CENTERS FOR DISEASE CONTROL

October 25, 1985 / Vol. 34 / No. 42

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiologic Notes and Reports

Salmonellosis Associated with Carne Seca — New Mexico

During the second week of June 1985, the Scientific Laboratory Division of the New Mexico Health and Environment Department identified three isolates of an unusual serotype of *Salmonella, S. cerro* (group K), from residents of three counties in northern New Mexico. Only one previous human isolate of *S. cerro* had been reported in the state in 1985. Over the subsequent 6 weeks, 26 additional isolates were identified, all from a six-county region in north-central New Mexico. Twenty-seven (93%) of the 29 patients reported diarrheal illness. Onset of symptoms occurred between May 8 and July 2. Patients ranged in age from 0 to 58 years (median 26 years), and 17 (59%) were male. Seven of the patients were hospitalized; there were no fatalities.

A case-control study was conducted June 28 and June 29. A case was defined as a person with culture-confirmed *S. cerro.* Patients were excluded if another household member had reported a diarrheal illness with onset before that patient. Using a standardized questionnaire, the 10 persons meeting the case definition were interviewed for risk factors that included carne seca (beef jerky) as part of a food list. Thirty controls matched for age, sex, ethnicity, and neighborhood were also interviewed. Eight (80%) cases and nine (30%) controls reported eating carne seca during the week before onset of symptoms ($p = 0.008$). Two persons identified a specific brand of carne seca as the only brand eaten during the week before their illnesses. *S. cerro* was isolated from samples of this brand purchased from retail merchants in three cities. *Salmonella* was not isolated from any of the other brands tested.

The plant producing the contaminated product was inspected July 1. Preparation of the carne seca involved slicing partially thawed beef and then drying the beef in a passive solar drying room for 2-3 days. Before drying, some of the beef was marinated with a red or green chile marinade for 24 hours. The dried meat was then trimmed, weighed, and packaged on the premises. Gloves were used in processing the raw meat but not in trimming or packaging. No lot numbers were recorded on the packages. The manufacturer delivered the finished product directly to retailers. The average shelf time, based on sales records, was estimated at 1-2 weeks. Cultures of environmental surfaces were obtained at the time of the plant inspection. Thirty-four (40%) of 86 cultures were positive for *S. cerro,* including unprocessed, unwrapped beef, the red chile marinade, meat slicers, drying trays and racks, and packaging equipment.

Nine employees worked at the plant during the outbreak. Most usually ate the carne seca for lunch. Six of eight tested had stool cultures positive for *S. cerro.* In addition, stool cultures from the wife and two children of the plant owner were positive for *S. cerro.* All employees denied any recent diarrheal illness.

The manufacturer issued a voluntary recall of the carne seca on July 1. Fifteen of the 29 culture-confirmed cases were identified after the recall was initiated.

Salmonellosis — Continued

Reported by LJ Nims, MS, PA Gutierrez, MS, LW Hughes, PhD, Scientific Laboratory Div, JM Sheyka, MS, DD Fort, Environmental Improvement Div, MV Tanuz, Health Svcs Div, SP Castle, MPH, OJ Rollag, DVM, Office of Epidemiology, HF Hull, MD, State Epidemiologist, New Mexico Health and Environment Dept; Div of Field Svcs, Epidemiology Program Office, Enteric Diseases Br, Div Bacterial Diseases, Center for Infectious Diseases, CDC.

Editorial Note: *S. cerro* is a rare but widely distributed serotype in the United States, and represented less than 1% of the 35,862 human isolates reported to CDC in 1984. From 1968 to 1984, only four human isolates were reported in New Mexico.

Carne seca is a popular snack food prepared from sliced raw meat or fish that has been salted, seasoned, and dried. This is the third outbreak in New Mexico in which contaminated carne seca was identified as the vehicle for foodborne illness. In December 1966, 41 persons were infected with *S. thompson* related to contaminated, locally produced carne seca (*1*). In July 1982, four persons became ill with staphylococcal food poisoning after eating another locally produced carne seca (*2*).

Carne seca is generally considered a shelf-stable food because desiccation decreases the available water content limiting microbial growth (*3*). However, data evaluating the safety of carne seca preparation are limited (*4-6*). In this outbreak, the passive solar system used by the manufacturer to dry the carne seca was uncontrolled and investigation showed that it failed to maintain temperatures high enough to inhibit the growth of *Salmonella*. Successive batches of carne seca probably became contaminated through contact with contaminated equipment, red chile marinade, and drying racks. *Salmonella* was probably introduced into the plant about the first week of May, but its origin is unknown. Further replication was unlikely to have occurred after the drying process was complete.

This outbreak was recognized primarily because it involved an unusual serotype of *Salmonella*. Because there were no other obvious common links between affected individuals, an outbreak caused by a more common serotype could have gone unrecognized. In 1983, 66 isolates of *S. cerro* from nonhuman sources were reported to CDC and the U.S. Department of Agriculture. The two most common sources were bovine sources (21%) and animal feeds and protein supplements (20%) (*7*). Carne seca-associated outbreaks may be more common than formerly appreciated. Further efforts are necessary to establish guidelines for its safe production.

References

1. New Mexico Department of Public Health. Unpublished data, 1966.
2. Lapham SC. New Mexico Health and Environment Department. Unpublished data, 1982.
3. Banwart GJ. Basic food microbiology. Westport, Connecticut: AVI Publishing Co. Inc, 1979:125, 160.
4. Holley RA. Beef jerky: viability of food-poisoning microorganisms on jerky during its manufacture and storage. Journal of Food Protection 1985;48:100-6.
5. Delong D. How to dry foods. Tuscon, Arizona: HP Books, Inc., 1979:79-82, 150-5.
6. Holley RA. Beef jerky: fate of *Staphylococcus aureus* in marinated and corned beef during jerky manufacture and 2.5° C storage. Journal of Food Protection 1985;48:107-11.
7. CDC. *Salmonella* surveillance report, 1984.

Ethnic Differences in Survival Following Diagnosis of Breast Cancer — Hawaii

For 1960-1979, data from the Hawaii Tumor Registry were used to evaluate ethnic differences in survival following diagnosis of breast cancer (*1*). The 2,956 cases of invasive breast carcinoma diagnosed in women of five major ethnic groups in Hawaii (Caucasian, Japanese, Hawaiian/part Hawaiian, Chinese, Filipino) were classified as to survival status up to 60

Breast Cancer — Continued

months following diagnosis. Multivariate analysis was used to adjust simultaneously for age, marital status, socioeconomic status (SES), histology, and stage for each ethnic group. A covariate-adjusted relative risk (RR) of death in each ethnic group compared to one group used as a reference was calculated.

Japanese women in Hawaii experienced a longer survival rate than women in other ethnic groups in Hawaii (Table 1). Assigning Japanese a relative risk of 1.0 of dying within 5 years of diagnosis of breast cancer, Chinese were 18%; Caucasians, 34%; Filipinos, 124%; and Hawaiians, 151% more likely than Japanese to die within 5 years of diagnosis. By controlling for stage, the RR decreased considerably, although Filipinos and Hawaiians still had significantly poorer survival than the Japanese and the Caucasians. Further statistical adjustment of the data for differences in age at diagnosis and SES had little effect on survival. The addition of histology and marital status to the regression model did not result in further change in the RR.

Reported by L LeMarchand, MD, LN Kolonel, MD, AMY Nomura, MD, Cancer Research Center of Hawaii, University of Hawaii at Manoa; LP Boss, PhD, Cancer Control Applications Br, National Cancer Institute.

Editorial Note: Previous U.S. studies have suggested that Japanese experience the highest survival following diagnosis for breast cancer, and blacks and American Indians experience the lowest (*2*). Survival rates for other ethnic groups (Hawaiians; Chinese; white, non-Hispanics; Hispanics; and Filipinos) fall in between. However, studies comparing survival of persons from different geographic areas are difficult to interpret because of possible differences in criteria for staging, facilities for diagnosis, treatment, follow-up, variations in general health status, and other health practices. Because of reasonably standardized medical practices in Hawaii, such problems are minimized, and survival experiences of various ethnic groups can be more validly examined in that population (*1*).

Stage of disease at diagnosis is clearly the major determinant of survival. The control group of women in a major randomized trial who were not screened for but developed breast cancer experienced not only a lower survival rate than the screened intervention group but also a substantially lower 5-year survival rate for nonwhite women than for white women. This finding is consistent with experience in the general population. However, the study group that received periodic screening with mammography and palpation of the breast experienced no difference in survival rates for white and nonwhite women (*3*).

The American Cancer Society recommends that monthly breast self-examination begin at age 20 and that physical examination of the breast be done at 3-year intervals between the ages of 20 years and 40 years, and annually thereafter. A baseline mammogram should be

TABLE 1. Relative risk of dying within 5 years of breast cancer diagnosis — Hawaii, 1960-1979

	Relative risk with stated variables included in analysis		
Race	Race	Race + stage	Race + stage + age + SES
Japanese	1.00*	1.00*	1.00*
Caucasian	1.34†	1.04	1.03
Chinese	1.18	1.07	1.06
Filipino	2.24§	1.73¶	1.65†
Hawaiian	2.51§	1.71§	1.68§

*Reference category.

†$0.05 <= p < 0.01$.

§$p <= 0.001$.

¶$0.01 <= p < 0.001$.

Breast Cancer — Continued

taken between 35 years and 40 years, followed by annual or biennial mammograms from 40 years to 49 years, and annual mammograms for age 50 on (*4*).

References

1. LeMarchand L, Kolonel LN, Nomura AMY. Relationship of ethnicity and other prognostic factors to breast cancer survival patterns in Hawaii. J Natl Cancer Inst 1984;73:1259-65.
2. Young JL Jr, Ries LG, Pollack ES. Cancer patient survival among ethnic groups in the United States. J Natl Cancer Inst 1984;73:341-52.
3. Shapiro S, Venet W, Strax P, Venet L, Roeser R. Prospects for eliminating racial differences in breast cancer survival rates. Am J Public Health 1982;72:1142-5.
4. National Cancer Institute. The breast cancer digest. Bethesda, Maryland: National Cancer Institute, National Institutes of Health, U.S. Department of Health and Human Services, 1984; NIH publication no. 84-1691.

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

Disease	42nd Week Ending			Cumulative, 42nd Week Ending		
	Oct. 19, 1985	Oct. 20, 1984	Median 1980-1984	Oct. 19, 1985	Oct. 20, 1984	Median 1980-1984
Acquired Immunodeficiency Syndrome (AIDS)	163	98	N	6,464	3,314	N
Aseptic meningitis	296	296	296	7,816	6,512	7,454
Encephalitis: Primary (arthropod-borne & unspec.)	33	44	44	955	927	1,240
Post-infectious	-	-	1	104	100	77
Gonorrhea: Civilian	14,955	21,742	19,846	678,425	676,968	777,116
Military	516	422	465	14,644	17,299	21,686
Hepatitis: Type A	494	560	494	18,019	17,079	18,353
Type B	548	593	469	20,904	20,747	17,403
Non A, Non B	70	98	N	3,296	3,043	N
Unspecified	108	171	185	4,610	4,106	7,012
Legionellosis	18	12	N	515	532	N
Leprosy	-	4	4	285	188	188
Malaria	21	21	27	828	775	889
Measles: Total*	9	13	28	2,550	2,385	2,385
Indigenous	9	13	N	2,116	2,106	N
Imported	-	-	N	434	279	N
Meningococcal infections: Total	38	42	42	1,922	2,208	2,220
Civilian	38	42	42	1,919	2,204	2,205
Military	-	-	-	3	4	14
Mumps	34	55	69	2,404	2,420	3,597
Pertussis	136	48	42	2,417	1,965	1,398
Rubella (German measles)	3	12	25	567	640	1,856
Syphilis (Primary & Secondary): Civilian	514	617	694	20,646	22,535	24,874
Military	2	4	7	121	249	316
Toxic Shock syndrome	8	9	N	291	396	N
Tuberculosis	378	460	520	17,077	17,173	20,489
Tularemia	2	4	4	137	259	228
Typhoid fever	8	21	21	301	295	385
Typhus fever, tick-borne (RMSF)	9	13	9	622	771	1,050
Rabies, animal	101	131	109	4,319	4,429	5,170

TABLE II. Notifiable diseases of low frequency, United States

	Cum 1985		Cum 1985
Anthrax	-	Leptospirosis	29
Botulism: Foodborne	40	Plague	13
Infant (Calif. 1)	47	Poliomyelitis: Total	5
Other	1	Paralytic	5
Brucellosis (Ala. 1)	111	Psittacosis (Pa. 1, Minn. 1, Va. 1)	88
Cholera	3	Rabies, human (Tex. 1)	1
Congenital rubella syndrome	-	Tetanus (Va. 1)	54
Congenital syphilis, ages < 1 year	111	Trichinosis	51
Diphtheria	1	Typhus fever, flea-borne (endemic, murine)	20

*There were no cases of internationally imported measles reported for this week

TABLE III. Cases of specified notifiable diseases, United States, weeks ending October 19, 1985 and October 20, 1984 (42nd Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1985	1985	Cum. 1985	Cum. 1985	Cum. 1985	Cum. 1984	1985	1985	1985	1985	1985	Cum. 1985
UNITED STATES	6,464	296	955	104	678,425	676,968	494	548	70	108	18	285
NEW ENGLAND	218	23	25	-	18,333	18,538	17	57	1	8	3	6
Maine	10	1	-	-	930	798	-	1	-	-	-	-
N.H.	-	-	5	-	461	571	-	1	-	-	1	-
Vt.	1	1	-	-	265	302	-	-	-	-	-	-
Mass.	132	8	16	-	7,427	7,914	5	30	-	6	2	6
R.I.	12	5	-	-	1,477	1,308	-	5	-	1	-	-
Conn.	63	8	4	-	7,773	7,645	12	20	1	1	-	-
MID ATLANTIC	2,579	77	122	11	103,136	90,757	28	37	4	3	-	33
Upstate N.Y.	293	29	39	4	14,203	14,315	12	9	1	1	-	1
N.Y. City	1,745	7	13	-	50,436	35,953	-	-	-	1	-	28
N.J.	390	23	26	-	15,861	15,848	4	14	-	1	-	-
Pa.	151	18	44	7	22,636	24,641	12	14	3	-	-	4
E.N. CENTRAL	277	46	265	20	95,063	95,534	27	53	3	5	9	21
Ohio	44	16	123	4	25,283	25,107	8	20	-	1	7	3
Ind.	23	14	60	2	10,222	10,277	3	6	2	-	-	-
Ill.	146	-	14	8	23,002	21,551	8	9	-	3	-	16
Mich.	46	16	49	-	27,207	27,969	8	18	1	1	2	2
Wis.	18	-	19	6	9,349	10,630	-	-	-	-	-	-
W.N. CENTRAL	84	14	69	3	33,456	33,219	26	16	5	1	1	2
Minn.	27	4	32	1	4,980	5,032	9	6	4	-	-	1
Iowa	10	2	26	-	3,563	3,645	3	5	-	-	-	-
Mo.	35	5	-	-	16,137	15,870	-	5	-	-	1	1
N. Dak.	-	-	-	1	230	315	-	-	-	-	-	-
S. Dak.	1	2	-	-	649	789	10	-	-	-	-	-
Nebr.	3	-	5	-	2,842	2,386	2	-	1	1	-	-
Kans.	8	1	6	1	5,055	5,182	2	-	-	-	-	-
S. ATLANTIC	981	55	108	41	149,590	171,818	37	105	13	9	3	7
Del.	10	1	5	-	3,562	3,167	1	-	-	-	-	-
Md.	118	10	22	1	23,339	19,944	-	13	2	-	1	1
D.C.	142	1	-	-	12,635	12,307	-	-	-	-	-	-
Va.	83	12	24	6	15,600	16,441	5	9	4	1	1	-
W. Va.	5	6	26	-	2,145	2,153	3	2	-	-	-	-
N.C.	49	14	26	1	29,517	27,953	3	21	-	3	-	2
S.C.	24	1	5	-	17,799	17,434	-	6	-	-	-	-
Ga.	141	-	-	-	-	31,553	5	13	2	1	-	1
Fla.	409	10	-	33	44,993	40,866	20	41	5	4	1	3
E.S. CENTRAL	53	18	33	4	61,381	60,419	7	52	15	3	-	-
Ky.	14	5	14	-	7,034	7,295	2	10	-	1	-	-
Tenn.	15	2	6	-	23,489	24,654	1	10	-	-	-	-
Ala.	21	9	11	4	18,441	18,797	4	32	14	2	-	-
Miss.	3	2	2	-	12,417	9,673	-	-	1	-	-	-
W.S. CENTRAL	465	29	116	2	90,680	91,905	81	49	5	38	-	18
Ark.	6	-	3	1	8,643	8,461	4	2	-	1	-	1
La.	72	6	7	-	17,344	20,307	5	9	-	1	-	1
Okla.	15	4	23	1	9,899	10,102	8	2	1	3	-	-
Tex.	372	19	83	-	54,794	53,035	64	36	4	33	-	16
MOUNTAIN	121	10	38	6	22,402	22,154	80	38	10	13	2	7
Mont.	-	-	-	-	610	891	2	3	-	-	-	-
Idaho	-	-	-	-	767	1,084	8	1	-	-	-	-
Wyo.	-	U	1	-	513	611	U	U	U	U	U	-
Colo.	45	2	6	2	6,522	6,339	9	9	1	6	1	2
N. Mex.	12	1	3	-	2,514	2,644	8	1	1	-	-	-
Ariz.	42	4	15	-	6,681	6,023	38	18	5	6	1	1
Utah	13	2	10	4	1,071	1,052	5	3	2	1	-	3
Nev.	9	1	3	-	3,724	3,510	10	3	1	-	-	1
PACIFIC	1,686	24	179	17	104,384	92,624	191	141	14	28	-	151
Wash.	91	1	13	-	7,924	6,912	13	9	2	3	-	34
Oreg.	28	-	1	-	5,276	5,360	50	13	3	-	-	3
Calif.	1,546	22	141	17	87,355	76,548	128	114	9	25	-	135
Alaska	3	1	24	-	2,423	2,252	-	-	-	-	-	-
Hawaii	18	-	-	-	1,406	1,552	-	5	-	-	-	19
Guam	1	U	-	-	128	196	U	U	U	U	U	3
P.R.	68	U	5	2	2,542	2,736	U	U	U	U	U	2
V.I.	2	U	-	-	348	434	U	U	U	U	U	-
Pac. Trust Terr.	-	U	-	-	146	-	U	U	U	U	U	20

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending October 19, 1985 and October 20, 1984 (42nd Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported *		Total									
	Cum. 1985	1985	Cum. 1985	1985	Cum. 1985	Cum. 1984	Cum. 1985	1985	Cum. 1985	1985	Cum. 1985	Cum. 1984	1985	Cum. 1985	Cum. 1984
UNITED STATES	828	9	2,116	-	434	2,385	1,922	34	2,404	136	2,417	1,965	3	567	640
NEW ENGLAND	46	-	38	-	88	106	88	1	56	37	184	55	-	12	18
Maine	4	-	-	-	1	-	3	-	6	-	13	2	-	-	1
N.H.	4	-	-	-	-	36	14	-	10	35	101	8	-	2	1
Vt.	1	-	-	-	-	7	10	-	2	-	3	23	-	-	-
Mass.	22	-	34	-	84	49	15	-	16	1	44	15	-	6	16
R.I.	5	-	-	-	-	-	14	1	15	1	16	3	-	-	-
Conn.	10	-	4	-	3	14	32	-	7	-	7	4	-	4	-
MID ATLANTIC	135	5	177	-	39	154	338	4	273	6	159	162	-	220	218
Upstate N.Y.	46	-	71	-	14	36	129	3	147	2	75	96	-	17	99
N.Y. City	51	-	58	-	12	106	60	-	32	-	21	7	-	180	101
N.J.	14	-	17	-	10	7	52	1	35	3	10	12	-	9	17
Pa.	24	5	31	-	3	5	97	-	59	1	53	47	-	14	1
E.N. CENTRAL	52	-	435	-	90	695	330	4	865	4	504	466	-	29	87
Ohio	8	-	-	-	54	9	108	2	257	3	89	70	-	-	2
Ind.	4	-	55	-	2	3	43	-	37	-	147	229	-	1	5
Ill.	18	-	286	-	10	179	71	-	188	-	31	26	-	12	52
Mich.	16	-	37	-	23	464	80	2	301	1	44	28	-	15	20
Wis.	6	-	57	-	1	40	28	-	82	-	193	113	-	1	8
W.N. CENTRAL	28	-	1	-	10	56	98	1	73	2	182	117	-	19	39
Minn.	12	-	-	-	6	47	25	-	1	1	82	15	-	2	4
Iowa	2	-	-	-	-	-	9	-	13	-	28	10	-	1	1
Mo.	5	-	-	-	2	4	38	-	12	1	28	20	-	7	-
N. Dak.	2	-	-	-	2	-	4	-	4	-	9	-	-	2	3
S. Dak.	1	-	-	-	-	-	3	-	-	-	3	9	-	-	-
Nebr.	1	-	-	-	-	-	7	1	3	-	8	11	-	-	-
Kans.	5	-	1	-	-	5	12	-	40	-	24	52	-	7	31
S. ATLANTIC	96	1	273	-	30	54	375	5	225	3	333	200	-	55	24
Del.	-	-	-	-	-	-	10	-	1	-	1	2	-	1	-
Md.	22	1	99	-	9	22	52	-	28	-	131	60	-	6	1
D.C.	5	-	9	-	1	8	6	-	-	-	1	-	-	-	-
Va.	20	-	21	-	7	5	46	1	43	-	17	19	-	2	-
W. Va.	2	-	31	-	2	-	8	3	64	-	4	11	-	9	-
N.C.	8	-	9	-	-	-	52	1	14	2	27	32	-	1	-
S.C.	-	-	-	-	3	1	34	-	9	-	2	2	-	3	-
Ga.	9	-	8	-	-	1	63	-	28	1	90	17	-	4	2
Fla.	30	-	96	-	8	17	104	-	38	-	60	57	-	29	21
E.S. CENTRAL	11	-	-	-	7	6	88	-	28	1	50	14	-	3	12
Ky.	4	-	-	-	5	1	9	-	8	-	8	2	-	3	6
Tenn.	-	-	-	-	1	2	33	-	16	1	20	7	-	-	-
Ala.	6	-	-	-	-	3	26	-	1	-	18	1	-	-	3
Miss.	1	-	-	-	1	-	20	-	3	-	4	4	-	-	3
W.S. CENTRAL	77	2	418	-	15	555	158	3	257	68	410	298	2	36	54
Ark.	3	-	-	-	-	8	15	-	6	-	14	19	-	1	3
La.	1	-	42	-	-	8	23	-	2	1	13	8	-	-	-
Okla.	4	-	-	-	1	8	29	N	N	-	136	240	-	1	-
Tex.	69	2	376	-	14	531	91	3	249	67	247	31	2	34	51
MOUNTAIN	44	-	497	-	51	145	82	3	223	6	189	111	-	5	21
Mont.	-	-	122	-	17	-	5	-	11	-	9	19	-	-	-
Idaho	2	-	126	-	18	23	3	-	9	-	7	7	-	1	1
Wyo.	1	U	5	U	-	-	6	U	2	U	-	6	U	-	2
Colo.	14	-	6	-	7	6	22	1	21	2	74	39	-	-	2
N. Mex.	14	-	1	-	5	88	10	N	N	-	12	8	-	2	1
Ariz.	8	-	237	-	4	1	21	2	111	-	38	23	-	1	4
Utah	2	-	-	-	-	27	9	-	6	4	49	7	-	-	7
Nev.	3	-	-	-	-	-	6	-	63	-	-	2	-	1	4
PACIFIC	339	1	277	-	104	614	365	13	404	9	406	542	1	188	167
Wash.	23	1	69	-	39	140	62	1	34	2	71	306	-	14	1
Oreg.	12	-	4	-	1	-	34	N	N	3	43	28	-	1	2
Calif.	285	-	186	-	59	311	256	12	343	4	246	132	1	130	158
Alaska	2	-	-	-	-	-	9	-	9	-	29	1	-	1	1
Hawaii	17	-	18	-	5	163	4	-	18	-	17	75	-	42	5
Guam	1	U	10	U	1	90	-	U	5	U	-	-	U	2	4
P.R.	-	U	63	U	-	16	12	U	138	U	10	1	U	26	14
V.I.	-	U	4	U	6	-	-	U	3	U	-	-	U	-	-
Pac. Trust Terr.	-	U	-	U	-	-	-	U	3	U	-	-	U	-	-

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

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

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending October 19, 1985 and October 20, 1984 (42nd Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1985	Cum. 1984	1985	Cum. 1985	Cum. 1984	Cum. 1985	Cum. 1985	Cum. 1985	Cum. 1985
UNITED STATES	20,646	22,535	8	17,077	17,173	137	301	622 +10	4,319
NEW ENGLAND	476	430	-	586	522	3	11	8	20
Maine	13	7	-	39	21	-	-	-	-
N.H.	36	12	-	16	25	-	-	1	1
Vt.	5	1	-	7	7	-	-	-	1
Mass.	236	249	-	351	292	3	8	6	11
R.I.	14	16	-	47	44	-	-	1	-
Conn.	172	145	-	126	133	-	3	-	7
MID ATLANTIC	2,902	3,047	-	3,089	3,098	2	46	34+1	468
Upstate N.Y.	224	260	-	541	495	-	12	9	109
N.Y. City	1,758	1,877	-	1,505	1,260	1	24	5	-
N.J.	563	528	-	401	691	1	9	4	37
Pa.	357	382	-	642	652	-	1	16 1	322
E.N. CENTRAL	821	1,073	-	2,109	2,231	2	34	39 -1	158
Ohio	125	199	-	361	404	-	10	27 -1	27
Ind.	71	110	-	259	259	-	3	4	21
Ill.	381	384	-	921	935	1	13	6	34
Mich.	191	315	-	449	495	-	6	2	24
Wis.	53	65	-	119	138	1	2	-	52
W.N. CENTRAL	189	308	-	476	527	40	13	41	770
Minn.	39	81	-	104	89	1	6	-	150
Iowa	17	11	-	49	55	-	3	1	132
Mo.	101	154	-	227	258	25	3	7	45
N. Dak.	2	9	-	8	12	-	-	1	110
S. Dak.	5	-	-	26	21	8	-	2	259
Nebr.	6	14	-	11	29	2	1	3	32
Kans.	19	39	-	51	63	4	-	27	42
S. ATLANTIC	5,195	6,598	1	3,476	3,592	6	34	297 +6	1,122
Del.	33	17	-	28	47	1	-	3	1
Md.	353	412	-	310	341	-	11	26	562
D.C.	273	262	-	133	144	-	-	-	-
Va.	239	346	-	332	362	1	3	21 2	152
W. Va.	20	15	-	93	114	-	1	1	26
N.C.	555	677	-	431	528	4	4	125 2	11
S.C.	670	629	-	434	428	-	1	69	60
Ga.	-	1,129	-	585	564	-	3	45 1	173
Fla.	3,052	3,111	1	1,130	1,064	-	11	7 1	137
E.S. CENTRAL	1,777	1,591	-	1,467	1,614	8	5	68 +3	217
Ky.	55	83	-	350	376	-	1	11	30
Tenn.	523	401	-	426	464	6	2	31 1	65
Ala.	536	532	-	448	486	1	2	14	117
Miss.	663	575	-	243	288	1	-	12 2	5
W.S. CENTRAL	5,013	5,525	3	2,166	2,023	53	26	118 +1	712
Ark.	267	175	-	228	228	31	-	14	115
La.	875	987	-	321	275	-	-	2	17
Okla.	149	175	-	212	192	16	2	82 1	93
Tex.	3,722	4,188	3	1,405	1,328	6	24	20	487
MOUNTAIN	573	495	-	442	465	15	11	14	360
Mont.	6	3	-	46	17	4	-	6	170
Idaho	5	21	-	22	27	-	-	-	10
Wyo.	8	7	U	5	1	-	-	4	18
Colo.	145	138	-	52	55	2	4	2	24
N. Mex.	106	64	-	73	89	2	4	-	11
Ariz.	258	169	-	205	213	4	3	-	112
Utah	8	18	-	12	33	3	-	-	4
Nev.	37	75	-	27	30	-	-	2	11
PACIFIC	3,700	3,468	4	3,266	3,101	8	121	3	492
Wash.	80	133	1	199	156	-	1	-	4
Oreg.	84	96	-	107	126	1	5	-	4
Calif.	3,479	3,171	3	2,726	2,591	4	109	3	481
Alaska	4	5	-	81	51	3	2	-	3
Hawaii	53	63	-	153	177	-	4	-	-
Guam	2	-	U	30	44	-	-	-	-
P.R.	678	649	U	293	293	-	2	-	32
V.I.	3	9	U	1	4	-	52	-	-
Pac. Trust Terr.	13	-	U	16	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending October 19, 1985 (42nd Week)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	662	471	125	31	22	13	51
Boston, Mass.	164	103	42	7	7	5	16
Bridgeport, Conn.	39	24	8	3	2	2	2
Cambridge, Mass.	28	22	6	-	-	-	5
Fall River, Mass.	33	25	8	-	-	-	1
Hartford, Conn.	55	35	10	6	1	3	4
Lowell, Mass.	33	27	5	1	-	-	5
Lynn, Mass.	24	18	3	1	2	-	1
New Bedford, Mass.	25	17	4	3	1	-	-
New Haven, Conn.	45	32	8	2	2	1	2
Providence, R.I.	53	36	12	1	2	2	6
Somerville, Mass.	12	11	-	1	-	-	1
Springfield, Mass.	51	40	7	2	2	-	1
Waterbury, Conn.	36	28	5	2	1	-	5
Worcester, Mass.	64	53	7	2	2	-	2
MID ATLANTIC	2,846	1,890	572	237	61	84	115
Albany, N.Y.	50	40	5	-	2	3	2
Allentown, Pa.	12	9	2	1	-	-	-
Buffalo, N.Y.	118	82	29	3	-	3	5
Camden, N.J.	38	23	6	3	1	5	1
Elizabeth, N.J.	24	19	4	1	-	-	1
Erie, Pa.†	51	39	8	3	1	-	4
Jersey City, N.J.	42	29	10	2	1	-	-
N.Y. City, N.Y.	1,470	945	302	153	35	35	60
Newark, N.J.	61	34	11	14	1	-	1
Paterson, N.J.	20	14	2	2	-	2	1
Philadelphia, Pa.	511	339	105	32	11	24	23
Pittsburgh, Pa.†	73	51	17	-	4	1	-
Reading, Pa.	32	28	2	2	-	-	3
Rochester, N.Y.	119	86	24	6	1	2	8
Schenectady, N.Y.	20	15	2	2	-	1	1
Scranton, Pa.†	32	19	11	1	-	1	1
Syracuse, N.Y.	94	61	19	7	3	4	1
Trenton, N.J.	38	28	5	1	1	3	1
Utica, N.Y.	19	12	5	2	-	-	-
Yonkers, N.Y.	22	17	3	2	-	-	2
E.N. CENTRAL	2,265	1,615	349	143	59	98	93
Akron, Ohio	60	44	12	3	1	-	-
Canton, Ohio	35	28	5	1	1	-	2
Chicago, Ill.§	553	462	11	26	16	37	16
Cincinnati, Ohio	160	113	30	6	6	5	16
Cleveland, Ohio	138	78	35	14	6	5	4
Columbus, Ohio	128	85	27	7	5	4	2
Dayton, Ohio	137	92	26	9	4	6	2
Detroit, Mich.	255	152	60	28	6	9	6
Evansville, Ind.	36	25	4	6	1	-	1
Fort Wayne, Ind.	52	40	8	2	1	1	2
Gary, Ind.	19	16	1	2	-	-	-
Grand Rapids, Mich	46	38	7	-	-	1	5
Indianapolis, Ind.	154	105	31	6	1	11	2
Madison, Wis.	37	24	7	4	-	2	5
Milwaukee, Wis.	141	90	32	10	4	5	8
Peoria, Ill.	50	33	9	1	2	5	6
Rockford, Ill.	44	34	6	2	1	1	4
South Bend, Ind.	34	21	7	3	1	2	1
Toledo, Ohio	129	92	22	12	1	2	9
Youngstown, Ohio	57	43	9	1	2	2	2
W.N. CENTRAL	692	472	140	48	12	20	38
Des Moines, Iowa	67	46	17	3	-	1	3
Duluth, Minn.	28	19	9	-	-	-	1
Kansas City, Kans.	41	25	6	7	2	1	-
Kansas City, Mo.	107	74	23	6	3	1	7
Lincoln, Nebr.	32	26	2	3	-	1	2
Minneapolis, Minn.	87	51	19	8	4	5	-
Omaha, Nebr.	71	54	15	-	-	2	8
St. Louis, Mo.	128	91	17	11	3	6	5
St. Paul, Minn.	50	36	12	2	-	-	3
Wichita, Kans.	81	50	20	8	-	3	9
S. ATLANTIC	1,000	665	189	68	29	49	43
Atlanta, Ga. §	124	115	-	3	3	3	2
Baltimore, Md.	189	121	37	15	9	7	2
Charlotte, N.C.	80	42	24	7	1	6	4
Jacksonville, Fla.	82	51	20	3	3	5	4
Miami, Fla.	101	53	27	14	3	4	4
Norfolk, Va.	49	27	14	2	2	4	5
Richmond, Va.	79	56	15	4	2	2	8
Savannah, Ga.	21	16	5	-	-	-	1
St. Petersburg, Fla.	93	80	9	1	-	3	9
Tampa, Fla.	49	31	9	6	1	2	3
Washington, D.C.	98	46	23	12	4	13	1
Wilmington, Del.	35	27	6	1	1	-	-
E.S. CENTRAL	721	456	180	43	20	22	32
Birmingham, Ala.	112	62	31	10	4	5	3
Chattanooga, Tenn.	39	27	8	4	-	-	5
Knoxville, Tenn.	54	32	13	3	1	5	3
Louisville, Ky.	110	82	22	2	1	3	1
Memphis, Tenn.	197	117	55	17	7	1	11
Mobile, Ala.	66	41	15	4	3	3	3
Montgomery, Ala.	37	21	13	1	2	-	1
Nashville, Tenn.	106	74	23	2	2	5	5
W.S. CENTRAL	1,309	886	217	89	49	68	59
Austin, Tex.	57	24	15	13	3	2	5
Baton Rouge, La.	57	35	13	1	4	4	3
Corpus Christi, Tex.	31	24	4	1	-	2	-
Dallas, Tex.	185	98	47	18	9	13	5
El Paso, Tex.	48	27	11	5	3	2	3
Fort Worth, Tex.	95	61	17	8	2	7	3
Houston, Tex. §	311	273	3	7	18	10	7
Little Rock, Ark.	71	49	15	5	1	1	9
New Orleans, La.	150	96	29	9	1	15	-
San Antonio, Tex.	153	98	34	10	6	5	16
Shreveport, La.	56	33	12	7	1	3	2
Tulsa, Okla.	95	68	17	5	1	4	6
MOUNTAIN	564	353	124	43	19	25	28
Albuquerque, N.Mex.	80	54	17	5	1	3	5
Colo. Springs, Colo.	32	23	3	3	1	2	5
Denver, Colo.	90	61	16	8	1	4	7
Las Vegas, Nev.	65	32	20	6	6	1	-
Ogden, Utah	14	11	-	1	1	1	1
Phoenix, Ariz.	136	82	29	13	4	8	3
Pueblo, Colo.	24	15	4	2	-	3	3
Salt Lake City, Utah	41	20	14	3	2	2	1
Tucson, Ariz.	82	55	21	2	3	1	3
PACIFIC	1,797	1,157	363	155	61	57	107
Berkeley, Calif.	25	16	7	2	-	-	-
Fresno, Calif.	66	49	13	2	1	1	8
Glendale, Calif.	22	16	5	-	-	-	1
Honolulu, Hawaii	64	36	19	5	1	3	5
Long Beach, Calif.	89	55	22	5	2	5	13
Los Angeles, Calif.	482	286	104	56	21	13	14
Oakland, Calif.	73	49	11	6	3	4	3
Pasadena, Calif.	27	22	1	3	-	1	1
Portland, Oreg.	100	79	13	2	3	3	5
Sacramento, Calif.	131	91	31	6	2	1	5
San Diego, Calif.	146	93	29	11	8	5	18
San Francisco, Calif	160	88	34	30	4	4	4
San Jose, Calif.	157	97	27	16	10	6	14
Seattle, Wash.	156	108	29	8	5	6	4
Spokane, Wash.	58	40	13	2	-	3	7
Tacoma, Wash.	41	32	5	1	1	2	5
TOTAL	11,856††	7,965	2,259	857	332	436	566

*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 4 weeks.*

TABLE V. Years of potential life lost, deaths, and death rates, by cause of death, and estimated number of physician contacts, by principal diagnosis, United States

Cause of morbidity or mortality (Ninth Revision ICD, 1975)	Years of potential life lost before age 65 by persons dying in 1983*†	Estimated mortality May 1985		Estimated number of physician contacts May 1985*¶
		Number*§	Annual Rate/100,000*§	
ALL CAUSES (TOTAL)	9,170,000	167,020	826.6	113,100,000
Accidents and adverse effects (E800-E949)	2,219,000	8,260	40.9	6,800,000
Malignant neoplasms (140-208)	1,808,000	37,000	183.1	1,700,000
Diseases of heart (390-398, 402, 404-429)	1,559,000	62,090	307.3	6,600,000
Suicides, homicides (E950-E978)	1,218,000	3,720	18.4	—
Chronic liver disease and cirrhosis (571)	248,000	2,280	11.3	180,000
Cerebrovascular diseases (430-438)	226,000	11,880	58.8	700,000
Congenital anomalies (740-759)	134,000	950	4.7	500,000
Chronic obstructive pulmonary diseases and allied conditions (490-496)	123,000	6,220	30.8	1,500,000
Diabetes mellitus (250)	115,000	2,850	14.1	3,500,000
Pneumonia and influenza (480-487)	106,000	4,470	22.1	700,000
Prenatal care*				2,500,000
Infant mortality*††		3,300	10.8 1,000 live births	

*For details of calculation, see footnotes for Table V, *MMWR* 1985;34:2.

†Years of potential life lost for persons between 1 year and 65 years old at the time of death are derived from the number of deaths in each age category as reported by the National Center for Health Statistics, *Monthly Vital Statistics Report* (MVSR), Vol. 32, No. 13, September 21, 1984.

§National Center for Health Statistics, *Monthly Vital Statistics Report* (MVSR), Vol. 34, No. 6, September 18, 1985, pp. 8-9.

¶IMS America *National Diseese and Therapeutic Index* (NDTI), Monthly Report, May 1985, Section III.

††MVSR Vol. 34, No. 5, August 21, 1985, p. 1.

Current Trends

Recommended Guidelines for Disposing of Nitrocellulose Membranes

Because of the increased use of nitrocellulose (NC) by research and clinical laboratories, concern by institutional safety officials has been expressed for the proper disposal of these membranes. Therefore, the following alternatives for disposal are recommended with the

Nitrocellulose Membranes — Continued

intent that the disposal method selected will conform with applicable federal, state, local, and institutional regulations and established procedures.

BACKGROUND

Uses of NC Membranes. NC membranes are thin (150 μm) sheets of NC polymer that have pores of highly controlled size. Typical is use of NC membranes with pore sizes of 0.45 μm suitable for capturing bacteria in a filtration process.

NC also exhibits a strong affinity for both nucleic acids (DNA and RNA) and proteins (antigens and antibodies) and is, therefore, used extensively in research and clinical settings for the immobilization of nucleic acids and/or proteins for analysis. Commonly, nucleic acids or proteins are electrophoretically separated on agarose or acrylamide gels and then transferred (blotted) from the gel onto the NC. Such terms as "Southern" (transfer of DNA), "Northern" (transfer of RNA), and "Western" (transfer of protein) blots have been coined. NC sheets up to 20 x 20 cm are often used in these blotting procedures.

Additionally, large circles (up to 138 mm diameter) and sheets (up to 23 x 23 cm) are used to transfer DNA and proteins from bacteria and/or bacteriophages cultured on agar.

Properties of NC. NC membranes are manufactured by dissolving cellulose nitrate or a mixture of cellulose nitrate and cellulose acetate in a solvent and casting the resulting "honey-consistency" solution on an endless steel belt. By controlling the conditions of solvent evaporation, controlled pores are formed in the resulting polymer sheet (membrane).

DISPOSAL RECOMMENDATIONS

These recommendations assume the NC has been suitably decontaminated by approved methods to eliminate any possibility of a biohazard.

Steam sterilization is the most widely employed sterilization process, and NC membranes are suitable for autoclaving. Sterilization of NC membranes is achieved at 121 C (250 F), 1 bar for 15 minutes. As an added precaution, membranes can be placed in a pan of water to eliminate any possibility of becoming dry during autoclaving. The autoclave manufacturer's instructions for use should be carefully followed.

Burial in a sanitary landfill. The easiest, safest, and least expensive method of disposing of NC membranes is burial in an approved sanitary landfill through the normal institutional waste disposal system. Radioactive membranes should be disposed of in an approved sanitary landfill established for radioactive waste. As an added precaution, the NC should be kept moist with water by sealing it in a plastic bag before disposal.

Incineration. No fire or explosion hazard will result on incineration within a well-managed, approved incineration waste-disposal system. As an added precaution, NC should be kept moist with water by sealing it in a plastic bag before final disposition in the incinerator.

Dissolution. If there is concern about disposal with general waste, the NC can be dissolved in either acid or base or in organic solvents. The resulting solution can be discarded in the normal chemical waste disposal manner as established by the institution. The waste in the container should be properly identified.

1. Dissolution in ethyl acetate. NC will completely dissolve at room temperature in ethyl acetate ($CH_3COOC_2H_5$) within 15 minutes; 100 ml is sufficient to dissolve 600 cm^2 of NC membrane into a pourable liquid with shaking in an enclosed container.
2. Dissolution in sodium hydroxide/ethanol. Two parts 6 molar sodium hydroxide (NaOH) should be mixed with one part 96% ethanol (C_2H_5OH). NC will completely dissolve within 10 minutes at room temperature; 100 ml is sufficient to dissolve 150 cm^2, resulting in a pourable solution.

Nitrocellulose Membranes — Continued

3. Dissolution in acetic acid (glacial). NC will completely dissolve in glacial acetic acid (CH_3COOH) within 45 minutes; 100 ml is sufficient to dissolve 200 cm^2, resulting in a pourable solution.

Reported by Schleicher & Schuell, Inc, Keene, New Hampshire; Office of Biosafety, Office of the Director, CDC.

Editorial Note: Despite theoretical concerns about explosive hazards from NC membranes in autoclaves (*1*), practical experience demonstrates the safety of autoclaving these materials under recommended conditions of use. Precautions should be taken to ensure that autoclaves are operating properly and in accordance with manufacturers' instructions and that the NC membranes are not allowed to become dry during the autoclave cycle.

As an alternative to autoclaving, laboratorians can use an acceptable disinfection procedure, e.g., immersing the contaminated membranes in a 10% aqueous solution of household laundry bleach for 30 minutes or other chemical solutions with demonstrated microbiocidal efficacy.

Reference

1. CDC. Nitrocellulose paper used in Western blot test—fire and potential explosion hazard. MMWR 1985;34:426.

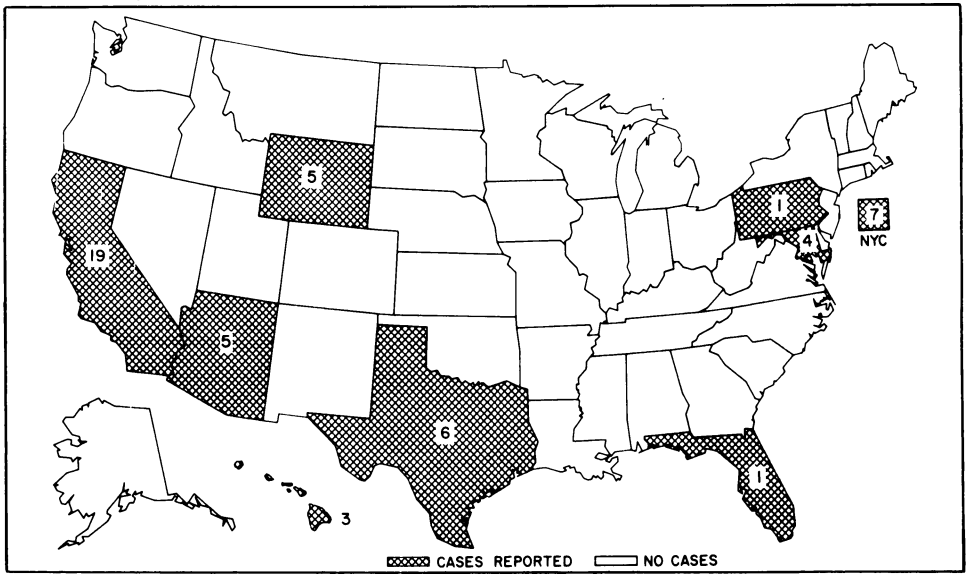
Notice to Readers

International Conference on Acquired Immunodeficiency Syndrome

An International Conference on Acquired Immunodeficiency Syndrome (AIDS) will be held June 23-25, 1986, at Palais des Congres, Paris, France. The conference will cover all aspects of contemporary research, including: virology, molecular biology, animal models, clinical aspects, pediatric AIDS, African AIDS, therapy, diagnostics, serology, epidemiology, and public health and psycho-social implications.

The deadline for abstracts is February 1, 1986. For information, contact: Dr. Jeane-Claude Gluckman, Faculté de Médecine Pitié-Salpêtrière, 91 Boulevard de l'Hôpital, 75634 Paris CEDEX 13 (France); telephone: (1) 45 70 27 02.

FIGURE I. Reported measles cases — United States, weeks 38-41, 1985



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

☆U.S. Government Printing Office: 1986-746-149/21023 Region IV

HHS Publication No. (CDC) 86-8017