CENTERS FOR DISEASE CONTROL

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MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiologic Notes and Reports

Hepatitis B Associated with Acupuncture — Florida

During the period February-May 1980, 4 cases of hepatitis B were reported among persons who had recently received acupuncture at a chiropractic clinic in Orange County, Florida. On May 30, the local health unit requested that the Florida State Department of Health and Rehabilitative Services assist in an investigation.

The investigation included 1) checking the clinic roster, which listed all persons who had attended the clinic against a list of reported cases of hepatitis for Orange County and the 3 surrounding counties, 2) reviewing the hepatitis patients' histories of acupuncture to determine common dates of exposure, 3) serologic testing of persons exposed during these periods, and 4) examination of the disinfection and sterilization procedures of the clinic.

A review of the records of the clinic revealed that 511 persons (clinic attendees) had been seen from October 1978, when it opened, through April 1980. Of these, 103 had received acupuncture, many on multiple occasions. Comparing the clinic roster with reported cases of hepatitis identified 2 additional clinic attendees with hepatitis B.

All 6 clinic attendees reported to have hepatitis B had the following: an acute illness compatible with acute hepatitis B, serum glutamic oxaloacetic transaminase (SGOT) levels more than 10 times the upper limit of normal, and positive serologic tests for hepatitis B surface antigen (HBsAg). Two were clinically jaundiced, and 3 were hospitalized. The median age of patients was 58 years (range 38-71 years). Five of the patients were female. All 6 patients had had acupuncture at the clinic. None had any other known or likely exposure to hepatitis B virus (HBV) in the 6 months before onset of illness. Whereas 6 of 103 attendees who had acupuncture developed hepatitis, none of the clinic attendees who did not have acupuncture were reported as having hepatitis ($p<10^{-4}$ Fisher exact test).

Patients had common dates of acupuncture occurring in 2 clusters (Figure 1). Dates of onset of illness were consistent with exposure on November 27 or 28, 1979 (first cluster), for patients #1–#3, and on February 19 or 20, 1980 (second cluster), for patients #4–#6; incubation periods ranged from 61 to 95 days.

In addition to these 6 patients, 4 other clinic attendees had acupuncture during these common exposure periods. Two persons who had acupuncture November 27 or 28 could not be reached for follow-up. The other 2 had acupuncture then and again February 19 or 20, but they remained asymptomatic. When serum specimens from these 2 were tested, 1 had no markers of HBV infection; the second contained only antibody to hepatitis B core antigen (anti-HBc), indicating HBV infection. Serum specimens from the 2 chiropractic physicians who administered the acupuncture were tested for hepatitis B surface antigen only; both were negative. HBV subtyping on specimens

Hepatitis B — Continued

from patients #2 and #5 showed that both had subtype *adw*.

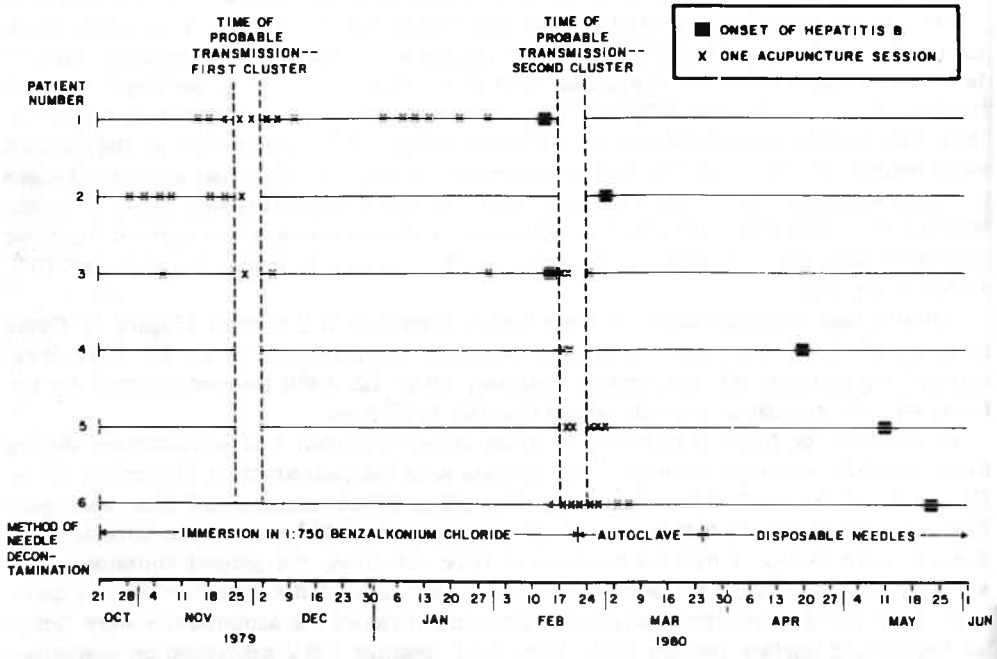
Until March 28, 1980, the clinic decontaminated traditional solid metal acupuncture needles by immersing them overnight in a 1:750 solution of benzalkonium chloride or by sterilizing them with steam under pressure (autoclaving). All 6 patients had had acupuncture treatments during periods when acupuncture needles were decontaminated by immersing them in the benzalkonium chloride solution (Figure 1). Beginning March 28, only disposable acupuncture needles were used.

Reported by J McGarry, MD, E Bradford, RN, Orange County Health Unit; RA Gunn, MD, MPH, State Epidemiologist, Florida State Dept of Health and Rehabilitative Services; Field Services Div, Hepatitis Laboratories Div, Bur of Epidemiology, CDC.

Editorial Note: This outbreak was probably caused by an unidentified person who was infected with HBV and had acupuncture at the clinic the week beginning November 25, 1979. This person then became the source of HBV contamination of acupuncture needles, resulting in a cluster of 3 cases in persons who had acupuncture November 27 or 28, 1979. One of these, patient #3, who became ill on February 15, 1980, had acupuncture again on February 18 or 19, which presumably resulted in acupuncture needles again being contaminated with HBV. This contamination probably led to a second cluster of 3 cases in persons who had acupuncture on February 19 or 20. Such a sequence of transmission for the second cluster of cases implies that HBV remained infective on the surface of acupuncture needles for at least 1 day, despite overnight immersion in the benzalkonium chloride solution.

Solutions of benzalkonium chloride and other quaternary ammonium compounds are low-level disinfectants and should never be used when the intent of a procedure is

FIGURE 1. Hepatitis B cases associated with a chiropractic clinic, by exposure to acupuncture and date of onset, Florida, October 1979-June 1980



Hepatitis B – Continued

sterilization. For all types of contamination involving heat-stable equipment, such as acupuncture needles, the simplest, cheapest, and most effective method of sterilization is steam autoclaving (121 C for 15 minutes), after thorough physical cleaning (*1*).

Reference

1. WW Bond, MJ Peterson, MS Favero. Viral hepatitis B: aspects of environmental control. Health Laboratory Science 1977;14:235-52.

International Notes

Earthquake-Associated Morbidity and Mortality – Italy

On November 23, 1980, a severe earthquake (Richter magnitude, 6.5) occurred in central Italy. The epicenter was in southern Campania, approximately 80 km east of Naples; the focus was 20 km deep. The involved area was approximately 12,000 km^2, including 179 villages with 400,000 inhabitants.

As of December 18, 2,614 dead and over 8,800 injured had been reported; 306 persons were still missing. Naples (population 1,300,000) suffered serious damage. Many buildings were declared unsound, and over 30,000 persons were left homeless.

Rumors of epidemics in the involved area soon began to circulate. To investigate such rumors and to give health authorities an objective picture of the situation in the disaster area, a surveillance system was organized. A National Epidemiologic Observatory (OEN) was set up at the Laboratory of Epidemiology and Biostatistics, Istituto Superiore di Sanità, Rome. That laboratory is charged with surveying the epidemiologic situation in Italy with regard to all nonoccupational diseases. All 52 hospitals in the disaster zone, including field hospitals and large hospitals in the surrounding area, were included in the surveillance system, which became operative 14 days after the earthquake.

Reports from the earthquake-stricken area during the 2 years preceding the disaster were reviewed in order to establish baseline frequencies of various diseases. Current data are being analyzed by computer, and a daily report is sent to the Ministry of Health and to health authorities in the disaster area. A network of epidemiologists has been organized for early investigation of reports of infectious diseases. These epidemiologists can be sent into the field promptly after being alerted by the OEN or by other health authorities.

To date, no outbreaks of disease have been confirmed in the resident population. During the first week of surveillance, 30 cases of diarrheal diseases and 146 cases of respiratory diseases were reported to the OEN. All were classified as sporadic.

It is planned that the surveillance system will operate for the next 3 months. After this period, its effectiveness will be evaluated.

Reported by Prof. A Zampieri, Istituto Superiore di Sanità, Rome, in the Bollettino Epidemiologico Nazionale, No. 1, 1980; Dept of Public Health, Ministry of Health, Rome; Director of Health Services, Government Special Commissary for Earthquake-Stricken Area, Naples; Dept of Health, Regione Campania, Naples; Dept of Health, Regione Basilicata, Potenza; Bur of Epidemiology, CDC.

Editorial Note: Active, ongoing surveillance systems, such as that described above, have proven valuable in the aftermath of natural disasters (*1,2*). Even in a developed country, rumors and exaggerated fears of epidemics, such as cholera and typhoid, often occur; these are dealt with most efficiently through a surveillance system. Italy did not experience an increase in infectious diseases in connection with this earthquake—despite

Earthquake — Continued

unavoidable and extensive delays in burying corpses. This confirms earlier evidence that unburied corpses do not create a health hazard when natural disasters, rather than communicable diseases, are the cause of death (*3*). Epidemiologic techniques in the investigation of disasters have also been applied to identify high-risk groups. This has been useful in developing information and recommendations for the future—e.g., in a tornado, persons should stay indoors (*4,5*) or in an earthquake zone, certain construction methods should be avoided (*6*).

References

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3. de Ville de Goyet C. Maladies transmissibles et surveillance epidémiologique lors de désastres naturels. Bulletin de L'Organisation Mondiale de la Santé 1979;57:153-65.
4. MMWR 1979;28:193-4.
5. Glass RI, Craven RB, Bregman DJ, et al. Injuries from the Wichita Falls tornado: implications for prevention. Science 1980;207:734-8.
6. Glass RI, Urrutia JJ, Sibony S, Smith H, Garcia B, Rizzo L. Earthquake injuries related to housing in a Guatemalan village. Science 1977;197:638-43.

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

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

DISEASE	1st WEEK ENDING		MEDIAN	CUMULATIVE, FIRST WEEK		
	January 10, 1981	January 5, 1980	1976-1980	January 10, 1981	January 5, 1980	MEDIAN 1976-1980
Aseptic meningitis	72	53	53	72	53	53
Brucellosis	–	1	3	–	1	3
Chickenpox	2,557	1,599	2,325	2,557	1,599	2,325
Diphtheria	–	–	–	–	–	–
Encephalitis: Primary (arthropod-borne & unspec.)	9	3	6	9	3	6
Post-infectious	1	1	1	1	1	1
Hepatitis, Viral: Type B	275	152	229	275	152	229
Type A	303	302	382	303	302	382
Type unspecified	167	98	124	167	98	124
Malaria	18	12	7	18	12	7
Measles (rubeola)	15	19	156	15	19	156
Meningococcal infections: Total	46	23	30	46	23	30
Civilian	46	21	30	46	21	30
Military	–	2	–	–	2	–
Mumps	61	78	229	61	78	229
Pertussis	8	8	22	8	8	22
Rubella (German measles)	28	22	72	28	22	72
Tetanus	1	–	–	1	–	–
Tuberculosis	265	181	257	265	181	257
Tularemia	1	1	2	1	1	2
Typhoid fever	6	–	4	6	–	4
Typhus fever, tick-borne (Rky. Mt. spotted)	3	1	1	3	1	1
Venereal diseases:						
Gonorrhea: Civilian	18,187	14,132	16,719	18,187	14,132	16,719
Military	555	238	413	555	238	413
Syphilis, primary & secondary: Civilian	498	335	410	498	335	410
Military	8	15	5	8	15	5
Rabies in animals	63	61	42	63	61	42

TABLE II. Notifiable diseases of low frequency, United States

	CUM. 1981		CUM. 1981
Antrax	–	Poliomyelitis: Total	–
Botulism Nev. 1, Calif. 1	2	Paralytic	–
Cholera	–	Psittacosis Calif. 1	1
Congenital rubella syndrome	–	Rabies in man	–
Leprosy Ups. NY 1, Wash. 1	2	Trichinosis	–
Leptospirosis	–	Typhus fever, flea-borne (endemic, murine)	–
Plague	–		

All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending January 10, 1981, and January 5, 1980 (1st week)

REPORTING AREA	ASEPTIC MENINGITIS	BRUCELLOSIS	CHICKEN-POX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS (VIRAL), BY TYPE			MALARIA	
						Primary		Post-infectious	B	A	Unspecified		
	1981	1981	1981	1981	CUM. 1981	1981	1980	1981	1981	1981	1981	1981	CUM. 1981
UNITED STATES	72	–	2,557	–	–	9	3	1	275	303	167	18	18
NEW ENGLAND	1	–	477	–	–	–	–	–	3	1	8	1	1
Maine	–	–	199	–	–	–	–	–	2	1	–	1	1
N.H.	–	–	44	–	–	–	–	–	–	–	–	–	–
Vt.	–	–	75	–	–	–	–	–	–	–	–	–	–
Mass.	–	–	74	–	–	–	–	–	–	–	8	–	–
R.I.	1	–	33	–	–	–	–	–	1	–	–	–	–
Conn.	–	–	52	–	–	–	–	–	–	–	–	–	–
MID. ATLANTIC	2	–	93	–	–	3	–	–	50	34	23	5	5
Upstate N.Y.	1	–	52	–	–	3	–	–	15	12	5	2	2
N.Y. City	1	–	41	–	–	–	–	–	19	7	3	3	3
N.J.	–	–	NN	–	–	–	–	–	16	15	15	–	–
Pa.	–	–	–	–	–	–	–	–	NA	NA	NA	–	–
E.N. CENTRAL	6	–	858	–	–	–	–	–	17	16	1	–	–
Ohio	–	–	2	–	–	–	–	–	–	–	–	–	–
Ind.	–	–	142	–	–	–	–	–	–	–	–	–	–
Ill.	–	–	124	–	–	–	–	–	3	1	–	–	–
Mich.	6	–	350	–	–	–	–	–	14	15	1	–	–
Wis.	–	–	240	–	–	–	–	–	–	–	–	–	–
W.N. CENTRAL	1	–	476	–	–	–	–	–	9	12	3	–	–
Minn.	–	–	–	–	–	–	–	–	4	1	–	–	–
Iowa	1	–	206	–	–	–	–	–	2	7	1	–	–
Mo.	–	–	–	–	–	–	–	–	3	3	2	–	–
N. Dak.	–	–	54	–	–	–	–	–	–	–	–	–	–
S. Dak.	–	–	69	–	–	–	–	–	–	–	–	–	–
Nebr.	–	–	4	–	–	–	–	–	–	1	–	–	–
Kans.	–	–	143	–	–	–	–	–	–	–	–	–	–
S. ATLANTIC	14	–	389	–	–	5	–	–	47	26	17	3	3
Del.	–	–	13	–	–	–	–	–	–	1	–	–	–
Md.	5	–	–	–	–	3	–	–	10	3	4	–	–
D.C.	–	–	–	–	–	–	–	–	–	–	–	–	–
Va.	2	–	24	–	–	1	–	–	7	8	7	1	1
W. Va.	1	–	219	–	–	–	–	–	3	1	–	–	–
N.C.	4	–	NN	–	–	1	–	–	7	1	4	–	–
S.C.	2	–	–	–	–	–	–	–	11	2	2	–	–
Ga.	–	–	14	–	–	–	–	–	8	9	–	1	1
Fla.	–	–	119	–	–	–	–	–	1	1	–	1	1
E.S. CENTRAL	28	–	59	–	–	–	–	–	31	23	2	–	–
Ky.	–	–	52	–	–	–	–	–	3	5	–	–	–
Tenn.	1	–	NN	–	–	–	–	–	21	13	1	–	–
Ala.	27	–	5	–	–	–	–	–	7	5	1	–	–
Miss.	–	–	2	–	–	–	–	–	–	–	–	–	–
W.S. CENTRAL	4	–	52	–	–	–	–	–	17	44	27	–	–
Ark.	–	–	6	–	–	–	–	–	–	2	–	–	–
La.	–	–	NN	–	–	–	–	–	–	–	–	–	–
Okla.	–	–	–	–	–	–	–	–	1	3	1	–	–
Tex.	4	–	46	–	–	–	–	–	16	39	26	–	–
MOUNTAIN	2	–	70	–	–	–	–	–	10	42	12	–	–
Mont.	–	–	–	–	–	–	–	–	–	3	1	–	–
Idaho	–	–	–	–	–	–	–	–	–	14	–	–	–
Wyo.	–	–	–	–	–	–	–	–	–	2	–	–	–
Colo.	–	–	50	–	–	–	–	–	3	9	–	–	–
N. Mex.	–	–	1	–	–	–	–	–	1	4	1	–	–
Ariz.	–	–	NN	–	–	–	–	–	4	7	9	–	–
Utah	2	–	19	–	–	–	–	–	2	1	–	–	–
Nev.	–	–	–	–	–	–	–	–	–	2	1	–	–
PACIFIC	14	–	83	–	–	1	3	1	91	105	74	9	9
Wash.	3	–	56	–	–	–	–	–	1	2	2	–	–
Oreg.	–	–	3	–	–	–	–	–	7	14	–	–	–
Calif.	11	–	–	–	–	1	3	1	81	88	70	9	9
Alaska	–	–	13	–	–	–	–	–	1	–	1	–	–
Hawaii	–	–	11	–	–	–	–	–	1	1	1	–	–
Guam	NA	NA	NA	NA	–	NA	–	–	NA	NA	NA	NA	–
P.R.	–	–	–	–	–	–	–	–	–	–	–	–	–
V.I.	NA	NA	NA	NA	–	NA	–	–	NA	NA	NA	NA	–
Pac. Trust Terr.	NA	NA	NA	NA	–	NA	–	–	NA	NA	NA	NA	–

NN: Not notifiable. NA: Not available.
All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending January 10, 1981, and January 5, 1980 (1st week)

REPORTING AREA	MEASLES (RUBEOLA)			MENINGOCOCCAL INFECTIONS TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1981	CUM. 1981	CUM. 1980	1981	CUM. 1981	CUM. 1980	1981	CUM. 1981	1981	1981	CUM. 1981	CUM. 1981
UNITED STATES	15	15	19	46	46	23	61	61	8	28	28	1
NEW ENGLAND	–	–	–	8	8	1	4	4	2	7	7	–
Maine	–	–	–	–	–	–	1	1	–	7	7	–
N.H.	–	–	–	–	–	–	–	–	–	–	–	–
Vt.	–	–	–	–	–	–	–	–	–	–	–	–
Mass.	–	–	–	3	3	1	1	1	2	–	–	–
R.I.	–	–	–	1	1	–	–	–	–	–	–	–
Conn.	–	–	–	4	4	–	2	2	–	–	–	–
MID. ATLANTIC	6	6	1	9	9	3	9	9	–	8	8	–
Upstate N.Y.	1	1	–	2	2	3	3	3	–	2	2	–
N.Y. City	2	2	1	–	–	–	2	2	–	1	1	–
N.J.	–	–	–	7	7	–	3	3	–	5	5	–
Pa.	3	3	–	–	–	–	1	1	–	–	–	–
E.N. CENTRAL	–	–	5	3	3	1	14	14	3	2	2	–
Ohio	–	–	–	–	–	–	1	1	–	–	–	–
Ind.	–	–	–	2	2	–	3	3	–	1	1	–
Ill.	–	–	–	–	–	–	1	1	–	–	–	–
Mich.	–	–	2	1	1	1	4	4	3	–	–	–
Wis.	–	–	3	–	–	–	5	5	–	1	1	–
W.N. CENTRAL	–	–	1	1	1	2	1	1	–	1	1	–
Minn.	–	–	–	–	–	–	–	–	–	–	–	–
Iowa	–	–	–	1	1	–	1	1	–	–	–	–
Mo.	–	–	–	–	–	2	–	–	–	–	–	–
N. Dak.	–	–	–	–	–	–	–	–	–	–	–	–
S. Dak.	–	–	–	–	–	–	–	–	–	–	–	–
Nebr.	–	–	1	–	–	–	–	–	–	–	–	–
Kans.	–	–	–	–	–	–	–	–	–	1	1	–
S. ATLANTIC	–	–	–	12	12	9	9	9	1	4	4	1
Del.	–	–	–	1	1	–	1	1	–	–	–	–
Md.	–	–	–	–	–	6	–	–	–	–	–	–
D.C.	–	–	–	–	–	–	–	–	–	–	–	–
Va.	–	–	–	–	–	1	–	–	–	3	3	–
W. Va.	–	–	–	2	2	1	6	6	–	–	–	–
N.C.	–	–	–	1	1	–	–	–	–	1	1	–
S.C.	–	–	–	3	3	1	1	1	–	–	–	1
Ga.	–	–	–	3	3	–	1	1	1	–	–	–
Fla.	–	–	–	2	2	–	–	–	–	–	–	–
E.S. CENTRAL	–	–	2	3	3	2	2	2	–	1	1	–
Ky.	–	–	2	–	–	2	1	1	–	1	1	–
Tenn.	–	–	–	3	3	–	1	1	–	–	–	–
Ala.	–	–	–	–	–	–	–	–	–	–	–	–
Miss.	–	–	–	–	–	–	–	–	–	–	–	–
W.S. CENTRAL	–	–	2	2	2	1	1	1	1	–	–	–
Ark.	–	–	1	1	1	–	–	–	–	–	–	–
La.	–	–	–	–	–	–	–	–	–	–	–	–
Okla.	–	–	–	–	–	–	–	–	–	–	–	–
Tex.	–	–	1	1	1	1	1	1	1	–	–	–
MOUNTAIN	4	4	1	5	5	3	1	1	–	–	–	–
Mont.	–	–	–	–	–	–	–	–	–	–	–	–
Idaho	–	–	–	1	1	–	–	–	–	–	–	–
Wyo.	–	–	–	–	–	1	–	–	–	–	–	–
Colo.	–	–	–	–	–	2	–	–	–	–	–	–
N. Mex.	–	–	–	3	3	–	–	–	–	–	–	–
Ariz.	–	–	–	–	–	–	1	1	–	–	–	–
Utah	–	–	–	1	1	–	–	–	–	–	–	–
Nev.	4	4	1	–	–	–	–	–	–	–	–	–
PACIFIC	5	5	7	3	3	1	20	20	1	5	5	–
Wash.	–	–	–	–	–	1	9	9	1	–	–	–
Oreg.	–	–	–	–	–	–	2	2	–	–	–	–
Calif.	4	4	5	3	3	–	8	8	–	5	5	–
Alaska	–	–	–	–	–	–	–	–	–	–	–	–
Hawaii	1	1	2	–	–	–	1	1	–	–	–	–
Guam	NA	–	–	–	–	–	NA	–	NA	NA	–	–
P.R.	–	–	–	–	–	–	–	–	–	–	–	–
V.I.	NA	–	–	–	–	–	NA	–	NA	NA	–	–
Pac. Trust Terr.	NA	–	1	–	–	–	NA	–	NA	NA	–	–

NA: Not available.
All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE III (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending January 10, 1981, and January 5, 1980 (1st week)

REPORTING AREA	TUBERCULOSIS		TULAREMIA	TYPHOID FEVER		TYPHUS FEVER (Tick-borne) (RMSF)		VENEREAL DISEASES (Civilian)						RABIES (in Animals)
								GONORRHEA			SYPHILIS (Pri. & Sec.)			
	1981	CUM. 1981	CUM. 1981	1981	CUM. 1981	1981	CUM. 1981	1981	CUM. 1981	CUM. 1980	1981	CUM. 1981	CUM. 1980	CUM. 1981
UNITED STATES	265	265	1	6	6	3	3	18,187	18,187	14,132	498	498	335	63
NEW ENGLAND	4	4	–	1	1	–	–	453	453	421	11	11	9	–
Maine	1	1	–	–	–	–	–	31	31	29	–	–	–	–
N.H.	–	–	–	–	–	–	–	23	23	17	–	–	–	–
Vt.	–	–	–	–	–	–	–	10	10	20	–	–	–	–
Mass.	2	2	–	1	1	–	–	192	192	169	9	9	3	–
R.I.	–	–	–	–	–	–	–	22	22	16	–	–	–	–
Conn.	1	1	–	–	–	–	–	175	175	170	2	2	6	–
MID. ATLANTIC	62	62	–	1	1	–	–	1,656	1,656	1,657	74	74	69	–
Upstate N.Y.	8	8	–	–	–	–	–	NA	–	–	NA	–	–	–
N.Y. City	15	15	–	1	1	–	–	775	775	950	45	45	59	–
N.J.	30	30	–	–	–	–	–	517	517	286	10	10	5	–
Pa.	9	9	–	–	–	–	–	364	364	421	19	19	5	–
E.N. CENTRAL	33	33	–	–	–	–	–	2,572	2,572	3,705	17	17	35	8
Ohio	5	5	–	–	–	–	–	527	527	815	4	4	4	–
Ind.	–	–	–	–	–	–	–	187	187	139	3	3	2	2
Ill.	28	28	–	–	–	–	–	727	727	2,013	–	–	25	6
Mich.	–	–	–	–	–	–	–	890	890	455	3	3	1	–
Wis.	–	–	–	–	–	–	–	241	241	283	7	7	3	–
W.N. CENTRAL	5	5	–	–	–	–	–	803	803	386	9	9	3	24
Minn.	–	–	–	–	–	–	–	80	80	–	–	–	1	–
Iowa	3	3	–	–	–	–	–	100	100	73	–	–	–	14
Mo.	–	–	–	–	–	–	–	345	345	243	5	5	2	2
N. Dak.	–	–	–	–	–	–	–	10	10	9	–	–	–	6
S. Dak.	–	–	–	–	–	–	–	31	31	20	–	–	–	–
Nebr.	–	–	–	–	–	–	–	94	94	41	2	2	–	2
Kans.	2	2	–	–	–	–	–	143	143	–	2	2	–	–
S. ATLANTIC	48	48	–	2	2	2	2	4,325	4,325	3,523	127	127	56	7
Del.	–	–	–	–	–	–	–	141	141	77	1	1	1	–
Md.	6	6	–	–	–	–	–	499	499	112	9	9	8	–
D.C.	–	–	–	–	–	–	–	277	277	228	14	14	10	–
Va.	–	–	–	–	–	–	–	339	339	214	5	5	4	1
W. Va.	3	3	–	2	2	–	–	62	62	65	–	–	–	1
N.C.	19	19	–	–	–	2	2	652	652	465	19	19	4	–
S.C.	6	6	–	–	–	–	–	439	439	262	11	11	2	–
Ga.	–	–	–	–	–	–	–	1,098	1,098	745	37	37	18	4
Fla.	14	14	–	–	–	–	–	818	818	1,355	31	31	9	1
E.S. CENTRAL	22	22	1	–	–	1	1	2,121	2,121	470	60	60	4	3
Ky.	–	–	1	–	–	–	–	273	273	89	3	3	–	2
Tenn.	10	10	–	–	–	1	1	603	603	157	21	21	–	1
Ala.	12	12	–	–	–	–	–	850	850	–	27	27	3	–
Miss.	–	–	–	–	–	–	–	395	395	224	9	9	1	–
W.S. CENTRAL	13	13	–	–	–	–	–	3,661	3,661	1,776	143	143	85	12
Ark.	–	–	–	–	–	–	–	96	96	96	–	–	2	4
La.	4	4	–	–	–	–	–	201	201	–	–	–	–	–
Okla.	9	9	–	–	–	–	–	255	255	92	–	–	–	4
Tex.	–	–	–	–	–	–	–	3,109	3,109	1,588	143	143	83	4
MOUNTAIN	7	7	–	–	–	–	–	657	657	510	3	3	1	2
Mont.	–	–	–	–	–	–	–	15	15	37	–	–	–	2
Idaho	–	–	–	–	–	–	–	25	25	10	–	–	–	–
Wyo.	–	–	–	–	–	–	–	41	41	–	–	–	1	–
Colo.	1	1	–	–	–	–	–	160	160	144	2	2	–	–
N. Mex.	4	4	–	–	–	–	–	79	79	65	–	–	–	–
Ariz.	–	–	–	–	–	–	–	171	171	112	–	–	–	–
Utah	–	–	–	–	–	–	–	33	33	33	–	–	–	–
Nev.	2	2	–	–	–	–	–	133	133	109	1	1	–	–
PACIFIC	71	71	–	2	2	–	–	1,939	1,939	1,684	54	54	73	7
Wash.	7	7	–	–	–	–	–	138	138	180	NA	–	6	–
Oreg.	2	2	–	–	–	–	–	183	183	141	1	1	1	–
Calif.	62	62	–	1	1	–	–	1,521	1,521	1,263	51	51	66	7
Alaska	–	–	–	–	–	–	–	43	43	71	1	1	–	–
Hawaii	–	–	–	1	1	–	–	54	54	29	1	1	–	–
Guam	NA	–	–	NA	–	NA	–	NA	–	–	NA	–	–	–
P.R.	–	–	–	–	–	–	–	45	45	–	1	1	–	–
V.I.	NA	–	–	NA	–	NA	–	NA	–	2	NA	–	3	–
Pac. Trust Terr.	NA	–	–	NA	–	NA	–	NA	–	14	NA	–	–	–

NA: Not available.
All delayed reports and corrections will be included in the following week's cumulative totals.

TABLE IV. Deaths in 121 U.S. cities,* week ending January 10, 1981 (1st week)

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)					P&I** TOTAL
	ALL AGES	>65	45-64	25-44	<1	
NEW ENGLAND	1,051	724	236	42	25	122
Boston, Mass.	257	149	73	17	11	35
Bridgeport, Conn.	61	47	11	2	1	8
Cambridge, Mass.	34	28	4	2	-	6
Fall River, Mass.	39	27	12	-	-	1
Hartford, Conn.	98	70	16	5	3	6
Lowell, Mass.	45	37	4	1	-	7
Lynn, Mass.	33	24	8	-	1	-
New Bedford, Mass.	49	38	11	-	-	5
New Haven, Conn.	85	56	19	5	3	9
Providence, R.I.	116	79	27	6	1	15
Somerville, Mass.	19	15	3	-	-	2
Springfield, Mass.	69	44	20	1	2	15
Waterbury, Conn.	52	39	11	1	1	9
Worcester, Mass.	94	71	17	2	2	4
MID. ATLANTIC	3,720	2,530	807	248	78	280
Albany, N.Y.	78	49	12	6	5	3
Allentown, Pa.	27	21	6	-	-	2
Buffalo, N.Y.	129	84	32	7	2	17
Camden, N.J.	66	43	17	5	1	6
Elizabeth, N.J.	34	19	13	-	1	4
Erie, Pa.†	73	53	14	3	3	2
Jersey City, N.J.	58	38	12	3	4	2
Newark, N.J.	97	56	28	3	4	8
N.Y. City, N.Y.††	1,916	1,318	396	146	33	132
Paterson, N.J.	47	31	6	6	3	3
Philadelphia, Pa.†	490	316	116	33	15	42
Pittsburgh, Pa.†	159	99	48	8	2	8
Reading, Pa.	40	32	6	1	-	6
Rochester, N.Y.	161	116	30	10	4	16
Schenectady, N.Y.	52	36	12	4	-	6
Scranton, Pa.†	40	30	9	1	-	5
Syracuse, N.Y.	102	79	18	3	1	8
Trenton, N.J.	71	47	17	7	-	1
Utica, N.Y.	41	31	10	-	-	5
Yonkers, N.Y.	39	32	5	2	-	4
E.N. CENTRAL	3,424	2,249	779	201	95	162
Akron, Ohio	55	40	12	1	1	1
Canton, Ohio	74	51	17	5	-	10
Chicago, Ill.	778	470	210	56	15	34
Cincinnati, Ohio	184	128	41	10	3	23
Cleveland, Ohio	258	162	58	17	12	9
Columbus, Ohio	199	120	47	14	7	5
Dayton, Ohio	234	158	49	14	8	10
Detroit, Mich.	424	281	88	32	14	13
Evansville, Ind.	75	53	17	2	2	1
Fort Wayne, Ind.	81	63	14	-	3	8
Gary, Ind.	57	33	14	3	2	2
Grand Rapids, Mich.	66	49	8	6	2	4
Indianapolis, Ind.	272	185	57	12	8	8
Madison, Wis.	38	24	7	3	-	4
Milwaukee, Wis.	283	199	56	11	7	4
Peoria, Ill.	6	5	1	-	-	3
Rockford, Ill.	55	34	14	4	3	10
South Bend, Ind.	56	37	13	3	2	1
Toledo, Ohio	144	102	33	4	3	9
Youngstown, Ohio	85	55	23	4	3	3
W.N. CENTRAL	1,031	707	203	57	35	55
Des Moines, Iowa	97	83	10	2	-	5
Duluth, Minn.	32	17	5	3	4	1
Kansas City, Kans.	76	48	16	7	3	4
Kansas City, Mo.	136	90	29	9	4	7
Lincoln, Nebr.	43	29	11	1	2	4
Minneapolis, Minn.	109	72	19	7	6	1
Omaha, Nebr.	133	83	36	4	5	3
St. Louis, Mo.	234	160	46	14	8	11
St. Paul, Minn.	114	88	17	7	1	6
Wichita, Kans.	57	37	14	3	2	13

REPORTING AREA	ALL CAUSES, BY AGE (YEARS)					P&I** TOTAL
	ALL AGES	>65	45-64	25-44	<1	
S. ATLANTIC	1,482	913	382	102	38	73
Atlanta, Ga.	203	117	62	16	1	5
Baltimore, Md.	192	117	48	17	3	5
Charlotte, N.C.	85	50	20	10	1	5
Jacksonville, Fla.	163	97	46	6	5	5
Miami, Fla.	115	62	33	11	7	2
Norfolk, Va.	96	53	36	3	2	13
Richmond, Va.	127	71	38	11	4	10
Savannah, Ga.	27	22	3	-	1	2
St. Petersburg, Fla.	121	101	14	3	1	5
Tampa, Fla.	79	47	19	4	7	7
Washington, D.C.	225	139	56	18	6	12
Wilmington, Del.	49	37	7	3	-	2
E.S. CENTRAL	826	520	215	54	16	56
Birmingham, Ala.	124	72	32	11	3	2
Chattanooga, Tenn.	68	43	22	-	-	5
Knoxville, Tenn.	54	36	13	2	2	1
Louisville, Ky.	166	112	43	7	2	19
Memphis, Tenn.	163	106	39	12	1	12
Mobile, Ala.	31	21	9	1	-	2
Montgomery, Ala.	62	38	13	8	2	4
Nashville, Tenn.	158	92	44	13	6	11
W.S. CENTRAL	1,968	1,099	528	152	106	76
Austin, Tex.	59	40	14	2	1	7
Baton Rouge, La.	91	49	32	6	3	2
Corpus Christi, Tex.	42	15	19	4	3	1
Dallas, Tex.	269	144	83	21	5	9
El Paso, Tex.	105	61	27	7	7	8
Fort Worth, Tex.	130	82	40	4	-	3
Houston, Tex.	540	235	142	65	67	4
Little Rock, Ark.	81	55	12	7	5	6
New Orleans, La.	169	93	50	16	6	-
San Antonio, Tex.	272	180	65	13	4	25
Shreveport, La.	75	48	21	2	2	5
Tulsa, Okla.	135	97	23	5	3	4
MOUNTAIN	899	591	201	47	35	74
Albuquerque, N. Mex.	107	64	34	2	6	13
Colo. Springs, Colo.	35	23	10	1	-	6
Denver, Colo.	166	112	25	13	9	14
Las Vegas, Nev.	86	41	30	12	1	6
Ogden, Utah	37	31	4	-	2	2
Phoenix, Ariz.	260	184	52	9	4	10
Pueblo, Colo.	39	26	9	2	-	2
Salt Lake City, Utah	60	39	8	6	7	7
Tucson, Ariz.	109	71	29	2	6	14
PACIFIC	2,324	1,565	473	154	76	152
Berkeley, Calif.	27	19	6	1	1	1
Fresno, Calif.	70	48	12	3	3	4
Glendale, Calif.	42	38	4	-	-	4
Honolulu, Hawaii	59	45	8	4	-	5
Long Beach, Calif.	100	63	29	5	1	9
Los Angeles, Calif.	678	457	132	46	21	45
Oakland, Calif.	91	58	20	9	1	9
Pasadena, Calif.	39	36	3	-	-	5
Portland, Oreg.	140	90	36	6	5	-
Sacramento, Calif.	111	74	27	3	4	16
San Diego, Calif.	227	164	34	17	7	9
San Francisco, Calif.	216	135	52	19	7	9
San Jose, Calif.	222	132	46	22	17	23
Seattle, Wash.	198	134	40	18	3	7
Spokane, Wash.	68	47	16	1	4	5
Tacoma, Wash.	36	25	8	-	2	1
TOTAL	16,725	10,898	3,824	1,057	504	1,050

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

**Pneumonia and influenza

†Because of changes in reporting methods in these 4 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Data not available this week. Figures are estimates based on average percent of regional totals.

Measles — Canada

In the period November 1, 1979-July 31, 1980, 1,380 cases of measles were diagnosed among pediatric patients seen in the emergency room at Ste-Justine Hospital in Montreal, Quebec. Of these, 79 (6%) were hospitalized for measles. Twenty-one other measles patients were hospitalized, including 6 who were undiagnosed on admission and 15 already hospitalized children. Eight cases were confirmed by significant rises in measles complement-fixation titers. Of the 100 hospitalized patients, 51 were male. The patients ranged in age from 20 days to 15 years, with a mean age of 5 years (Table 1). Nine patients were known to have been vaccinated for measles, including 3 who were vaccinated within 12 days of hospitalization; 51 were not vaccinated; 40 had an unknown vaccination status. The average length of hospitalization was 4 to 5 days.

TABLE 1. Age distribution of 100 hospitalized measles patients, Ste-Justine Hospital, Montreal, 1979-1980

Age	Number of patients
0-11 months	9
12-23 months	22
2-4 years	24
5-9 years	29
10-14 years	15
15-19 years	1

Forty-five of these pediatric measles patients had pre-existing medical problems, including epilepsy (6 cases), Down syndrome (5), psychomotor retardation (5), diabetes (3), asthma (3), cardiopathy (3), and others (20). Koplik's spots were observed in 68 cases. Digestive problems (vomiting, diarrhea, abdominal discomfort, dehydration) were noted in 22 patients, and respiratory difficulties were reported in 13. Eight children developed febrile convulsions, and 5 contracted encephalitis. All encephalitis patients recovered completely, although the convalescence of one required 1½ months. Other complications included otitis media (22 cases), pneumonia (11), gastroenteritis (6), bacterial conjunctivitis (6), laryngitis (4), and pneumothorax, pneumomediastinum, and subcutaneous emphysema (2).

One death occurred in a 2-year-old, unvaccinated Indian child who presented with a fever and acute abdominal pain that required laporatomy. It confirmed the presence of paralytic ileus with sterile peritoneal exudate and mesenteric adentitis. On the 13th hospital day, the child died from progressive respiratory insufficiency secondary to an interstitial and alveolar pneumonia complicated by pneumothorax, pneumomediastinum, and subcutaneous emphysema. Although the patient lacked an identifying measles rash, giant multinuclear cells of the Warthin-Finkeldey type were found in the submucous lymphoid tissue of the appendix, and measles antibody rose from 0 to 128 in 8 days.

Reported by JB Girodias, MD, L Geoffroy, MD, G Delage, MD, P Brochu, MD, A Bensoussan, MD, MP Lainesse, Dept of Pediatrics, Ste-Justine Hospital, Montreal, in the Canada Diseases Weekly Report (2); and the Immunization Div, Bur of State Services, CDC.

Editorial Note: Hospitalizations for measles are not rare. According to the Hospital Discharge Survey, conducted yearly by the National Center for Health Statistics, an estimated 36,400 hospitalizations for measles occurred in the United States from 1970 through 1975—an average of 6,100 per year (*1*). During the same 6-year period, 228,074 cases of measles were reported.

Measles – Continued

The characteristics of measles patients hospitalized in the United States are similar to those reported in Canada. Patients are generally of preschool age and are most often hospitalized with respiratory complications.

The economic impact of hospitalizations for measles can be substantial. In 1975, based on an average hospitalization cost of $150 per day, U.S. measles cases accounted for an estimated $5.4 million in hospital expenses.

The Canadian report illustrates the consequences of less-than-optimal control of measles, as the outbreak there resulted from the failure of free vaccination campaigns to reach a high proportion of the pediatric population (*2*). A successful effort to eliminate measles in the United States would prevent the substantial health and economic impact that measles can cause.

References

1. Nolan T, Goodman R, Hinman A. Hospitalization for measles. Presented at the 108th annual meeting, American Public Health Association, Detroit, Michigan, 1980 Oct 19-23.
2. Laboratory Center for Disease Control. Measles—Quebec. Canada Diseases Weekly Report 1980; 6:221-6.

Current Trends

Influenza – United States

For the week ending January 3, 1981, 4 states—Alaska, Massachusetts, Montana, and New York—reported widespread outbreaks of influenza. Thirteen other states, primarily in the Northeast, the Midwest, and the Mountain Region,* reported regional outbreaks of the disease (Figure 2). Since last reported (*1*), an additional 7 states—Idaho, Louisiana, Maryland, Minnesota, Missouri, Montana, and West Virginia—have reported the isolation of A/Bangkok-like virus. H1N1 viruses related to A/Brazil/11/78 were reported from Illinois, Massachusetts, and Texas, as well as the District of Columbia (*1*). Approximately 11% (3/28) of isolates thus far in Massachusetts, and 21% (14/66) of isolates from Houston, Texas, are H1N1 strains, all recovered from children or young adults.

Deaths due to pneumonia and influenza, recorded in 121 cities, were elevated for the fifth consecutive week since December 13, 1980. To date, excess mortality has been noted in the 65-and-older age group, primarily in the West and the Northeast.

Reported by State Epidemiologists and Laboratory Directors; P Glezen, MD, Baylor College of Medicine, Houston, Texas; Immunization Div, Bur of State Services, Virology Div, Bur of Laboratories, Consolidated Surveillance and Communications Activity, Bur of Epidemiology, CDC.

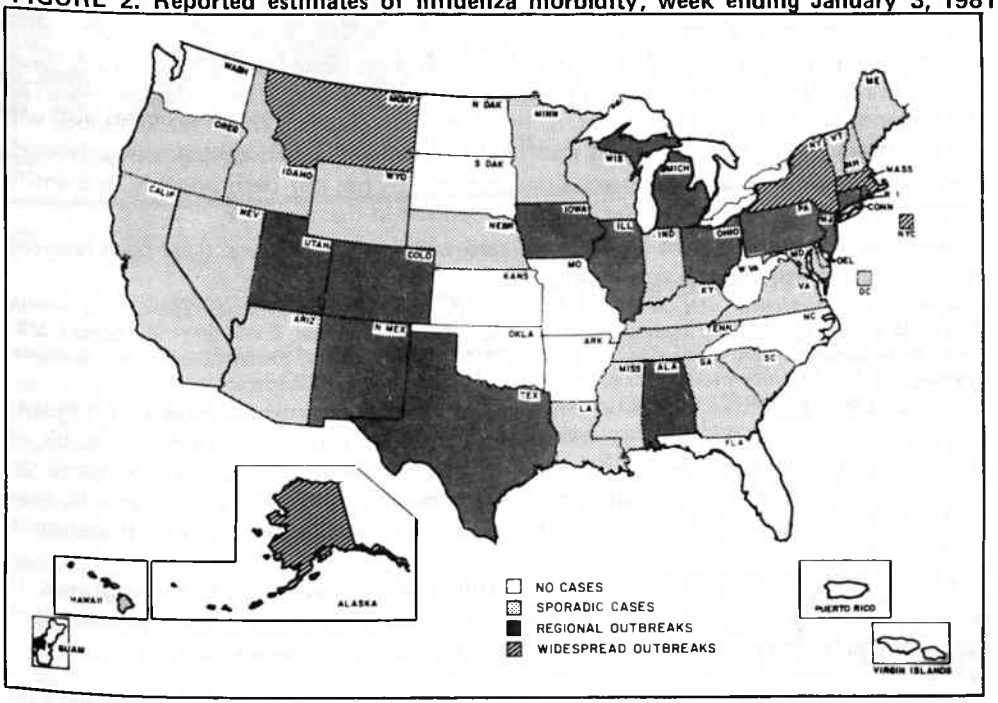
Reference

1. CDC: Influenza—United States. MMWR 1981;29:615-6.

*The Mountain Reporting Area includes Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, and Wyoming.

Influenza — Continued

FIGURE 2. Reported estimates of influenza morbidity, week ending January 3, 1981



Epidemiologic Notes and Reports

Illness Associated with High Levels of Niacin in Cornmeal — Illinois

On December 17, 1980, 18 (42%) of 43 persons in a nursing home in northern Illinois developed facial flushing and/or an erythematous, macular rash, most commonly on the face or upper arms, within 15-30 minutes of eating breakfast. Symptoms lasted an average of approximately 50 minutes. Eggs, toast, coffee, orange juice, milk, and cornmeal mush were served at the meal. The cornmeal mush was the only food known to have been eaten

The Morbidity and Mortality Weekly Report, circulation 102,241, is published by the Centers for Disease Control, Atlanta, Georgia. The data in this report are provisional, based on weekly telegraphs 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. Send reports to: Attn: Editor, Morbidity and Mortality Weekly Report, Centers for Disease Control, Atlanta, Georgia 30333.

Send mailing list additions, deletions and address changes to: Attn: Distribution Services, Management Analysis and Services Office, 1-SB-419, Centers for Disease Control, Atlanta, Georgia 30333. Or call 404-329-3219. When requesting changes be sure to give your former address, including zip code and mailing list code number, or send an old address label.

Niacin in Cornmeal – Continued

by all ill individuals; nursing home personnel noted that the mush appeared to be a slightly different color than usual.

Samples of cornmeal used to make the mush were tested by the Food and Drug Administration (FDA) and were found to contain >1,000 mg of niacin per pound. (The recommended level for this product is 16-24 mg per pound.) When the cornmeal was received from the distributor it was poured out of packages, and stored in an unlabeled, large plastic container in the nursing home kitchen. It has not been possible to identify the source of contamination of the cornmeal involved in the outbreak.

No other reports of recent illness associated with eating cornmeal have been received by CDC. The investigation is continuing.

Reported by J Burkhalter, RN, M Shore, L Wollstadt, MD, ScM; M Williams, Ogle County Health Dept; J Spengler, BSN, MS, E Groeschel, C Langkop, MSPH, RJ Martin, DVM, MPH, BJ Francis, MD, MPH, State Epidemiolgist, Illinois State Dept of Public Health; FDA; Enteric Diseases Br, Bacterial Diseases Div, Bur of Epidemiology, CDC.

Editorial Note: Excessive amounts of niacin (nicotinic acid) typically produce a transient flushing, itching, and burning of the skin on the face and upper trunk. Pulse, blood pressure, and respiration are usually not affected. The symptoms may be alarming, but are usually brief and without sequelae. Foodborne outbreaks associated with high levels of niacin have been described, often involving excessive levels in meat and meat products (*1*).

Niacin is a common additive in commercially available cornmeal. In this outbreak, if the source of the excess niacin was at the manufacturing plant, it may have resulted from inadequate mixing or measurement of the additive during processing.

Reference

1. Press E, Yeager L. Food "poisoning" due to sodium nicotinate—report of an outbreak and a review of the literature. Am J Public Health 1962;52:1720-8.

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