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MORBIDITY AND MORTALITY WEEKLY REPORT

International Notes

Pregnancy Rates Following Sterilization Procedures — Singapore

A recent study in Singapore of women who had undergone sterilization procedures and subsequently became pregnant indicates that ligation via minilaparotomy (a small abdominal incision) is significantly more effective in preventing pregnancy than the 3 other most common methods of sterilization (Table 1). The 24-month cumulative pregnancy rate using life table analysis (*1*) for women sterilized by minilaparotomy was 0.3 per 100; this was significantly lower than the pregnancy rates for culdoscopic, vaginal, and laparascopic approaches, which were 1.7, 3.1, and 4.5 respectively. (The pregnancy rates for the last 3 procedures did not vary significantly.)

TABLE 1. Estimated pregnancy rates per 100 women following sterilization procedures, by method of sterilization, Singapore, January 1974-March 1976

Surgical Approach	Number of Ligations (1970-1975)	Cumulative Pregnancy Rates		95% Confidence Interval (at 24 Mos.)
		12 Months	24 Months	
Abdominal (Minilaparotomies)	7,989	0.2	0.3	(0.2 - 0.5)
Culdoscopic	1,650	0.9	1.7	(0.9 - 2.4)
Vaginal	314	0.8	3.1	(1.8 - 9.2)
Laparoscopic	221	3.6	4.5	(1.2 - 6.4)

The study was conducted after an increasing number of pregnancies following sterilization were noted at a hospital in Singapore. A total of 10,174 women had been sterilized in the 6-year period of 1970-1975. From January 1974 to March 1975, 51 of these women returned to the hospital pregnant. These pregnancies were confirmed by laboratory tests or by histologic evidence of products of conception except for those that were carried to term.

The 4 surgical techniques used, by order of frequency of use, were:

1. Minilaparotomy — using modified Pomeroy ligation of each tubal isthmus;
2. Culdoscopy — usually involving excision of a portion of each ampulla;
3. Vaginal — usually involving fimbriectomies but performed without endoscopy; and
4. Laparoscopy — using cauterization of each tubal isthmus.

These procedures were performed in 54.6% of the women immediately postpartum, in 23.0% immediately following induced abortion, and in 22.4% more than 6 weeks after termination of pregnancy. The median age of these women was 31 and parity, 4. Of the 51 pregnancies, 8 (16%) were ectopic, and 43 (84%) were intrauterine. Five (31%) of the 16 pregnancies following minilaparotomy were ectopic, as were 3 of 20 following culdoscopic procedures; no ectopic pregnancies followed vaginal or laparoscopic procedures. Laparotomy findings of 35 women who underwent re-ligation showed that recanalization and the establishment of a fistulous opening caused the majority of failures.

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Editorial Note: This is the first large study of sterilization failures to determine pregnancy rates by the life table method of analysis (*2-4*), thus providing more precise and comparable estimates of pregnancy rates following sterilization procedures than previous studies (*5-6*).

Since virtually all pregnancies in this study occurred during the first 24 months after ligation, the effectiveness of female sterilization operations should be compared using at least 24-month cumulative pregnancy rates. This study suggests that the narrowest part of the tube, the isthmus, is the most effective sterilization site, while the distal end of the tube, the fimbria, is the least effective site for sterilization. Pregnancies following regeneration of the isthmus, however, may more likely be ectopic.

Other factors such as operators' skill, suture material, and timing of sterilization in relation to pregnancy, might have contributed to the results of this study. However, insufficient data were collected to permit analysis of their contribution to the failure rates.

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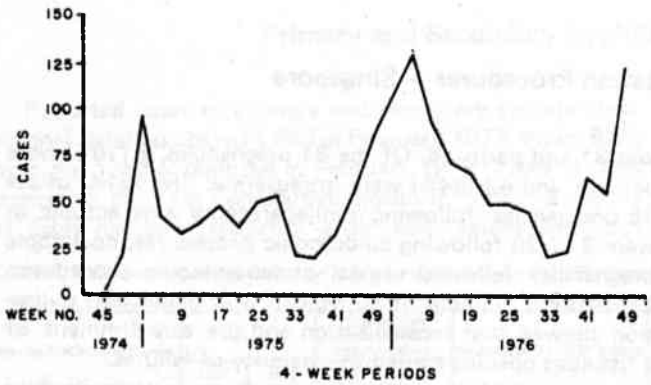
Rotavirus — United Kingdom

Rotavirus infections, identified by electron microscopy of feces, were first reported in the United Kingdom's Communicable Disease Report in November 1974. Although reports are received at all times of the year, there is a marked seasonable pattern, with peaks occurring in winter, commonly in January (Figure 1). This pattern cannot be explained by the increasing availability of diagnostic facilities or by an increasing interest in the infection.

FIGURE 1. Rotavirus, England and Wales, 1974-1976



Reported by the World Health Organization in the Weekly Epidemiological Record 52(11):97, 1977, as reprinted from the Public Health Laboratory Service: Communicable Disease Report, No. 2, January 14, 1977.

Editorial Note: Diarrhea caused by rotavirus (human reovirus-like agent) is not a reportable disease in the United States. Although first identified only 6 years ago (*1*), it has been found to be a major cause of acute diarrhea in many parts of the world. The virus seems to be most prevalent during the winter months, when it may account for over 70% of acute diarrhea in children 6 months to 2 years old (*2*). No successful tissue culture system for propagation of the virus has been found; diagnosis is generally made by observing the virus in fecal filtrates using direct electron microscopy. This technical difficulty in diagnosis is a serious obstacle to instituting broad surveillance.

References

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Table I. Summary—Cases of Specified Notifiable Diseases: United States

[Cumulative totals include revised and delayed reports through previous weeks]

DISEASE	16th WEEK ENDING		MEDIAN 1972–1976	CUMULATIVE, FIRST 16 WEEKS		
	April 23, 1977	April 24, 1976		April 23, 1977	April 24, 1976	MEDIAN 1972–1976
Aseptic meningitis	26	34	34	545	557	557
Brucellosis	4	2	2	50	70	36
Chickenpox	6,278	6,688	---	95,906	90,933	---
Diphtheria	4	6	6	26	94	75
Encephalitis: Primary	7	9	14	180	236	249
Encephalitis: Post-Infectious	7	3	7	44	83	80
Hepatitis, Viral: Type B	312	245	181	4,852	4,414	2,959
Hepatitis, Viral: Type A	625	697	774	10,161	10,970	13,595
Hepatitis, Viral: Type unspecified	144	146		2,900	2,730	
Malaria	5	8	8	102	98	85
Measles (rubeola)	2,197	1,579	1,143	25,039	16,492	13,096
Meningococcal infections, total	56	39	38	706	623	548
Civilian	56	38	38	701	618	533
Military	-	1	1	5	5	15
Mumps	574	1,136	2,153	9,327	20,181	26,475
Pertussis	15	9	---	197	323	---
Rubella (German measles)	798	383	869	9,613	5,772	6,624
Tetanus	2	2	2	13	11	18
Tuberculosis	558	716	---	8,932	9,852	---
Tularemia	2	-	1	22	29	28
Typhoid fever	5	5	5	109	101	97
Typhus, tick-borne (Rky. Mt. spotted fever)	2	9	2	27	23	20
Venereal Diseases:						
Gonorrhea: Civilian	16,669	17,387	---	281,386	294,696	---
Gonorrhea: Military	720	577	---	9,248	8,918	---
Syphilis, primary and secondary: Civilian	364	497	---	6,665	7,977	---
Syphilis, primary and secondary: Military	6	5	---	97	120	---
Rabies in animals	64	67	67	755	734	893

Table II. Notifiable Diseases of Low Frequency: United States

	CUM.		CUM.
Anthrax:	-	Poliomyelitis, total:	2
Botulism: *Mich. 45	64	Paralytic:	2
Congenital rubella syndrome:	2	Psittacosis: Calif. 1	18
Leprosy: Hawaii 2	35	Rabies in man:	-
Leptospirosis:	13	Trichinosis: Mass. 1, Wash 1	34
Plague:	1	Typhus, murine: Tex. 2.	15

*Delayed report: Botulism: Mo. 1

Table III

Cases of Specified Notifiable Diseases: United States

Weeks Ending April 23, 1977 and April 24, 1976 — 16th Week

AREA REPORTING	ASEPTIC MENINGITIS	BRUCELLOSIS	CHICKENPOX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS, VIRAL			MALARIA	
						Primary: Arthropod-borne and Unspecified		Post Infectious	Type B	Type A	Type Unspecified		
	1977	1977	1977	1977	CUM. 1977	1977	1976	1977	1977	1977	1977	1977	CUM. 1977
UNITED STATES	26	4	6,278	4	26	7	9	7	312	625	144	5	102
NEW ENGLAND	–	1	734	–	–	–	–	–	14	11	6	–	5
Maine	–	–	13	–	–	–	–	–	–	–	–	–	–
New Hampshire	–	–	2	–	–	–	–	–	1	2	–	–	–
Vermont	–	–	1	–	–	–	–	–	1	–	–	–	1
Massachusetts	–	–	298	–	–	–	–	–	1	4	5	–	2
Rhode Island	–	–	170	–	–	–	–	–	3	–	–	–	1
Connecticut	–	1	250	–	–	–	–	–	8	5	1	–	1
MIDDLE ATLANTIC	8	–	428	–	5	1	–	1	61	64	19	1	24
Upstate New York*	1	–	149	–	–	–	–	–	11	25	2	–	6
New York City	–	–	209	–	5	–	–	–	20	5	4	–	13
New Jersey	5	–	NN	–	–	1	–	–	13	13	13	–	3
Pennsylvania	2	–	70	–	–	–	–	1	17	21	–	1	2
EAST NORTH CENTRAL	1	–	2,678	–	–	3	1	1	50	109	4	1	7
Ohio	1	–	120	–	–	1	–	–	14	33	–	–	4
Indiana	–	–	219	–	–	–	–	–	1	3	–	–	–
Illinois	–	–	748	–	–	–	–	–	13	39	1	–	1
Michigan	–	–	968	–	–	2	1	1	17	27	3	1	2
Wisconsin	–	–	623	–	–	–	–	–	5	7	–	–	–
WEST NORTH CENTRAL	–	1	784	–	1	–	1	1	19	25	9	1	10
Minnesota	–	–	1	–	–	–	1	–	4	6	–	–	4
Iowa	–	–	286	–	–	–	–	–	3	5	–	–	–
Missouri*	–	–	139	–	1	–	–	–	7	6	7	1	4
North Dakota	–	–	19	–	–	–	–	–	–	1	–	–	–
South Dakota	–	–	19	–	–	–	–	–	1	1	1	–	1
Nebraska	–	–	64	–	–	–	–	–	3	4	1	–	–
Kansas	–	1	256	–	–	–	–	1	1	2	–	–	1
SOUTH ATLANTIC	5	–	366	–	–	–	–	1	34	52	23	–	18
Delaware	–	–	8	–	–	–	–	–	1	–	–	–	–
Maryland*	–	–	40	–	–	–	–	–	12	4	3	–	6
District of Columbia	–	–	3	–	–	–	–	–	–	–	–	–	1
Virginia	1	–	20	–	–	–	–	1	2	2	3	–	3
West Virginia*	–	–	124	–	–	–	–	–	–	3	1	–	–
North Carolina	2	–	NN	–	–	–	–	–	10	7	9	–	4
South Carolina	–	–	15	–	–	–	–	–	–	2	–	–	–
Georgia	–	–	–	–	–	–	–	–	4	15	–	–	1
Florida*	2	–	156	–	–	–	–	–	5	19	7	–	3
EAST SOUTH CENTRAL	1	1	13	–	–	–	2	3	20	53	5	–	3
Kentucky	–	–	7	–	–	–	1	1	11	8	2	–	3
Tennessee	1	1	NN	–	–	–	–	1	6	30	1	–	–
Alabama	–	–	4	–	–	–	–	1	2	6	2	–	–
Mississippi	–	–	2	–	–	–	1	–	1	9	–	–	–
WEST SOUTH CENTRAL	3	1	465	–	1	–	–	–	12	59	27	–	6
Arkansas*	–	–	8	–	–	–	–	–	–	–	1	–	–
Louisiana	–	1	NN	–	–	–	–	–	4	6	5	–	–
Oklahoma*	–	–	58	–	–	–	–	–	2	13	2	–	–
Texas	3	–	399	–	1	–	–	–	6	40	19	–	6
MOUNTAIN	1	–	259	–	1	–	3	–	17	63	9	1	6
Montana*	–	–	31	–	–	–	1	–	–	1	1	–	–
Idaho*	–	–	23	–	–	–	–	–	–	2	–	–	–
Wyoming	–	–	5	–	–	–	–	–	1	–	–	1	1
Colorado	1	–	176	–	–	–	–	–	7	11	5	–	4
New Mexico	–	–	–	–	–	–	–	–	1	15	–	–	–
Arizona	–	–	NN	–	1	–	–	–	5	22	2	–	1
Utah	–	–	22	–	–	–	–	–	3	12	1	–	–
Nevada	–	–	1	–	–	–	2	–	–	–	–	–	–
PACIFIC	7	–	552	4	18	3	2	–	85	189	42	1	23
Washington	–	–	516	4	17	1	1	–	1	12	–	–	–
Oregon	–	–	4	–	–	–	–	–	8	16	–	–	1
California*	6	–	–	–	–	2	1	–	75	121	42	1	18
Alaska*	–	–	13	–	1	–	–	–	1	40	–	–	–
Hawaii	1	–	19	–	–	–	–	–	–	–	–	–	4
Guam*	NA	NA	NA	NA	–	NA	–	–	–	NA	NA	NA	–
Puerto Rico	–	–	16	–	–	–	–	–	4	14	–	–	–
Virgin Islands	–	–	3	–	–	–	–	–	–	–	2	–	–

NA: Not available
NN: Not notifiable

*Delayed reports: Asep. Meng.: Idaho add 1 (1976), Ark. add 1 (1977); Bruc.: Idaho add 2 (1976), Mo. delete 1 (1977); Chickenpox: Idaho add 9 (1976),NY St. add 1534,Okla. add 30, Calif. add 53, Guam add 3 (1977); Hep. B: Fla. delete 6, Ark. add 1, Okla. add 2, Alaska add 1, Guam add 2 (1977); Hep. A: Idaho delete 27 (1976), Md. add 4, W.Va. delete 1, Fla. delete 4, Ark. add 1, Okla. add 27, Mont. delete 1, Guam add 1 (1977); Hep. unsp: Fla. delete 2, Okla. add 5, Alaska delete 1, Guam add 2 (1977).

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending April 23, 1977 and April 24, 1976 — 16th Week

REPORTING AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1977	CUMULATIVE		1977	CUMULATIVE		1977	CUM. 1977	1977	1977	CUM. 1977	CUM. 1977
		1977	1976		1977	1976						
UNITED STATES	2,197	25,039	16,492	56	706	624	574	9,327	15	798	9,613	13
NEW ENGLAND	105	1,226	136	3	35	29	7	433	1	57	447	-
Maine	-	3	3	-	2	-	-	30	-	-	13	-
New Hampshire*	9	306	3	-	3	2	-	65	1	3	86	-
Vermont	13	236	-	-	3	2	-	5	-	3	53	-
Massachusetts*	34	334	2	1	9	8	3	76	-	24	178	-
Rhode Island	-	6	14	-	-	4	-	34	-	-	13	-
Connecticut	49	341	114	2	18	13	4	223	-	27	104	-
MIDDLE ATLANTIC	398	3,340	3,677	6	98	77	40	585	2	194	2,545	-
Upstate New York	115	1,000	1,439	1	28	29	4	98	2	128	1,444	-
New York City	21	144	155	1	18	18	20	239	-	26	162	-
New Jersey	5	77	341	-	23	12	9	146	-	27	790	-
Pennsylvania	257	2,119	1,742	4	29	18	7	102	-	13	149	-
EAST NORTH CENTRAL	234	5,633	6,469	4	69	81	164	3,268	2	121	2,135	-
Ohio	5	323	223	1	29	32	10	462	-	40	569	-
Indiana	113	2,768	1,204	-	7	4	6	180	-	25	646	-
Illinois	64	597	645	-	8	8	35	393	-	12	162	-
Michigan	5	585	2,375	1	17	31	65	1,124	2	30	530	-
Wisconsin	47	1,360	2,022	2	8	6	48	1,109	-	14	228	-
WEST NORTH CENTRAL	616	4,780	323	2	48	47	229	2,361	1	36	307	2
Minnesota	229	921	124	1	18	11	-	3	-	-	9	-
Iowa	197	2,617	8	-	2	8	66	1,083	-	12	111	-
Missouri*	55	454	6	-	21	11	129	562	1	5	27	1
North Dakota	-	4	1	-	1	1	-	7	-	1	1	-
South Dakota	-	10	1	-	4	2	5	55	-	-	-	-
Nebraska	-	85	40	-	-	3	-	19	-	-	1	-
Kansas	135	689	143	1	2	11	29	632	-	18	158	1
SOUTH ATLANTIC	125	1,428	1,102	13	155	125	17	361	1	213	1,036	4
Delaware	-	19	109	-	2	2	1	67	-	2	16	-
Maryland	6	128	517	1	11	9	1	23	-	-	-	-
District of Columbia	-	1	3	-	-	2	3	5	-	-	-	-
Virginia	78	827	147	-	9	12	1	42	1	137	326	1
West Virginia	8	63	104	-	8	4	3	92	-	7	60	-
North Carolina	2	26	-	3	40	22	2	17	-	23	350	-
South Carolina	4	116	2	2	14	22	-	0	-	-	152	-
Georgia	17	223	-	-	28	11	-	8	-	6	41	-
Florida*	10	25	220	7	43	41	6	98	-	38	91	3
EAST SOUTH CENTRAL	94	622	378	7	79	45	11	464	-	64	1,436	1
Kentucky	48	169	359	2	19	5	1	67	-	2	33	1
Tennessee	43	382	5	3	22	20	8	260	-	62	1,363	-
Alabama	-	55	-	2	25	15	1	124	-	-	37	-
Mississippi	3	16	14	-	13	5	1	13	-	-	3	-
WEST SOUTH CENTRAL	161	1,396	365	14	128	98	33	765	-	23	475	3
Arkansas	-	1	-	-	7	3	3	11	-	-	1	-
Louisiana	-	56	26	-	42	14	1	28	-	-	9	1
Oklahoma*	2	43	217	-	3	17	11	294	-	1	21	-
Texas	159	1,296	122	14	76	64	18	432	-	22	444	2
MOUNTAIN	70	1,399	3,161	-	17	22	31	391	6	8	251	-
Montana*	37	835	125	-	2	2	-	2	-	-	7	-
Idaho*	-	28	1,299	-	1	1	7	77	-	-	-	-
Wyoming	-	1	-	-	1	-	-	-	-	1	2	-
Colorado*	8	355	132	-	1	9	23	181	4	1	191	-
New Mexico	2	8	8	-	5	1	-	77	-	5	6	-
Arizona	9	99	201	-	6	5	-	-	-	-	-	-
Utah	-	5	1,379	-	-	4	1	53	1	-	41	-
Nevada	14	68	17	-	1	-	-	1	1	1	4	-
PACIFIC	394	5,215	881	7	77	100	42	699	2	82	981	3
Washington	44	301	91	-	11	18	10	153	1	20	250	-
Oregon	3	112	39	1	7	9	5	140	-	2	58	-
California	347	4,748	749	4	47	67	27	381	1	60	667	3
Alaska*	-	48	-	2	11	4	-	17	-	-	-	-
Hawaii	-	6	2	-	1	2	-	8	-	-	6	-
Guam*	NA	3	6	-	-	1	NA	-	NA	NA	3	-
Puerto Rico	18	288	81	-	-	2	27	242	2	2	13	3
Virgin Islands	3	9	3	-	-	-	8	143	-	-	-	-

NA: Not available

*Delayed reports: Measles: N. Hamp. add 19, Mass. delete 7, Mo. add 5, Okla. add 2, Mont. delete 1, Alaska add 8 (1977); Men. Inf.: Idaho delete 1(1976), Okla. add 1 (1977); Mumps: Idaho delete 3 (1976), N. Hamp. add 1, Okla. add 18, Guam add 1(1977); Pertussis: Fla. delete 1, Colo. add 7 (1977); Rubella: Idaho delete 1 (1976)

Table III-Continued
Cases of Specified Notifiable Diseases: United States
Weeks Ending April 23, 1977 and April 24, 1976 — 16th Week

REPORTING AREA	TUBERCULOSIS		TULAREMIA	TYPHOID FEVER		TYPHUS-FEVER TICK-BORNE (RMSF)		VENEREAL DISEASES (Civilian Cases Only)						RABIES IN ANIMALS
								GONORRHEA			SYPHILIS (Pri. & Sec.)			
	1977	CUM. 1977	CUM. 1977	1977	CUM. 1977	1977	CUM. 1977	1977	CUMULATIVE 1977	CUMULATIVE 1976	1977	CUMULATIVE 1977	CUMULATIVE 1976	CUM. 1977
UNITED STATES	558	8,932	22	5	109	2	27	16,669	281,386	295,483	364	6,665	7,962	755
NEW ENGLAND	23	327	1	1	6	–	–	455	7,427	8,126	12	244	232	11
Maine	1	26	–	–	–	–	–	16	592	681	–	7	8	11
New Hampshire	–	8	–	–	–	–	–	16	287	203	–	1	3	–
Vermont	1	15	–	–	–	–	–	13	186	169	1	4	2	–
Massachusetts	18	175	1	1	4	–	–	230	3,279	3,831	9	182	168	–
Rhode Island	1	21	–	–	1	–	–	39	551	563	1	3	10	–
Connecticut	2	82	–	–	1	–	–	141	2,532	2,679	1	47	41	–
MIDDLE ATLANTIC	113	1,433	–	–	21	–	2	1,639	31,256	31,686	46	955	1,367	9
Upstate New York*	12	222	–	–	3	–	2	203	4,634	5,033	3	83	88	8
New York City	23	480	–	–	8	–	–	600	13,728	13,653	33	600	885	–
New Jersey*	41	364	–	–	9	–	–	317	4,882	5,166	5	128	187	1
Pennsylvania	37	367	–	–	2	–	–	519	8,012	7,834	5	144	207	–
EAST NORTH CENTRAL	124	1,491	2	–	13	–	–	2,339	41,483	47,978	28	739	747	21
Ohio*	15	232	1	–	5	–	–	403	10,088	12,005	6	185	172	–
Indiana	12	169	–	–	–	–	–	232	3,681	4,129	3	51	38	1
Illinois	60	572	–	–	1	–	–	991	14,157	17,689	10	394	407	4
Michigan*	37	457	–	–	7	–	–	583	9,510	9,710	3	75	91	2
Wisconsin	–	61	1	–	–	–	–	230	4,047	4,445	6	34	39	14
WEST NORTH CENTRAL	23	299	3	–	8	–	2	863	14,694	14,883	5	148	151	165
Minnesota	4	61	–	–	1	–	–	150	2,612	2,846	1	48	35	64
Iowa	1	27	–	–	–	–	–	146	1,812	1,937	–	11	18	22
Missouri*	13	125	2	–	4	–	1	314	6,176	5,699	4	54	58	15
North Dakota	–	9	–	–	–	–	–	26	252	230	–	–	–	20
South Dakota	–	13	1	–	–	–	–	32	401	440	–	1	2	32
Nebraska	2	13	–	–	–	–	–	59	1,162	1,267	–	16	13	–
Kansas	3	51	–	–	3	–	1	136	2,279	2,464	–	18	25	12
SOUTH ATLANTIC	107	2,037	7	1	16	1	12	3,979	67,287	71,138	130	1,925	2,316	84
Delaware	–	16	–	–	–	–	–	70	843	1,001	1	13	21	–
Maryland*	23	311	1	–	–	–	–	460	8,451	9,889	9	127	207	–
District of Columbia*	9	101	–	–	–	–	–	296	4,039	4,906	21	210	191	–
Virginia*	11	220	–	–	5	–	2	502	7,150	7,545	11	190	209	2
West Virginia	2	81	–	1	3	–	–	58	920	898	–	1	14	3
North Carolina	11	347	1	–	1	1	8	394	10,019	10,534	14	281	476	2
South Carolina	18	196	2	–	–	–	–	539	6,299	6,394	2	82	121	–
Georgia*	15	233	3	–	–	–	2	919	13,299	13,306	25	351	255	60
Florida*	18	532	–	–	7	–	–	841	16,267	16,665	47	670	822	17
EAST SOUTH CENTRAL	32	779	1	–	1	–	5	1,820	24,573	26,579	9	210	329	29
Kentucky*	8	185	1	–	–	–	1	263	3,366	3,443	–	21	50	10
Tennessee	8	259	–	–	–	–	3	759	9,877	10,337	4	62	132	14
Alabama	8	209	–	–	1	–	1	622	6,827	7,512	2	42	65	5
Mississippi	8	126	–	–	–	–	–	176	4,503	5,287	3	85	82	–
WEST SOUTH CENTRAL	50	981	4	1	2	1	6	2,405	36,387	40,216	56	906	895	302
Arkansas	11	108	1	–	–	–	–	180	2,813	3,654	1	19	29	27
Louisiana	15	197	–	–	–	–	–	275	5,162	5,764	13	189	188	3
Oklahoma*	–	85	1	–	–	1	2	257	3,163	3,758	–	19	39	110
Texas*	24	591	2	1	2	–	4	1,693	25,249	27,040	42	679	639	162
MOUNTAIN	11	232	3	–	8	–	–	670	11,567	11,577	8	139	216	19
Montana	1	9	1	–	–	–	–	32	584	575	–	–	3	10
Idaho*	–	15	–	–	–	–	–	20	563	592	–	3	10	–
Wyoming	–	5	–	–	–	–	–	5	308	243	3	12	5	–
Colorado	–	33	2	–	6	–	–	187	2,981	2,886	2	40	55	–
New Mexico	4	41	–	–	–	–	–	91	1,710	2,331	–	24	58	–
Arizona	6	111	–	–	1	–	–	223	3,271	3,206	3	51	68	9
Utah	–	6	–	–	1	–	–	51	693	662	–	4	3	–
Nevada	–	12	–	–	–	–	–	61	1,457	1,082	–	5	14	–
PACIFIC	75	1,353	1	2	34	–	–	2,499	46,712	43,300	70	1,399	1,709	115
Washington	NA	60	–	–	1	–	–	190	3,446	3,626	NA	49	45	–
Oregon*	7	59	–	–	2	–	–	301	3,518	3,245	2	45	50	–
California	60	1,023	1	2	30	–	–	1,881	37,268	34,324	68	1,286	1,579	106
Alaska	–	16	–	–	–	–	–	80	1,485	1,246	–	6	4	9
Hawaii*	8	195	–	–	1	–	–	47	995	859	–	13	31	–
Guam*	NA	17	–	NA	1	NA	–	NA	73	141	NA	1	1	–
Puerto Rico	15	106	–	–	2	–	–	61	902	829	9	178	172	10
Virgin Islands	–	1	–	–	–	–	–	4	48	87	–	1	27	–

NA: Not available

*Delayed reports: TB: Md. delete 2 (1976), Mo. delete 1, Fla. delete 1, Ky. delete 1, Okla. add 8, Guam add 2 (1977); Tularemia: Idaho add 3 (1976); RMSF: Ark. add 1, Okla. add 4 (1977); GC: N.J. delete 208, Ohio delete 512, Mich. add 169, Va. add 938, Ga. delete 180, Okla. delete 62, Idaho add 35, Ore. add 449, Hawaii delete 506 (1976), NY St. delete 66, Ohio add 508, D.C. add 666, Okla. add 200 civ. add 1 mil., Guam add 7 (1977); Syphilis: N.J. delete 26, Mich. add 18, Va. delete 10, Ga. add 266, Okla. delete 1, Ore. delete 3, Hawaii delete 8 (1976); An. rabies: Okla. add 6 (1977)

Table IV
Deaths in 121 United States Cities*
Week Ending April 23, 1977 — 16th Week

REPORTING AREA	ALL CAUSES					Pneumonia and Influenza
	ALL AGES	65 Years and Over	45-64 Years	25-44 Years	Under 1 Year	ALL AGES
NEW ENGLAND	620	372	172	35	18	41
Boston, Mass.	175	96	47	15	5	11
Bridgeport, Conn.	47	30	13	1	1	4
Cambridge, Mass.	19	17	1	1	-	-
Fall River, Mass.	19	13	4	2	-	2
Hartford, Conn.	43	21	18	2	2	3
Lowell, Mass.	29	19	6	2	-	2
Lynn, Mass.	16	11	4	1	-	-
New Bedford, Mass.	16	13	3	-	-	-
New Haven, Conn.	33	21	9	-	1	-
Providence, R.I.	72	36	23	5	5	10
Somerville, Mass.	12	7	5	-	-	1
Springfield, Mass.	52	32	14	3	1	1
Waterbury, Conn.	40	31	7	1	1	5
Worcester, Mass.	47	25	18	2	2	2
MIDDLE ATLANTIC	2,936	1,784	801	182	82	127
Albany, N. Y.	50	30	11	3	6	-
Allentown, Pa.	27	22	5	-	-	3
Buffalo, N. Y.	145	75	53	8	4	9
Camden, N. J.	33	13	14	3	1	1
Elizabeth, N. J.	33	23	8	1	-	3
Erie, Pa.	39	22	10	3	1	1
Jersey City, N. J.	54	40	6	3	4	2
Newark, N. J.	57	33	21	1	2	3
New York City, N. Y.	1,376	833	348	113	35	42
Paterson, N. J.	43	27	11	3	2	3
Philadelphia, Pa.	509	286	171	27	16	24
Pittsburgh, Pa.	168	98	53	7	7	11
Reading, Pa.	32	23	7	-	-	1
Rochester, N. Y.	121	84	26	3	1	10
Schenectady, N. Y.	32	19	11	-	-	-
Scranton, Pa.	38	26	12	-	-	1
Syracuse, N. Y.	71	50	13	4	1	3
Trenton, N. J.	58	41	14	2	-	5
Utica, N. Y.	18	16	2	-	-	4
Yonkers, N. Y.	32	23	5	1	2	1
EAST NORTH CENTRAL	2,481	1,443	680	169	91	74
Akron, Ohio	76	44	17	3	9	-
Canton, Ohio	41	27	11	2	1	1
Chicago, Ill.	617	322	173	58	30	12
Cincinnati, Ohio	154	94	47	6	2	6
Cleveland, Ohio	192	112	57	12	7	5
Columbus, Ohio	144	78	48	8	4	8
Dayton, Ohio	118	76	28	8	3	7
Detroit, Mich.	296	175	79	25	7	6
Evansville, Ind.	50	32	10	3	3	2
Fort Wayne, Ind.	45	29	10	4	-	2
Gary, Ind.	27	17	7	1	1	-
Grand Rapids, Mich.	41	21	16	2	1	-
Indianapolis, Ind.	192	112	55	15	3	7
Madison, Wis.	43	25	10	2	3	3
Milwaukee, Wis.	156	100	35	7	5	8
Peoria, Ill.	22	11	7	1	2	-
Rockford, Ill.	44	28	10	4	1	2
South Bend, Ind.	44	25	10	3	4	3
Toledo, Ohio	114	76	28	3	4	1
Youngstown, Ohio	65	39	22	2	1	1
WEST NORTH CENTRAL	762	483	176	44	28	25
Des Moines, Iowa	51	33	14	2	-	1
Duluth, Minn.	29	21	7	-	1	1
Kansas City, Kans.	39	25	11	1	-	3
Kansas City, Mo.	102	66	25	5	2	3
Lincoln, Nebr.	29	24	2	2	1	1
Minneapolis, Minn.	101	57	22	8	9	1
Omaha, Nebr.	75	47	20	1	5	2
St. Louis, Mo.	209	128	48	17	8	6
St. Paul, Minn.	71	50	15	1	-	-
Wichita, Kans.	56	32	12	7	2	7
SOUTH ATLANTIC	1,162	636	345	89	56	54
Atlanta, Ga.	147	69	56	13	6	4
Baltimore, Md.	173	90	49	21	7	3
Charlotte, N. C.	62	26	23	7	3	2
Jacksonville, Fla.	82	40	29	6	5	7
Miami, Fla.	88	56	23	3	1	6
Norfolk, Va.	49	22	14	4	4	5
Richmond, Va.	101	64	29	2	-	6
Savannah, Ga.	52	26	20	4	2	5
St. Petersburg, Fla.	88	72	14	1	1	2
Tampa, Fla.	73	44	20	4	4	5
Washington, D. C.	186	89	51	20	21	8
Wilmington, Del.	61	38	17	4	2	1
EAST SOUTH CENTRAL	753	426	189	57	44	45
Birmingham, Ala.	160	92	42	13	6	9
Chattanooga, Tenn.	33	21	8	-	2	3
Knoxville, Tenn.	66	44	15	3	3	1
Louisville, Ky.	116	67	25	7	8	12
Memphis, Tenn.	159	82	46	14	9	6
Mobile, Ala.	72	41	15	5	9	1
Montgomery, Ala.	41	21	15	2	2	4
Nashville, Tenn.	106	58	23	13	5	9
WEST SOUTH CENTRAL	1,092	595	307	100	51	35
Austin, Tex.	46	26	19	1	-	1
Baton Rouge, La.	40	22	11	5	-	-
Corpus Christi, Tex.	40	26	11	2	-	-
Dallas, Tex.	183	93	58	18	7	4
El Paso, Tex.	76	34	20	9	9	6
Fort Worth, Tex.	75	44	24	6	-	2
Houston, Tex.	151	69	44	18	8	-
Little Rock, Ark.	59	28	21	5	4	5
New Orleans, La.	135	69	34	17	13	2
San Antonio, Tex.	144	97	31	9	4	4
Shreveport, La.	50	32	8	5	1	3
Tulsa, Okla.	93	55	26	5	5	8
MOUNTAIN	585	338	152	43	24	20
Albuquerque, N. Mex.	64	33	17	4	6	6
Colorado Springs, Colo.	34	19	11	2	1	1
Denver, Colo.	108	61	33	4	8	5
Las Vegas, Nev.	46	23	15	6	1	-
Ogden, Utah	25	20	2	1	-	2
Phoenix, Ariz.	145	85	35	15	4	3
Pueblo, Colo.	17	10	5	-	1	1
Salt Lake City, Utah	64	36	17	4	2	1
Tucson, Ariz.	82	51	17	7	1	1
PACIFIC	1,598	1,018	394	82	49	64
Berkeley, Calif.	19	14	4	-	1	2
Fresno, Calif.	65	39	17	2	3	-
Glendale, Calif.	32	23	5	2	-	1
Honolulu, Hawaii	55	26	19	2	4	-
Long Beach, Calif.	100	64	30	4	1	3
Los Angeles, Calif.	485	317	114	25	15	26
Oakland, Calif.	62	47	12	2	1	4
Pasadena, Calif.	19	16	3	-	-	-
Portland, Oreg.	120	75	33	3	2	7
Sacramento, Calif.	66	36	20	3	3	3
San Diego, Calif.	128	82	29	6	9	4
San Francisco, Calif.	166	105	41	14	2	1
San Jose, Calif.	57	36	11	7	1	1
Seattle, Wash.	126	74	32	10	5	3
Spokane, Wash.	57	42	9	2	1	8
Tacoma, Wash.	41	22	15	-	1	1
TOTAL	11,989	7,095	3,216	801	443	485
Expected Number	11,722	7,170	3,034	733	373	460

*By place of occurrence and week of filing certificate. Excludes fetal deaths.

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Current Trends

Pesticide Contamination of Imported Flowers

An episode of suspected organophosphate poisoning due to exposure to pesticide residues in cut flowers was reported in October 1976 in Colorado florist employees by the Colorado State Department of Health. Florists exposed to flowers containing up to 22 ppm of Systox (demeton), a very toxic organophosphate, reported neurologic symptoms including diplopia, headaches, blurred vision, paresthesias, and muscle weakness (*1*). Although the implicated flowers could not be traced to their origin, a joint surveillance program by the Plant Protection and Quarantine Programs, U.S. Department of Agriculture (USDA) and CDC has since demonstrated potentially toxic levels of organophosphates in imported cut flowers.

TABLE 2. Imported flowers by type and % entering Miami (2)

Flower Type	% of Imports	% of Flower Type Entering Via Miami†
Carnations	58.0	97.0
Chrysanthemum pompons	33.0	100.0
Standard chrysanthemums	3.6	67.8
Daisies	2.9	59.0
Roses	1.8	82.8
Tulips	.5	unknown
Orchids	.2	unknown
Miscellaneous	1.0	unknown
Total	100.0	96.0

†Based on 4-week figures, November 20 – December 18, 1976

Because 96% of imported cut flowers enter the United States each year in Miami (Table 2), 105 lots of cut flowers were sampled there in January; 18 lots (17.1%) contained total pesticide residues* >5 ppm; 3 lots contained residues >400 ppm (Table 3). Fifty percent (9 of the 18 lots) were contaminated by Azodrin (monocrotophos), a moderately toxic organophosphate pesticide. High residues were found in chrysanthemum pompons, standard chrysanthemums, and carnations from 17 growers in Colombia and Guatemala; pompons had the highest level of contamination. Individuals handling these flowers, including 20 USDA flower and plant inspectors and 12 employees of the 2 largest wholesalers receiving the contaminated flowers, showed no objective evidence of acute organophosphate poisoning; their red blood cell and plasma cholinesterase levels were normal. Their exposure to contaminated flowers was less than that of the Colorado florists.

TABLE 3. Spectrum of pesticide levels detected (N=105)

Total Pesticide Concentration (ppm)	Number of Specimens	%
0-1	55	52.4
1-5	32	30.5
5-10	7	6.7
10+	11	10.5
Total	105	100.0

Three hundred fifty million flowers are imported each year into the United States; Europe and Canada together import a similar amount. Flowers originate primarily in South America, with Colombia accounting for 90% of the U.S. market (Table 4). Imported flowers must meet stringent USDA plant-disease and pest-importation restrictions, but no pesticide- or chemical-residue limitations. In food products, most pesticide residues are limited to <1 ppm (*4*).

TABLE 4. Flower imports by country, 52 weeks ending December 25, 1976 (3)

Country	Number of Flowers Imported into U. S.	% of Total Flower Imports
Colombia	316,898,000	90.4
Guatemala	13,904,000	4.0
Mexico	9,673,000	2.8
Netherlands	2,654,000	.8
Ecuador	1,021,000	.3
Costa Rica	639,000	.2
Australia	433,000	.1
Israel	274,000	.1
New Zealand	91,000	<.1

Reported by the Colorado Dept of Health; Health Program Office of the State of Florida, Dept of Health and Rehabilitative Services; New Jersey State Dept of Health; Plant Protection and Quarantine Programs, Animal and Plant Health Inspection Service, USDA; Div of Technical Services, and Div of Surveillance, Hazard Evaluation and Field Studies, National Institutes of Occupational Safety and Health; Bur of Tropical Diseases, Environmental Hazards Activity, Cancer and Birth Defects Div, Field Services Div, and Quarantine Div, Bur of Epidemiology, CDC.

Editorial Note: Organophosphate pesticides are fat soluble and can be absorbed through the skin. Numerous poisonings have resulted from dermal exposure (*5,6*). Individuals who handle large numbers of contaminated flowers could develop organophosphate toxicity, the systemic effects of which include widespread nervous system dysfunction due to cholinesterase inhibition.

The Miami-based study demonstrated the presence of potentially toxic pesticide residues on imported flowers, but did not document illness among those with occupational exposure to these contaminated flowers. Control of pesticide usage is the preferred method of reducing exposure to these compounds, and recommendations for decreasing pesticide contamination have been forwarded to foreign growers. USDA is taking steps to monitor and decrease residues, and CDC has sent information on the problem to the World Health Organization, U.S. florist representatives, foreign flower growers, and countries that import the flowers. Consideration should be given to the need for establishing cut-flower pesticide-residue limits.

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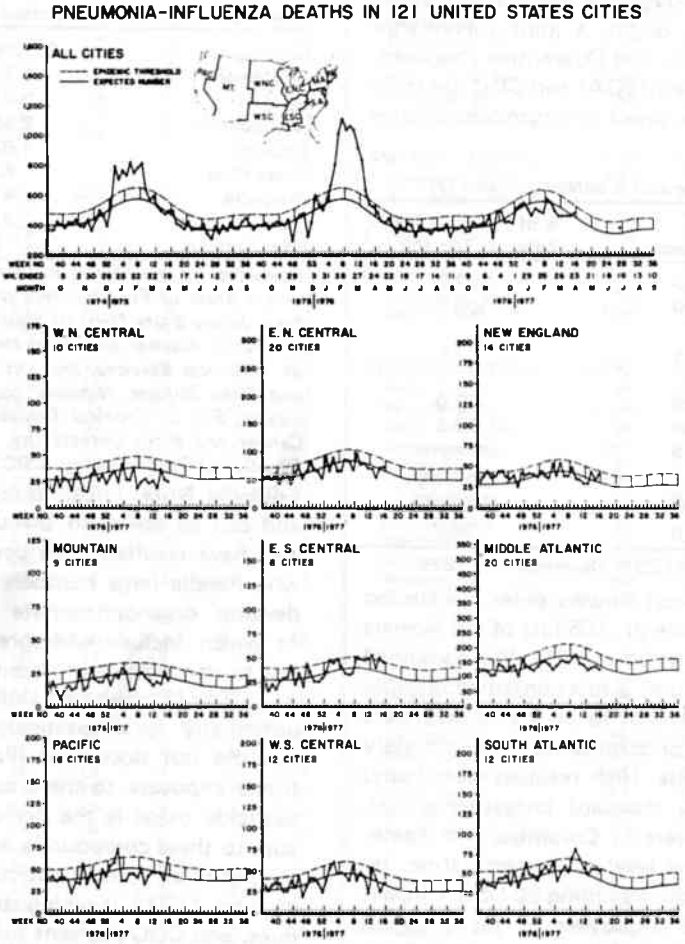
*Total pesticide residue = sum of all pesticides present in ppm.

Influenza — United States

Influenza activity has continued to decrease throughout the United States with only 3 states reporting recognized outbreaks of influenza illness for the week ending April 16. During that week, 8 states reported isolates of influenza B, including Oregon, where influenza B was isolated for the first time this year. A/Victoria/75-like isolates from sporadic cases were reported from 6 states. Pennsylvania reported A/Victoria/75-like isolates from a group of vacationers who became ill shortly after returning from Colorado in late March. Pneumonia and influenza mortality has been within the expected range for all regions in the United States, except for the Pacific Northwest, which has had a one-week elevation (Figure 2). Such one-week elevations are not uncommon, and they do not necessarily indicate extensive activity. Past experience has shown that mortality must be elevated for 2 consecutive weeks before a correlation with influenza activity is seen.

Reported by WE Parkin, DVM, Pennsylvania State Dept of Health; JA Googins, MD, Oregon State Health Division; and the National Influenza Immunization Program, CDC.

FIGURE 2. Pneumonia-influenza deaths in 121 United States cities



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