alaska	–	1	3	–	1,384	1,545	1	–	–	–	–	1
Hawaii	2	–	1	–	983	1,165	1	1	–	–	–	19
Guam	U	–	–	–	33	56	U	U	U	U	U	–
P.R.	1	–	1	–	1,154	1,337	1	3	–	4	–	–
V.I.	U	–	–	–	60	57	U	U	U	U	U	–
Pac. Trust Terr.	U	–	–	–	36	165	U	U	U	U	U	1

– Not notifiable U: Unavailable

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending May 29, 1982 and May 30, 1981 (21st 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	16	321	37	628	1,701	50	1,447	193	3,168	15	29	1,322	1,236
NEW ENGLAND	1	21	–	7	71	2	82	2	141	3	–	10	97
Maine	–	–	–	–	5	–	2	–	32	2	–	–	32
N.H.	–	–	–	1	6	–	11	–	12	–	–	8	40
Vt.	–	–	–	2	2	–	4	–	4	–	–	–	–
Mass.	1	16	–	2	51	–	22	1	70	1	–	–	15
R.I.	–	1	–	–	–	–	11	1	11	–	–	1	–
Conn.	–	4	–	2	7	2	32	–	12	–	–	1	10
MID. ATLANTIC	3	38	31	79	479	6	246	9	210	3	4	73	141
Upstate N.Y.	1	9	30	55	181	1	61	–	36	–	1	34	58
N.Y. City	–	14	–	18	44	–	47	1	33	1	2	26	37
N.J.	1	10	–	2	45	1	53	–	30	2	1	13	42
Pa.	1	5	1	4	209	4	85	8	111	–	–	–	4
E.N. CENTRAL	1	23	1	32	70	8	178	124	1,832	4	6	121	281
Ohio	–	6	–	–	15	3	71	99	1,363	1	–	–	–
Ind.	–	1	1	2	7	2	15	3	28	–	1	19	97
Ill.	–	3	–	15	20	1	45	13	123	2	4	46	63
Mich.	1	11	–	15	27	2	36	9	247	1	1	39	31
Wis.	–	2	–	–	1	–	11	–	71	–	–	17	90
W.N. CENTRAL	–	9	–	19	6	3	60	47	310	1	7	52	71
Minn.	–	–	–	–	2	–	12	43	198	1	–	5	7
Iowa	–	3	–	–	1	–	5	3	27	–	–	–	3
Mo.	–	3	–	2	1	2	20	–	13	–	4	38	2
N. Dak.	–	–	–	–	–	–	5	–	–	–	–	–	–
S. Dak.	–	–	–	–	–	–	3	–	1	–	–	1	–
Nebr.	–	2	–	–	1	–	4	–	–	–	–	–	1
Kans.	–	1	–	17	1	1	11	1	71	–	3	8	58
S. ATLANTIC	4	51	–	31	287	10	295	5	181	1	1	45	103
Del.	–	–	–	–	–	–	–	2	5	–	–	1	–
Md.	1	7	–	2	1	–	17	–	15	–	–	22	1
D.C.	–	3	–	1	1	–	2	–	–	–	–	–	–
Va.	3	19	–	14	3	2	32	1	29	–	–	8	3
W. Va.	U	2	U	1	7	U	7	U	73	U	U	1	17
N.C.	–	–	–	–	3	3	55	–	7	–	–	1	4
S.C.	–	3	–	–	–	3	36	1	11	1	–	1	7
Ga.	–	8	–	–	94	–	65	1	8	–	1	4	27
Fla.	–	9	–	13	178	2	81	–	33	–	–	7	44
E.S. CENTRAL	4	5	–	6	–	6	96	–	27	2	1	36	20
Ky.	3	4	–	1	–	–	14	–	9	1	–	20	12
Tenn.	–	–	–	4	–	4	39	–	11	–	–	–	8
Ala.	–	–	–	–	–	2	38	–	4	–	–	–	–
Miss.	1	1	–	1	–	–	5	–	3	1	1	16	–
W.S. CENTRAL	2	28	4	20	548	11	182	5	122	–	5	74	89
Ark.	1	4	–	–	–	3	11	–	6	–	–	–	2
La.	–	3	–	–	–	5	34	–	3	–	–	–	9
Okla.	–	3	–	–	5	–	14	–	–	–	–	2	–
Tex.	1	18	4	20	543	3	123	5	113	–	5	72	78
MOUNTAIN	–	6	–	–	24	1	79	–	49	–	4	42	59
Mont.	–	–	–	–	–	–	4	–	3	–	–	3	3
Idaho	–	–	–	–	1	–	6	–	2	–	–	–	2
Wyo.	–	–	–	–	–	–	4	–	2	–	–	5	1
Colo.	–	4	–	–	5	–	30	–	7	–	2	4	29
N. Mex.	–	1	–	–	5	–	11	–	–	–	–	2	4
Ariz.	–	1	–	–	3	–	14	–	22	–	–	7	11
Utah	–	–	–	–	–	1	7	–	11	–	–	12	3
Nev.	–	–	–	–	10	–	3	–	2	–	2	9	6
PACIFIC	1	140	1	434	216	3	229	1	296	1	1	869	375
Wash.	–	7	1	24	1	–	24	1	48	1	1	23	47
Oreg.	1	5	–	–	3	3	48	–	–	–	–	3	37
Calif.	U	126	U	408	210	U	145	U	236	U	U	835	286
Alaska	–	–	–	–	–	–	9	–	6	–	–	1	–
Hawaii	–	2	–	2	2	–	3	–	6	–	–	7	5
Guam	U	1	U	–	6	U	1	U	1	U	U	1	1
P.R.	–	4	–	61	174	–	4	5	35	–	–	4	3
V.I.	U	–	U	–	6	U	–	U	–	U	U	–	–
Pac. Trust Terr.	U	–	U	–	–	U	–	U	–	U	U	–	1

U: Unavailable

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending May 29, 1982 and May 30, 1981 (21st week)

REPORTING AREA	SYPHILIS (Civilian) (Primary & Secondary)		TUBERCULOSIS		TULAREMIA	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	13,089	12,137	451	10,113	43	2	140	25	135	2,397
NEW ENGLAND	239	259	16	278	–	–	11	–	1	19
Maine	1	1	1	22	–	–	–	–	–	18
N.H.	–	11	1	10	–	–	–	–	–	–
Vt.	–	13	–	6	–	–	2	–	–	–
Mass.	168	165	11	187	–	–	8	–	–	–
R.I.	12	16	–	9	–	–	–	–	1	–
Conn.	58	53	3	44	–	–	1	–	–	1
MID. ATLANTIC	1,799	1,849	130	1,711	3	2	20	–	–	54
Upstate N.Y.	185	158	22	305	3	–	2	–	–	30
N.Y. City	1,089	1,146	32	637	–	–	13	–	–	–
N.J.	229	236	20	324	–	–	3	–	–	1
Pa.	296	309	56	445	–	2	2	–	–	23
E.N. CENTRAL	713	838	68	1,561	–	–	13	4	8	266
Ohio	133	108	8	263	–	–	6	3	7	43
Ind.	91	77	3	199	–	–	–	–	–	43
Ill.	317	471	18	622	–	–	3	1	1	112
Mich.	127	141	36	393	–	–	4	–	–	1
Wis.	45	41	3	84	–	–	–	–	–	67
W.N. CENTRAL	259	232	9	317	8	–	3	–	3	528
Minn.	46	83	2	52	–	–	–	–	–	82
Iowa	14	12	2	43	1	–	1	–	–	166
Mo.	160	113	2	149	5	–	1	–	1	59
N. Dak.	4	5	–	6	–	–	–	–	–	52
S. Dak.	–	2	–	10	–	–	–	–	–	34
Nebr.	8	3	1	14	–	–	–	–	–	63
Kans.	27	14	2	43	2	–	1	–	2	72
S. ATLANTIC	3,632	3,141	108	2,020	7	–	20	14	74	373
Del.	7	7	–	21	–	–	–	–	–	–
Md.	208	251	14	253	1	–	6	1	11	19
D.C.	225	267	7	81	–	–	–	–	–	–
Va.	251	291	13	220	1	–	2	6	8	180
W. Va.	8	9	U	49	–	U	2	U	1	20
N.C.	254	241	17	329	–	–	–	5	32	16
S.C.	173	218	15	199	4	–	2	–	19	23
Ga.	757	797	17	294	–	–	–	2	3	88
Fla.	1,749	1,060	25	574	1	–	8	–	–	27
E.S. CENTRAL	933	779	39	921	6	–	11	1	10	301
Ky.	49	39	12	253	–	–	–	–	–	52
Tenn.	257	307	16	309	4	–	2	–	5	205
Ala.	327	198	11	271	–	–	7	–	3	44
Miss.	300	235	–	88	2	–	2	1	2	–
W.S. CENTRAL	3,333	2,951	59	1,164	12	–	9	6	36	518
Ark.	89	55	4	110	7	–	–	2	5	70
La.	724	671	20	219	1	–	–	–	–	14
Okla.	73	74	–	158	4	–	2	2	18	104
Tex.	2,447	2,151	35	677	–	–	7	2	13	330
MOUNTAIN	345	304	11	304	4	–	6	–	2	73
Mont.	1	8	–	24	–	–	–	–	–	33
Idaho	17	4	–	13	1	–	–	–	1	1
Wyo.	10	4	–	2	1	–	–	–	1	3
Colo.	97	96	4	35	–	–	2	–	–	3
N. Mex.	76	67	3	56	–	–	–	–	–	8
Ariz.	79	69	4	125	–	–	3	–	–	24
Utah	11	8	–	15	2	–	1	–	–	–
Nev.	54	48	–	34	–	–	–	–	–	1
PACIFIC	1,836	1,784	11	1,837	3	–	47	–	1	265
Wash.	53	66	3	112	1	–	2	–	–	–
Oreg.	54	38	3	69	–	–	1	–	–	–
Calif.	1,671	1,643	U	1,487	2	U	43	U	1	197
Alaska	7	6	–	24	–	–	–	–	–	68
Hawaii	51	31	5	145	–	–	1	–	–	–
Guam	1	–	U	2	–	U	–	U	–	–
P.R.	247	288	2	129	–	–	1	–	–	20
V.I.	–	4	U	1	–	U	–	U	–	–
Pac. Trust Terr.	–	–	U	19	–	U	–	U	–	–

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending May 29, 1982 (21st week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P&I** TOTAL
	ALL AGES	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	676	460	147	37	16	16	38
Boston, Mass.	194	115	58	14	3	4	16
Bridgeport, Conn.	32	24	4	2	-	2	1
Cambridge, Mass.	24	18	5	-	-	1	7
Fall River, Mass.	26	18	7	1	-	-	-
Hartford, Conn.	72	51	12	4	4	1	-
Lowell, Mass.	27	19	7	1	-	-	-
Lynn, Mass.	20	16	4	-	-	-	-
New Bedford, Mass.	27	25	1	-	1	-	1
New Haven, Conn.	55	38	9	4	2	2	1
Providence, R.I.	64	42	15	4	1	2	5
Somerville, Mass.	5	4	1	-	-	-	1
Springfield, Mass.	32	24	3	2	2	1	5
Waterbury, Conn.	31	24	6	1	-	-	1
Worcester, Mass.	67	42	15	4	3	3	-
MID. ATLANTIC	2,366	1,556	532	142	63	69	78
Albany, N.Y.	46	23	15	5	1	2	-
Allentown, Pa.	16	13	3	-	-	-	2
Buffalo, N.Y.	50	33	13	2	1	1	1
Camden, N.J.	46	25	15	4	1	1	1
Elizabeth, N.J.	37	27	9	-	1	-	2
Erie, Pa.†	37	23	11	-	1	2	2
Jersey City, N.J.	42	34	8	-	-	-	1
N.Y. City, N.Y.	1,315	865	289	93	36	32	39
Newark, N.J.	60	30	15	4	-	8	4
Paterson, N.J. §	30	24	-	2	1	2	2
Philadelphia, Pa.†	200	126	53	12	4	5	9
Pittsburgh, Pa.†	93	58	22	4	6	3	-
Reading, Pa.	40	31	4	1	2	2	1
Rochester, N.Y.	140	99	24	9	3	5	8
Schenectady, N.Y.	18	11	6	-	1	-	-
Scranton, Pa.†	26	13	9	2	1	1	3
Syracuse, N.Y.	80	52	18	1	4	5	2
Trenton, N.J.	22	16	5	1	-	-	-
Utica, N.Y.	37	28	8	1	-	-	-
Yonkers, N.Y.	31	25	5	1	-	-	1
E.N. CENTRAL	2,246	1,426	501	141	72	104	87
Akron, Ohio	74	52	12	3	3	4	3
Canton, Ohio	36	23	10	2	-	1	1
Chicago, Ill.	543	314	130	37	26	36	10
Cincinnati, Ohio	137	90	31	5	6	5	15
Cleveland, Ohio	173	100	49	9	7	8	1
Columbus, Ohio	135	80	34	12	5	4	4
Dayton, Ohio	99	64	25	6	1	3	2
Detroit, Mich.	262	160	52	28	9	13	22
Evansville, Ind.	43	27	12	2	1	1	1
Fort Wayne, Ind.	59	33	20	5	-	1	3
Gary, Ind.	18	9	4	3	2	-	1
Grand Rapids, Mich.	56	43	7	5	-	1	-
Indianapolis, Ind.	140	91	36	7	3	3	4
Madison, Wis.	44	24	8	2	1	9	4
Milwaukee, Wis.	134	91	31	4	5	3	-
Peoria, Ill.	40	22	12	1	-	5	6
Rockford, Ill.	37	24	8	3	-	2	3
South Bend, Ind.	48	32	9	6	-	1	3
Toledo, Ohio §	123	114	1	1	3	2	4
Youngstown, Ohio	45	33	10	-	-	2	-
W.N. CENTRAL	728	489	163	27	26	23	19
Des Moines, Iowa	55	45	6	2	2	-	-
Duluth, Minn.	27	18	4	1	2	2	1
Kansas City, Kans.	42	22	12	2	4	2	1
Kansas City, Mo.	130	85	30	6	4	5	3
Lincoln, Nebr.	21	15	5	1	-	-	1
Minneapolis, Minn.	90	62	21	3	2	2	4
Omaha, Nebr.	97	58	31	-	3	5	-
St. Louis, Mo.	165	118	31	5	6	5	5
St. Paul, Minn.	51	37	9	3	1	1	1
Wichita, Kans.	50	29	14	4	2	1	3

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)						P&I** TOTAL
	ALL AGES	≥65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,385	792	361	106	57	68	47
Atlanta, Ga.	159	77	52	8	4	18	1
Baltimore, Md.	353	187	98	23	30	15	10
Charlotte, N.C.	57	25	22	5	-	5	1
Jacksonville, Fla.	99	69	24	2	2	2	3
Miami, Fla.	117	63	36	6	7	5	2
Norfolk, Va.	60	34	16	4	3	3	1
Richmond, Va.	86	53	24	5	2	2	8
Savannah, Ga.	41	24	11	6	-	-	2
St. Petersburg, Fla.	103	91	6	6	-	-	10
Tampa, Fla.	87	65	15	5	1	1	3
Washington, D.C.	169	70	45	31	7	15	6
Wilmington, Del.	54	34	12	5	1	2	-
E.S. CENTRAL	653	423	160	29	15	26	26
Birmingham, Ala.	117	83	22	5	1	6	3
Chattanooga, Tenn.	66	48	14	2	2	-	6
Knoxville, Tenn.	55	37	15	1	2	-	1
Louisville, Ky.	87	50	24	6	2	5	3
Memphis, Tenn.	118	73	30	4	1	10	6
Mobile, Ala.	73	49	16	3	1	4	3
Montgomery, Ala.	44	33	10	-	1	-	2
Nashville, Tenn.	93	50	29	8	5	1	2
W.S. CENTRAL	1,658	873	454	164	96	71	46
Austin, Tex.	43	24	10	6	2	1	2
Baton Rouge, La.	32	14	9	7	1	1	2
Corpus Christi, Tex.	49	31	11	3	1	3	2
Dallas, Tex.	172	78	59	13	13	9	1
El Paso, Tex.	61	35	18	4	2	2	3
Fort Worth, Tex.	74	38	22	3	4	7	4
Houston, Tex.	651	308	185	87	42	29	10
Little Rock, Ark.	69	37	21	5	4	2	4
New Orleans, La.	188	110	40	13	13	12	1
San Antonio, Tex.	173	107	42	13	8	3	7
Shreveport, La.	71	47	18	4	1	1	5
Tulsa, Okla.	75	44	19	6	5	1	5
MOUNTAIN	583	348	142	35	27	31	23
Albuquerque, N. Mex.	67	41	16	3	5	2	-
Colo. Springs, Colo.	31	16	7	4	2	2	4
Denver, Colo.	120	74	30	7	4	5	2
Las Vegas, Nev.	66	30	23	6	5	2	10
Ogden, Utah	22	19	2	1	-	-	-
Phoenix, Ariz.	121	70	30	6	3	12	1
Pueblo, Colo.	22	17	3	1	1	-	1
Salt Lake City, Utah	58	30	15	4	4	5	2
Tucson, Ariz.	76	51	16	3	3	3	3
PACIFIC	1,783	1,185	375	103	55	65	87
Berkeley, Calif.	20	14	3	2	1	-	1
Fresno, Calif.	72	46	15	5	5	1	3
Glendale, Calif.	41	32	6	2	1	-	-
Honolulu, Hawaii	79	47	21	2	5	4	7
Long Beach, Calif.	82	55	18	3	5	1	3
Los Angeles, Calif.	513	337	112	33	12	19	17
Oakland, Calif.	77	52	15	4	3	3	6
Pasadena, Calif.	34	30	2	2	-	-	4
Portland, Oreg.	118	84	21	6	2	5	11
Sacramento, Calif.	55	41	8	2	1	3	4
San Diego, Calif.	142	80	43	7	6	6	11
San Francisco, Calif.	150	101	31	12	2	4	2
San Jose, Calif.	167	109	34	14	6	4	11
Seattle, Wash.	129	89	24	6	4	6	2
Spokane, Wash.	51	35	9	2	-	5	1
Tacoma, Wash.	53	33	13	1	2	4	4
TOTAL	12,078††	7,552	2,835	784	427	473	451

*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.

ACIP Recommendation — Rabies

Data are not available to support the use of intradermal vaccination for post-exposure use, and the Committee emphasizes the need to continue to use only the 1.0-ml IM regimen for post-exposure treatment.

Editorial Note: Although the Committee has determined that the 0.1-ml ID regimen is an acceptable alternative for pre-exposure prophylaxis, the manufacturer—Merieux Institute—has not yet formally requested approval from the Food and Drug Administration's Bureau of Biologics (BOB) for the vaccine to be administered according to this alternate regimen. The currently available 1.0-ml vaccine package is approved only for IM use and is not recommended for multi-dose use if the 0.1-ml ID regimen is used. Although BOB concurs with the interpretation of the clinical data, FDA approval for the use of Merieux's HDCV rabies vaccine by the ID route can be obtained after the manufacturer makes necessary packaging and labelling changes. *It is emphasized that the ACIP has accepted the ID regimen only for pre-exposure vaccination.*

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Epidemiologic Notes and Reports

Multiresistant *Salmonella* and Other Infections in Adopted Infants from India

Since January 1981, multiresistant *Salmonella* serotypes have been isolated from 33 infants adopted by U.S. parents from one nursery in Calcutta, India. *Shigella, Campylobacter,* and *Plasmodium vivax* have also been isolated from some of these infants. Persons in 31 states have adopted infants from this nursery, although 3 states—Minnesota, Oregon, and Washington—have received 86 (49%) of the 176 infants sent for adoption. Most ill infants have had diarrhea and various levels of malnutrition that have required only supportive measures. However, 7 of the 33 infants have required hospitalization—3 for diarrhea and dehydration, 3 for malnutrition and *P. vivax* malaria, and 1 for *Salmonella* meningitis. There have been no deaths. Four secondary cases of gastroenteritis occurred among household contacts in 4 families (involving 3 children and 1 mother). Four different *Salmonella* spp., *S. typhimurium, S. alachua, S. mbandaka,* and *S. bareilly,* have been isolated from the adopted infants. All *Salmonella* isolates have been resistant to ampicillin, chloramphenicol, kanamycin, gentamicin, and trimethoprim-sulfamethoxazole. Resistance to tetracycline, cephalothin, and cephamandole has been variable. All *Salmonella* isolates are sensitive to cefotaxime and moxalactam.

The foundling nursery in Calcutta receives babies shortly after birth and sends infants to the United States between the first and second month of life. Most of these infants are born prematurely or are severely underweight and at high risk of developing infectious complications while in the nursery. Despite control efforts, the nursery has had an ongoing problem with *Salmonella* infections for at least 1 year. A particularly severe outbreak of neonatal sal-

Salmonella – Continued

monellosis associated with a high mortality rate was recognized in May 1981. In September 1981, the nursery began to separate infants into cohorts by age and health status. This appeared to be successful in limiting the spread of infection but did not eliminate *Salmonella* from the nursery. The adoption agency in the United States provides information to each set of parents about health problems they may encounter with their newly adopted child.

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Editorial Note: Outbreaks due to similarly multiresistant strains of *S. typhimurium* have been reported from India since 1976 (*1,2*). Like *Salmonella wein*, these resistant strains have caused prolonged outbreaks of enteritis in pediatric wards (*2*). Multiresistant *S. alachua* isolates have been reported from Calcutta since 1971 and have frequently been associated with neonatal meningitis in that city (*3,4*). *S. mbandaka* was a rare serotype worldwide and virtually unheard of in the United States until 1977. Since that year the number of isolates has been steadily increasing: 1978 (2), 1979 (14), 1980 (40), 1981 (103). None of these *S. mbandaka* isolates were known to be related to adopted infants from Calcutta. Outbreaks of *S. mbandaka* gastroenteritis have occurred in the United States, but specific vehicles have not been identified. Since *S. alachua* and *S. mbandaka* are rare in the United States, it may be useful to investigate isolates of these serotypes to determine whether they are related to adopted infants from India.

Resistant strains of *Salmonella* are not new to the United States. In 1975, 21% of all *Salmonella* and 49% of *S. typhimurium* strains submitted to CDC were resistant to 2 or more antimicrobials (*5*). The multiresistant *Salmonella* strains from India are of particular concern when associated with infants who are malnourished. If these strains are associated with extraintestinal illness, they can be a problem, since they are resistant to drugs of proven efficacy for extraintestinal salmonellosis—chloramphenicol, ampicillin, gentamicin, and trimethoprim-sulfamethoxazole. Infants with extraintestinal infection could be treated with a third generation cephalosporin pending the results of sensitivity tests of their infections.

Secondary spread of *Salmonella*, when the patient with the index case is an infant, has been reported, and Leeder (*6*) found 31% of household contacts infected in a study in Michigan. Enteric isolation should reduce this problem and should be vigorously enforced to prevent the nosocomial spread of these strains.

Few clinical data are available concerning the use of third-generation cephalosporins in the treatment of extraintestinal salmonellosis. However, the minimal inhibitory concentration for several of these newer cephalosporins is quite low, and central nervous system penetration is sufficient so that they should be effective even in treating meningitis. Moxalactam has been most extensively studied and has been shown to be effective in the treatment of meningitis caused by other gram-negative organisms (*7*).

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Salmonella — Continued

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Mushroom Poisoning among Laotian Refugees — 1981

In the period, December 1-3, 1981, 7 Laotian refugees were seen at a Sonoma County California hospital for apparent mushroom poisoning; 6 had nausea, vomiting, diarrhea, dehydration, and elevated liver enzymes. All persons had eaten mushrooms that were gathered and eaten on November 30, although 1 week earlier 20-30 Laotians had eaten mushrooms gathered in the same area without incident. The incubation period was variable, but most patients experienced gastrointestinal distress within 8 hours. Three persons were treated in the intensive care unit, but all recovered and were discharged within 7 days.

Several remaining cooked mushrooms were examined at Sonoma State University; all but 1 were identified as *Russula* species. The remaining specimen could not be identified, probably because of cooking. The mushrooms examined may not have been representative of those actually consumed.

Laotians customarily gather wild mushrooms in their homeland and attempt to identify poisonous species by boiling the mushrooms with rice; if the rice turns red, the mushrooms are deemed poisonous. Because the Sonoma County mushrooms did not cause a color reaction, it was assumed they were safe to eat.

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Editorial Note: Mushroom poisoning can be produced by about 100 of the 2,000 species known. In the United States, mushrooms of the genera *Amanita* and *Galerina* produce amanitins and phallotoxins, which are common causes of mushroom poisoning. The most feared fungi are those that produce amanitin, which include the "deathcap" *Amanita phalloides*. *A. phalloides* has become increasingly common in the San Francisco bay region in recent years. The odor of fresh *A. phalloides* is similar to raw potatoes. Symptoms generally begin 6-24 hours after ingestion and may include the explosive onset of violent abdominal pain, vomiting, diarrhea, hematuria, fever, tachycardia, hypotension, rapid volume depletion, fluid and electro-

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The editor welcomes accounts on interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Send reports to: Attn: Editor, Morbidity and Mortality Weekly Report, Centers for Disease Control, Atlanta, Georgia 30333.

Send mailing list additions, deletions and address changes to: Attn: Distribution Services, Management Analysis and Services Office, 1-SB-419, Centers for Disease Control, Atlanta, Georgia 30333. When requesting changes be sure to give your former address, including zip code and mailing list code number, or send an old address label.

Mushroom Poisoning – Continued

lyte imbalance, and extreme thirst. After a short phase of improvement, hepatic, renal, and central nervous system damage may ensue. The mortality rate is 50%, and those who recover do so slowly. Treatment is supportive, and thioctic acid, charcoal hemoperfusion, and vitamin C may be useful (*1,2*).

Other genera of mushrooms, including the *Russula* genus implicated in the California outbreak, produce less lethal toxins. The *Russula* toxin has not been identified, but it results in a shorter incubation period—1-2 hours—followed by minor gastrointestinal and parasympathetic symptoms and hallucinations (*1*). *Russula emetica* can produce additional toxins, including muscarine.

Most cases of mushroom poisoning occur in late summer and early fall. Early abundant rains and mild temperatures in northern California have produced a profusion of mushrooms, some of which are poisonous. Nontoxic mushrooms may grow in the same area with toxic ones, and even trained mycologists may confuse toxic varieties with edible ones because of the extensive variations among species. There are no simple tests to identify poisonous mushrooms and no safe ways to detoxify the poisonous varieties.

Identification of implicated mushrooms may be difficult if specimens have been prepared and cooked. Since a variety of mushrooms may have been ingested in most poisoning situations, reliance cannot be placed on the initial symptoms. Gastric contents, stool, and mushroom samples may be assayed for toxins by radioimmunoassay (*3*).

The San Francisco Poison Control Center recommends routine administration of ipecac after ingestion of any wild mushrooms of questionable identification. The Infectious Disease Section offers its assistance in suspected mushroom poisoning, and information is available from local mycological societies, colleges, and poison control centers.

In the last 5 years, 16 outbreaks involving 44 cases of mushroom poisoning were reported to CDC; 23 cases were from California. In 1981 in California, 1 death in Santa Cruz County and 2 in Marin County were attributed to mushroom poisoning.

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