FOR ADMINISTRATIVE USE

CDC INFLUENZA SURVEILLANCE REPORT

NO. 27 NOVEMBER 26, 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

During the week ending November 23 mortality from influenza and pneumonia continued its nationwide decline from the peak in the first week of November. The New England, Middle Atlantic, East North Central, West North Central, and South Atlantic divisions continued to decline and the Pacific division dropped sharply from a peak last week. The East South Central, West South Central, and Mountain areas experienced very slight increases over the previous week.

The influenza map and table will not be reproduced this week. Reports that have come to this office since last week's map appeared, however, suggest that more than 50% of the counties of the United States have now been involved. It is anticipated that the map will appear in the next CDC Influenza Surveillance Report.

National Health Survey data showed a small increase in the average number of persons in bed each day for the week ending November 2, while the number of new cases involving one or more days of bed disability declined sharply from the previous week.

Industrial absentee data for the week ending November 16 revealed that seven of the thirty-six reporting cities had returned to normal absentee rates. Miami, however, noted its first increase above normal during this same week. All reporting cities have now experienced increases in industrial absenteeism. All but three of the twenty-nine cities still experiencing increased absenteeism reported declines or stable rates during the most recent reporting week.

A total of 48,877,624 ml. of Asian strain influenza vaccine has been released through November 20. This includes 4,307,330 ml. released since November 13. All of the vaccine released last week was the 400 cca monovalent type.

There have been many inquiries concerning the relationship between the complement fixation and hemagglutination inhibition tests in the diagnosis of Asian strain influenza. A brief discussion of these matters is presented in the final section of this report.

WEEKLY PNEUMONIA AND INFLUENZA DEATHS

"EPIDEMIC THRESHOLD"

"NORMAL INCIDENCE"

(SEE EXPLANATION ON BACK OF SHEET)

NUMBER OF DEATHS

UNITED STATES, 108 Cities

SOUTH ATLANTIC, 9 Cities

NEW ENGLAND, 14 Cities

EAST SOUTH CENTRAL, 8 Cities

MIDDLE ATLANTIC, 17 Cities

WEST SOUTH CENTRAL, 13 Cities

EAST NORTH CENTRAL, 18 Cities

MOUNTAIN, 8 Cities

WEST NORTH CENTRAL, 9 Cities

PACIFIC, 12 Cities

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.

II. 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 November 9 (107 cities)	November 16 (107 cities)	November 23 (105 cities)
All Divisions	108	105	889	783	694
New England	14	14	70	59	49
Mid. Atlantic	17	16	247	191	176
E. North Central	18	17	159	153	133
W. North Central	9	9	104	68	64
S. Atlantic	9	9	106	100	61
E. South Central	8	8	57	49	57
W. South Central	13	13	85	72	74
Mountain	8	7	12	10	14
Pacific	12	12	49	81	66

**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

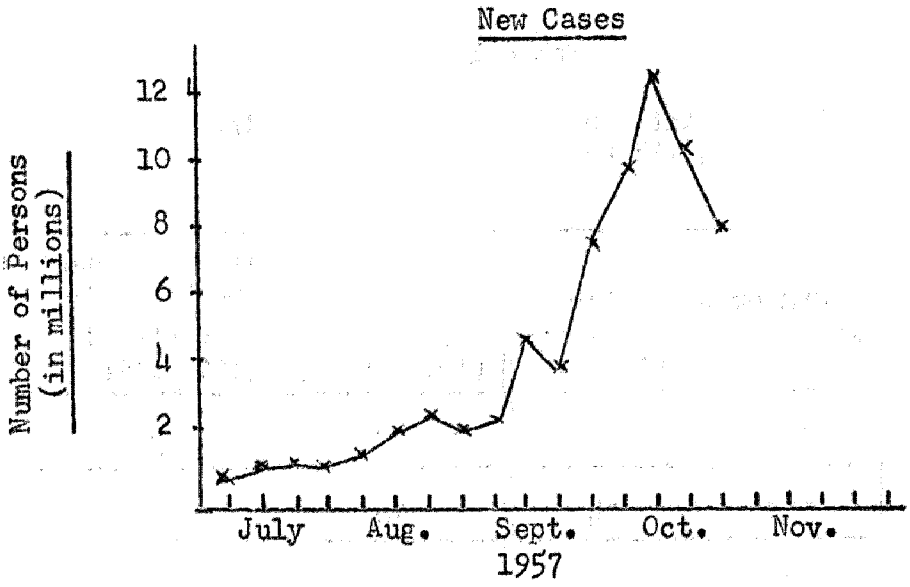
For the country as a whole the number of pneumonia and influenza deaths again declined this week although remaining well above the expected number.

Increases in the East and West South Central States indicate continued elevated incidence in those areas. Although experiencing a slight increase over the figure of last week, the Mountain Division remained near its expected level.

All other Divisions showed declines: the West North Central, South Atlantic, and Pacific at an accelerated rate; the New England, Middle Atlantic, and East North Central at a slower rate.

*Prepared by the Statistics Section, CDC.

IV. Data from National Health Survey (Under the direction of Dr. Forrest Linder)



ACUTE UPPER RESPIRATORY DISEASES*

Estimates for continental United States

Week	New cases involving one or more days of bed disability	Average number of persons in bed each day
July 14 - 20	379,000	197,000
July 21 - 27	1,203,000	342,000
July 28 - Aug 3	1,264,000	425,000
Aug 4 - 10	955,000	339,000
Aug 11 - 17	1,181,000	447,000
Aug 18 - 24	1,758,000	675,000
Aug 25 - 31	2,159,000	654,000
Sept 1 - 7	1,819,000	651,000
Sept 8 - 14	2,279,000	856,000
Sept 15 - 21	4,487,000	1,152,000
Sept 22 - 28	3,952,000	2,094,000
Sept 29 - Oct 5	7,773,000	2,845,000
Oct 6 - 12	9,712,000	4,551,000
Oct 13 - 19	12,238,000	5,812,000
Oct 20 - 26	11,033,000	5,665,000
Oct 27 - Nov 2	**7,879,000	**6,099,000

*Including influenza, pneumonia, and other similar conditions.
**Provisional.

The above data are compiled from the household interview survey which is a part of the program of the U. S. National Health Survey. The household survey is conducted by trained and supervised lay interviewers. The weekly samples consist of interviews for about 700 households or 2,200 persons. Since data are collected for the two prior weeks, each week's interviewing gives information on 4,400 person-weeks of health experience. Approximate sampling errors are in the range of 15%. The estimates of sampling error do not include allowance for error of response and nonreporting.

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

(Compiled from a number of sources)

City	% of Total Absent								
	Nov. 1956	9-29 1957	October 1957 1-5	7-11	13-19	20-26	10/27-11/2	11/3-9	11/10-16
Boston	6.8	-	-	-	9.2	9.7	10.3	10.4	8.6
Manhattan	3.3	-	-	UP	7.9	6.5	5.3	4.3	3.9
Buffalo	6.5	-	9.4	8.4	8.2	7.4	6.8	-	-
Syracuse	5.6		UP/NR	-	8.6	7.7	7.0	5.8	5.8
Philadelphia	5.3	-	-	9.0	11.6	10.3	8.5	7.1	6.0
Pittsburgh	3.7	-	-	9.5	13.0	12.4	7.7	6.4	4.8
Washington	5.4	-	7.1	7.2	8.7	9.6	9.2	8.3	5.6
Baltimore	6.2	-	-	UP/NR	9.6	9.9	10.5	10.4	7.5
Richmond	4.8	-	-	-	-	8.9	13.8	9.0	6.3
Atlanta	5.5		UP/NR	UP	7.3	7.2	8.2	8.7	7.2
Miami	7.3	-	-	-	-	-	-	-	8.5
Memphis	4.5	-	-	-	-	*	6.5	6.2	4.7
Birmingham	4.7	-	-	UP	6.6	*	7.5	6.6	6.2
Nashville	3.4	-	-	UP/NR	6.8	*	9.5	10.7	6.5
Jacksonville	6.2	-	-	-	-	8.5	9.1	10.0	9.1
New Orleans	5.3	-	-	-	-	9.2	8.7	7.7	6.9
Cleveland	4.0		-	5.0	5.3	4.8	5.2	5.4	4.3
Columbus	5.9		-	-	5.8	7.2	7.5	6.2	-
Cincinnati	4.5	-	-	-	7.3	7.6	6.9	6.3	5.5
Detroit	5.8	-	9.8	11.4	9.1	*	7.6	7.1	7.5
Indianapolis	5.1	-	-	-	7.9	*	10.7	10.3	-
Milwaukee	7.3	-	-	8.0	10.2	9.5	7.6	7.3	7.9
Chicago	5.7	-	7.8	8.2	8.2	7.6	6.9	6.1	6.0
Minneapolis	4.7	-	-	-	6.6	7.3	7.7	6.8	5.6
Omaha	5.2	-	-	-	7.5	7.6	8.7	8.2	5.6
St. Louis	4.2	-	-	-	4.9	6.5	7.8	8.1	5.7
Kansas City	4.3	-	-	-	6.3	8.3	9.2	7.0	7.1
Houston	4.1	-	-	UP/NR	7.1	5.6	4.8	4.7	-
Dallas	3.8	-	-	-	5.6	7.3	10.3	9.7	7.5
Oklahoma City	3.3	-	-	-	3.8	4.5	5.8	6.1	5.3
Denver	8.1	-	10.2	11.8	9.6	9.5	-	-	-
Phoenix	7.8	-	10.8	9.5	8.1	-	8.8	-	-
Salt Lake City	4.9	-	9.8	10.5	9.4	8.3	6.4	6.2	5.7
San Francisco	8.6	-	-	-	-	10.1	10.0	10.5	8.8
Seattle	5.4	-	-	-	6.1	7.1	6.5	8.3	6.8
Los Angeles	5.6	-	-	-	6.2	7.5	-	-	-

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

*Data not available

IV. Industrial Absentee Data

By November 16, seven of the thirty-six cities reporting on industrial absenteeism had returned to normal absentee rates. Of these cities, Houston, Indianapolis, and Columbus returned to normal during the week November 10-16. Phoenix, Los Angeles, Buffalo, and Denver returned to normal levels earlier in the month. During the latest reporting week Miami reported increased absenteeism (compared to November 1956) for the first time. All reporting cities have thus experienced increased industrial absenteeism this fall for periods varying from two weeks to more than five weeks. Of the twenty-nine cities which still report increased absenteeism, only three (Detroit, Kansas City, and Milwaukee) noted increases between November 10-16 and these were very small. All other cities remained normal or declined during this period.

V. Influenza Vaccine Production and Distribution

Influenza Vaccine Released

(Totals through November 20, 1957)

Pharmaceutical Concern	400 cca Monovalent Asian strain	200 cca Monovalent Asian strain	Polyvalent with Asian strain
Lederle	457,120 ml	8,264,220 ml	537,960 ml
Lilly	523,160	2,146,717	597,305
Merck, Sharpe & Dohme	3,061,740	13,884,520	
National Drug	392,310	7,615,275	2,054,435
Parke, Davis		657,835	
Pitman-Moore	2,193,610	5,015,042	1,476,375

Total released to date: 48,877,624 ml
Amount released since November 13: 4,307,330 ml

Estimated Vaccine Production:

November 17,331,000 ml
December 11,175,000 ml

VI. Influenza Serology

A large number of inquiries have been received concerning the lack of specificity in antibody responses after infection with Asian strain. It has been known for many years that antibody increases measured by complement fixation test with viral antigens from allantoic fluids are not specific for strain or sub-group within the broad immunologic type. It is not surprising, therefore, to learn that recent CF tests using antigen prepared with A/Denver/1/57, A/Spirup/48, A/PR8/34, and other older Type A strains are often positive in the presence of Asian strain infection. Similarly, antibody increases measured with the A/Asian/57 CF antigen would not necessarily be due to infection with an Asian strain.

The hemagglutination inhibition test appears to be somewhat more specific. However, even with it, antibody increase can occasionally be detected using strains which were prevalent some time ago but are not responsible for the present infection. The observation has been made repeatedly that patients from whom Asian isolates have been obtained may produce antibody more readily detected with an A/Denver/57 or some older strain than with an Asian strain. This phenomenon is very similar to that described several years ago and epitomized by Davenport and Hennessy as the "Doctrine of Original Antigenic Sin." Their paper which appeared in the Journal of Experimental Medicine, Vol. 104, pages 85-97, 1956, should be consulted for details. Antibody responses are often conditioned by previous antigenic experience with related strains. In view of these considerations, serological diagnosis can be relied upon only to indicate that infection was due to virus of Type A or B, etc. When more precise epidemiologic information is required it is necessary to examine the virus isolates. The Influenza Center at Montgomery, Alabama, has received and identified 232 influenza viruses from 53 laboratories during the past few months. Only 4 of these were Type B; the remainder were closely related to A/Asian/Japan/305/57. It is thus evident that older strains have not been responsible for the majority of the influenza outbreaks of the present pandemic.

For routine serologic diagnosis the complement fixation test with Asian strain or older virus antigen is the method of choice because it is very sensitive. As many as 40% of known Asian strain infections went undetected when the HI test alone was utilized. By using CF and HI tests, both sensitivity and strain specificity are possible. Absolute proof of strain depends on virus isolation techniques.