CENTERS FOR DISEASE CONTROL

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MORBIDITY AND MORTALITY WEEKLY REPORT

Current Trends

Deaths from Oral Cavity and Pharyngeal Cancer — United States, 1987

In 1987, more than 9700 deaths in the United States were caused by cancers of the oral cavity and pharynx.* Many of these deaths could have been prevented by reduction of personal risk behaviors (e.g., tobacco use and heavy alcohol consumption). This report summarizes epidemiologic data on deaths caused by oral and pharyngeal cancer in the United States in 1987.

Deaths from cancers of the oral cavity and pharynx were identified from total mentions in the multiple cause-of-death file† compiled by CDC's National Center for Health Statistics (NCHS). Denominators for 1987 rate calculations were determined from intercensal population estimates (*2*). Death rates were standardized to the 1970 age distribution of the U.S. population and were analyzed by age, race, sex, and state of residence.

In 1987, the national death rate for cancer of the oral cavity and pharynx was 3.6 per 100,000 persons. The death rate for males (5.6 per 100,000) was 2.8 times higher than that for females (2.0 per 100,000). The death rate for blacks (5.7 per 100,000) was 1.7 times the death rate for whites (3.4 per 100,000); the death rate for other races was 2.4 per 100,000.

Patterns of oral cavity and pharyngeal cancer mortality differed by age between blacks and whites (Figure 1). For whites, oral and pharyngeal cancer death rates steadily increased with age, peaking at ages ≥75 years with 35.9 deaths per 100,000 males and 16.1 deaths per 100,000 females. In comparison, the death rates for blacks peaked at ages 55–64 years (35.4 per 100,000 males and 9.6 per 100,000 females), then remained at that level through ages ≥75 years.

Oral and pharyngeal cancer death rates varied by area: they were highest in the District of Columbia (6.3 per 100,000) and lowest in South Dakota and Utah (1.4 per 100.000) (Table 1). Total deaths from oral and pharyngeal cancer for 1987 ranged from 10 deaths in Wyoming to 1053 deaths in California.

Reported by: Soft Tissue, Cranio-Facial Defects, and Pain Section, Epidemiology and Oral Disease Prevention Program, National Institute of Dental Research, National Institutes of Health.

**International Classification of Diseases, Ninth Revision, Clinical Modification,* rubrics 141–149.
†A public-use tape file that contains a data record for all deaths processed by NCHS. Each data record includes multiple cause, underlying cause, and demographic data for a death (*1*).

Oral Cavity and Pharyngeal Cancer – Continued

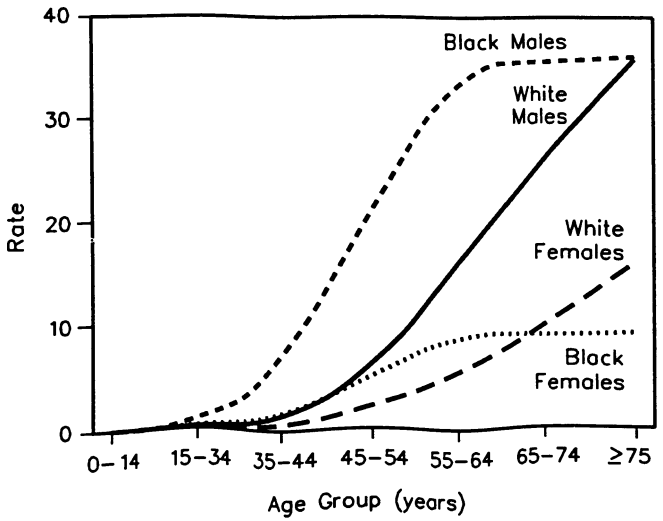
Dental Disease Prevention Activity, Center for Prevention Svcs; Cancer Prevention and Control Br, Aging and Statistics Br, Div of Chronic Disease Control and Community Intervention, Center for Chronic Disease Prevention and Health Promotion, CDC.

Editorial Note: The survival rate for persons with cancer of the oral cavity and pharynx is among the lowest of the major cancers, with a 5-year relative survival rate of 52% (*3*). In contrast to some other cancers (e.g., breast, colorectal, and prostate cancers), the overall survival rate from oral and pharyngeal cancer has not improved during the past 16 years, and survival rates for blacks have decreased (*4*).

Factors contributing to the risk of developing oral cavity and pharyngeal cancer include increasing age, tobacco use (smoked and smokeless), and alcohol consumption (*5*). The combined risks from tobacco and alcohol use appear to be substantially greater than those from tobacco or alcohol alone (*6*). A substantial reduction in either risk factor could dramatically reduce oral and pharyngeal cancer rates. Oral cavity and pharyngeal cancer deaths ranked 16th among all cancer deaths in the United States in 1987; the increased use of tobacco among women, adolescents, and children is likely to elevate death rates for these cancers in the next several decades (*7*).

As with most cancers, early detection and prompt treatment are critical to improve survival. With early detection and timely treatment, public health professionals, clinicians, and other health-care providers could reduce substantially the mortality from oral cavity and pharyngeal cancer. Historically, dental health professionals have been ascribed primary responsibility for performing thorough oral, head, and neck examinations on patients. However, surveys in 1986 show that persons at highest risk for developing oral and pharyngeal cancer seek physician services four times more frequently than dental services (*8*). Thus, reduction of oral and pharyngeal cancer mortality could result from intervention efforts that include greater involvement and training of all health professionals in appropriate examination methods, referrals, and follow-ups for high-risk patients. These interventions could also assist in achieving

FIGURE 1. Death rates* from oral cavity and pharyngeal cancer, by sex, race, and age group – United States, 1987



*Per 100,000 population.

Oral Cavity and Pharyngeal Cancer – Continued

TABLE 1. Oral cavity and pharyngeal cancer deaths and age-adjusted death rates*, by area, sex, and race – United States, 1987

Area	No. deaths	Rate				
			Sex		Race	
		Total	Male	Female	White	Black
Alabama	175	3.8	6.2	2.0	3.7	4.4
Alaska	13	5.7	7.9	4.4	5.9	†
Arizona	99	2.6	3.9	1.6	2.6	7.5
Arkansas	76	2.3	3.1	1.8	2.4	2.1
California	1053	3.7	5.5	2.3	3.6	5.7
Colorado	77	2.7	4.1	1.5	2.6	5.5
Connecticut	161	4.1	6.2	2.5	4.1	4.5
Delaware	29	4.0	5.3	3.1	3.4	8.5
District of Columbia	45	6.3	12.5	1.7	5.4	6.9
Florida	705	4.0	6.1	2.3	3.7	6.8
Georgia	257	4.3	7.2	2.1	3.9	5.7
Hawaii	42	3.8	5.5	2.2	6.0	†
Idaho	20	2.0	2.4	1.6	2.0	†
Illinois	490	3.8	6.0	2.2	3.5	6.0
Indiana	201	3.3	5.0	1.9	3.1	6.2
Iowa	105	3.0	5.0	1.4	3.0	†
Kansas	72	2.4	3.5	1.5	2.3	6.4
Kentucky	149	3.5	5.6	1.9	3.2	8.0
Louisiana	177	4.3	7.1	1.9	4.0	5.3
Maine	60	4.2	5.4	3.2	4.2	†
Maryland	218	4.7	8.0	2.0	3.8	8.6
Massachusetts	306	4.2	6.5	2.6	4.2	7.3
Michigan	345	3.5	5.5	1.9	3.2	5.8
Minnesota	124	2.5	4.0	1.3	2.5	†
Mississippi	109	3.9	6.9	1.6	4.0	3.7
Missouri	149	2.4	3.6	1.5	2.3	3.5
Montana	34	3.9	6.9	1.4	4.0	†
Nebraska	55	3.1	5.1	1.5	2.9	†
Nevada	36	3.5	4.9	2.4	3.4	†
New Hampshire	45	3.9	6.0	2.3	3.9	†
New Jersey	372	4.1	7.1	1.8	3.7	7.3
New Mexico	30	2.1	3.4	1.1	1.9	†
New York	837	3.9	6.4	2.1	3.7	5.3
North Carolina	274	4.0	6.0	2.3	3.5	5.9
North Dakota	24	3.1	4.7	1.5	3.1	†
Ohio	441	3.6	5.7	2.0	3.4	5.9
Oklahoma	134	3.6	5.9	1.8	3.6	6.0
Oregon	127	3.9	5.0	3.1	3.9	†
Pennsylvania	534	3.5	5.8	1.8	3.2	7.2
Rhode Island	51	3.9	5.6	2.5	3.8	†
South Carolina	169	5.0	8.0	2.7	4.1	7.6
South Dakota	13	1.4	1.9	1.0	1.4	†
Tennessee	187	3.4	5.0	2.1	3.1	5.4
Texas	437	2.8	4.1	1.7	2.7	3.0
Utah	20	1.4	2.0	0.9	1.4	†
Vermont	18	3.1	5.2	1.3	3.2	†
Virginia	232	3.9	5.9	2.4	3.6	5.6
Washington	152	3.1	4.0	2.4	3.2	5.0
West Virginia	59	2.6	3.8	1.6	2.4	†
Wisconsin	194	3.5	5.4	2.0	3.5	3.8
Wyoming	10	2.5	4.4	0.9	2.5	†
Total	**9742**	**3.6**	**5.6**	**2.0**	**3.4**	**5.7**

*Per 100,000 population.

†Rate does not meet standard of precision (<100,000 blacks residing in state).

Oral Cavity and Pharyngeal Cancer – Continued

the year 2000 health objective of reducing deaths caused by cancer of the oral cavity and pharynx in men aged 45–74 years from 13.2 per 100,000 in 1987 to ≤9.4 per 100,000[§] and in women aged 45–74 years from 4.7 per 100,000 in 1987 to ≤4.0 per 100,000 (*9*).

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[§]Year 2000 goals are for underlying cause of death.

Epidemiologic Notes and Reports

Psittacosis at a Turkey Processing Plant – North Carolina, 1989

On October 14 and 15, 1989, a physician in North Carolina treated two poultry workers from a turkey processing plant (plant A) in North Carolina for possible psittacosis. Following notification on October 16, the Division of Epidemiology, North Carolina Department of Environment, Health, and Natural Resources, conducted a telephone survey of 12 health-care providers in the locality around plant A and identified 32 adults (aged 18–50 years) who had been evaluated for febrile respiratory or gastrointestinal illnesses during the first 2 weeks of October. These persons were considered as having suspected psittacosis, and all were employees at plant A. This report describes the investigation of this outbreak of psittacosis, which was the largest documented in North Carolina since 1956.

Persons with suspected psittacosis were identified by reviews of patient records at the plant clinic, area hospitals, area physicians' offices and clinics, and county health departments and by reviews of information from the Virology/Serology Section of the North Carolina State Laboratory for Public Health. A suspected case of psittacosis was

Psittacosis – Continued

defined as a febrile, respiratory, or gastrointestinal illness with onset during October in an employee at plant A; a confirmed case was defined as a suspected case having at least one of the following laboratory findings: 1) isolation of *Chlamydia psittaci* from a patient specimen, 2) a fourfold rise in complement-fixation (CF) antibody to *Chlamydia* group antigen, or 3) a single *Chlamydia* CF titer of ⩾32. Acute-phase serum specimens were obtained within 14 days of illness onset; convalescent-phase serum specimens were obtained within 60 days of illness onset.

Sixty suspected cases of psittacosis were identified among workers at plant A. Of these, 40 (67%) met the definition for a confirmed case (Figure 1). Thirty-nine cases were confirmed by serology alone; one also was confirmed by isolation of *Chlamydia* from a bronchial washing specimen. Records were available for 38 patients; among these patients, the most frequently recorded symptoms were fever (89%) and cough (71%). Other reported symptoms included aches (42%), chest pain (39%), headache (37%), nausea (37%), vomiting (34%), diarrhea (34%), and abdominal pain (18%). Twenty-four (60%) of the 40 persons meeting the case definition were hospitalized.

For the 32 patients with confirmed psittacosis whose temperatures were recorded, the mean maximum body temperature was 39.4 C (103 F) (range: 36.6–41.1 C [98–106 F]; median: 39.4 C [103 F]). The mean maximum white blood cell (WBC) count for the 22 patients whose WBC counts were recorded was 10,600 per mm^3 (range: 7100–20,900 per mm^3; median: 10,100 per mm^3). Abnormal chest radiograph results were reported for at least 29 patients, and abnormal liver function tests, for at least seven.

Thirty-eight (95%) of those meeting the case definition worked on the day shift at plant A. Day-shift employees working in the "chilling," "cut-up/debone," and "other" areas of the plant had direct contact only with cleaned and processed turkeys and

(Continued on page 467)

FIGURE 1. Confirmed psittacosis cases in plant A employees, by date of onset – North Carolina, October 1989

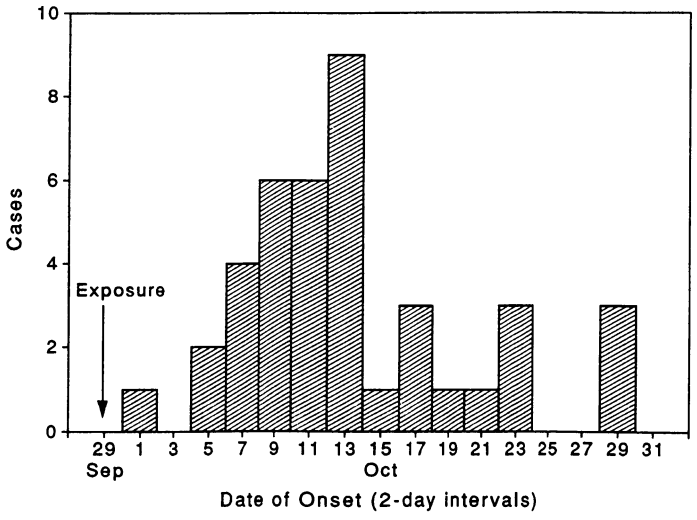
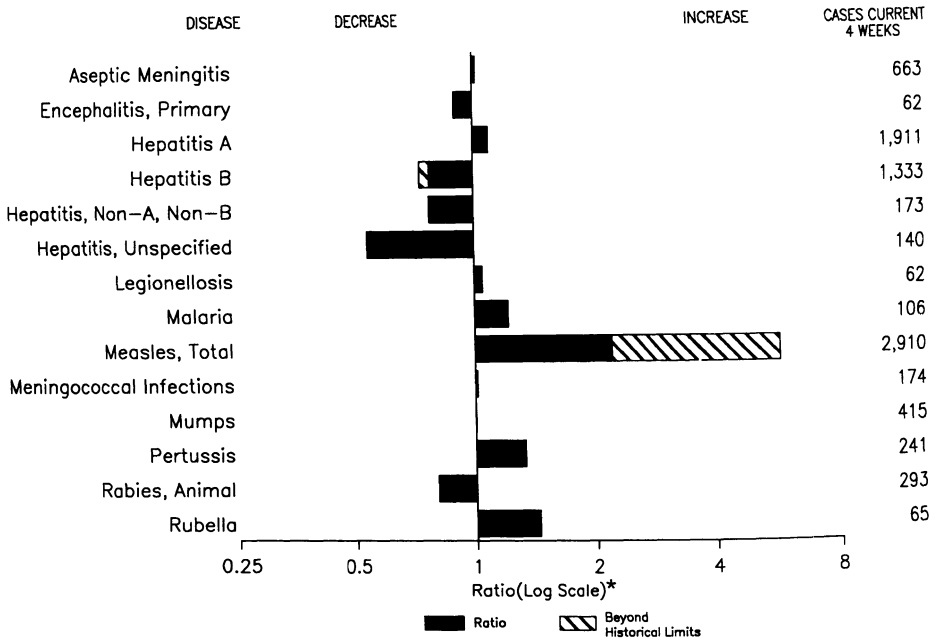


FIGURE I. Notifiable disease reports, comparison of 4-week totals ending July 7, 1990, with historical data — United States



*Ratio of current 4-week total to mean of 15 4-week totals (from comparable, previous, and subsequent 4-week periods for past 5 years).

TABLE I. Summary — cases of specified notifiable diseases, United States, cumulative, week ending July 7, 1990 (27th Week)

	Cum. 1990		Cum. 1990
AIDS	22,246	Plague	-
Anthrax	-	Poliomyelitis, Paralytic*	-
Botulism: Foodborne	1	Psittacosis	70
Infant	26	Rabies, human	1
Other	2	Syphilis: civilian	24,762
Brucellosis	33	military	131
Cholera	1	Syphilis, congenital, age < 1 year	-
Congenital rubella syndrome	1	Tetanus	26
Diphtheria	1	Toxic shock syndrome	173
Encephalitis, post-infectious	50	Trichinosis	15
Gonorrhea: civilian	337,136	Tuberculosis	10,878
military	4,675	Tularemia	44
Leprosy	98	Typhoid fever	196
Leptospirosis	23	Typhus fever, tickborne (RMSF)	185
Measles: imported	745		
indigenous	13,577		

*Three cases of suspected poliomyelitis have been reported in 1990; five of the 13 suspected cases in 1989 were confirmed and all were vaccine-associated.

TABLE II. Cases of specified notifiable diseases, United States, weeks ending July 7, 1990, and July 8, 1989 (27th 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	22,246	2,831	334	50	337,136	343,601	14,960	10,390	1,035	899	551	98
NEW ENGLAND	800	113	10	-	9,227	9,666	295	541	34	39	26	5
Maine	36	4	1	-	108	141	5	24	4	1	2	-
N.H.	43	10	-	-	104	87	5	24	3	2	3	-
Vt.	7	12	2	-	33	36	3	29	3	-	5	-
Mass.	439	35	2	-	3,679	3,787	219	341	16	35	11	4
R.I.	43	38	1	-	543	683	28	27	-	1	5	1
Conn.	232	14	4	-	4,760	4,932	35	96	8	-	-	-
MID. ATLANTIC	7,100	300	31	4	46,340	52,570	2,157	1,524	121	66	160	17
Upstate N.Y.	1,083	137	26	1	7,036	7,916	519	360	28	19	70	1
N.Y. City	3,978	67	2	1	19,624	21,347	269	448	18	31	25	12
N.J.	1,364	-	1	-	7,234	7,163	227	345	28	-	25	3
Pa.	675	96	2	2	12,446	16,144	1,142	371	47	16	40	1
E.N. CENTRAL	1,576	413	73	8	64,595	59,386	1,069	1,284	71	55	127	1
Ohio	373	91	18	3	19,889	15,637	120	231	22	8	47	-
Ind.	137	80	2	3	5,696	4,631	70	256	4	14	22	-
Ill.	675	72	22	2	20,303	18,131	498	222	22	15	8	1
Mich.	271	147	29	-	15,071	15,811	198	360	19	18	36	-
Wis.	120	23	2	-	3,636	5,176	183	215	4	-	14	-
W.N. CENTRAL	511	111	32	1	17,877	15,732	851	501	68	17	32	-
Minn.	83	9	11	1	2,206	1,611	135	58	18	-	-	-
Iowa	25	13	4	-	1,341	1,317	175	36	5	2	2	-
Mo.	305	51	3	-	10,672	9,327	285	314	25	11	19	-
N. Dak.	1	6	-	-	55	71	9	4	2	1	-	-
S. Dak.	1	4	2	-	109	139	64	4	2	-	-	-
Nebr.	24	11	4	-	857	873	49	22	4	-	6	-
Kans.	72	17	8	-	2,637	2,394	134	63	12	3	5	-
S. ATLANTIC	4,745	654	76	14	96,290	94,194	1,811	1,969	166	136	77	4
Del.	51	22	3	-	1,621	1,522	73	54	6	2	5	-
Md.	483	77	10	1	10,433	10,305	679	271	19	6	22	2
D.C.	326	2	-	-	6,712	6,204	12	28	4	-	-	-
Va.	439	92	25	2	8,234	7,811	156	118	25	97	7	-
W. Va.	35	15	6	-	653	691	11	49	3	1	1	-
N.C.	309	70	23	-	15,511	13,872	363	551	69	-	13	1
S.C.	178	10	1	-	7,662	8,564	23	320	11	7	12	-
Ga.	646	109	3	1	21,537	18,106	188	239	4	7	12	-
Fla.	2,278	257	5	10	23,927	27,119	306	339	25	16	5	1
E.S. CENTRAL	522	282	27	1	27,070	27,157	207	805	67	5	41	-
Ky.	95	65	7	-	3,010	2,591	52	275	21	4	18	-
Tenn.	172	48	14	1	8,492	8,860	99	429	30	-	12	-
Ala.	121	118	6	-	8,715	8,654	55	97	14	-	11	-
Miss.	134	51	-	-	6,853	7,052	1	4	2	1	-	-
W.S. CENTRAL	2,245	288	13	6	34,832	35,913	1,495	916	45	144	31	23
Ark.	85	5	1	-	4,502	3,672	267	46	5	12	7	-
La.	382	46	4	-	7,102	7,364	93	159	2	4	10	-
Okla.	120	22	1	5	3,117	3,046	305	76	15	13	10	-
Tex.	1,658	215	7	1	20,111	21,831	830	635	23	115	4	23
MOUNTAIN	560	131	12	-	6,636	7,385	2,405	785	81	72	25	-
Mont.	7	2	-	-	97	104	63	39	2	4	1	-
Idaho	14	-	-	-	62	101	44	49	8	-	3	-
Wyo.	2	1	1	-	92	50	23	9	5	1	-	-
Colo.	161	27	3	-	1,323	1,635	148	86	25	24	3	-
N. Mex.	51	6	-	-	644	727	393	90	5	2	3	-
Ariz.	190	62	4	-	2,808	2,727	1,339	276	21	29	8	-
Utah	51	19	-	-	220	226	203	52	11	3	2	-
Nev.	84	14	4	-	1,390	1,815	192	184	4	9	5	-
PACIFIC	4,187	539	60	16	34,269	41,598	4,670	2,065	382	365	32	48
Wash.	326	-	3	1	2,834	3,256	798	327	72	15	8	3
Oreg.	164	-	-	-	1,316	1,539	473	230	21	6	-	-
Calif.	3,602	481	52	14	29,322	36,085	3,245	1,437	277	339	23	37
Alaska	20	15	4	-	534	460	98	36	3	-	-	-
Hawaii	75	43	1	1	263	258	56	35	9	5	1	8
Guam	1	-	-	-	100	76	5	1	-	7	-	-
P.R.	877	37	6	-	455	594	95	164	2	22	-	-
V.I.	4	-	-	-	233	353	1	8	-	-	-	-
Amer. Samoa		1	-	-	43	12	18	-	-	-	-	9
C.N.M.I.	-	-	-	-	101	51	8	6	-	15	-	2

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

TABLE II. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending July 7, 1990, and July 8, 1989 (27th 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	550	392	13,577	17	745	8,663	1,483	75	3,249	38	1,508	1,282	11	619	236
NEW ENGLAND	51	-	174	2	20	296	109	-	31	2	194	225	2	7	6
Maine	1	-	27	-	2	-	10	-	-	-	6	4	-	-	-
N.H.	4	-	-	-	8	8	3	-	7	-	12	5	-	1	4
Vt.	4	-	-	-	1	2	10	-	1	-	6	6	-	-	1
Mass.	30	-	15	2†	4	41	55	-	8	2	158	193	2	2	1
R.I.	4	-	27	-	3	41	10	-	5	-	2	8	-	1	-
Conn.	8	-	105	-	2	204	21	-	10	-	10	9	-	3	-
MID. ATLANTIC	117	21	779	7	144	803	219	4	194	2	306	85	-	2	17
Upstate N.Y.	22	5	194	5†§	107	134	86	3	85	1	244	35	-	1	5
N.Y. City	41	10	142	-	19	63	25	-	-	-	-	2	-	-	10
N.J.	39	-	105	-	9	401	48	-	40	-	13	23	-	-	2
Pa.	15	6	338	2§	9	205	60	1	69	1	49	25	-	1	-
E.N. CENTRAL	25	3	2,802	-	141	2,277	196	-	340	5	299	154	-	29	23
Ohio	5	-	451	-	3	661	64	-	75	-	86	1	-	1	3
Ind.	1	-	312	-	1	51	19	-	13	3	56	13	-	-	-
Ill.	9	-	1,022	-	10	1,399	47	-	105	-	81	68	-	17	18
Mich.	7	3	328	-	125	15	45	-	111	2	38	24	-	9	1
Wis.	3	-	689	-	2	151	21	-	36	-	38	48	-	2	1
W.N. CENTRAL	8	36	682	-	13	539	50	-	87	1	52	54	-	6	4
Minn.	1	36	275	-	3	7	10	-	-	-	6	7	-	1	-
Iowa	1	-	23	-	1	5	1	-	14	-	6	10	-	4	-
Mo.	5	-	66	-	-	307	19	-	41	1	33	33	-	-	3
N. Dak.	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-
S. Dak.	-	-	15	-	8	-	2	-	-	-	1	1	-	-	-
Nebr.	-	-	97	-	1	112	5	-	3	-	2	2	-	-	-
Kans.	1	-	206	-	-	108	13	-	29	-	3	1	-	-	1
S. ATLANTIC	125	11	762	2	114	391	271	54	1,359	4	137	90	-	13	8
Del.	2	-	8	-	3	37	1	-	3	-	2	1	-	-	-
Md.	31	9	181	-	18	50	30	27	804	1	37	10	-	1	2
D.C.	10	-	10	-	7	12	11	-	24	-	14	-	-	1	-
Va.	33	-	66	-	2	20	35	-	77	1	14	6	-	1	-
W. Va.	1	-	6	-	-	28	12	-	41	1	10	12	-	-	-
N.C.	8	1	10	2†§	13	167	41	21	185	1	32	20	-	-	1
S.C.	-	-	4	-	-	-	20	-	21	-	5	-	-	-	-
Ga.	11	-	61	-	16	-	50	-	56	-	14	10	-	-	-
Fla.	29	1	416	-	55	77	71	6	148	-	9	31	-	10	5
E.S. CENTRAL	12	8	110	-	2	109	86	2	64	3	81	52	-	1	2
Ky.	2	-	24	-	-	10	27	-	-	-	-	1	-	-	-
Tenn.	6	8	42	-	-	55	32	2	32	1	29	15	-	1	2
Ala.	4	-	15	-	2	44	25	-	9	2	47	30	-	-	-
Miss.	-	-	29	-	-	-	2	N	N	-	5	6	-	-	-
W.S. CENTRAL	26	302	3,647	5	85	2,812	101	7	525	4	37	75	-	2	22
Ark.	1	-	10	-	28	2	14	-	128	-	2	11	-	1	-
La.	1	-	10	-	-	6	26	2	86	1	11	5	-	-	5
Okla.	7	4	152	-	-	92	11	3	103	3	24	14	-	1	1
Tex.	17	298	3,475	5†	57	2,712	50	2	208	-	-	45	-	-	16
MOUNTAIN	15	11	637	1	83	271	48	5	264	2	157	386	3	96	35
Mont.	1	-	-	-	1	13	9	-	-	-	23	10	-	13	1
Idaho	3	-	15	-	6	2	5	2	134	1	32	53	-	46	32
Wyo.	-	-	-	-	11	-	-	-	2	-	-	-	-	-	1
Colo.	2	6	76	1§	39	61	14	1	19	-	52	23	-	3	-
N. Mex.	1	1	82	-	11	31	8	N	N	1	9	6	-	-	-
Ariz.	7	3	235	-	12	72	4	1	87	-	27	285	3	29	-
Utah	-	1	56	-	-	90	4	1	8	-	10	8	-	1	-
Nev.	1	-	173	-	3	2	4	-	14	-	4	1	-	4	1
PACIFIC	171	-	3,984	-	143	1,165	403	3	385	15	245	161	6	463	119
Wash.	16	-	176	-	68	33	49	-	38	5	63	48	-	-	-
Oreg.	10	-	138	-	44	13	45	N	N	-	7	6	-	5	2
Calif.	140	-	3,586	-	28	1,099	298	3	338	9	155	103	5	449	96
Alaska	2	-	78	-	2	-	7	-	-	1	1	-	-	-	-
Hawaii	3	-	6	-	1	23	4	-	9	-	19	4	1	9	21
Guam	1	U	-	U	1	1	-	U	1	U	-	1	U	-	-
P.R.	2	-	808	-	-	437	9	-	7	-	5	3	-	-	6
V.I.	-	-	21	-	3	4	-	1	6	-	-	-	-	-	-
Amer. Samoa	-	U	89	U	-	-	-	U	9	U	-	-	U	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	7	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 II. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending July 7, 1990, and July 8, 1989 (27th 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	24,762	21,608	173	10,878	10,637	44	196	185	2,087
NEW ENGLAND	926	852	12	248	273	1	13	4	4
Maine	5	5	3	-	3	-	-	-	-
N.H.	39	6	1	3	16	-	-	-	2
Vt.	1	-	-	7	4	-	-	-	-
Mass.	353	261	7	130	142	1	12	3	-
R.I.	7	15	-	35	33	-	-	-	-
Conn.	521	565	1	73	75	-	1	1	2
MID. ATLANTIC	5,410	4,516	17	2,698	2,048	1	50	8	469
Upstate N.Y.	426	456	6	235	177	-	9	4	23
N.Y. City	2,397	1,967	5	1,603	1,159	-	27	-	-
N.J.	856	684	-	466	339	1	12	3	141
Pa.	1,731	1,409	6	394	373	-	2	1	305
E.N. CENTRAL	1,703	865	44	1,132	1,127	-	19	16	61
Ohio	273	67	16	172	216	-	4	11	3
Ind.	34	33	2	94	108	-	1	-	-
Ill.	648	375	5	565	493	-	10	-	17
Mich.	569	329	21	252	248	-	3	5	9
Wis.	179	61	-	49	62	-	1	-	32
W.N. CENTRAL	222	175	23	284	272	16	-	16	343
Minn.	49	16	1	53	53	-	-	-	121
Iowa	30	21	4	33	28	-	-	-	17
Mo.	117	91	11	134	119	14	-	13	13
N. Dak.	1	2	-	10	11	-	-	-	46
S. Dak.	1	-	-	9	14	1	-	-	113
Nebr.	8	17	3	13	10	1	-	-	4
Kans.	16	28	4	32	37	-	-	3	29
S. ATLANTIC	7,857	7,830	15	2,258	2,214	3	22	75	596
Del.	99	85	1	23	25	-	-	1	8
Md.	591	388	1	179	184	-	8	5	222
D.C.	506	469	1	80	89	-	-	-	-
Va.	392	271	-	159	196	1	2	2	105
W. Va.	7	9	-	38	40	-	-	-	19
N.C.	912	479	10	262	260	1	2	44	4
S.C.	483	390	1	262	248	1	-	20	77
Ga.	2,048	1,864	-	453	345	-	1	3	115
Fla.	2,819	3,875	1	802	827	-	9	-	46
E.S. CENTRAL	2,164	1,353	6	849	909	5	1	23	104
Ky.	39	32	1	206	214	1	1	3	26
Tenn.	871	588	3	234	262	4	-	16	27
Ala.	663	421	2	264	253	-	-	4	51
Miss.	591	312	-	145	180	-	-	-	-
W.S. CENTRAL	3,803	2,850	7	1,361	1,239	13	5	36	253
Ark.	260	168	-	157	131	8	-	5	22
La.	1,065	662	1	140	137	-	-	1	-
Okla.	116	46	6	106	109	5	2	27	75
Tex.	2,362	1,974	-	958	862	-	3	3	156
MOUNTAIN	460	366	20	245	239	4	17	5	99
Mont.	-	1	-	10	7	-	-	3	29
Idaho	6	1	1	8	8	-	-	-	1
Wyo.	-	3	2	3	-	1	-	-	31
Colo.	22	52	6	14	20	-	-	-	3
N. Mex.	24	17	4	52	43	3	-	1	6
Ariz.	332	118	5	120	112	-	15	1	24
Utah	4	11	2	12	24	-	-	-	3
Nev.	72	163	-	26	25	-	2	-	2
PACIFIC	2,217	2,801	29	1,803	2,316	1	69	2	158
Wash.	191	225	4	135	114	1	2	-	-
Oreg.	76	137	-	61	74	-	2	-	-
Calif.	1,932	2,430	24	1,505	2,009	-	62	2	136
Alaska	10	2	-	21	35	-	-	-	22
Hawaii	8	7	1	81	84	-	3	-	-
Guam	1	4	-	14	40	-	-	-	-
P.R.	197	290	-	66	151	-	-	-	27
V.I.	1	2	-	4	4	-	-	-	-
Amer. Samoa	-	-	-	8	2	-	1	-	-
C.N.M.I.	1	7	-	23	9	-	4	-	-

U: Unavailable

TABLE III. Deaths in 121 U.S. cities,* week ending July 7, 1990 (27th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	599	419	111	40	11	18	48
Boston, Mass.	171	111	35	9	5	11	19
Bridgeport, Conn.	39	29	7	1	1	1	2
Cambridge, Mass.	20	15	3	2	-	-	2
Fall River, Mass.	31	26	4	1	-	-	-
Hartford, Conn.	67	42	13	8	2	2	9
Lowell, Mass.	19	16	2	-	1	-	1
Lynn, Mass.	13	10	2	-	-	1	-
New Bedford, Mass.	22	19	-	3	-	-	-
New Haven, Conn.	61	43	10	6	1	1	5
Providence, R.I.	51	36	15	-	-	-	-
Somerville, Mass.	7	5	1	1	-	-	1
Springfield, Mass.	20	15	4	1	-	-	1
Waterbury, Conn.	29	16	6	6	-	1	3
Worcester, Mass.	49	36	9	2	1	1	5
MID. ATLANTIC	2,436	1,599	432	269	59	77	111
Albany, N.Y.	51	33	12	2	3	1	3
Allentown, Pa.	13	10	3	-	-	-	-
Buffalo, N.Y.	100	70	20	6	1	3	2
Camden, N.J.	39	19	6	5	4	5	-
Elizabeth, N.J.	25	15	6	3	1	-	-
Erie, Pa.†	35	28	5	2	-	-	5
Jersey City, N.J.	57	35	6	10	2	4	2
N.Y. City, N.Y.	1,287	854	207	161	33	32	52
Newark, N.J.	72	19	20	28	2	3	2
Paterson, N.J.	27	10	8	7	-	2	1
Philadelphia, Pa.§	347	216	71	32	12	16	24
Pittsburgh, Pa.†	72	47	17	5	-	3	1
Reading, Pa.	40	34	5	1	-	-	2
Rochester, N.Y.	92	67	16	4	-	5	10
Schenectady, N.Y.	28	23	4	-	-	1	1
Scranton, Pa.†	26	22	4	-	-	-	1
Syracuse, N.Y.	44	35	8	-	-	1	1
Trenton, N.J.	33	24	6	1	1	1	2
Utica, N.Y.	23	18	4	1	-	-	-
Yonkers, N.Y.	25	20	4	1	-	-	2
E.N. CENTRAL	2,030	1,343	423	150	43	71	76
Akron, Ohio	38	29	4	3	-	2	-
Canton, Ohio	30	23	5	2	-	-	-
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	136	95	29	4	1	7	14
Cleveland, Ohio	129	82	36	7	1	3	3
Columbus, Ohio	128	73	36	9	3	7	-
Dayton, Ohio	93	64	17	8	4	-	4
Detroit, Mich.	202	111	43	25	9	14	6
Evansville, Ind.	62	45	12	4	1	-	1
Fort Wayne, Ind.	62	47	6	4	1	4	2
Gary, Ind.	17	11	4	1	-	1	-
Grand Rapids, Mich.	37	30	3	2	2	-	2
Indianapolis, Ind.	143	87	34	14	4	4	3
Madison, Wis.	36	21	8	6	1	-	6
Milwaukee, Wis.	89	60	22	4	1	2	2
Peoria, Ill.	38	28	4	2	1	3	3
Rockford, Ill.	37	25	9	2	-	1	1
South Bend, Ind.	41	35	5	1	-	-	2
Toledo, Ohio	87	70	9	3	4	1	4
Youngstown, Ohio	61	45	12	4	-	-	7
W.N. CENTRAL	634	442	122	39	13	18	30
Des Moines, Iowa	33	24	7	1	1	-	4
Duluth, Minn.	11	7	1	3	-	-	-
Kansas City, Kans.	25	20	3	1	-	1	-
Kansas City, Mo.	106	70	27	5	2	2	3
Lincoln, Nebr.	23	16	4	1	2	-	2
Minneapolis, Minn.	160	104	33	12	3	8	12
Omaha, Nebr.	64	46	9	5	1	3	5
St. Louis, Mo.	106	71	29	2	2	2	2
St. Paul, Minn.	65	50	7	5	2	1	1
Wichita, Kans.	41	34	2	4	-	1	1
S. ATLANTIC	1,031	623	208	120	45	29	51
Atlanta, Ga.	138	80	30	21	6	1	3
Baltimore, Md.	173	109	38	17	2	7	11
Charlotte, N.C.	71	43	12	9	4	3	7
Jacksonville, Fla.	87	58	14	8	4	3	6
Miami, Fla.	121	58	31	25	6	1	-
Norfolk, Va.	37	22	8	-	4	3	3
Richmond, Va.	63	37	14	3	7	2	4
Savannah, Ga.	42	32	5	3	-	2	6
St. Petersburg, Fla.	65	53	9	1	1	1	5
Tampa, Fla.	57	34	14	5	3	1	-
Washington, D.C.	144	67	30	28	8	5	6
Wilmington, Del.	33	30	3	-	-	-	-
E.S. CENTRAL	750	474	177	54	20	25	50
Birmingham, Ala.	101	59	24	8	6	4	1
Chattanooga, Tenn.	72	47	15	8	2	-	3
Knoxville, Tenn.	90	52	21	9	5	3	6
Louisville, Ky.	91	57	23	7	3	1	9
Memphis, Tenn.	215	137	55	12	1	10	17
Mobile, Ala.	73	48	19	1	1	4	7
Montgomery, Ala.	24	17	4	2	1	-	1
Nashville, Tenn.	84	57	16	7	1	3	6
W.S. CENTRAL	1,601	968	351	172	67	43	72
Austin, Tex.	49	29	14	3	2	1	6
Baton Rouge, La.	34	21	7	3	2	1	1
Corpus Christi, Tex.	30	22	5	1	-	2	4
Dallas, Tex.	158	83	42	22	6	5	1
El Paso, Tex.	76	45	16	8	5	2	8
Fort Worth, Tex	69	44	11	8	4	2	4
Houston, Tex.§	734	436	169	89	24	16	18
Little Rock, Ark.	54	30	13	3	6	2	3
New Orleans, La.	103	61	21	13	5	3	-
San Antonio, Tex.	143	97	30	9	5	2	13
Shreveport, La.	49	33	7	5	2	2	6
Tulsa, Okla.	102	67	16	8	6	5	8
MOUNTAIN	610	394	117	53	23	23	38
Albuquerque, N. Mex.	58	36	14	3	4	1	4
Colo. Springs, Colo.	41	27	8	4	-	2	9
Denver, Colo.	93	55	19	8	5	6	3
Las Vegas, Nev.	105	64	24	13	4	-	6
Ogden, Utah	24	21	1	-	1	1	5
Phoenix, Ariz.	122	78	22	9	5	8	4
Pueblo, Colo.	29	20	6	2	1	-	3
Salt Lake City, Utah	40	25	5	7	1	2	-
Tucson, Ariz.	98	68	18	7	2	3	4
PACIFIC	1,718	1,129	320	179	50	36	107
Berkeley, Calif.	15	12	2	1	-	-	-
Fresno, Calif.	42	26	10	2	2	2	4
Glendale, Calif.	20	12	6	1	1	-	1
Honolulu, Hawaii	67	47	10	7	2	1	7
Long Beach, Calif.	78	55	17	4	2	-	7
Los Angeles Calif.	512	331	93	58	18	8	17
Oakland, Calif.	54	33	14	7	-	-	3
Pasadena, Calif.	37	29	2	2	-	4	3
Portland, Oreg.	119	86	18	9	5	1	7
Sacramento, Calif.	126	74	33	15	2	2	17
San Diego, Calif.	150	101	19	16	7	7	11
San Francisco, Calif.	137	82	27	23	3	2	5
San Jose, Calif.	150	94	34	13	4	5	9
Seattle, Wash.	111	72	20	14	2	3	1
Spokane, Wash.	62	45	10	5	1	1	14
Tacoma, Wash.	38	30	5	2	1	-	1
TOTAL	11,409††	7,391	2,261	1,076	331	340	583

*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.

Psittacosis – Continued

appeared to be at lowest risk for meeting the case definition (Table 1). In contrast, workers exposed to turkey viscera in the "offal/truckwash," "U.S. Department of Agriculture (USDA) inspection," and "evisceration" areas were at highest risk. Workers exposed to live birds and their feces in the "live hang" area (where live turkeys are uncrated and hung on the processing line) were at intermediate risk (Table 1).

A plant veterinarian reported that a portion of a flock of tom turkeys processed at plant A during the day shift on September 29 had a carcass condemnation rate of 25% attributed to air sacculitis*; the usual rate of carcass condemnation at plant A is 1%–3%. None of the condemned carcasses or specimens from that flock were retained for necropsy, culture, or further examination. Assuming that exposure occurred on September 29, the mean incubation period for the 40 cases was 15 days (range: 3–31 days; median: 14 days) (Figure 1).

The total compensation disability insurance payments to 34 psittacosis patients was nearly $13,000, and the total medical costs paid for 35 patients was >$124,000, according to information from plant A's workers' compensation insurer.

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Editorial Note: Psittacosis ("parrot fever") is caused by the obligate intracellular bacterium *C. psittaci*, which can infect a variety of mammalian, avian, and reptilian species (*1*). Inhalation of infectious aerosols derived from feces, fecal dust, and secretions of *C. psittaci*-infected animals is believed to be the primary route of infection for most psittacosis patients; percutaneous exposure may be an alternate, but less important, route (*1–3*). Most cases of psittacosis are attributed to exposure to infected birds. The source birds can be asymptomatically infected (i.e., carriers) or can show signs of infection, such as anorexia, ruffled feathers, depression, and watery, green droppings.

*An avian disorder similar to pleurisy in mammals that is a common but nonspecific manifestation of psittacosis in turkeys.

TABLE 1. Confirmed cases of psittacosis among day-shift employees at plant A, by work area – North Carolina, October 1989

Work area	No. employees	No. cases	(%)	Relative risk*	95% CI†
Offal/truckwash	3	1	(33)	48.3	6.8–342.4
U.S. Department of Agriculture inspection	6	2	(33)	48.3	9.8–238.8
Evisceration	138	30	(22)	31.5	9.8–101.7
Live hang	26	2	(8)	11.2	2.0–63.9
Chilling	67	1	(1)	1.0	
Cut-up/debone	187	2	(1)	1.0	
Other	181	0		1.0	
Total	**608**	**38**	**(6)**		

*The "chilling," "cut-up/debone," and "other" turkey handling departments were the reference group for comparison.
†Confidence interval.

Psittacosis – Continued

Psittacosis is a rarely reported mild illness with no specific signs and symptoms, most often occurring as a sporadic illness in persons having contact with infected cage birds. Occasionally, clusters of cases occur among workers at poultry processing plants or in other settings (*1,2*). The diagnosis can be established with certainty only by paired serologic testing or identification of the organism by culture. In North Carolina, the nation's largest turkey-producing state (>50 million turkeys produced each year), fewer than 10 cases of psittacosis per year have been reported in the past 10 years; most cases were related to pet bird exposure.

The clinical and epidemiologic findings of the North Carolina study are comparable to those in other reported outbreaks (*1,3*). This report demonstrates that poultry workers having contact with turkey viscera and feces or with live birds are at greatest risk for psittacosis. However, it also supports a recent report from Minnesota (*3*) in which defeathered, eviscerated, and chilled turkey carcasses may transmit psittacosis. In addition, in both of these outbreaks, the incubation period for psittacosis was longer than the 4–14 days commonly cited (*1,2*).

The principal strategies for the elimination of psittacosis outbreaks among poultry workers are reducing *C. psittaci* infection in the flocks and protecting workers from exposure to the organism, even if they work with infected birds. Raising turkey flocks in controlled, indoor environments would minimize the contact between domesticated fowl and *C. psittaci*-infected wild birds and animals, thereby reducing the risk for infection in the flocks. Testing of flocks for *C. psittaci* infection is difficult, time consuming, and nonspecific because the majority of strains isolated have no potential for causing human illness. Testing ill birds in flocks for *C. psittaci* infection and treating infected flocks with chlortetracycline according to USDA regulations before slaughter may reduce worker exposure to this agent. Nevertheless, birds can remain asymptomatically infected after treatment (*4*) and can transmit infection at slaughter to humans.

As a result of the North Carolina outbreak, the management of plant A initiated an ongoing program of increased flock surveillance for ill turkeys. A short-term program of culturing flocks raised on open land for *Chlamydia* species and necropsy of any dead birds was also initiated. When chlamydial infection was detected, the implicated flocks were treated with chlortetracycline according to USDA regulations, and plant A employees were strongly encouraged to wear paper face masks when these flocks were processed.

The use of respiratory protection approved by the Mine Safety and Health Administration and by CDC's National Institute for Occupational Safety and Health (NIOSH) may further reduce the inhalation risk of exposure to infectious *Chlamydia* aerosols (*5,6*). However, no research-based information exists on which to recommend an appropriate class of respirator.

References

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Psittacosis — Continued

5. Office of the Federal Register. Code of federal regulations: occupational safety and health standards. Subpart I. Personal protective equipment. Washington, DC: Office of the Federal Register, National Archives and Records Administration, 1983. (29 CFR § 1910.134).
6. NIOSH. Guide to industrial respiratory protection. Cincinnati, Ohio: US Department of Health and Human Services, Public Health Service, CDC, 1987; DHHS publication no. (NIOSH)87-116.

Notices to Readers

Clarification: Vol. 39, No. RR-7

After publication of the *MMWR Recommendations and Reports* entitled *Prevention and Control of Influenza: Recommendations of the Immunization Practices Advisory Committee (ACIP)* (*1*), Table 1 was modified to clarify that, as in previous years, only split-virus vaccines should be given to children ≤12 years of age. The change from previous ACIP recommendations is that children 9–12 years of age may receive one dose of vaccine rather than the previously recommended two doses.

Reference

1. ACIP. Prevention and control of influenza: recommendations of the Immunization Practices Advisory Committee (ACIP). MMWR 1990;39(no. RR-7):4.

TABLE 1. Influenza vaccine* dosage, by patient age — United States, 1990–91 season

Age group	Product†	Dosage	No. doses	Route§
6–35 mos.	Split virus only	0.25 mL	1 or 2¶	IM
3–8 yrs.	Split virus only	0.50 mL	1 or 2¶	IM
9–12 yrs.	Split virus only	0.50 mL	1	IM
>12 yrs.	Whole or split virus	0.50 mL	1	IM

*Contains 15 μg each of A/Taiwan/1/86-like (H1N1), A/Shanghai/16/89(H3N2), and B/Yamagata/16/88-like hemagglutinin antigens in each 0.5 mL. Manufacturers include: Connaught Laboratories, Inc. (distributed by E.R. Squibb & Sons, Inc.) (Fluzone® whole or split); Evans Medical Ltd.-Lederle Laboratories (distributed by Lederle Laboratories) (Flu-Imune® purified surface antigen vaccine); Parke-Davis (Fluogen® split); and Wyeth-Ayerst Laboratories (Influenza Virus Vaccine, Trivalent® split). For further product information call Connaught, (800) 822-2463; Lederle, (800) 533-3753; Parke-Davis, (800) 223-0432; Wyeth-Ayerst, (800) 950-5099.

†Because of the lower potential for causing febrile reactions, only split-virus vaccines should be used in children. They may be labeled as "split," "subvirion," or "purified-surface-antigen" vaccine. Immunogenicity and side effects of split- and whole-virus vaccines are similar in adults when vaccines are used at the recommended dosage.

§The recommended site of vaccination is the deltoid muscle for adults and older children. The preferred site for infants and young children is the anterolateral aspect of the thigh.

¶Two doses are recommended for children <9 years of age who are receiving influenza vaccine for the first time.

Rabies and Rickettsial Diseases Hotline

CDC's Viral and Rickettsial Zoonoses Branch, Division of Viral and Rickettsial Diseases, Center for Infectious Diseases, now has a 24-hour-a-day automated telephone system that provides information to the public on rabies, Rocky Mountain spotted fever, and human ehrlichiosis. Menu options include information on animal and tick bites, requests for written information, rabies prevention recommendations for international travelers, and the procedure for reporting rabies vaccine reactions. To access this information, call the CDC Information Hotline at (404) 332-4555.

The *Morbidity and Mortality Weekly Report* is prepared by the Centers for Disease Control, Atlanta, Georgia, and available on a paid subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, (202) 783-3238.

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.

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