REPORT NO. 72
MAY 31, 1962

COMMUNICABLE DISEASE CENTER

INFLUENZA

SURVEILLANCE

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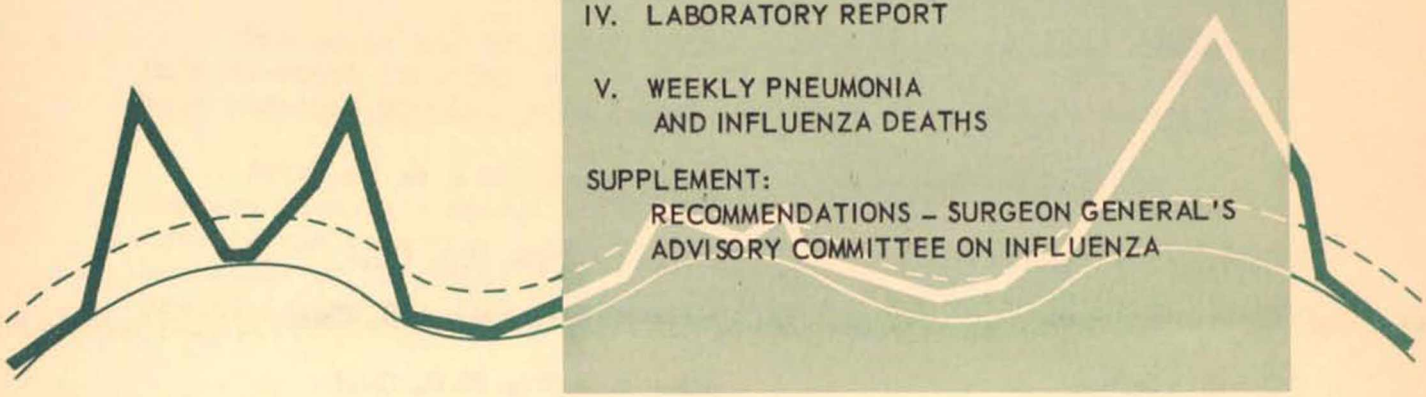


U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

PREFACE

Summarized in this report is information received from State Health Departments, university investigators, virology laboratories and other pertinent sources, domestic and foreign. Much of the information is preliminary. It is intended primarily for the use of those with responsibility for disease control activities. Anyone desiring to quote this report should contact the original investigator for confirmation and interpretation.

Contributions to the Surveillance Report are most welcome. Please address to:
Chief, Influenza Surveillance Unit, Communicable Disease Center, Atlanta 22, Georgia.

Communicable Disease Center	Clarence A. Smith, M.D., Chief
Epidemiology Branch	Alexander D. Langmuir, M.D., Chief
Statistics Section	Robert E. Serfling, Ph.D., Chief
Surveillance Section	Donald A. Henderson, M.D., Chief
Influenza Surveillance Unit	George C. Denniston, Jr., M.D.

I. SUMMARY

There have been no reports of significant outbreaks of Influenza B in the United States since the last Surveillance Report on March 22, 1962. Four additional States - Louisiana, New Hampshire, Rhode Island, and South Dakota - have recently confirmed Influenza B. The total number of States confirming Influenza B this season is 43.

A concise summary of the Influenza B epidemic in the United States is included. A laboratory report describes the relationship of the current B strains to previous strains of virus.

Asian influenza has not been prevalent in the United States during the past season. A single recent outbreak in Bellingham, Washington is reported.

International reporting of Influenza A and B during the current season is summarized in tables and maps.

Pneumonia and influenza deaths exceeded the expected number in a bi-modal distribution during the early months of 1962. They have remained within normal ranges since the second week in April.

Attached as a supplement are the recommendations of the Surgeon General's Advisory Committee on Influenza. Of particular note is the committee's concurrence in the belief that widespread outbreaks of Influenza A_2 (Asian) may be anticipated in the United States during the 1962-63 winter season.

II. SUMMARY - INFLUENZA, UNITED STATES - WINTER 1961-1962

INFLUENZA B

The epidemic began simultaneously in mid-November in Arizona and Florida. The Bureau of Indian Health of the Public Health Service first reported influenza-like disease among the Hopi Indians of northeastern Arizona. The clinical picture was typical of influenza, with fever, headache, sore throat, cough, and muscle aching as the predominant symptoms. The highest attack rates were in school age children, reflected in elevated school absentee rates. At the same time, a report was received by the Communicable Disease Center of the presence of Influenza B among children who rode a school bus into South Miami. Spread from these foci occurred, and by the end of December (see 6 accompanying maps), outbreaks had been reported from Colorado, Missouri, and northward along the West Coast.

In mid-January the disease had spread in an arc from California to Florida. A focus in New England began at that time and by the end of the month outbreaks were spreading along the Eastern Seaboard as well as into the North Central States.

The month of February brought increasing numbers of outbreaks in the Eastern and Northern States with decreasing numbers among the Western States. The epidemic subsided in March in several North Central and New England States. All States except Louisiana have reported at least some epidemic activity this season. Forty-two of the 50 States were able to identify Influenza B, either by virus isolation or serologic titer rise.

Age specific attack rates (see Table 1) of the current Influenza B epidemic were found to be remarkably similar in different parts of the country. A series of telephone surveys were carried out in 4 areas shortly after outbreaks of Influenza B had occurred in the respective communities. In general, the 6-18 year group had an attack rate higher than 50%, while the older groups approximated 25%. This finding is consistent with widespread increased school absenteeism, little industrial absenteeism, and relatively low excess mortality despite the widespread outbreaks of the disease.

INFLUENZA A

Influenza A was quiescent in the United States during the winter of 1961-62. By the end of February, a total of 6 cases, not associated with epidemics, had been identified by serologic titer

rises. These cases appeared in California, Oregon, and Missouri. The first, and to date the only, isolate of Influenza A_2 was obtained from a case in Oakland, California.

In March, a sharp outbreak of Influenza A occurred in a nursing home in Bellingham, Washington. Twenty-three of 52 patients and 17 of 29 staff members were affected between March 14-19. Distribution by date of onset may be seen in the following table:

Distribution by Date of Onset

Date of Onset	Number of Patients
March 14	2
15	10
16	3
17	3
18	2
19	3

The illness lasted 1-5 days and was characterized by headache, fever of 102-104°, cough, chill, and myalgia. There was one death in a 95-year old cardiac patient on the fourth day of illness. Paired sera were collected on three patients. Two of the patients had fourfold or greater rises to Influenza A_2. The patients in the home were unvaccinated.

(Reported by, E. A. Ager, M.D., MPH, Head, Section of Communicable Disease Control, Washington State Department of Health)

III. INTERNATIONAL SUMMARY

(See Tables 2 and 3 with accompanying maps)

Reported epidemics of Influenza B during the winter of 1961-62 were confined to the continents of Europe and North America. Report of an isolation of Influenza B in Sao Paulo, Brazil, had been received last month. It is not known whether the case is associated with an outbreak.

Countries in Europe and Asia have reported outbreaks of Influenza A_2. The disease apparently began in the center of Eurasia and spread both eastward and westward.

Outbreaks of both Influenza A and B occurred in several reporting countries. They are Czechoslovakia, the Netherlands, France, and Denmark.

It is likely that countries other than those noted in the accompanying tables experienced outbreaks of influenza this winter, but no report of them has been received.

England and Wales experienced an extensive epidemic of Influenza B during the winter of 1961-62, with a high excess mortality. The three graphs depict influenza, pneumonia and bronchitis deaths in England and Wales for three successive winters (1959-62). During the winter of 1959-60, there was little influenza in England and Wales. A widespread epidemic of Influenza A_2 occurred during the winter of 1960-61.

The 1960-61 epidemic of Influenza A_2 peaked in early February, following a gradual increase in deaths over the preceding 8 weeks. Influenza, pneumonia and bronchitis deaths contributed equally to the mortality.

On the other hand, the epidemic of Influenza B in 1961-62 peaked in early January after a relatively rapid (4 weeks) rise. Influenza deaths contributed less to the total mortality than did pneumonia and bronchitis deaths.

IV. LABORATORY REPORT

Roslyn Q. Robinson, Ph. D.
Chief, Respirovirus Unit
Virus and Rickettsia Section
Laboratory Branch, CDC

Serving as
WHO International Influenza Center for the Americas

1961-1962 TYPE B INFLUENZA VIRUSES

Type B influenza viruses, isolated from varying geographic areas during the 1961-62 epidemics, appear to comprise an homogeneous group with a significant antigenic change from viruses isolated prior to 1955. The following table illustrates typical reactions which have been obtained with the current strains, and, while it is evident that similar strains were isolated from outbreaks in 1959, there is additional information that these strains were prevalent as early as 1956.

Current strains may be shown to be antigenically different from earlier viruses when the B/Great Lakes/1739/54 strains and a current strain are used in the hemagglutination inhibition test for

measurement of antibody increases following natural infection. In many cases, mainly in children below 10 years of age, it was found that an increase in antibody titer was not measurable with the B/Great Lakes/1739/54 antigen, while a significant rise in titer could be demonstrated using the B/Arizona/1/61 antigen. This is presumably due to the fact that the younger children had had no prior experience with type B influenza virus, and the antibody rise was against the infecting virus only, which differed significantly in antigenic constitution from earlier strains. Antibody responses in older individuals were measurable by both the B/Great Lakes/1739/54 and the B/Arizona/1/61 antigens.

The monkey kidney tissue culture system, using a serum-free maintenance medium, was found superior to embryonated eggs for virus isolation and subsequent culture. However, reduction in egg incubation temperature from 35 - 37°C to 31 - 33°C increased the isolation rate in eggs, although the monkey kidney tissue culture system remained superior. Little difficulty was encountered in transfer of monkey kidney isolates to embryonated eggs at a reduced temperature.

Table 4

Respirovirus Unit

Virus and Rickettsia Section

Laboratory Branch

Communicable Disease Center

Atlanta 22, Georgia

ANTIGENIC RELATIONSHIPS AMONG TYPE B INFLUENZA VIRUSES

MEASURED BY THE HEMAGGLUTINATION INHIBITION TEST

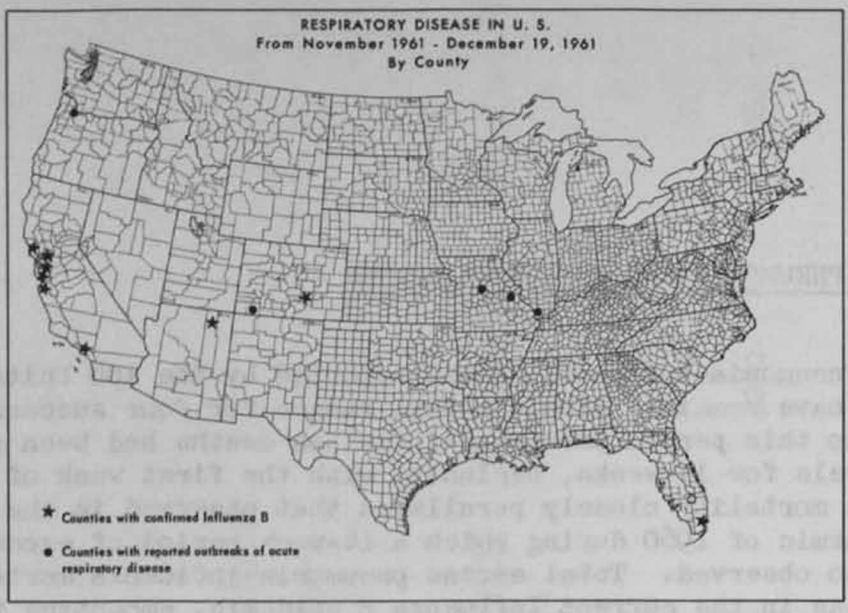
	ANTIGENS					
Ferret Antiserum	B/Lee/40	B/Allen/45	B/Great Lakes/54	B/Huertig/55	B/Maryland/59	B/Arizona/61
B/Lee/40	>320	0	0	0	0	0
B/Allen/45	30	240	20	20	0	0
B/Great Lakes/54	20	80	80	80	20	20
B/Arizona/61	30	20	160	80	1280	1280

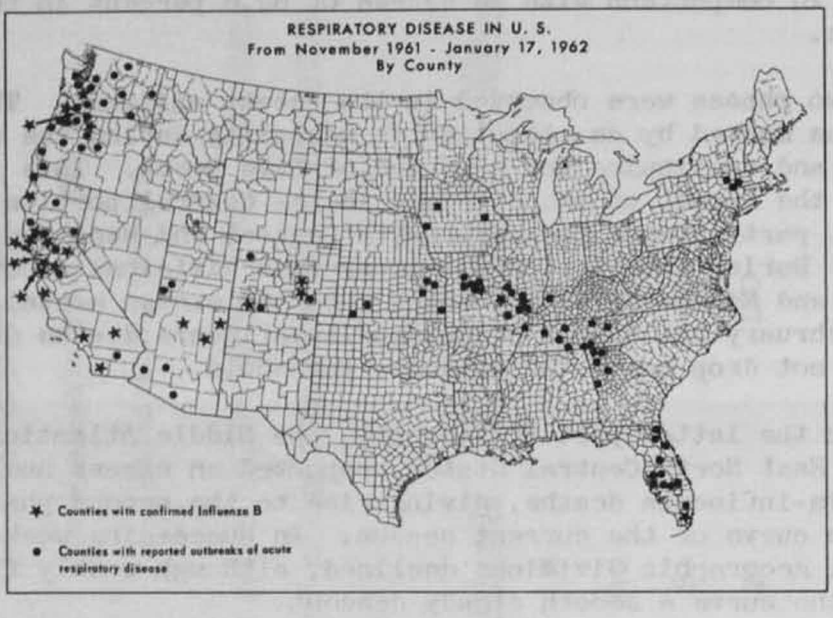
V. WEEKLY PNEUMONIA AND INFLUENZA DEATHS

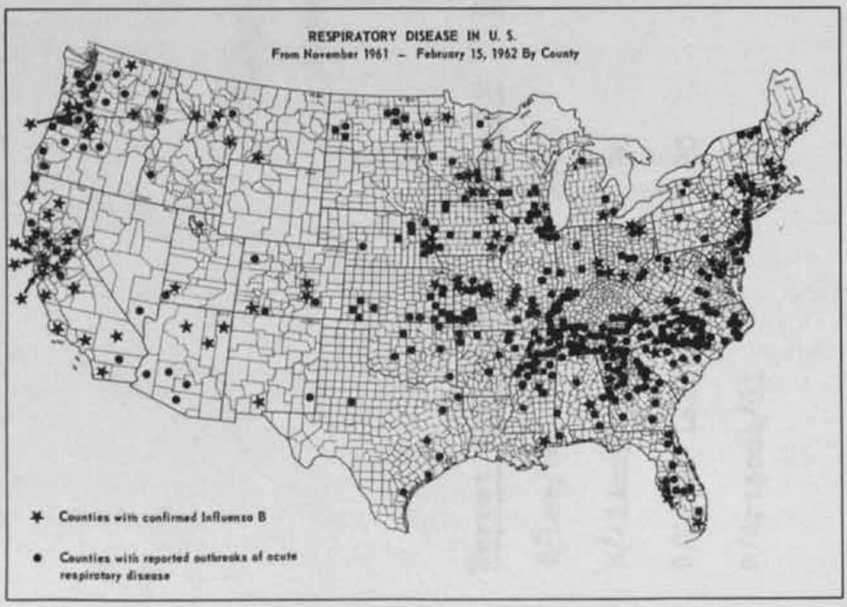
Pneumonia-influenza deaths reported by the 108 United States cities have remained within normal ranges for four successive weeks. Prior to this period pneumonia-influenza deaths had been above normal levels for 14 weeks, beginning with the first week of 1962. The rise in mortality closely paralleled that observed in the Influenza A_2 epidemic of 1960 during which a 14-week period of excess mortality was also observed. Total excess pneumonia-influenza mortality was much less in the current Influenza B epidemic, amounting to 17.0 percent in comparison with an excess of 62.6 percent in the 1960 epidemic.

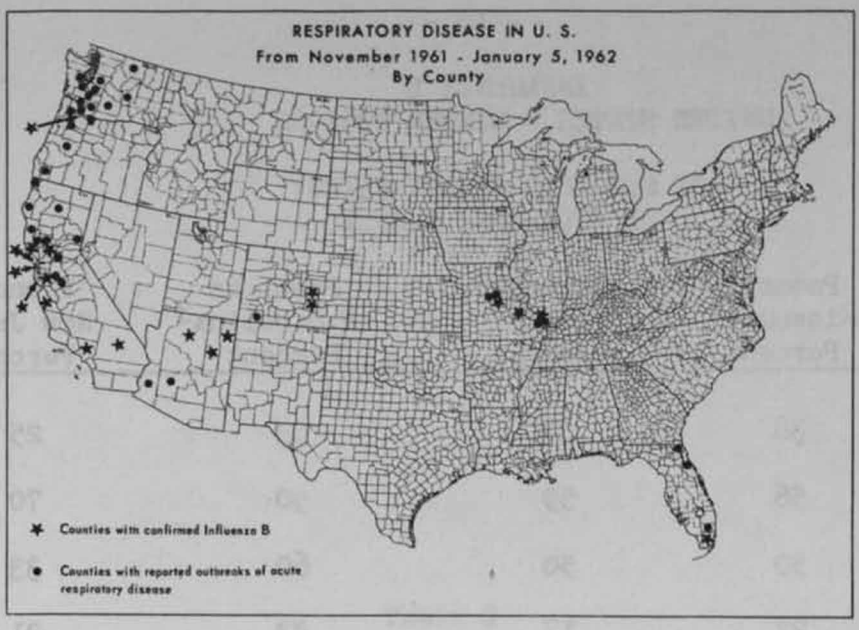
Two phases were observed in the recent epidemic. The first phase was marked by an elevation in mortality during the first week of 1962 and continuing for a period of five weeks. This period reflected the impact of the epidemic in the Central portion of the country, particularly the West North Central and West South Central States. During this period all geographic divisions except the New England and Middle Atlantic States reported excess mortality. In early February the number of pneumonia-influenza deaths decreased but did not drop below the epidemic threshold.

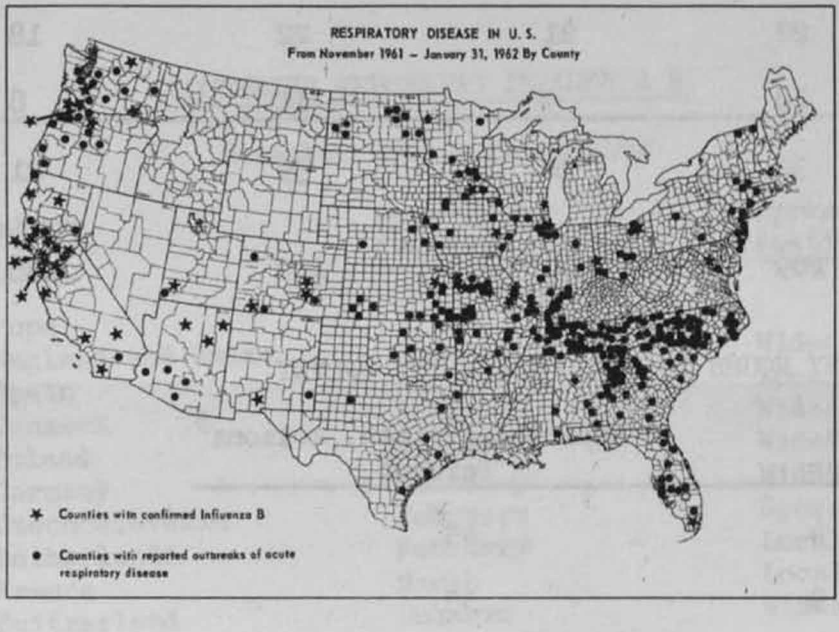
In the latter part of February, the Middle Atlantic States, and the East North Central States, reported an excess number of pneumonia-influenza deaths, giving rise to the second phase of the epidemic curve of the current season. In succeeding weeks, figures from all geographic divisions declined, although weekly fluctuations denied the curve a smooth steady descent.

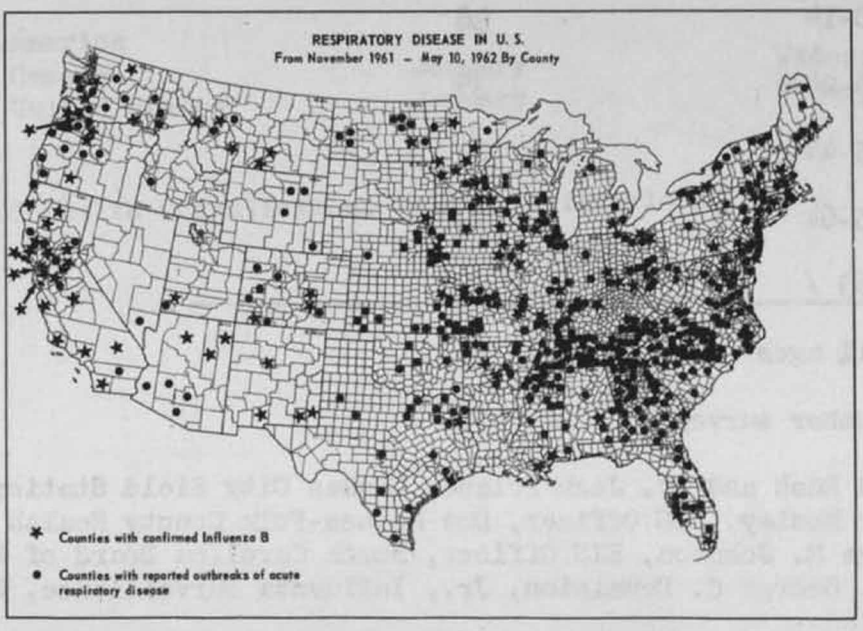

RESPIRATORY DISEASE IN U. S.
From November 1961 - December 19, 1961
By County
Counties with confirmed Influenza B
Counties with reported outbreaks of acute respiratory disease


RESPIRATORY DISEASE IN U. S.
From November 1961 - January 17, 1962
By County
Counties with confirmed Influenza B
Counties with reported outbreaks of acute respiratory disease


RESPIRATORY DISEASE IN U. S.
From November 1961 – February 15, 1962 By County
Counties with confirmed Influenza B
Counties with reported outbreaks of acute respiratory disease


RESPIRATORY DISEASE IN U. S.
From November 1961 - January 5, 1962
By County
Counties with confirmed Influenza B
Counties with reported outbreaks of acute respiratory disease


RESPIRATORY DISEASE IN U. S.
From November 1961 – January 31, 1962 By County
Counties with confirmed Influenza B
Counties with reported outbreaks of acute respiratory disease


RESPIRATORY DISEASE IN U. S.
From November 1961 – May 10, 1962 By County
Counties with confirmed Influenza B
Counties with reported outbreaks of acute respiratory disease

INFLUENZA B
UNITED STATES - WINTER 1961-62

AGE SPECIFIC ATTACK RATES:
BY TELEPHONE SURVEY

Age Group	Potosi, Missouri[1] Percent	Hazleton, Iowa[2] Percent	Pembroke N.Carolina[3] Percent	Vernon, New Jersey[4] Percent
0- 5	38	37	63	25
6-12	56	59	50	70
13-18	50	50	60	33
19-35	27	17	33	21
36-50	27	21	22	18
50 /	10	9	11	8
All ages	32	30	39	21
Number surveyed	209	297	120	138

BY HOUSE TO HOUSE MORBIDITY SURVEY

Age Group	Hopi Reservation, Arizona[5] Percent
0- 4	45
5- 9	55
10-14	38
15-24	35
25-44	22
45-64	19
65 /	28
All ages	36
Number surveyed	456

1. Dr. David Rush and Dr. Jack Poland, Kansas City Field Station, CDC.
2. Dr. Wiley Mosley, EIS Officer, Des Moines-Polk County Health Department.
3. Dr. George M. Johnson, EIS Officer, North Carolina Board of Health.
4 and 5. Dr. George C. Denniston, Jr., Influenza Surveillance, CDC.

Table 2

COUNTRIES REPORTING INFLUENZA B

November 1961 - March 1962

Country	Peak Month (estimated)	Spread (estimated)
Europe		
England and Wales	January	Widespread
Spain	January	Localized (Madrid)
Denmark	January	Widespread
Poland	January	Widespread
Germany	February	Widespread
Czechoslovakia	February	Sporadic
Netherlands	February	Localized
France	March	Localized
Switzerland	Unknown	Widespread
N.America		
Canada	January	Widespread
United States	January	Widespread

(World Health Organization, Geneva, Switzerland)

INFLUENZA B — THE WORLD

November 1961 — March 1962

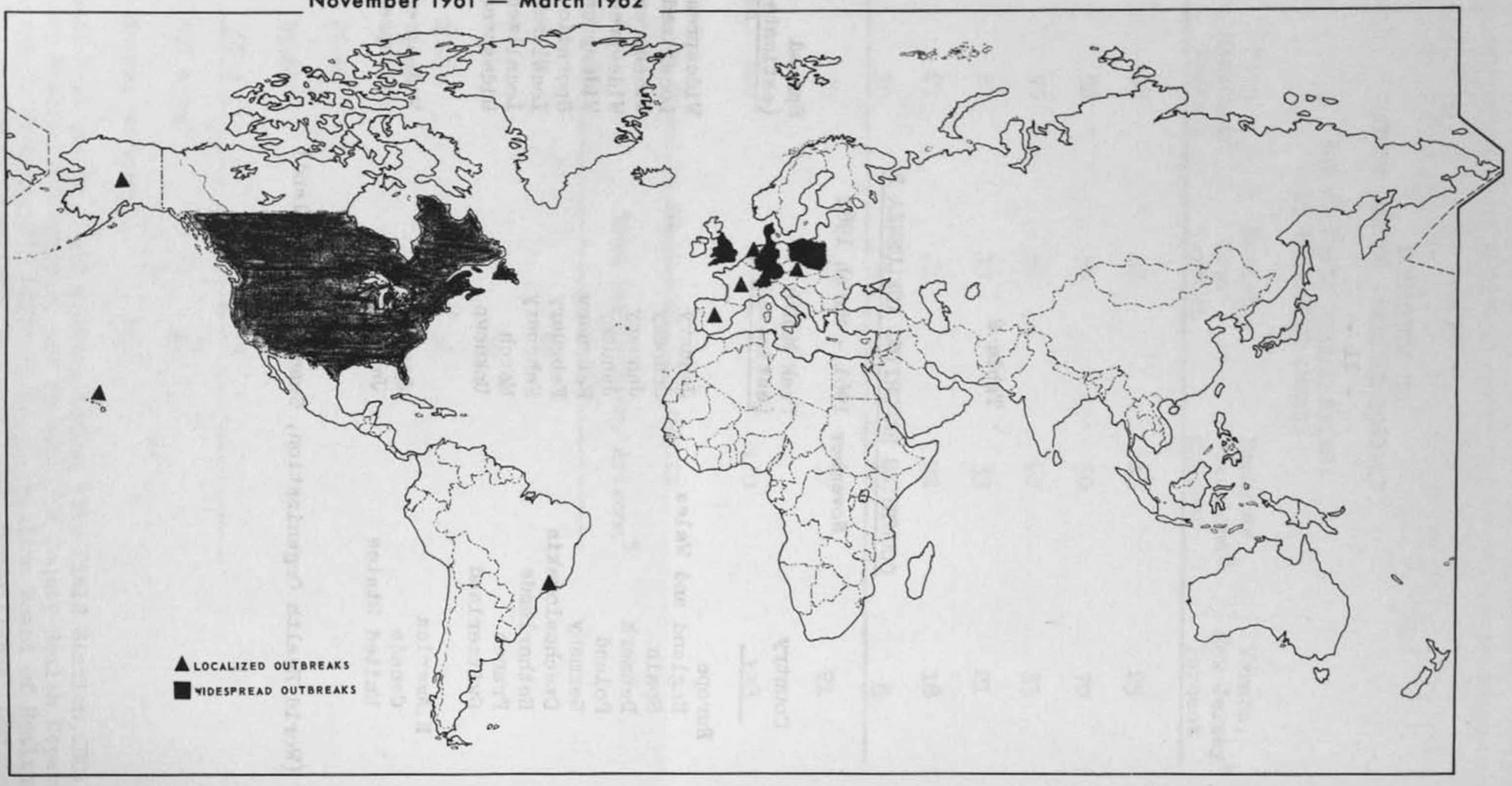


Table 3

COUNTRIES REPORTING INFLUENZA A_2

November 1961 - March 1962

Country	Peak Month (estimated)	Spread (estimated)
Europe		
USSR	January	Localized (Moscow)
Sweden	January	Localized
Czechoslovakia	January	Widespread
Netherlands	February	Widespread
France	February	Widespread
Norway	February	Localized
Hungary	February	Widespread
Finland	March	Widespread
Denmark	March	Widespread
Asia		
USSR	January	Widespread
Japan	February	Widespread
Korea	March	Widespread

(World Health Organization, Geneva, Switzerland)

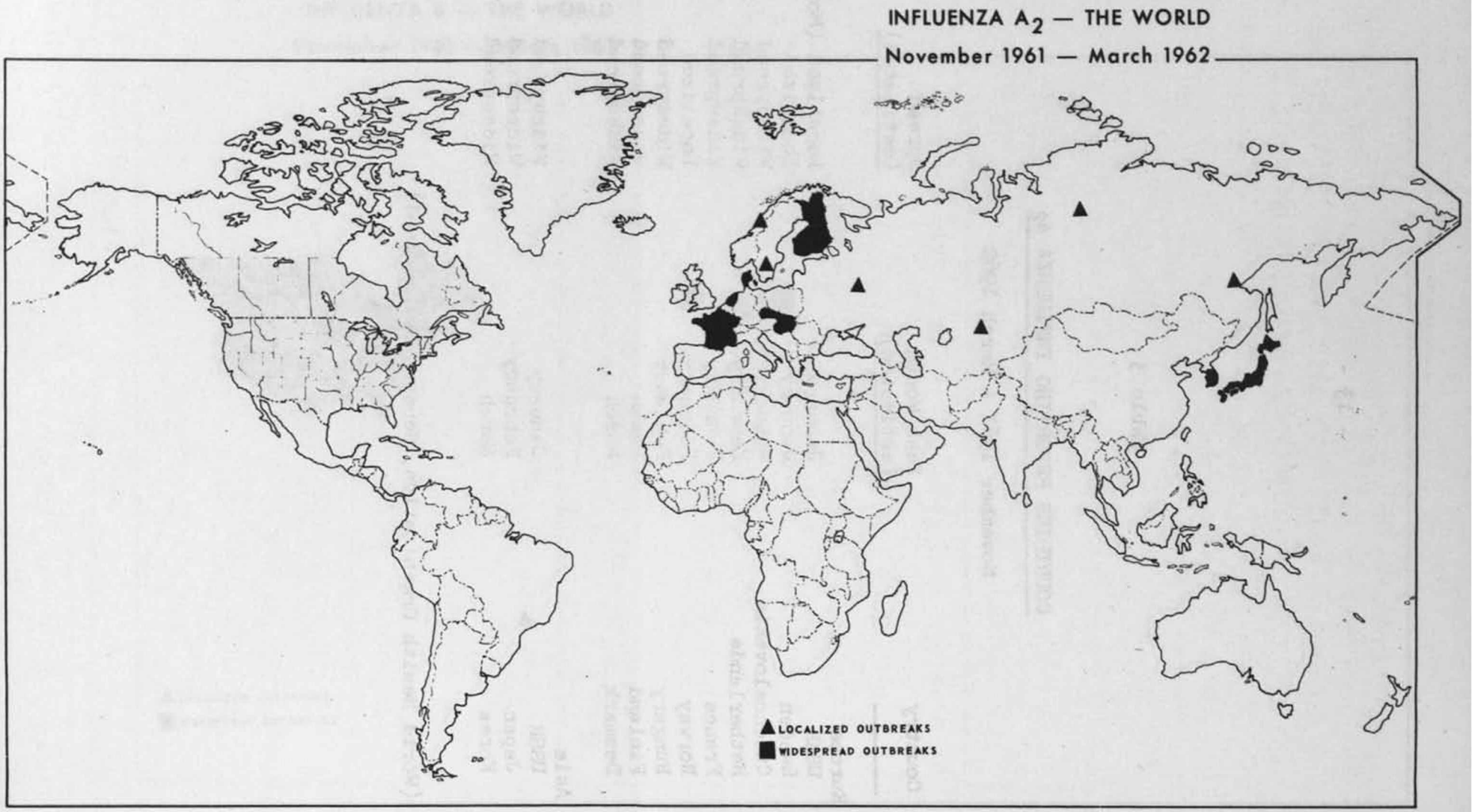
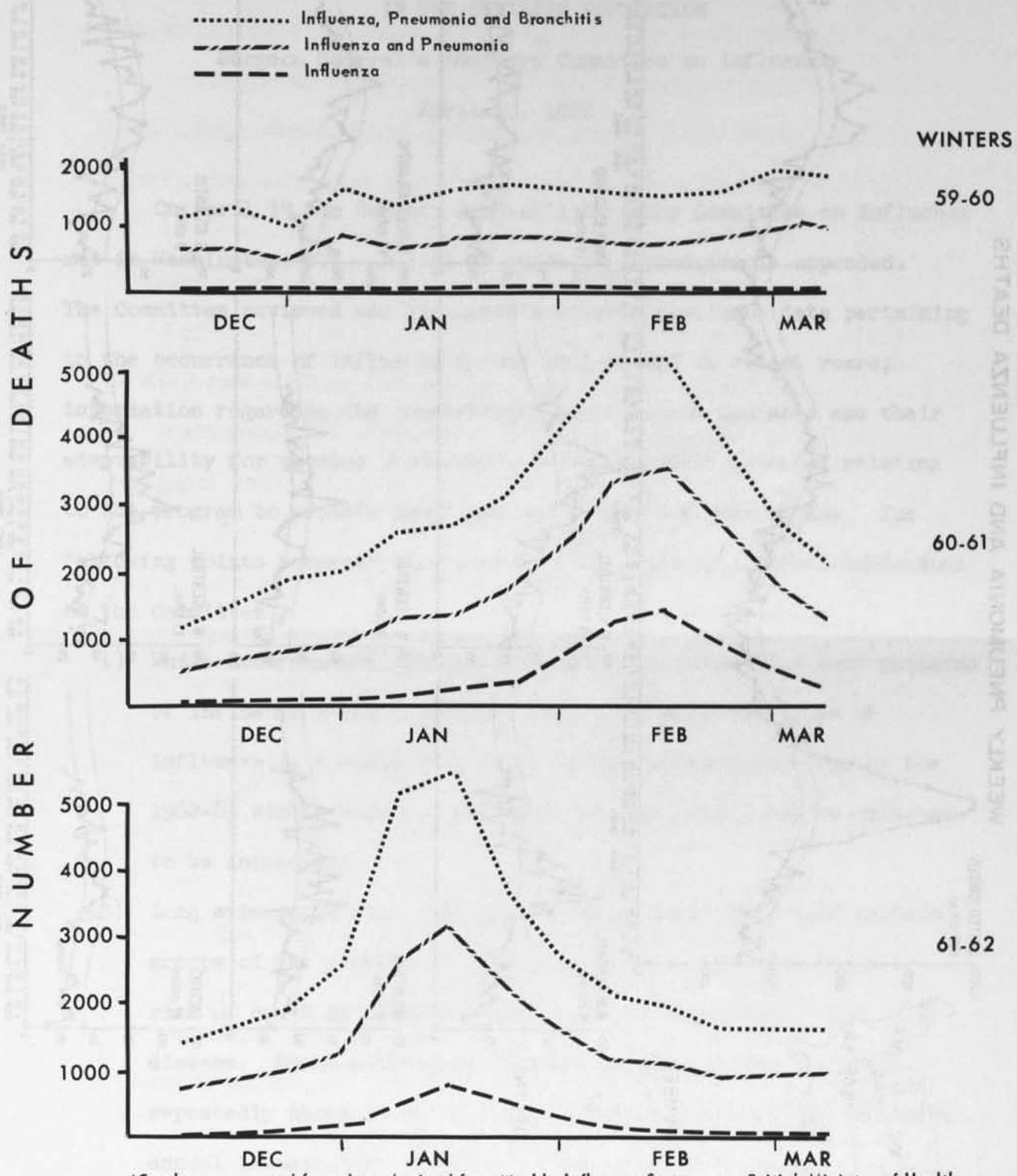

INFLUENZA A_2 — THE WORLD
November 1961 — March 1962
LOCALIZED OUTBREAKS
WIDESPREAD OUTBREAKS

Figure 1. ENGLAND AND WALES INFLUENZA, PNEUMONIA AND BRONCHITIS DEATHS*



*Graphs constructed from data obtained from Weekly Influenza Statements, British Ministry of Health.

WEEKLY PNEUMONIA AND INFLUENZA DEATHS

NUMBER OF DEATHS

UNITED STATES
108 cities

EPIDEMIC THRESHOLD

NORMAL INCIDENCE

1959 1960 1960 1961 1962

W.N. CENTRAL
9 cities

E.N. CENTRAL
18 cities

NEW ENGLAND
14 cities

MOUNTAIN
8 cities

E.S. CENTRAL
8 cities

MIDDLE ATLANTIC
17 cities

PACIFIC
12 cities

W.S. CENTRAL
13 cities

S. ATLANTIC
9 cities

1961 1962

SUPPLEMENT

RECOMMENDATIONS FOR INFLUENZA IMMUNIZATION AND CONTROL IN THE CIVILIAN POPULATION

Surgeon General's Advisory Committee on Influenza

April 19, 1962

On April 19 the Surgeon General's Advisory Committee on Influenza met in Washington, D.C. A list of those in attendance is appended. The Committee reviewed and discussed available pertinent data pertaining to the occurrence of influenza during 1961-62 and in recent years; information regarding the characteristics of recent isolates and their adaptability for vaccine production; and appropriate material relating to the program to promote immunization of the high risk groups. The following points summarize the principal conclusions and recommendations of the Committee:

1) While accurate predictions are difficult, recent and past patterns of influenza A and B indicate that widespread outbreaks of influenza A_2 (Asian) will occur in the United States during the 1962-63 winter season. Outbreaks of influenza B may be expected to be infrequent.

2) Long experience with influenza strongly emphasizes that certain groups of the population (see item #3 below) are at greatest risk of death or severe morbidity should they acquire the disease. Since polyvalent influenza virus vaccine has been repeatedly shown to be of definite value in preventing influenza, annual immunization of these groups is again stressed.

3) Patients in the following disease categories have experienced the highest mortality rates, and therefore, specific protection is clearly indicated for them as a routine practice.

A) Persons at all ages who suffer from chronic debilitating disease, e.g., chronic cardiovascular, pulmonary, renal or metabolic disorders; in particular;

1. Patients with rheumatic heart disease, especially those with mitral stenosis.
2. Patients with other cardiovascular disorders such as arteriosclerotic heart disease and hypertension, especially those with evidence of frank or incipient cardiac insufficiency.
3. Patients with chronic bronchopulmonary disease, for example, chronic asthma, chronic bronchitis, bronchiectasis, pulmonary fibrosis, pulmonary emphysema, pulmonary tuberculosis.
4. Patients with diabetes millitus.
5. Patients with Addison's disease.

B) Pregnant women.

C) Persons in older age groups; those over 45 and particularly those over 65 years of age.

4) Since there is a reasonable probability that epidemics of influenza A_2 (Asian) will occur during the coming respiratory

disease season, serious consideration should also be given to immunizing those in medical and health services, public safety, public utilities, transportation, education and communications fields. In industries and large institutions where absenteeism is of particular concern, large scale immunization programs are to be encouraged.

5) Immunization should begin as soon as practicable after September 1 and should be completed by mid-December. Since a two week delay in the development of antibodies may be expected, it is important that immunization be carried out before epidemics occur in the immediate areas.

6) On the basis of presently available information no change is warranted in either the A or B strains in the vaccine. Review of available data leads to the conclusion that distinct but limited changes have occurred in the antigenic structure of influenza B virus strains causing disease during the past season (1961-62) when compared to strains of recent years. These antigenic changes do not appear sufficient to warrant a change in the B influenza component of the current influenza vaccine. Although A_2 influenza has occurred during the past season in Europe and the Far East, the strains studied have not displayed appreciable change from those recovered in 1957. Hence, no change in this component is indicated.

Accordingly, the antigenic composition of the vaccine for the 1962-63 season should be the same as that prescribed for the 1961-62 season, specifically:

Type	Strain	CCA Units per cc.
A	PR8	100
A_1	Ann Arbor 1/57	100
A_2	Japan 305/57	200
B	Great Lakes 1739/54	100

7) Dose and Schedule of Vaccination by Age

a. Adults, including all over 13 years of age

Those not previously immunized should receive a 1.0 cc. (500 CCA units) dose subcutaneously as soon as practicable after September 1 and a second 1.0 cc. dose about two months later. The course of immunization should be completed by mid-December. Those previously immunized should receive a single dose of 1.0 cc. subcutaneously.

b. Children aged 6 to 12 years: Those not previously immunized should receive a 0.5 cc. (250 CCA units) dose subcutaneously as soon as practicable after September 1 and a second 0.5 cc. dose about two months later. The course of immunization should be completed

by mid-December. Those previously immunized should receive a single dose of 0.5 cc. subcutaneously.

c. Children three months old to pre-school age: Those not previously immunized should receive 0.1 to 0.2 ml (50 to 100 CCA units) of vaccine subcutaneously on two occasions, separated by one or two weeks. A "booster" inoculation of the same strength should be given about two months later. The schedule of vaccination should be completed by mid-December. Those previously immunized should receive a single dose of 0.1 to 0.2 ml. subcutaneously. Since 20 percent in this age group may experience a febrile reaction to the vaccine, acetylsalicylic acid (one grain per year of age) may be given every 6 hours for the first 24.

8) As noted above, previously unimmunized persons ideally should receive a dose of polyvalent vaccine administered subcutaneously followed by a second dose about two months later. Recognizing that this preferred course of immunization canot or will not always be possible, the Committee wishes to point out that even a single dose of vaccine will afford significant protection; a second dose given as early as two weeks following the first will enhance this protection.

9) The major professional medical societies and voluntary health agencies should be approached to assist in implementation of the immunization program. The attitude of the professional medical societies is crucial to the general acceptance of an influenza vaccination program.

10) Drug companies engaged in the manufacture of the vaccine should be advised at the earliest possible time of the Committee's conclusions and recommendations. They should be encouraged to manufacture vaccine sufficient to handle an expected increased demand. During the early summer, key health officials and organizations should be similarly informed. A news release from the Surgeon General's office might appropriately be timed for late August.

11) A more intensive national and international surveillance program is to be encouraged. The importance of obtaining strains and epidemiological data from epidemics wherever they may occur on a current basis cannot be too strongly emphasized. Where resources in other countries are inadequate to obtain this information, assistance should be offered by the United States.

12) The establishment of field studies to evaluate the efficacy of influenza vaccines in different dosages in different population groups, particularly the older age groups, would be of particular significance this year.

13) More detailed information regarding the available stocks and distribution of influenza vaccine should be obtained so that possible shortages may be anticipated.

14) A continuing assessment by means of survey techniques of the immunization status, particularly of the high risk groups, should be developed.

List of Those in Attendance

*Dr. Colin MacLeod, Chairman
*Dr. Donald Henderson, Executive Secretary
*Dr. Morris Schaeffer, Committee Member
*Dr. Roderick Murray, Committee Member
*Dr. Fred Davenport, Committee Member
Dr. Robert Wagner
Dr. Alan Donaldson
Dr. A. D. Langmuir
Dr. Theodore Eickhoff
Dr. George Denniston
Dr. Roslyn Robinson
Dr. Joe Smadel
Dr. Anthony Morris
Lt. Col. Robert Sherwood
Cmdr. Jack Millar
Cmdr. Benjamin Gundlefinger

(*Dr. Roscoe Kandle and *Dr. George Burch, both members of the Committee were unable, at the last moment, to attend).