

FOR ADMINISTRATIVE USE

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CDC INFLUENZA SURVEILLANCE REPORT

NO. 21

OCTOBER 15, 1957

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SPECIAL NOTE

Information contained in this report is a summary of data reported to CDC by State Health Departments, Epidemic Intelligence Service Officers, collaborating influenza diagnostic laboratories, and other pertinent sources. Much of it is preliminary in nature and is intended for those involved in influenza control activities. Anyone desiring to quote this information is urged to contact the person or persons primarily responsible for the items reported in order that the exact interpretation of the report and the current status of the investigation be obtained. State Health Officers, of course, will judge the advisability of releasing any information from their own states.

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I. Summary of Information

Influenza has now been reported in 387 counties, including 68 counties which appear to have community-wide spread. Active epidemics are occurring in several large metropolitan areas such as Chicago, Milwaukee, Kansas City, Pittsburgh, Detroit, Washington, New York, and Boston. The first evidence of epidemic influenza in these cities was increased school absenteeism, and there is reason to believe that high and junior high schools were first involved. The new industrial absentee reporting system, inaugurated in this report, shows an increase in absenteeism in a number of cities, which thus far seems to follow the onset of school epidemics in these cities by one to two weeks. Evidence of increased mortality from influenza or pneumonia appears somewhat later. Several regions show excess mortality this week, and it is probable that this excess will prevail until the epidemic has run its course.

Through October 7, a total of 15,628,921 ml of Asian strain vaccine has been released. This includes 2,123,974 ml released between October 1 and October 7.

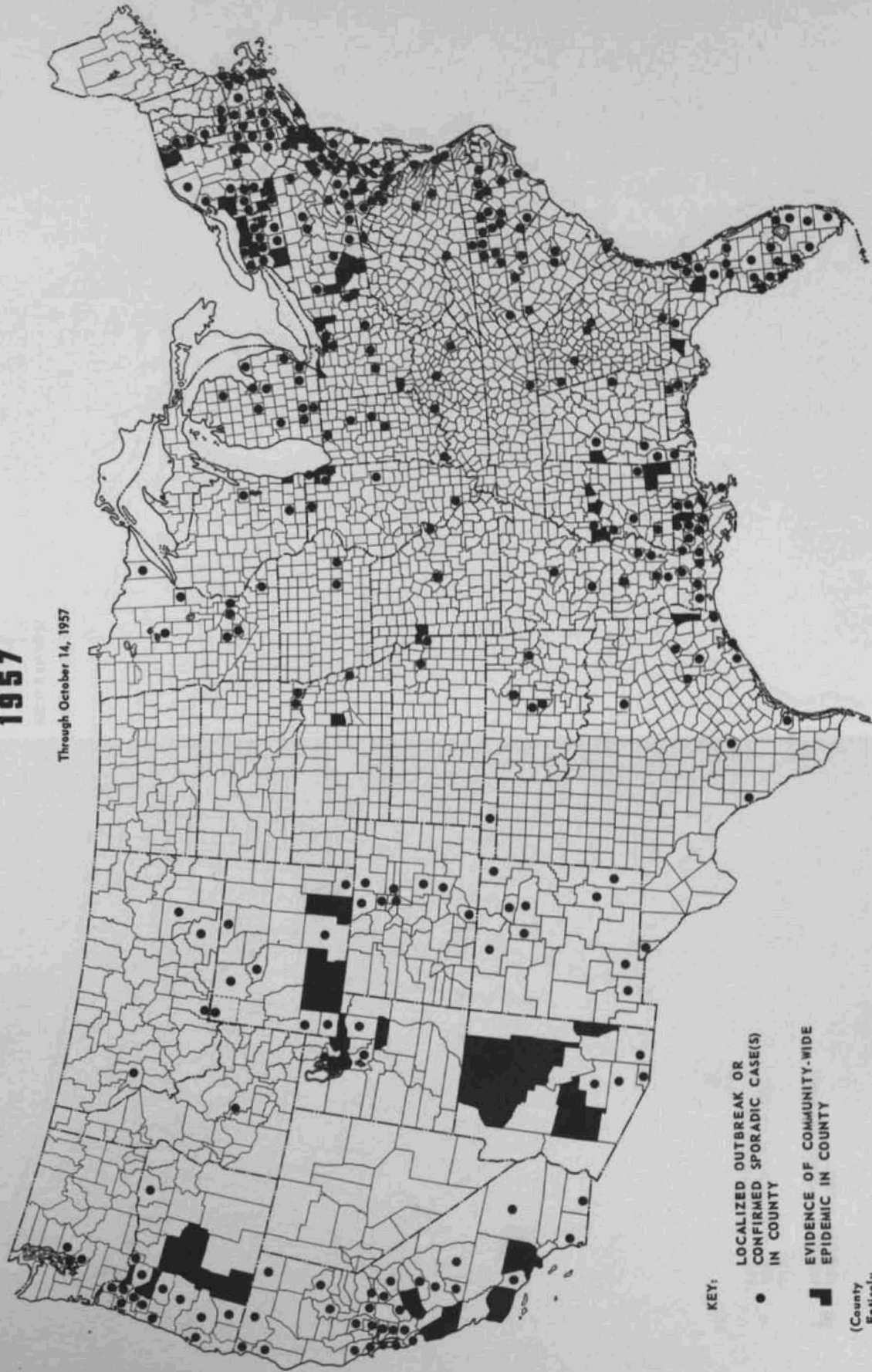
Two more influenza-associated deaths have been reported, one in a 72-year-old cardiac patient and the other in a 60-year-old man, who died with staphylococcal pneumonia. This makes a total of 23 reported deaths associated with influenza, but the excess mortality figures indicate that influenza may be causing other deaths which are not reported as such.

A supplementary international summary is appended to this report. The spread of Asian strain influenza throughout the world during the late summer and September is discussed. During the past month Europe and North America have become heavily involved. Spread has continued in South and Central America and Africa. Except for outlying areas such as New Zealand and the islands of Oceania, epidemic influenza has disappeared from most parts of Asia.

There is serological evidence that the 1889-90 influenza pandemic may have been caused by a strain of virus similar to the present Asian strain. The appended epidemiological description of the 1889 epidemic reveals that it had a high morbidity and relatively low mortality. In the New England area attack rates of 40% were common. Pneumonia was the most frequent complication and deaths occurred most often in the very young or the very old.

ASIAN STRAIN INFLUENZA 1957

Through October 14, 1957

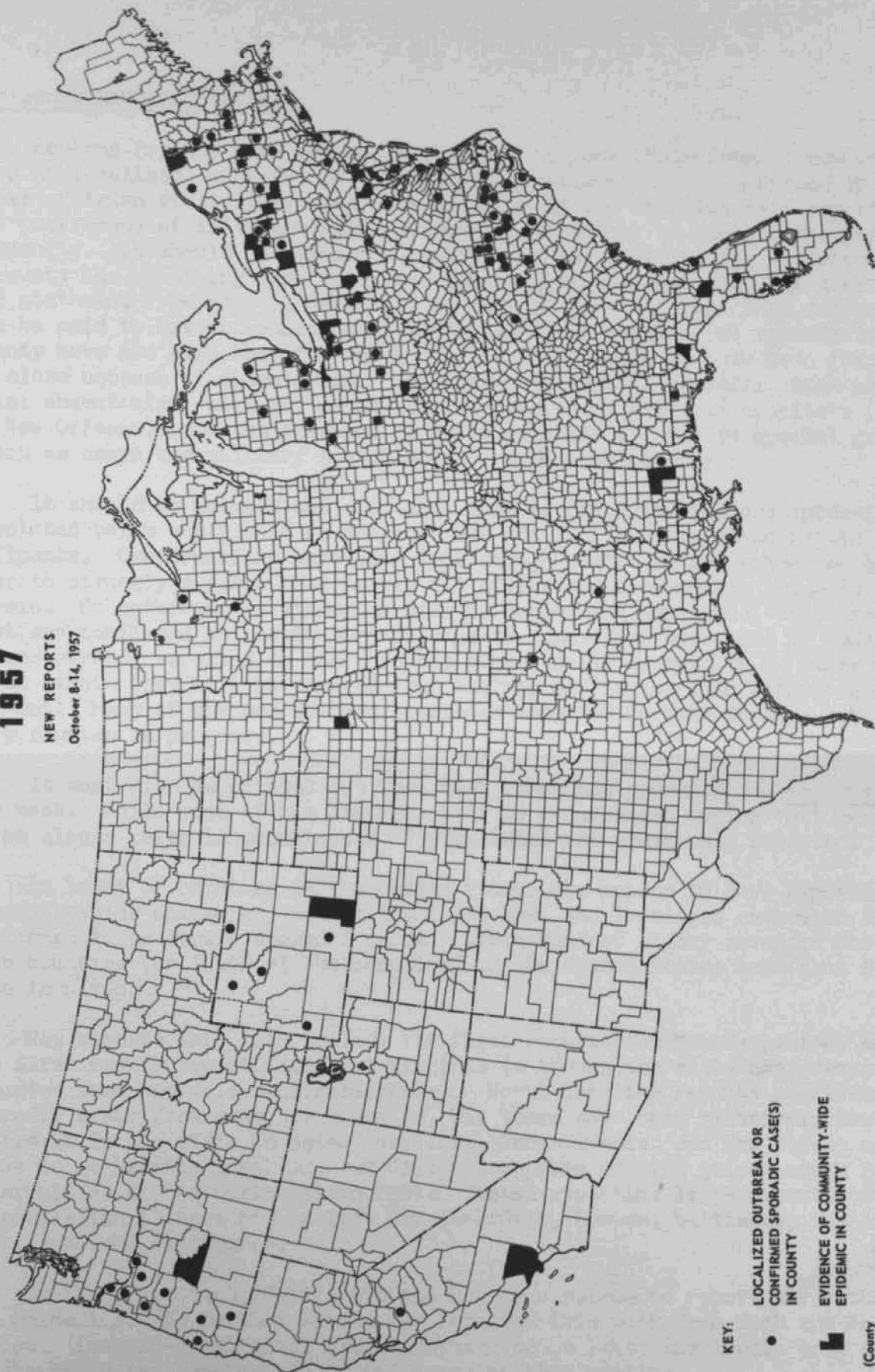


KEY:
● LOCALIZED OUTBREAK OR
CONFIRMED SPORADIC CASE(S)
IN COUNTY
■ EVIDENCE OF COMMUNITY-WIDE
EPIDEMIC IN COUNTY
(County
Entirely
Black)

ASIAN STRAIN INFLUENZA

1957

NEW REPORTS
October 8-14, 1957



- KEY:
- LOCALIZED OUTBREAK OR CONFIRMED SPORADIC CASE(S) IN COUNTY
 - EVIDENCE OF COMMUNITY-WIDE EPIDEMIC IN COUNTY
- (County Entirely Black)

II. Influenza Maps and Tables

Reports for the week October 8-14, 1957 include those from 92 new counties of localized outbreaks of influenza-like illness or of confirmed sporadic cases of Asian strain influenza. In addition 27 new counties have reported the occurrence of influenza-like epidemics that appear to involve the general community. It should be emphasized again that the criteria for deciding that a county has something more than localized outbreak(s) are somewhat arbitrary. The statement from page 3, Report 19 is as follows: "We feel that a county can be said to have community-wide influenza if at least three schools in the county have had high absentee rates because of illness, or have been forced to close because of absenteeism. Supplemental criteria include: high industrial absenteeism; high influenza-like illness visit rates at hospitals (as in New Orleans); and the presence of influenza-like illness in special groups (such as camps and military installations) within the county."

It should be pointed out also that many of the outbreaks and epidemics tabulated below and placed on the maps are not confirmed as Asian strain influenza. Confirmations have come from enough outbreaks and epidemics, however, to strongly suggest that nearly all of the occurrences are actually Asian strain. No outbreaks or epidemics will be mapped and tabulated, of course, that are confirmed as respiratory disease of some other type, and if occurrences already reported on the maps are subsequently learned to be other than Asian strain they will be removed from the map and tables with appropriate comment. Many of the unconfirmed outbreaks reported to date do have laboratory studies in progress.

It must also be pointed out that the second map presents new reports for the week. While most of the reports refer to occurrences during that week, a few always refer to occurrences of past weeks not previously reported.

At least 68 counties in the United States now appear to have experienced community-wide epidemics, and at least 319 have had localized outbreaks or confirmed Asian strain sporadic cases. Three hundred eighty seven of the 3068 counties (or 12.6% of the counties) of the United States have thus far been involved.

New reports this week include the first report from New Hampshire, and the first county report from West Virginia (although the state had previously reported some sporadic confirmed cases). North Carolina reports confirmed sporadic cases from many new counties, but there have been relatively few outbreaks in the state to date. New York, Pennsylvania, and New Jersey continue to be heavily involved, and Ohio now appears to have joined these ranks. Major cities of the northeastern United States reporting large amounts of influenza-like illness now include New York City, Boston, Baltimore, Washington, Cleveland, and Pittsburgh.

On the West Coast, California and Oregon continue to report new outbreaks and epidemics. No further spread was reported this week from Utah and New Mexico. The mid-continental area continues to be least involved. Only North Dakota and Maine remain free of influenza at this writing.

Tabulation of Influenza Outbreaks, Confirmed Asian Strain Sporadic Cases,
and Epidemics in the Continental United States
June through October 14, 1957

State	No. counties in state	No. counties reporting	
		Localized outbreaks or confirmed sporadic cases	Community-wide epidemics
Alabama	67	5	1
Arizona	14	4	4
Arkansas	75	2	0
California	58	29	4
Colorado	63	8	0
Connecticut	8	5	0
Delaware	3	1	0
D. C.	—	—	1
Florida	67	24	2
Georgia	159	6	0
Idaho	44	1	0
Illinois	102	5	1
Indiana	92	5	0
Iowa	99	2	0
Kansas	105	2	1
Kentucky	120	3	0
Louisiana	64	19	2
Maine	16	—	—
Maryland	23	7	3
Massachusetts	14	8	1
Michigan	83	12	0
Minnesota	87	8	0
Mississippi	82	5	6
Missouri	114	2	1
Montana	56	4	0
Nebraska	93	1	1
Nevada	17	Sporadic confirmed cases - counties not known	
New Hampshire	10	1	0
New Jersey	21	4	6
New Mexico	32	9	0
New York	62	29	10
North Carolina	100	22	0
North Dakota	53	—	—
Ohio	88	5	6
Oklahoma	77	5	0
Oregon	36	14	6
Pennsylvania	67	19	4
Rhode Island	5	1	0
South Carolina	46	4	0
South Dakota	68	2	0
Tennessee	95	1	0
Texas	254	10	1
Utah	29	3	4
Vermont	14	5	0
Virginia	98	7	0
Washington	39	3	0
West Virginia	55	1	0
Wisconsin	71	2	1
Wyoming	23	4	2
Totals:	3068	319	68

III. Epidemic and Case Reports

1. Georgia

Influenza is not widespread in Georgia, although there are many isolated small outbreaks. Except for Emory University and Georgia Tech, these outbreaks are almost totally limited to the Negro population. This has been true at Milledgeville, where positive HI tests were obtained, as well as many other scattered communities. Perhaps, this is a result of spread from contacts in north Florida, where the same situation prevails. It does suggest that conditions are not favorable for rapid spread between relatively separated groups.

2. Kansas

Drs. Furcolow, Chin, and Foley, of the Kansas City Field Station, have reported a case of cardiac arrhythmia in a patient with influenza at Olathe Naval Air Base. An EKG revealed a Wenckebach phenomena, which is a progressive lengthening of the PR interval followed by a skipped beat, then repeated. There have been 70 cases of influenza-like disease at the base since October 8 among 10,000 servicemen and dependents.

3. New York City

The New York Times points out that New York City is losing about \$560,000 daily because of influenza absenteeism in schools. Each student absent results in a \$2 loss in education aid from the state, and current absentee rates are about 29% of enrollment compared with the norm of 6 to 9%.

IV. Current Analysis of Influenza and Pneumonia Mortality

Table I
Current Influenza and Pneumonia Deaths
in 108 United States Cities*

Division	Number of Cities		Deaths (including estimates**) during weeks ending		
	In Study	Reporting this week	Sept. 28 (108 cities)	Oct. 5 (108 cities)	Oct. 12 (104 cities)
All Divisions	108	104	260	328	484
New England	14	13	19	26	36
Mid. Atlantic	17	16	69	88	152
E. North Central	18	18	50	67	113
W. North Central	9	9	18	19	28
S. Atlantic	9	9	19	22	35
E. South Central	8	7	12	16	13
W. South Central	13	13	41	38	43
Mountain	8	8	9	18	25
Pacific	12	11	23	34	39

**The number of deaths given includes estimates for cities not reporting in a given week. The table is corrected for preceding weeks as late figures are received. The chart will be corrected only for gross discrepancies.

Comment

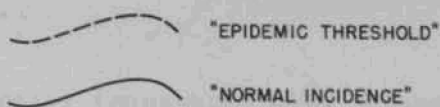
A general rise occurred in influenza and pneumonia mortality with increases in all Divisions except the East South Central. Reports from cities which either had a marked increase during the current week or continued above "normal" levels are given below. In other Divisions increases were smaller but more generally distributed.

Week Ending:

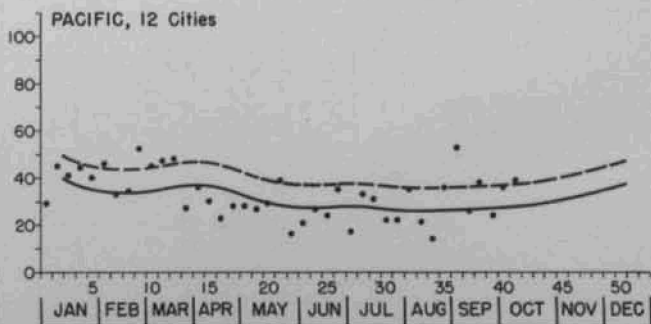
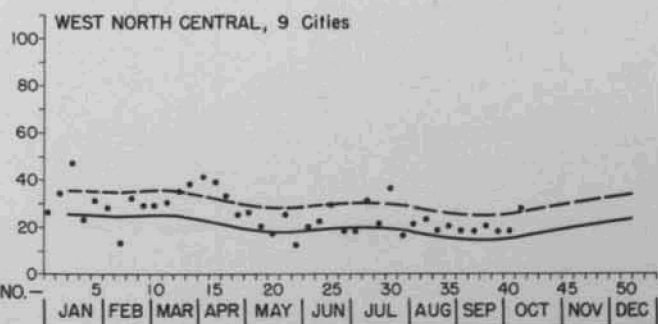
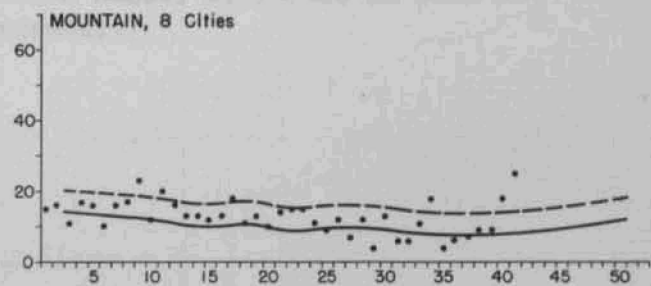
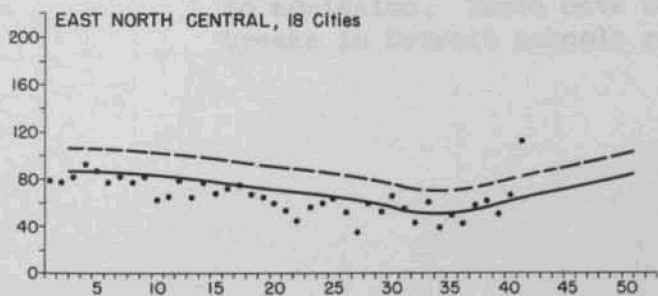
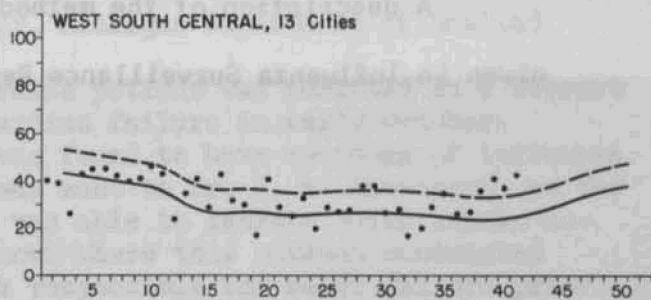
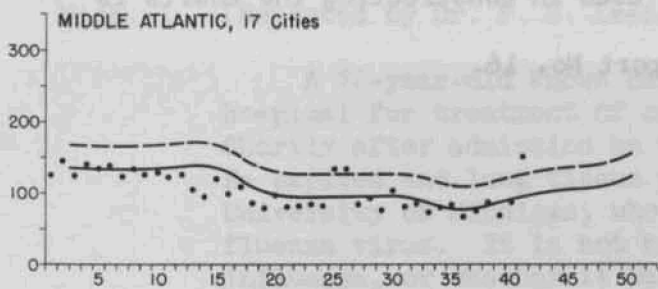
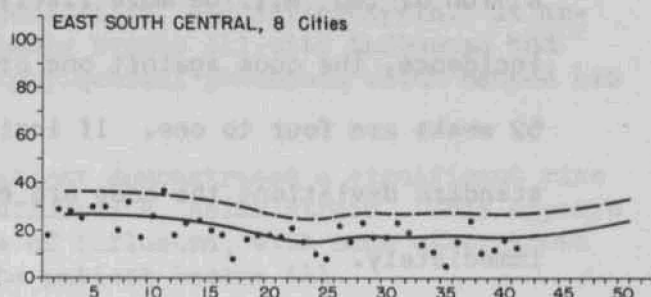
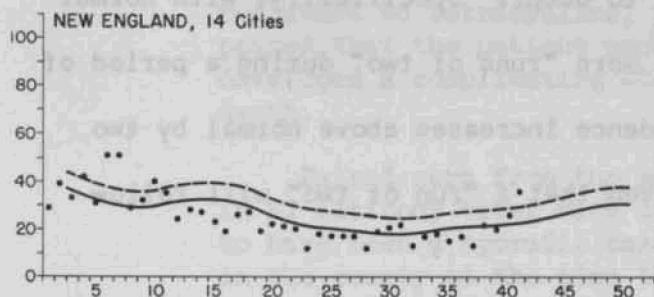
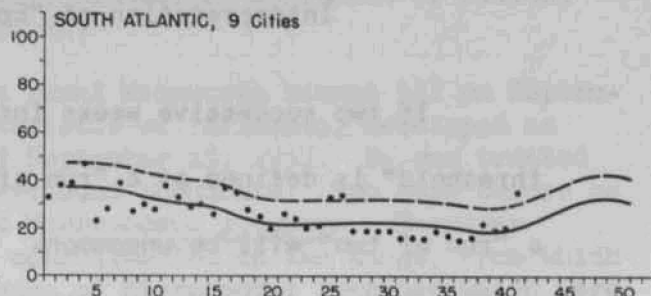
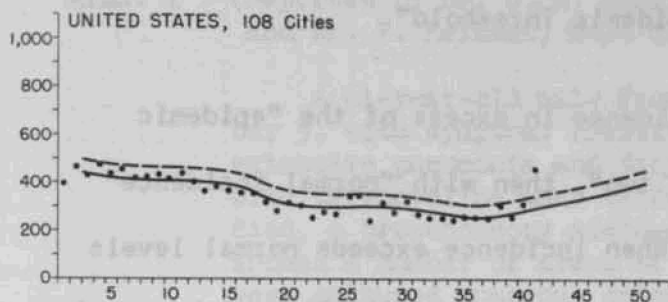
October 12, 1957 October 5, 1957 September 28, 1957

New England			
Springfield	9	3	2
Middle Atlantic			
New York City	105	48	35
East North Central			
Chicago	54	33	22
Detroit	19	6	4
West South Central			
New Orleans	12	8	10
Mountain			
Denver	8	7	5
Salt Lake City	8	6	1

WEEKLY PNEUMONIA AND INFLUENZA DEATHS



(SEE EXPLANATION ON BACK OF SHEET)



NUMBER OF DEATHS

WK. NO. JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Interpretation of "Epidemic Threshold"

If two successive weeks incidence in excess of the "epidemic threshold" is defined as a "run of two", then with "normal incidence" a "run of two" will be uncommon. When incidence exceeds normal levels a "run of two" will be more likely to occur. Specifically, with normal incidence, the odds against one or more "runs of two" during a period of 52 weeks are four to one. If incidence increases above normal by two standard deviations the odds are even that a "run of two" will follow immediately.

A description of the method used in constructing the charts is given in Influenza Surveillance Report No. 16.

V. DEATHS - Deaths Specifically Associated with Influenza

New Reports

Minn. 1 (Reported by Dr. D. S. Fleming, Minnesota Department of Health,
and Dr. F. Heilman, Mayo Clinic)

A 61-year-old male from rural Minnesota became ill on September 5, with symptoms characteristic of influenza, developed an extensive pneumonia and died September 18, 1957. He was treated with tetracycline when he developed pneumonia. Two days before he died, a bronchoscopy yielded Micrococcus pyogenes. Necropsy showed a number of areas of consolidation in the lungs, from which were cultured numerous colonies of Micrococcus pyogenes which were resistant to tetracycline, penicillin, and erythromycin. It appeared that the patient probably became ill with influenza and developed a complicating staphylococcal pneumonia which caused his death.

Paired sera from the patient demonstrated a significant rise in HI antibody titer with influenza A, Asian strain. This appears to have been a sporadic case of influenza, with none other known in the county at the time the patient became ill.

Mich. 1 (Reported by Dr. F. S. Leeder, Michigan Department of Health)

A 72-year-old known cardiac patient was admitted to a Detroit hospital for treatment of cardiac failure in early October. Shortly after admission he was found to have symptoms of influenza. He expired and lung tissue was sent to Dr. F. M. Davenport, at the University of Michigan, who was able to isolate Asian strain influenza virus. It is not known where this patient contracted influenza, or whether it was responsible for heart failure prior to admission. There have been a number of influenza-like outbreaks in Detroit schools recently.

Influenza Death Tabulation

Reported Instances of Deaths Specifically Associated with Influenza, United States
June 1, 1957 through October 15, 1957

State and No.	Locale of Death	Age	Sex	Date of Onset	Date of Death	Diagnosis of Influenza	Contributory Factors and/or Reported Cause of Death	CDC Influenza Report Number
Cal. 1	San Diego	58	M	July 7	July 16	Clinical (CF Test 1:64)	Bronchopneumonia**	9, 15
Cal. 2	San Diego	44	M	July 17	July 21	Clinical	Coronary occlusion	9
Cal. 5	Davis	57	F	June 29	July 4	Clinical	Acute toxic myocarditis**	9, 1-G, 3-J
Cal. 6	Mare Island	20	M	June 10	June 13	Clinical	Bilateral lobar pneumonia with consolidation (etiol. M. pyogenes var. aureus)**	9
Cal. 7	San Diego	33	F	July 8	July 15	Clinical	Hemorrhagic interstitial pneumonitis**	9, 15
Cal. 8	Monterey	21	M	July 21	July 24	Virus Isolation	Bilateral lobar pneumonia with consolidation (etiol. M. pyogenes var. aureus)**	12, 13
Cal. 9	San Jose	16	M	Aug. 14	Aug. 17	Virus Isolation	Bilateral lobar pneumonia with consolidation (etiol. M. pyogenes var. aureus)**	14
Cal. 10	Berkeley	teen-age	F	Aug. 23	Aug. 27	Clinical (CF Test 1:256)	Pneumonia, Encephalitis and Brain Stem Involvement**	16
Cal. 11	San Francisco	29	M	?	Aug. 29	Clinical	"Hemorrhagic Pneumonia"***	16
Cal. 12	Oakland	3	F	?	Sept. 14	Clinical (Community epidemic)	Pneumonia and Pulmonary edema	19
Cal. 13	Los Angeles	23	M	July 24	July 28	Clinical	Bilateral Bronchopneumonia	19
Cal. 14	Madera Co.	14	F	Sept. 30	Oct. 1	Clinical (6 cases in family)	Hemorrhagic Pneumonitis**	20

**Post-mortem examination performed.

Influenza Death Tabulation (Continued)

State and No.	Locale of Death	Age	Sex	Date of Onset	Date of Death	Diagnosis of Influenza	Contributory Factors and/or Reported Cause of Death	CDC Influenza Report Number
N. Y. 1	New York City	18	M	Aug. 13	Aug. 14	Virus Isolation	Hemorrhagic Pneumonitis**	12, 13
R. I. 1	Newport	15	M	Aug. 19	Aug. 23	Virus Isolation	Hemorrhagic Pneumonitis, Interstitial Myocarditis	15
La. 1	Tangipahoa Parish	2	M	July 30	July 31	Clinical (fam- ily outbreak)	DOA - Febrile Respiratory Illness	11, 13
La. 2	New Orleans	17	F	Aug. 15	Aug. 22	Clinical	Hemorrhagic Pneumonia**	16
La. 3	Tangipahoa Parish	26	M	Late August		Clinical (fam- ily outbreak)	Pneumonia, Rheumatic Heart Disease	16
La. 4	New Orleans	28	M	Late August		Clinical	Pneumococcal Pneumonia**	17
P. R. 1-7	Puerto Rico						7 deaths in infants and old persons during September specifically ascribed to influenza or complicating pneumonia.	18
Ha. 1-7	Hawaii						7 deaths, primarily in old persons, during June, July and August	18
Ar. 1	Arizona Ft. Huachuaca	22	M	?	Sept. 22	Clinical (Com- munity epidemic)	Pneumonia (etiolo. M pyogenes var. aureus)**	18
Md. 1	Training School	2	F	Sept. 27	Sept. 30	Clinical (88 cases at School)	Osteogenesis imperfecta Bronchopneumonia	20
Miss. 1	Jackson	6 wk.	F	Sept. 21	Oct. 6	Clinical (5 cases in family)	Diarrhea; encephalitis??**	20
Minn. 1	Olmstead Co.	61	M	Sept. 5	Sept. 16	Paired sera H-1	Staph. pneumonia**	21
Mich. 1	Detroit	72	M	Early October	October	Virus Isolation	Congestive heart failure**	21

**Post-mortem examination performed.

VI. Industrial Absentee Rates for 36 Cities of the United States

(Compiled from a number of sources)

City	% of Total Absent												
	October 1956	Sept. 1957		October 1957									
		29	30	1	2	3	4	5	6	7	8	9	
Boston	6.9	-	-	-	-	-	-	-	-	-	-	-	
Manhattan	4.0	-	-	-	-	-	-	-	-	UP/NR	UP/NR	7.6	
Buffalo	6.7	-	9.0	9.2	10.3	10.2	10.2	6.9	-	8.3	9.2	8.8	
Syracuse	6.3	Increase -- no rate available										-	-
Philadelphia	5.3	-	-	-	-	-	-	-	-	-	-	-	
Pittsburgh	4.5	-	-	-	-	-	-	-	-	-	-	-	
Washington	6.2	-	-	-	-	-	8.5	8.5	-	6.9	6.8	7.7	
Baltimore	5.9	-	-	-	-	-	-	-	-	-	-	-	
Richmond	5.4	-	-	-	-	-	-	-	-	-	-	-	
Atlanta	5.9	Increase -- no rate available										-	-
Miami	10.3	-	-	-	-	-	-	-	-	-	-	-	
Memphis	4.7	-	-	-	-	-	-	-	-	-	-	-	
Birmingham	4.0	-	-	-	-	-	-	-	-	-	UP	7.5	
Nashville	3.6	-	-	-	-	-	-	-	-	-	-	-	
Jacksonville	8.0	-	-	-	-	-	-	-	-	-	-	-	
New Orleans	6.4	-	-	-	-	-	-	-	-	-	-	-	
Cleveland	4.5	-	-	-	-	-	-	-	-	-	-	-	
Columbus	5.0	-	-	-	-	-	-	-	-	-	-	-	
Cincinnati	6.0	-	-	-	-	-	-	-	-	-	-	-	
Detroit	6.6	-	-	9.6	9.9	10.1	9.9	9.5	-	11.8	12.6	11.6	
Indianapolis	5.4	-	-	-	-	-	-	-	-	-	-	-	
Milwaukee	6.3	-	-	-	-	-	-	-	-	-	-	UP/NR	
Chicago	5.6	-	7.3	7.6	7.6	7.6	8.2	7.8	-	7.9	8.3	8.5	
Minneapolis	4.6	-	-	-	-	-	-	-	-	-	-	-	
Omaha	5.4	-	-	-	-	-	-	-	-	-	-	-	
St. Louis	3.9	-	-	-	-	-	-	-	-	-	-	-	
Kansas City	4.8	-	-	-	-	-	-	-	-	-	-	-	
Houston	4.0	-	-	-	-	-	-	-	-	-	-	-	
Dallas	4.3	-	-	-	-	-	-	-	-	-	-	-	
Oklahoma City	3.4	-	-	-	-	-	-	-	-	-	-	-	
Denver	7.9	-	-	-	10.6	10.4	10.5	11.5	-	11.0	10.9	12.8	
Phoenix	8.0	-	-	-	10.1	12.7	11.0	12.0	-	8.4	9.7	11.6	
Salt Lake City	4.8	-	-	-	8.8	9.9	12.9	12.8	-	11.2	11.2	8.7	
San Francisco	9.3	-	-	-	-	-	-	-	-	-	-	-	
Seattle	5.6	-	-	-	-	-	-	-	-	-	-	-	
Los Angeles	5.9	-	-	-	-	-	-	-	-	-	-	-	

- = normal absentee rate

UP = increased absenteeism

NR = no rate available

VII. Influenza Vaccine Production and Distribution

Influenza Vaccine Released

(Totals through October 7, 1957)

<u>Pharmaceutical Concern</u>	<u>Monovalent Asian strain</u>	<u>Polyvalent with Asian strain</u>
Lederle	3,494,140 ml	473,280 ml
Lilly	837,310	16,335
Merck, Sharpe & Dohme	3,199,850	
National Drug	3,285,255	2,054,435
Parke Davis	228,770	
Pitman Moore	2,039,546	

Total released to date:	15,628,921 ml
Amount released since October 1:	2,123,974 ml

Shipping Distribution:

Department of Defense	4,371,300 ml
Commercial channels	11,257,621 ml

Supplementary Report on the International Spread of Asian Strain Influenza
Through the First Week of October 1957

By Frederick L. Dunn, M. D.

(See CDC Influenza Report No. 8, International Summary,
and Report No. 15, Appendix C, First Supplementary Report)

The first supplementary report reviewed the spread of Asian strain influenza through the first week of September 1957. The present report outlines the course of the disease through the world during the period September 7--October 7. In addition, new information on the international spread prior to September is reviewed. Portions of an article on the influenza epidemic in Aden are abstracted, and a map is appended to the report, which brings the spread of Asian strain influenza up to date since its first appearance in the early spring.

ASIA

The epidemic situation throughout most of Asia declined markedly during September. Many areas that were heavily attacked during the late spring and early summer months are now virtually free of Asian strain influenza.

In Indonesia the epidemic had declined markedly by the end of August. The Philippines epidemic was entirely over by August 16, Karachi, Pakistan, reported the end of its epidemic in late August. Thailand and Sarawak also reported marked declines in incidence in late August. Laos reported that the epidemic had ceased in early September. Incomplete data from India, where the epidemic was still declining during September, suggest that at least 4,000,000 cases occurred, with about 1000 deaths that can be attributed to influenza. Burma reported the disappearance of epidemic influenza in the country only in mid-September.

AUSTRALIA

During August considerable spread of epidemic Asian strain influenza occurred in Australia. Queensland was particularly affected. High industrial absenteeism was noted in some plants in this area. New South Wales and Victoria were also significantly affected. Through mid-August Victoria had experienced an estimated 100,000 cases. Western Australia also reported localized outbreaks.

Tasmania reported the first localized outbreaks of influenza early in August but no major epidemic has apparently occurred there.

New Zealand, however, experienced marked spread beginning in early August. Wellington was the first city to note high incidence. Spread was rapid to other towns. Asian strain virus has been isolated from the New Zealand cases, as well as those in Australia.

OCEANIA

Many parts of Oceania were affected by Asian strain influenza during the

summer months. Epidemics on some of the islands were intense. Fiji (reporting a 600 person epidemic), Tonga (875 cases), the Gilbert and Ellice Islands (783 cases), Western Samoa (845 cases) and New Hebrides (396 cases) were among these. Guam reports that at least 4600 cases have occurred on the island since the first appearance of the Asian strain there. Less heavily affected islands, but nevertheless reporting outbreaks, include Nauru, New Caledonia, the Solomon Islands, and the islands of the United States Trust Territory.

THE MIDDLE EAST

In mid-August Turkey reported that many of the provinces had experienced outbreaks of influenza. By early September epidemic influenza was present in Istanbul. The city had reported 50,000 cases by September 11.

By the end of August most of the epidemics of other countries of the Middle East had subsided.

An interesting article on epidemic influenza in Aden, by A. L. Fawdry, M. D., has been published in The Lancet (August 17, 1957, page 335-6). The epidemic is described in detail, with interesting commentary on the effects of the epidemic on the medical personnel and services of the Protectorate.

The one-month epidemic (June 20--July 20) was typical in character, and the clinical picture was also typical. Complications were not rare. Quoting from the article: "...pneumonia was a dangerous and not uncommon sequel to the acute attack. Patients usually gave the history that fever had persisted for about a week instead of disappearing rapidly as in most of their friends; cough had increased and they felt so ill that they felt that they must have medical attention even if they had had none before. There were various manifestations: no single pattern emerged, and culture of sputa reflected this variety. Consolidation when seen on radiography was sometimes lobar but more often patchy and involving more than one lobe: the extent greater than physical signs would have led one to expect. Dyspnoea and toxæmia were severe: cyanosis present but hard to assess in dark-skinned patients. Haemoptysis occurred in many without evidence of other underlying lung disease. . . . One thing was certain--that these post-influenzal pneumonias did not react as easily as do our usual lobar pneumonias to treatment. A few benefited from penicillin, but hesitantly; likewise chloramphenicol; aureomycin we finally found the most satisfactory. But even in those who reacted well to the administration of these drugs by a fall in temperature and general lessening of the toxic state, the physical and X-ray signs were slow to go.

"The bacteriological findings in 25 patients' sputa were as follows: Staphylococcus albus 3, Staph. pyogenes 2, haemolytic streptococcus 0, non-haemolytic streptococcus 14, pneumococcus 9, Neisseria catarrhalis 19, proteus 5, Friedlander's bacillus 9, Haemophilus influenzae 1, diphtheroids 1, Bact. aerogenes 1.

"The paucity of infections with the haemolytic streptococcus and Staph. pyogenes is remarkable, as these were considered to play the major part in the deaths after influenza in 1918 in Europe. It may well be that it reflects difference in the soil rather than the seed, as in general haemolytic streptococci are rarely responsible for sickness and infection in this part of the world."

Fawdry calculated that the excess mortality in 1957 over the comparable period in 1956 amounted to about 200 deaths--a case mortality for Aden of one in 350.

AFRICA

In mid-August influenza was reported to be epidemic in Dakar, Senegal, and French West Africa. On August 26, Dakar reported 400 cases of typical influenza; by August 30, the number was up to 5000 cases.

Nigeria reported the appearance of epidemic influenza at about the same time. Fifteen hundred cases were reported from the country for the second week of August, which was the first week of the epidemic. By the third week of August many Nigerian towns and cities, including Kano, Lagos, and Accra, were heavily affected.

Liberia, also on the west coast of Africa, did not report epidemic influenza until considerably later than its neighbors--only in the third week of September, in fact.

The Union of South Africa counted 200,000 cases by the first of September. The Asian strain virus has been isolated in this country, as it has not in many of the African countries reporting epidemics. The epidemic decline was marked in the Union in early September.

On the east coast of Africa, the Kenya Coast Province reported a marked upswing in influenza cases in the early part of August. In Tanganyika, Dar es Salaam reported the onset of an epidemic shortly before the middle of August and, by the end of the month, the central and northern provinces were hard hit.

Ethiopia, as previously reported, experienced epidemic influenza during August, as did the Sudan, which had counted some 44,000 cases and only two deaths at the time of the epidemic peak in mid-month. The epidemic in Egypt was still in progress in early September though with some evidence of slackening.

EUROPE

September marked the arrival of epidemic influenza in Europe. After several summer months of sporadic cases and localized outbreaks in only a few European countries (except for several epidemics in Balkan countries), almost every country began to report increasing incidence before the month was far advanced. Italy was the first epidemic country of western Europe. At the end of August epidemics began to occur. The Asian strain virus was isolated at about this time. Military personnel were heavily affected early in September. School and community-wide epidemics were more and more frequent as the month progressed. By October 1, some 20 influenza-associated deaths had been reported for the country as a whole. The schools of Rome were closed on September 25.

France experienced sporadic cases and local outbreaks throughout the month. Paris noted the first cases only on September 17. Even in early October no major epidemics had appeared.

Sicily reported the onset of a general epidemic in Palermo on September 13. At the same time Cyprus reported its first outbreaks. On September 19 a report was received of influenza breaking out among NATO troops on manuevers in Portugal. To dateno reports have been received of influenza in Spain.

Switzerland recorded the first proven cases of Asian strain influenza in mid-September. To date the disease has remained sporadic in this country. Belgium began to report local foci of infection early in September. Gradual spread occurred during the remainder of the month. Asian strain virus has been isolated here, also.

In Germany the first outbreak of influenza was reported among American military personnel in Mannheim about August 15. Soon thereafter, Asian strain virus was isolated from an outbreak at a German Army camp near Kassel. By mid-September the Ruhr had been hit by epidemic influenza, further Asian strain isolations had been made, and several influenza deaths had been reported. Some parts of western Germany were reporting 50% attack rates in the general population. United States military personnel were heavily attacked during the month. No information has become available on the influenza situation in East Germany.

In the Netherlands, where sporadic and local outbreak influenza had been conspicuous all summer, a marked upswing in incidence was noted in mid-September. High industrial absenteeism resulted in a 17% decrease in coal production for the month for the country.

Few reports of influenza have come from the Scandinavian countries to date. However, two contingents of Boy Scouts from Sweden contracted influenza while abroad or after return home. One group had been at the Scout Jubilee in England; the other at the Russian Youth Festival.

England, like Italy and Germany, has become an epidemic country. In late August, outbreaks in military camps, as in Germany, were reported in the vicinity of London. By September 18 influenza (confirmed as Asian strain) was widespread in England. Many thousands were reported ill in the Midlands and northern England. School absenteeism was very high. At least 22 deaths due to influenza complications were reported during September (14 were recorded in one community--the city of Sheffield).

From eastern Europe has come a group of reports of Asian strain influenza isolations from specimens collected during epidemics and outbreaks early in the summer. Romania, Yugoslavia, and Czechoslovakia have reported these isolations. In Poland an outbreak of confirmed Asian strain influenza is known to have occurred in Silesia late in August or early in September. Greece has noted an unusual amount of influenza-like illness since mid-August. No major outbreaks, however, have occurred to date.

NORTH AMERICA

The course of the epidemic of Asian strain influenza in the United States is reviewed elsewhere. Suffice it to say that the first clear-cut community-wide epidemics occurred as early as the last week of July (in Louisiana), but the frequent occurrence of such epidemics was not apparent until mid-September. In the first week of October, the disease became truly epidemic in many parts of the United States.

The first epidemics of influenza in Alaska were recorded only in late September, although sporadic illness (not confirmed as Asian strain, however) had been present in the Territory for several months. On September 27, Barrow reported that 500 of the 950 residents had developed influenza during a short period of time. Nome also reported 500 cases among a population of 1876. Two deaths, one infant and one elderly person, were recorded among those who were ill.

In the Caribbean, Puerto Rico was the first island to report a major epidemic. The onset of this epidemic occurred about the end of August and the peak occurred in mid-September. The Puerto Rican situation has been reviewed elsewhere in the Influenza Surveillance Reports.

The Bahamas and the Virgin Islands recorded the first influenza outbreaks in early September. Epidemic influenza has not appeared in the Bahamas thus far; but, by the last week of September, an epidemic was clearly in progress in the Virgin Islands. Trinidad continues to experience outbreaks but there has been no real epidemic. Other Caribbean islands have not reported influenza as yet.

In Canada the earliest reports of influenza came from Newfoundland, where several outbreaks occurred during August. Early in September passengers with influenza-like illness were known to have disembarked in Quebec City from ships arrived from Europe.

Between September 7-14 a confirmed Asian strain influenza outbreak occurred at a girl's camp near Doe Lake in Ontario. In mid-September unconfirmed outbreaks were also recorded in several other Ontario and Quebec towns, Calgary, Alberta, and a small town in Saskatchewan. On September 26, a report was received of a large outbreak on Prince Edward Island. Nova Scotia and British Columbia also reported smaller outbreaks at this time. To date there is no evidence of community-wide epidemics in Canada.

CENTRAL AMERICA

On September 10, Honduras reported that there were some 1000 cases of influenza-like illness in Tegucigalpa. Progress reports on the influenza status of this country are not yet available. Also, early in September came a report of high absenteeism (25%) in schools in some parts of Guatemala due to influenza-like illness.

Salvador experienced an epidemic of confirmed Asian strain influenza somewhat earlier. Between August 12-18, about 4000 influenza cases were reported; between August 19-25, some 9000 cases were reported; between August 26 and September 1, the number was at a peak of 34,000; and during the first week of September the epidemic appeared to be declining, as only 15,000 cases were reported. At the peak of the epidemic in the last week of August absenteeism among office workers in El Salvador was reportedly about 15%. Only six deaths were attributed to influenza during this four week period.

The influenza epidemic in Costa Rica closely paralleled that in Salvador. The first influenza cases were noted about the third week of August, and an epidemic was in progress by the end of the month.

Panama noted a marked upswing of influenza-like illness early in August. The Canal Zone has provided a detailed report on the influenza situation in that area. Influenza-like illness was epidemic in the Zone during the six-week period from mid-July through mid-September. The first outbreaks were noted among military personnel, but spread soon occurred to the civilian population. The peak of the epidemic was reached in early August. The over-all attack rate for the population was approximately 25-30%.

SOUTH AMERICA

The peak of the Argentina epidemic was reached about August 25. At that time 400,000 persons were ill. The report for the first week of September listed only 200,000 cases. The epidemic began in Mendoza province, spread north to Salta and Jujuy, then south to Cordoba and Buenos Aires. No deaths have yet been reported as directly attributable to influenza. The illness was mild and complications were few. Absenteeism reached 25% in some industries--twice normal for the winter season. No factories were shut down. Absenteeism on September 9 was down to a below-normal 8%.

In Bolivia the severe epidemic of July and August had declined sharply by the first of September. The attack rate was very high, the disease mild, the complications few, and only a few fatalities were reported. The peak in the city of La Paz occurred in late July. La Paz reported that 200,000 of the 375,000 citizens were stricken during the epidemic.

Chile reported that the major epidemic there had subsided by the end of August. In Uruguay, which also experienced a major epidemic during late August and early September, the over-all attack rate for the country was considered to be close to 40%.

Venezuela reported only sporadic influenza-like illness during most of the summer; but epidemics (confirmed as Asian strain) appeared in several coastal cities early in September and spread to inland communities followed rapidly. A major epidemic wave, comparable to that in Bolivia or Chile, has apparently not struck Venezuel to date.

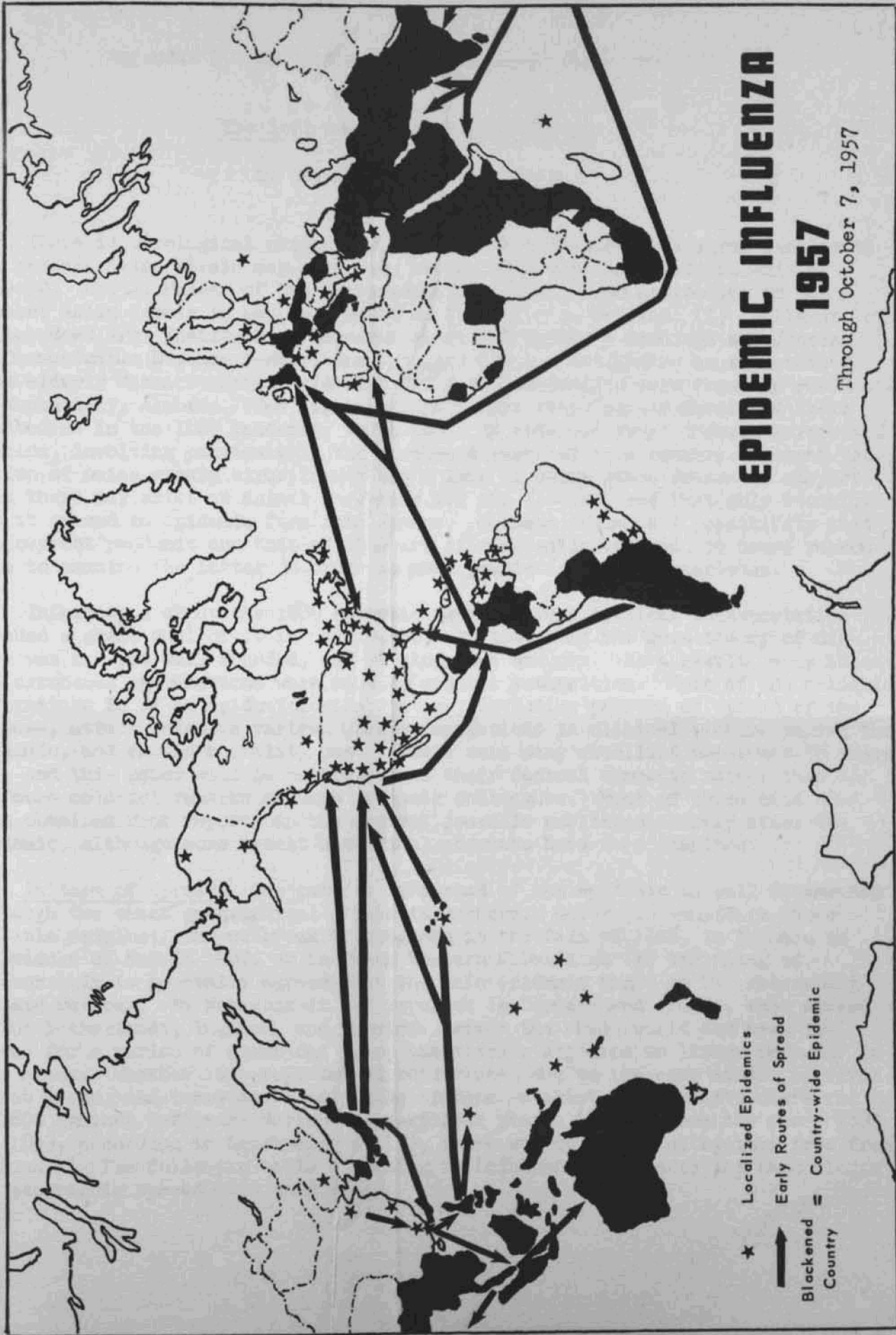
Brazil, in the first week of September, reported the first isolations of Asian strain virus from sporadic cases. At that time an epidemic in the south of the country was subsiding. The disease was, and still remains, only sporadic elsewhere. Rio de Janeiro and Sao Paulo have reported numerous scattered cases.

Little recent information is available on the status of influenza in Peru, Ecuador, and Colombia, where outbreaks and epidemics have occurred during the latter part of the summer. The only South American countries that have not reported any influenza outbreaks this summer or fall are Paraguay, French Guiana, and Surinam.

EPIDEMIC INFLUENZA

1957

Through October 7, 1957



The Influenza Epidemic of 1889-90

By Yates Trotter, Jr., M. D.

There is serological evidence suggesting that an influenza virus similar to the present Asian strain may have been responsible for the world pandemic of 1889-90. Dr. J. Mulder, of the Netherlands, has discovered antibodies to the present Asian strain in people aged 80 to 90 living in Holland. (1) Hilleman, of Walter Reed Army Institute of Research confirmed Mulder's findings and Jensen, of Communicable Disease Center, demonstrated similar antibodies in sera sent from elderly Massachusetts residents. No Asian antibodies were found in residents of Montgomery, Alabama. One might speculate that these people developed their antibodies in the 1889 pandemic, which began in Asia and swept through Europe and America, involving particularly the northeast parts of this country. Recent isolation of Asian strain virus from a hog's lung in China gives reason to suspect that there may exist an animal reservoir for the disease, and that only recently has it spread in epidemic form into humans. Because there is a possibility that the current pandemic and that of 1889 are etiologically related, it seems reasonable to examine the latter in order to make predictions and comparisons.

Information about the 1889 epidemic deserves very critical interpretation because a great deal of it is unreliable. At that time the germ theory of disease was not yet well founded, and virology was unknown. As a result, many idle and erroneous speculations were made by medical authorities. Most of the reliable information is of an epidemiological nature, including pattern of spread of the disease, attack rates in various groups, variations in clinical picture during the epidemic, and excess mortality data. There were many excellent observers 70 years ago, and this paper will be restricted to their factual comments rather than to the more colorful remarks of some of their colleagues. Most of these data have been obtained from reports in the medical journals published shortly after the epidemic, although more recent historical accounts have been examined.

Pattern of Spread. The pattern of spread of the epidemic is well documented although the exact geographical origin is unknown. Osler (2) considers three possible origins: the outbreak in Hongkong in the fall of 1888, in Buchara in the middle of May in 1889, or in Tomsk Western Siberia at the beginning of October. It is generally agreed that the main epidemic began in St. Petersburg in late October. By November it was reported in Germany and France, then spread to the Netherlands, England, and America. After the whole world had been involved for a period of about one year, the disease appeared to linger or recur in many areas. Whether this represented recurrences due to the same strain of virus is not known, and there are conflicting statements about the immunity conferred in 1890 against influenza during the next four years. (4) Between the years 1889 and 1893, according to Leichtenstern (3), there was no period altogether free from influenza. The following table according to Leichtenstern traces the chronologic and geographic spread more completely:

<u>Month</u>	<u>Epidemic Area</u>
First (October)	St. Petersburg, Moscow, Courland, Livonia, Finland
Second (November)	Berlin, Paris, Vienna, Sweden, Denmark
Third (December)	London, Holland, Belgium, Balkan States, North America
Fourth (January)	Capetown, Egypt, Honolulu, Mexico, Japan, Hongkong
Fifth (February)	San Francisco, Buenos Aires, India, Sierra Leone, Scilly Islands
Sixth (March)	Chile, Kamerun, Zanzibar, Basutoland, Tasmania
Seventh (April)	British Bechuanaland, Barbados
Eight (May)	Gold Coast, Natal
Ninth (June)	Trinidad
Tenth (July)	Iceland, Madagascar, China, Senegal
Eleventh (August)	Kashmir, Katunga

This pattern of spread is quite different from that during the present Asian epidemic (11) and can perhaps be explained by changes in transportation and travel. The introduction of the virus into the United States was probably later in the year in 1889 and mainly from the eastern rather than the western part of the country. Numerous simultaneous outbreaks in major cities suggest that there may have been unsuspected seeding prior to the time that epidemics became apparent. For example, the disease appeared in epidemic form in Boston, New York City, Chicago, and Philadelphia within the period December 17-23, 1889. Even smaller cities seemed to have almost simultaneous involvement in some states, as in the case of Lancaster and Wilkesbarre, Pennsylvania, which experienced outbreaks on almost the same day. (5) On the other hand, Shattuck (6) noted that the disease spread somewhat concentrically out from Boston, taking about two weeks to reach the more isolated areas of Massachusetts. Charleston, South Carolina, had flu about a month after Boston, then New Orleans, and later California. The peak of mortality was January 11 in Boston and January 25 in San Francisco. There was a close correlation between increased mortality and presence of influenza.

Attack Rates. In 1889-90 attack rates closely approximated those seen at the present time in some areas. Examination of absentee data from the Pacific Mills, Lawrence, Massachusetts (7), shows the usual wide variation in different parts of the plant. During the four week epidemic period in January 1890, 1699 (or 40%) of 4242 workers were absent because of flu. Among the 36 different mill departments, attack rates varied from 4% to 92%, the latter being in plumbers, who had no regular place to work but were called to all parts of the mill, and therefore came into contact with persons in every part of the factory. The

Massachusetts State Board of Health obtained data from questionnaires returned by 192 physicians, 24 public institutions, and 178 factories. (6) Judging from the data of public institutions and of manufacturers, at least 40% of the adult population was seriously enough ill to miss work. The medical returns, which were necessarily often guesses, agreed with the 40% attack rate figure. Age specific attack rates are not readily available. However, in Munich, where 22,972 persons were affected, about one-half of them were between 21 and 30 years of age. (2) In the New York Foundling Asylum (8) "where there were between 700 and 800 inmates, not a single diagnosis of influenza had been made among the children under 2 years of age. Some of them, which were wet-nursed by women suffering from the disease, fell away a little, and occasionally there was a moderate attack of diarrhoea among them; but this was all." From Pennsylvania a report indicated that, out of 37,275 cases, 26,302 were in adults and 10,973 in children. In general then it can be assumed that all ages were involved, and that age specific attack rates varied from place to place.

Clinical Picture. Descriptions of the clinical picture of influenza in 1889 could be easily substituted in the current epidemic. One of the best accounts is a tabulation of flu symptoms taken from the records of a private physician in Rhode Island (10), who recorded 314 personally seen cases.

<u>Symptom</u>	<u>No.</u>	<u>%</u>
Frontal headache	314	100
Muscle pains	314	100
Chills	213	68
Severe coryza	287	92
Dry cough	281	90
Aphonia	193	62
Bronchitis	261	83
G.I. distress	209	62
Pneumonia	16	5

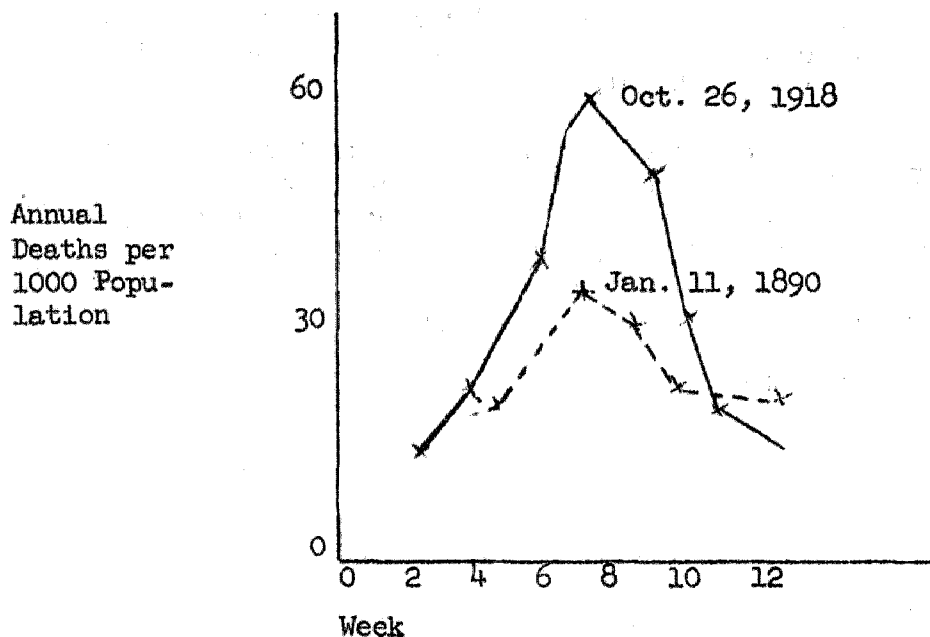
Among these 314 cases the average duration of acute symptoms was 4 to 7 days, which agrees well with the average of $6\frac{1}{2}$ days work missed by the 1699 cases in textile workers at Pacific Mills. (7)

Community Effects. The usual community epidemic lasted from 4 to 6 weeks and, on many occasions, business was totally disrupted. The following is an account from Pennsylvania (9): "Business was now almost at a standstill. In several instances places of business or manufacture were compelled to close for want of hands. Whole families were confined to the bed at once, so that neighbors were obliged to provide them with food and nursing care." In Vienna, hospitals were so crowded that patients were placed on the floor. Schools were closed throughout Germany.

Complications. Although "nervous" complications were greatly discussed by many writers during the epidemic, this may reflect a growing interest in psychiatry at the time. Unusual emphasis was placed on post-influenzal depression and neuritis, but critical examination reveals this to be fatigue and headache. Pneumonia was the main complication and the usual cause of death. The incidence of pneumonia observed by Haller (10) in his 314 cases in private practice was 5% but Parker (7) reports only 0.6% (10 in 1699) among factory workers. This alone

suggests that pneumonia involved either very old or very young persons. It is stated by Pepper (12) that the incidence of pneumonia was 2 to 3 times usual during the epidemic, but exact figures are not available.

Deaths. Statistics from 1890 are neither accurate nor complete enough to allow calculation of the exact death rate or case fatality. It is quite evident, however, that this rate was considerably below that of the 1918 epidemic. At the peak of the 1918 epidemic the annual death rate was 55.6 per 1000 as compared to 35.4 per 1000 in 1889-90, using data from 12 cities (13) to form a comparison. This data is presented graphically below.



The normal baseline of deaths from all causes was higher in 1889 than in 1918, which makes the excess deaths much greater in 1918. In 1918 the frequency of deaths in young adults was abnormally high, which was not reported in the 1889-90 epidemic.

Conclusion. In conclusion, the 1889-90 influenza pandemic involved most of the civilized world, with high morbidity and low mortality, and affected all age groups. The disease was clinically similar to the present Asian strain influenza, and pneumonia was the most frequent complication. If further evidence is obtained that a closely related virus was involved in both epidemics, careful studies should be made to determine the effects of modern transportation, population density, vaccine, and antibiotics upon the behavior of the epidemic.

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