FOR ADMINISTRATIVE USE

CDC INFLUENZA SURVEILLANCE REPORT

NO. 22 OCTOBER 21, 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.

Table of Contents

I. Summary of Information

Influenza has now been reported in 476 counties, including 94 with community-wide epidemics. Many schools have been temporarily closed and industrial absenteeism has increased, but there is little evidence of serious disruption of community function as seen in some other countries

Seven deaths have been reported among mental defectives at a large institution. Susceptibility to bacterial complications appears to increase the risk from influenza in these persons as evidenced by this and other similar reports.

Excess mortality for the entire United States continues to rise, with the greatest relative increase in the Middle Atlantic Division (New York, New Jersey, Pennsylvania). The total excess for the week ending October 19 is approximately 300 deaths. Although these may not necessarily be all related to influenza, there is a striking association of reported epidemics, industrial absenteeism, and excess influenza and pneumonia mortality.

A case summary is recorded of an influenza-associated death in an 18-year-old college student with staphylococcal pneumonia as the cause of death. These case summaries represent only a small fraction of the deaths associated with influenza, and should not be considered representative of the majority of deaths. Most of the deaths reported to the Influenza Surveillance Unit have been in the young adult group, but there is no reason to believe that this represents the nationwide age distribution.

A total of 22,765,436 ml of Asian strain vaccine has been released through October 16. This includes 7,136,515 ml released since October 7.

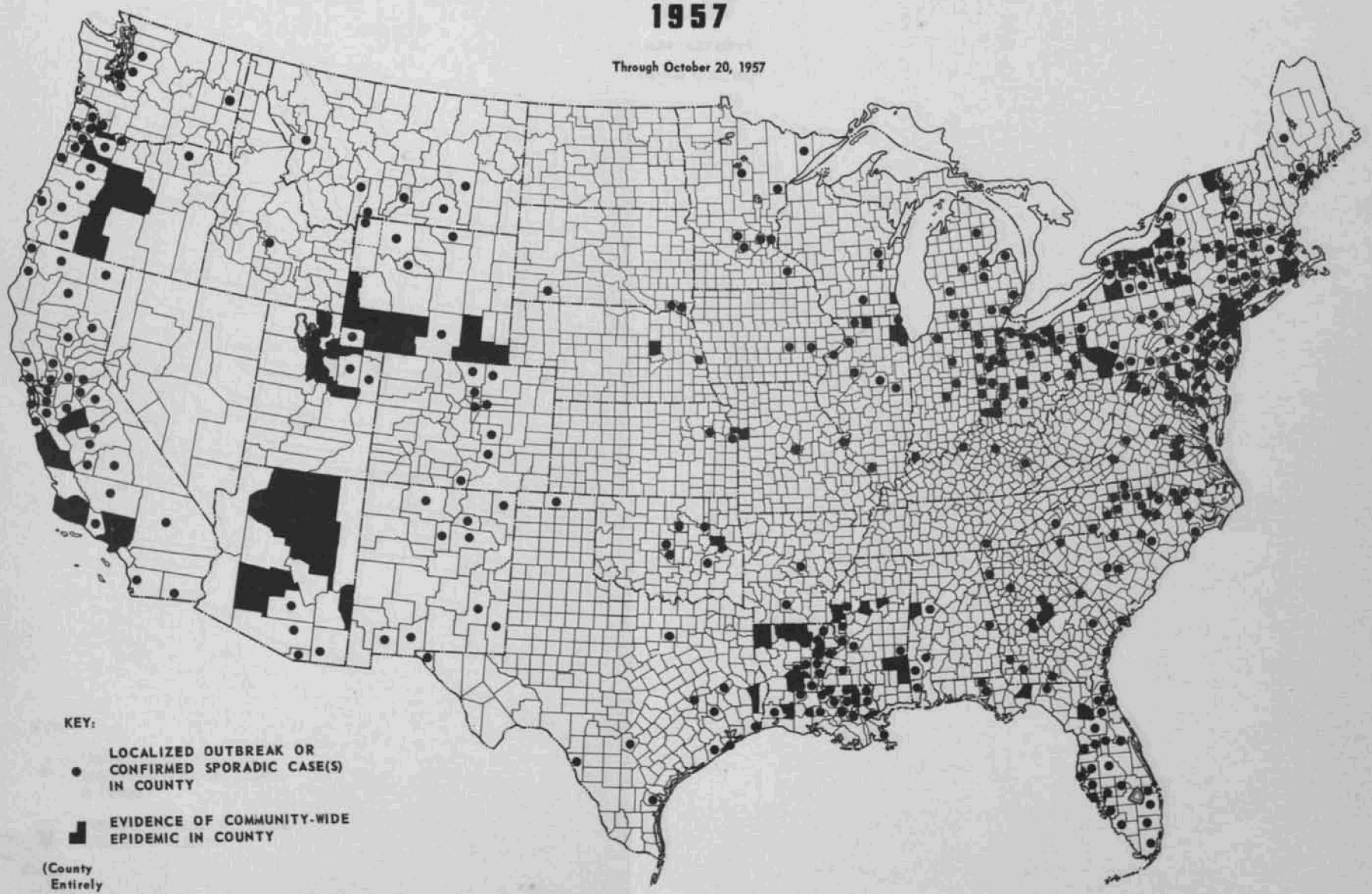
The average duration of 25 influenza epidemics in the U. S. A. since 1915 has been 13 weeks, with variations from 6 to 31 weeks. Duration was measured by excess influenza-pneumonia mortality rates as explained in Appendix A.

Notice: The Staphylococcus and Streptococcus Unit, Laboratory Branch, CDC would like to have subcultures of staphylococcus, pneumococcus, streptococcus, and hemophilus strains isolated from influenza cases complicated with pneumonia. Each c81ture should be well identified for a possible later reference. The strains should be well packaged and mailed in the regular manner to:

Communicable Disease Center
Laboratory Branch
P. O. Box 185
Chamblee, Georgia
Attention: Dr. Elaine L. Updyke

ASIAN STRAIN INFLUENZA
1957

Through October 20, 1957



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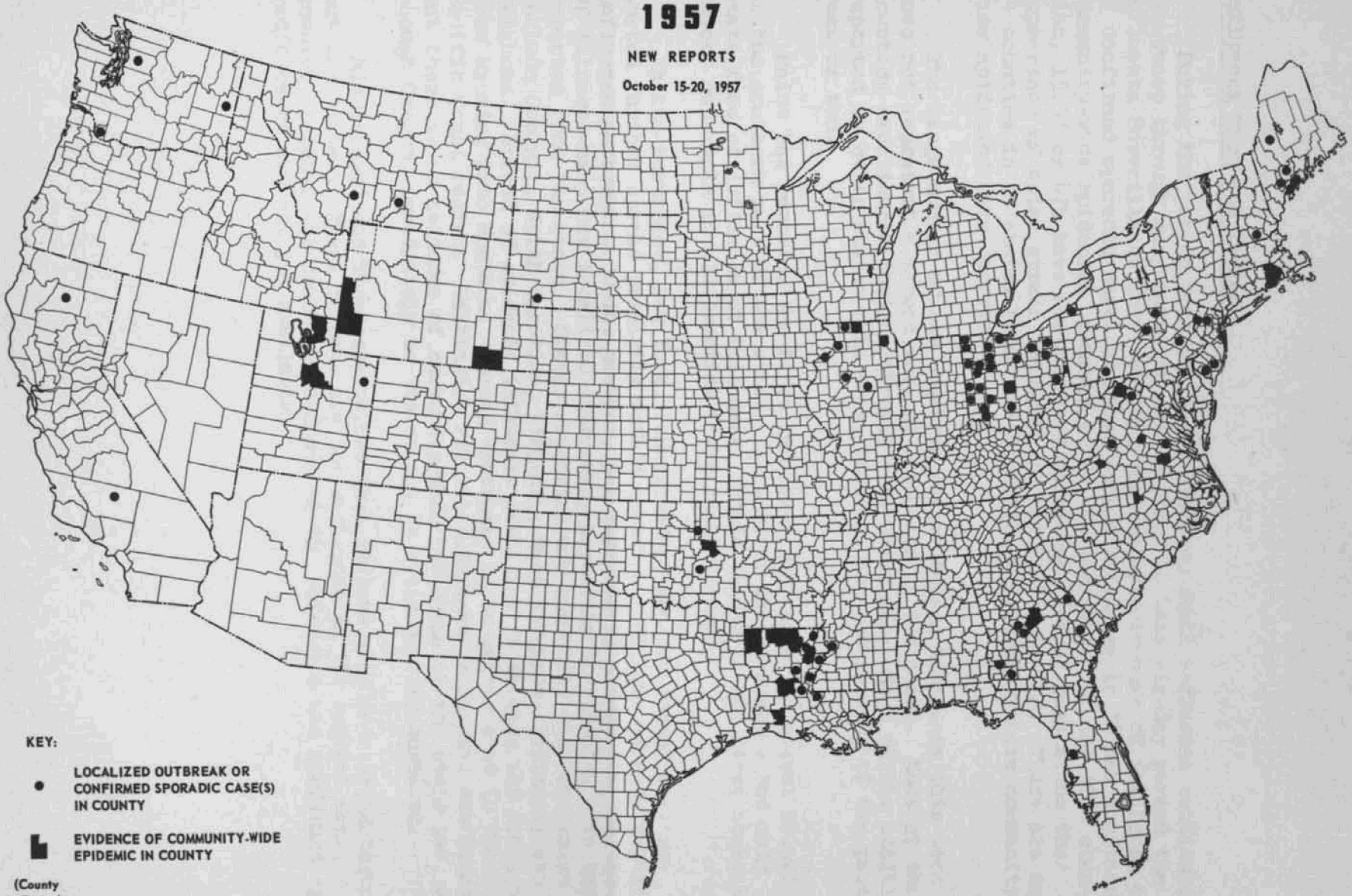
ATLANTA, GA. - APRIL, 1958

ASIAN STRAIN INFLUENZA

1957

NEW REPORTS

October 15-20, 1957



KEY:

- ● LOCALIZED OUTBREAK OR CONFIRMED SPORADIC CASE(S) IN COUNTY
- ▙ EVIDENCE OF COMMUNITY-WIDE EPIDEMIC IN COUNTY

(County Entirely Black)

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ATLANTA, GA. – APRIL, 1958

II. Influenza Maps and Tables

During the period October 15-20, 1957, epidemic influenza continued its sweep through many parts of the nation. In this six-day period the Influenza Surveillance Unit received reports of outbreaks of influenza or of confirmed sporadic cases of Asian strain influenza in 76 new counties. Community-wide epidemics occurred in 25 new counties. Of the 3068 counties, 15.5% or 476 have now reported influenza-like illness since the appearance of Asian strain influenza in the United States. There are now 94 counties in 26 states (plus the District of Columbia) where community-wide epidemics have occurred.

The large number of new counties reported from Louisiana this week does not represent a second wave of influenza in the state. Most of these counties experienced their outbreaks some weeks ago. Most of the additions reported by other states this week, however, are occurrences of the past week or two.

Maine has reported the first localized outbreaks in several counties of the southern part of the state. Thus North Dakota remains the only state free of influenza at this date. Rhode Island is the first state to report outbreaks in all counties (five in this case).

In the Northeast, New York, Pennsylvania, and New Jersey have reported further spread primarily within counties that have already reported influenza outbreaks. Ohio, however, has experienced a considerable upsurge of illness--many new localized outbreaks, primarily in schools, have been reported from the state. States reporting new community-wide epidemics include Georgia, North Carolina, Virginia, West Virginia, Illinois, and Oklahoma. Spread of epidemic influenza continues in Wyoming and Utah, and from Wyoming into Montana. Spread continues to be rather slow in the Pacific Coast region. Washington reports outbreaks in several new locations but there is no evidence of community-wide influenza in the state yet, although Oregon, immediately to the south, is still heavily involved.

Mississippi and Tennessee report that influenza is widespread throughout the states. These reports are not reflected on the current maps, however, because the county breakdowns of the epidemics and confirmed sporadic cases are not yet available.

Tabulation of Influenza Outbreaks, Confirmed Asian Strain Sporadic Cases, and Epidemics in the Continental United States
June through October 20, 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	31	4
Colorado	63	8	0
Connecticut	8	5	0
Delaware	3	1	0
D. C.	--	--	1
Florida	67	25	2
Georgia	159	11	3
Idaho	44	1	0
Illinois	102	8	3
Indiana	92	5	0
Iowa	99	2	0
Kansas	105	2	1
Kentucky	120	3	0
Louisiana	64	22	11
Maine	16	5	0
Maryland	23	7	3
Massachusetts	14	8	1
Michigan	83	12	0
Minnesota	87	8	0
Mississippi	82	6	6
Missouri	114	2	1
Montana	56	6	0
Nebraska	93	1	1
Nevada	17	Sporadic confirmed cases - counties not known	
New Hampshire	10	2	0
New Jersey	21	9	6
New Mexico	32	9	0
New York	62	29	10
North Carolina	100	21	1
North Dakota	53	--	--
Ohio	88	25	7
Oklahoma	77	6	1
Oregon	36	14	6
Pennsylvania	67	24	4
Rhode Island	5	5	0
South Carolina	46	4	0
South Dakota	68	3	0
Tennessee	95	1	0
Texas	254	10	1
Utah	29	2	7
Vermont	14	5	0
Virginia	98	10	2
Washington	39	6	0
West Virginia	55	0	2
Wisconsin	71	2	1
Wyoming	23	5	4
Totals:	3068	382	94

III. Epidemic and Case Reports

1. Illinois - Dixon State School, Dixon, Illinois

(Information received from Dr. Frederick Plotke, Chief of Public Health, Illinois Public Aid Commission)

The Dixon School is an institution for 4900 mental defectives of all ages. About half of the patients are under 16 years of age. Dormitories are divided into two groups, male and female. There is an isolation hospital on the grounds and complete medical and nursing staffs.

On September 30 epidemic influenza began in the female group. The presence of Asian strain was confirmed by virus isolation and paired sera H-I antibody rise. Despite precautionary measures, influenza spread rapidly through the female division causing about 700 cases before it appeared among male patients on October 10. At present, the epidemic is decreasing among females and nearing its peak in the male population. On October 18, the total number of cases was 1925, making an attack rate of 39%. Among personnel directly responsible for patient care, a similar attack rate was observed; but administrative and clerical personnel had much lower rates. The symptoms were typical for influenza, and average duration of illness was six days. At the height of the epidemic, on October 17, a total of 1278 persons were sick in bed with influenza; however, by hiring extra personnel it was possible to maintain satisfactory care of the patients.

Complications and serious illnesses were reported in 25 patients. In almost every case these complications were respiratory and often occurred in patients with some predisposing factor such as Mongolism. Dr. Plotke felt that the elevation of the White Blood Count was extremely helpful in determining which patients to hospitalize because most patients with bacterial complications had a high WBC. He also noted that pulmonary rales were usually heard best near the midline. The average case was treated with bedrest, antipyretics, and forced fluids, in the resident dormitory. Hospitalized cases received crystalline penicillin and dihydrostreptomycin when indicated by pneumonia. In addition, Dr. Plotke gives 6 cc of gamma globulin as part of a study to determine its efficacy in such cases. Results of this study are as yet inconclusive, but complications appear to have responded well since the use of gamma globulin was begun.

Since onset of the epidemic, 7 deaths related to influenza have occurred. All 7 were housed on the female side and were aged 72, 47, 32, 14, 11, 9, and 6 years. Two of the children were hard-feeders and one was Mongoloid. Complete case histories and autopsy results are not yet available, but deaths appeared clinically to be due to pneumonia. In general, the patients died within one to 3 days of onset of influenza and followed and inexorable downhill course. It is noteworthy that the average monthly number of respiratory deaths at this season has been 4 to 7 during the past 2 years; however, the concentration among females makes the relation to influenza inescapable. There is a possibility that further deaths may occur as the epidemic continues within the male division.

IV. Current Analysis of Influenza and Pneumonia Mortality

Table 1

Current Influenza and Pneumonia Deaths in 108 United States Cities*

Division	Number of Cities In Study	Number of Cities Reporting this week	Deaths (including estimates**) during weeks ending Oct. 5 (108 cities)	Oct. 12 (107 cities)	Oct. 19 (102 cities)
All Divisions	108	102	328	484	607
New England	14	13	26	34	25
Mid. Atlantic	17	14	88	152	262
E. North Central	18	18	67	113	134
W. North Central	9	9	19	28	29
S. Atlantic	9	9	22	35	41
E. South Central	8	6	16	16	22
W. South Central	13	13	38	43	38
Mountain	8	8	18	25	20
Pacific	12	12	34	38	36

**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

Nationally, the number of pneumonia and influenza deaths continued to rise. The relative increase was greatest in the Middle Atlantic Division with New York City showing a further increase over the preceding week, and Rochester a moderate increase. In Pennsylvania there were increases in Philadelphia and Pittsburgh.

The East North Central Division continued above normal for a second week. Chicago and Detroit remained well above normal levels and there was increased mortality in Milwaukee.

The South Atlantic, West South Central, West North Central and Mountain Divisions remained above normal with no marked change from the preceding week.

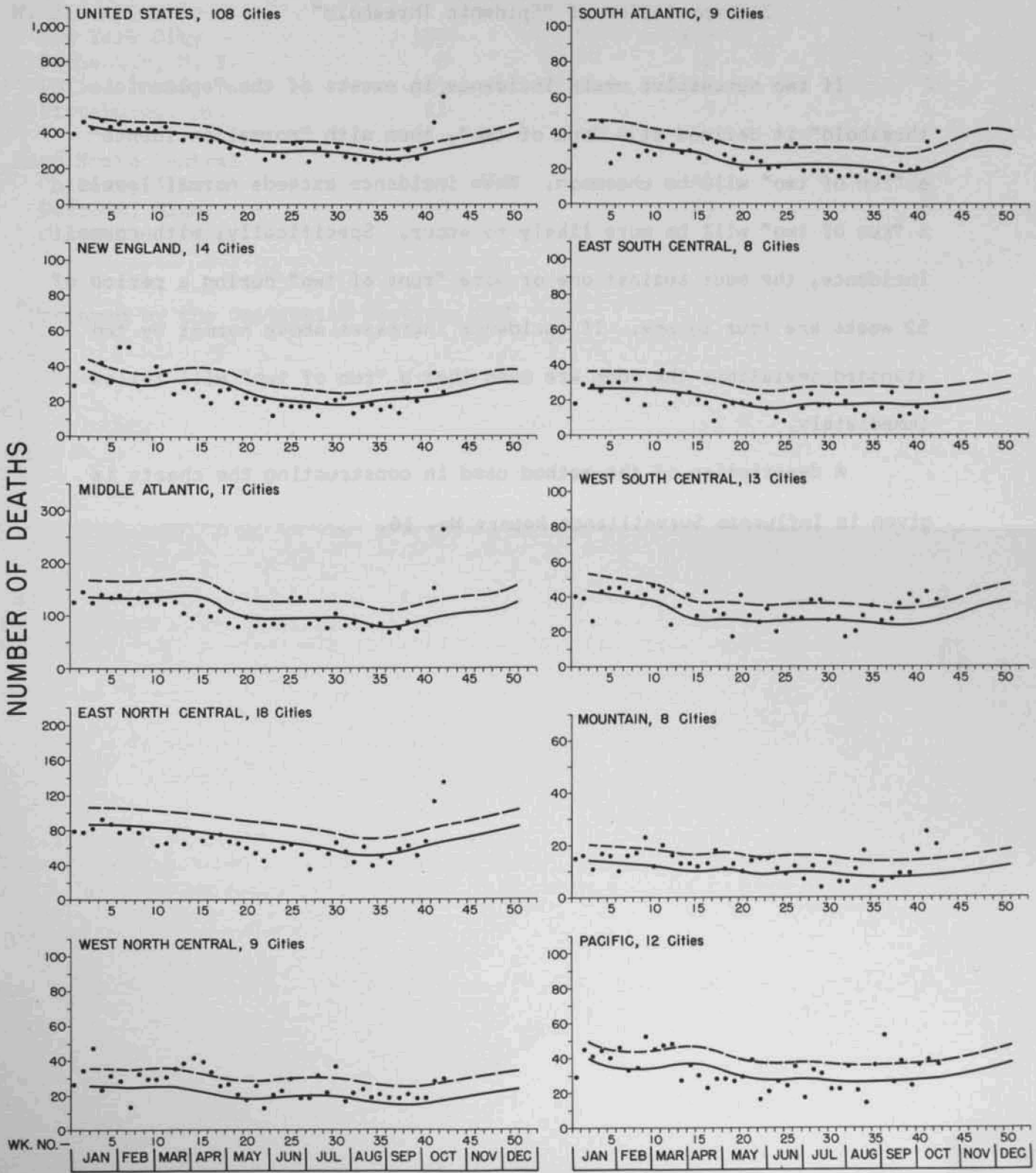
The New England, East South Central and Pacific Divisions showed no important deviation from normal levels.

WEEKLY PNEUMONIA AND INFLUENZA DEATHS

"EPIDEMIC THRESHOLD"

"NORMAL INCIDENCE"

(SEE EXPLANATION ON BACK OF SHEET)



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ATLANTA, GA. 58-70

SEPTEMBER, 1957

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.

	Week Ending		
	October 19	October 12	October 5
Middle Atlantic			
New York City	179	105	48
Rochester, N. Y.	8	2	2
Philadelphia, Pa.	19	12	5
Pittsburgh, Pa.	11	5	1
East North Central			
Chicago, Ill.	59	54	33
Detroit, Mich.	18	19	6
Milwaukee, Wisc.	9	7	1

*Prepared by the Statistics Section, CDC

V. DEATHS - Deaths Specifically Associated with Influenza

NOTE: Summaries of 24 cases of influenza-associated deaths have now been presented in the CDC Influenza Surveillance Reports. These 24 cases do not represent the total number of influenza-associated deaths that have occurred in this country. For example, the influenza and pneumonia mortality data in 108 cities indicate an excess of about 300 deaths during the past week. Many deaths are never reported in detail; others cannot be adequately confirmed as influenza due to the Asian strain. Most of the deaths reported to us have been the striking and unusual ones which have occurred in teenagers and young adults. The age distribution of our reported cases is therefore not a true reflection of the actual mortality age distribution in this country. These Reports will continue to include reports of influenza-associated deaths, however, for it is felt that a compilation of these data will provide some useful fundamental information about influenza and its complications. Reports are solicited on this basis.

Conn. 1 New Haven, Connecticut

(Reported by Dr. James Hart, Connecticut State Department of Health, with case information from Dr. Paul Beeson, Yale Medical School)

Influenza is epidemic at Yale University. Many students are confined to their rooms with mild cases and daily checks are being made to identify early complications.

One student, aged 18, developed typical influenza, which was followed shortly by pulmonary complications. He was admitted to New Haven Hospital with a white blood count of 800 and died after a rapid downhill course. He was treated with penicillin, streptomycin, erythromycin, and steroids. A tracheotomy was required because of respiratory difficulty. Deep aspiration through the tracheotomy opening yielded large numbers of staphylococci, and his death is believed due to staphylococcal pneumonia. At the time of his death, the WBC was still approximately 800, indicating overwhelming infection. The patient had a past history of good health, with no increased susceptibility to infection. More complete data and autopsy findings will be reported later.

The depression of WBC in this case is not usual. Dr. Beeson states that elevation of white count above 12,000 and X-ray evidence of pulmonary involvement are helpful criteria in determining which patients need hospitalization. He emphasized that an initial Gram stain of the sputum should be done to avoid missing Friedlander's pneumonia or meningococcal infections. Penicillin is usually given on admission and other antibiotics withheld for severe complications or when sensitivity studies indicate their use.

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

(Compiled from a number of sources)

City	% of Total Absent						
	October 1956	September 29, 1957	October* 1-5, 1957	October** 7-11, 1957	October 1957 14	15	16
Boston	6.9	-	-	-	-	UP/NR	UP/NR
Manhattan	4.0	-	-	UP	8.8	8.7	8.1
Buffalo	6.7	-	9.4	8.4	7.8	7.7	6.9
Syracuse	6.3		UP/NR	-	-	-	8.3
Philadelphia	5.3	-	-	9.0	11.0	11.8	12.3
Pittsburgh	4.5	-	-	9.5	12.6	12.6	13.1
Washington	6.2	-	7.1	7.2**	7.9	8.3	8.9
Baltimore	5.9	-	-	UP/NR	6.7	6.5	7.1
Richmond	5.4	-	-	-	-	-	-
Atlanta	5.9		UP/NR	UP	7.2	7.1	7.3
Miami	10.3	-	-	-	-	-	-
Memphis	4.7	-	-	-	-	-	-
Birmingham	4.0	-	-	UP	5.7	6.2	7.3
Nashville	3.6	-	-	UP/NR	7.2	6.0	7.2
Jacksonville	8.0	-	-	-	-	-	-
New Orleans	6.4	-	-	-	-	-	-
Cleveland	4.5		-	5.0	4.8	5.2	5.6
Columbus	5.0		-	-	-	-	6.6
Cincinnati	6.0	-	-	-	-	-	-
Detroit	6.6	-	9.8	11.4	9.4	8.5	8.5
Indianapolis	5.4	-	-	-	6.6	6.6	8.7
Milwaukee	6.3	-	-	8.0	8.5	9.7	9.1
Chicago	5.6	-	7.8	8.2**	8.1	8.6	8.7
Minneapolis	4.6	-	-	-	-	-	-
Omaha	5.4	-	-	-	-	-	-
St. Louis	3.9	-	-	-	-	-	-
Kansas City	4.8	-	-	-	-	-	-
Houston	4.0	-	-	UP/NR	UP/NR	8.5	7.0
Dallas	4.3	-	-	-	-	4.5	5.1
Oklahoma City	3.4	-	-	-	-	-	-
Denver	7.9	-	10.2	11.8	9.0	10.7	11.3
Phoenix	8.0	-	10.8	9.5	7.4	9.6	9.1
Salt Lake City	4.8	-	9.8	10.5	9.1	10.1	8.2
San Francisco	9.3	-	-	-	-	-	-
Seattle	5.6	-	-	-	-	-	-
Los Angeles	5.9	-	-	-	-	-	-

- = normal absentee rate
UP = increased absenteeism
NR = no rate available

*4 day average rates
**5 day average rates

VI. Industrial Absentee Data

The first presentation of compiled industrial absentee rates for 36 United States cities appeared in CDC Influenza Surveillance Report No. 21. This tabulation will become a regular feature of the weekly report.

The first column of the table in this report presents the average absentee rates for October 1956 for comparison with the present data. It is important to note that these normal absentee rates vary considerably from city to city. This fact must be kept in mind when comparing the absentee rates for the cities during the current months.

The column for September 29, 1957, is presented as a baseline because, on that day, not a single city of the 36 reported absenteeism above normal levels. At this time also, none of these cities (except New Orleans) had experienced any influenza outbreaks. Presumably New Orleans had a normal rate also because the epidemic in the area had subsided. However, no specific reports of increased absenteeism came to our attention during the period of epidemic Asian strain influenza in that city.

During the period October 1-5, nine cities reported increases in absenteeism. Buffalo and Syracuse showed upswings soon after the appearance of widespread epidemic influenza in New York State; Washington, Detroit, Chicago, Denver, Phoenix, and Salt Lake City also noted increased absenteeism one to two weeks after outbreaks were first reported in the areas. Atlanta, however, experienced increased absenteeism before any outbreaks of influenza-like illnesses were reported. Sporadic influenza-like illness was common in the city, though, during September.

By the second week of October, 17 cities were reporting increased absenteeism and by October 16 the number was up to 21. At this time, all the reporting cities of the Northeast were experiencing increased industrial absenteeism. In the South, only Atlanta, Birmingham, and Nashville reported increases and these were not great. Most of the reporting cities of the Midwest also showed increases. In the West and Southwest influenza was reflected in increases in Houston, Dallas, Denver, Phoenix, and Salt Lake City. The last two of these cities had reported the onsets of extensive epidemics, primarily involving school children, several weeks earlier. None of the cities of the Pacific Coast area had reported above normal absenteeism by October 16.

VII. Influenza Vaccine Production and Distribution

Influenza Vaccine Released

(Totals through October 16, 1957)

Pharmaceutical Concern	Monovalent Asian strain	Polyvalent with Asian strain
Lederle	4,798,960 ml	537,960 ml
Lilly	2,036,530	286,000
Merck, Sharpe & Dohme	5,646,240	
National Drug	5,067,130	2,054,435
Parke Davis	298,635	
Pitman Moore	2,039,546	

Total released to date:	22,765,436 ml
Amount released since October 7:	7,136,515 ml

Shipping Distribution:

Department of Defense	4,803,420 ml
Commercial channels	17,962,016 ml

Estimated Vaccine Production:

October	28,460,000 ml
November	40,900,000 ml
December	12,420,000 ml

Appendix A: CDC Influenza Surveillance Report No. 22

Duration of Influenza Epidemics in the U. S. A.

Summary of Experience in a Group of Representative Cities from 1915 to 1953, as Measured by Excess Influenza - Pneumonia Mortality

Epidemic	Type	Excess Rate	Peak Date	Duration in Weeks	Inclusive Dates
1915-16	?	22.8	Jan.	8	Dec.-Jan.
1917	?	14.0	Jan.	8	Jan.-Feb.
Early 1918	?	21.1	Apr.	16	Jan.-Apr.
Fall 1918	Pandemic	550.5	Oct. 16	31	Sept. 15-Apr. 19
1920	?	99.3	Feb. 11	12	Jan. 4-Mar. 27
1922	?	18.3	Feb. 22	12	Jan. 8-Apr. 1
1922-23	?	29.9	Feb. 21	17	Nov. 26-Mar. 24
1926	?	25.3	March 24	17	Jan. 27-May 25
1928	?	11.6	May 9	19	Mar. 11-July 21
1928-29	?	44.4	Jan. 9	12	Nov. 25-Feb. 16
1931	?	16.4	Jan. 28	16	Dec. 28-Apr. 18
1932	?	7.4	Mar. 23	9	Feb. 14-Apr. 16
1932-33	?	19.2	Dec. 28	11	Nov. 20-Feb. 4
1934-35	A	5.4	Jan. 9	9	Dec. 2-Feb. 2
1936	B	12.5	Feb. 26	22	Dec. 22-May 23
1936-37	A	18.4	Jan. 6	11	Dec. 20-Mar. 6
1939	A	5.2	Mar. 1	9	Feb. 5-Apr. 8
1940	B	1.9	Feb. 14	6	Jan. 21-Mar. 2
1940-41	A	5.4	Jan. 29	10	Dec. 15-Feb. 22
1943-44	A	15.6	Dec. 29	11	Nov. 21-Feb. 5
1945-46	B_1	3.7	Dec. 26	11	Nov. 25-Feb. 9
1947	A^1	2.5	Mar. 26	11	Feb. 16-May 3
1950	A^1	2.7	Mar. 22	9	Feb. 26-Apr. 29
1951	A^1	3.8	Mar. 14	10	Feb. 11-Apr. 21
1953	A^1	6.9	Feb. 11	13	Dec. 28-Mar. 28

Notes

Data from 1915 to Spring of 1918 based on monthly mortality in 35 large cities. Data for pandemic 1918 based on weekly mortality in 35 large cities. From 1920 to 1951 data based on weekly mortality in 90 representative cities. From 1951 to 1953, weekly mortality in 62 cities was employed.

Excess Rate defined as Excess Deaths for whole epidemic period per 100,000. Peak Date defined as the Wednesday of the peak week.

References

1. Collins, S. W. and Lehmann, J., Trends and Epidemics of Influenza and Pneumonia, 1918-1951, Public Health Reports, 66: 1487-1516, Nov. 16, 1951.

2. Influenza Epidemics During 1951-56 with a Review of Trends, Public Health Reports, 72: 771-780, Sept. 1957.