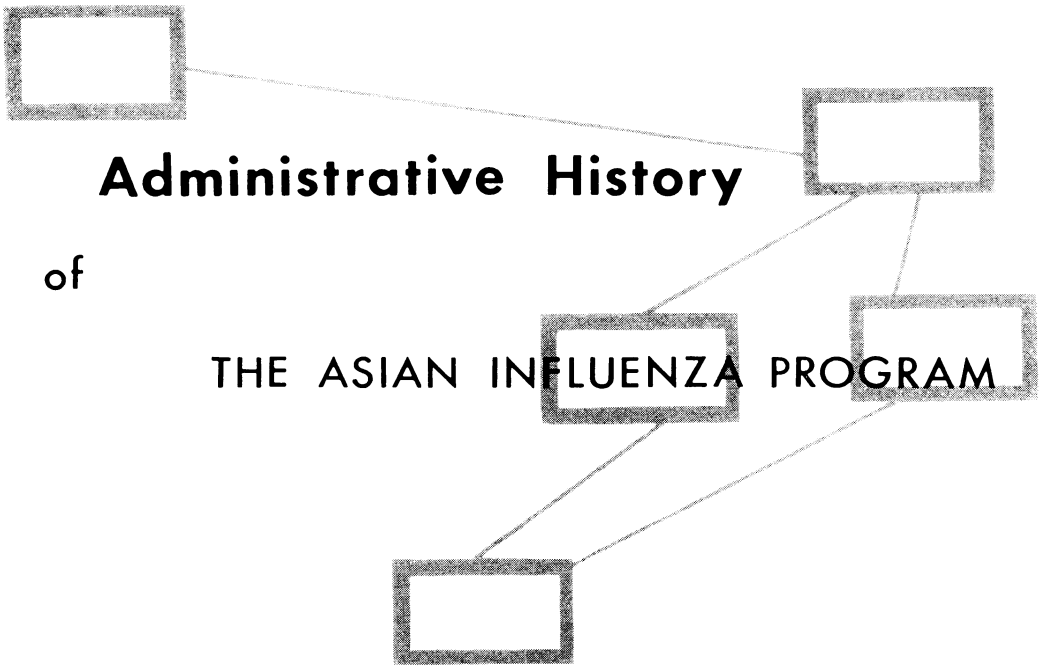


Administrative History of THE ASIAN INFLUENZA PROGRAM

WILLIAM H. STEWART, M.D.

THE ASIAN INFLUENZA program of the Public Health Service, at this writing, would appear to fall, chronologically and functionally, into four phases. The first, a period when information was received and policy issues were broadly delineated, began in the spring of 1957 and ended with the first meeting of the Surgeon General's Advisory Committee on Influenza on June 10.

As the disease occurred sporadically in the United States during the summer, the Public Health Service deployed its resources to maintain surveillance, conferred with manufacturers on problems of vaccine production, determined the requirements of alternative courses of action, and secured the cooperation and financial support necessary to institute the program finally adopted. This developmental phase, as it may be characterized, came to an end late in August.

Dr. Stewart, Assistant to the Surgeon General, has served as liaison for the influenza activities of the Office of the Surgeon General, Public Health Service.

On August 27–28, 1957, the State and Territorial health officials met in Washington at the request of the Surgeon General. The virus was then widely seeded across the Nation, the licensed influenza vaccine manufacturers were in full-scale production, and the medical, hospital, and public health authorities of the Nation, through their professional organizations, had made plans to mobilize their resources in the event of a large-scale epidemic. After reviewing this progress, the health officers concurred in the decisions taken and called for further specific action by the States and the Public Health Service.

We are currently in the operating phase of the Asian influenza program, a phase perhaps drawing to a close. At some time in the spring of 1958, a year more or less after Asian influenza was first reported, the retrospective evaluations will begin. This fourth and final phase may well be lengthy, for the Asian influenza episode is unique in the history of public health and deserves the thoughtful consideration it is certain to receive from students of

medicine, epidemiology, virology, immunology, public health administration, and health education.

This chronicle records administrative aspects of the Asian influenza program of the Public Health Service, from the viewpoint of the Office of the Surgeon General. It will deal only with the first two periods categorized above, the administrative problems of the latter two phases being relatively commonplace. Administrative issues presented in the early months of the program, however, were unprecedented and therefore require elucidation.

Nation Alerted

As is well known, the initial laboratory work on the Asian influenza virus was performed, with exemplary initiative and speed, by the Army: the 406th Medical General Laboratory in Japan and the Walter Reed Army Institute of Research in Washington, D. C. The results of this work were communicated at once by the Army virologists to their counterparts in the Public Health Service, with whom they are in continuing close professional contact. The situation first came to the attention of the Office of the Surgeon General on May 20, 1957, when the director and an associate director of the National Institutes of Health reported orally to the Acting Surgeon General that epidemic influenza with unusually high attack rates was being reliably reported from Asia.

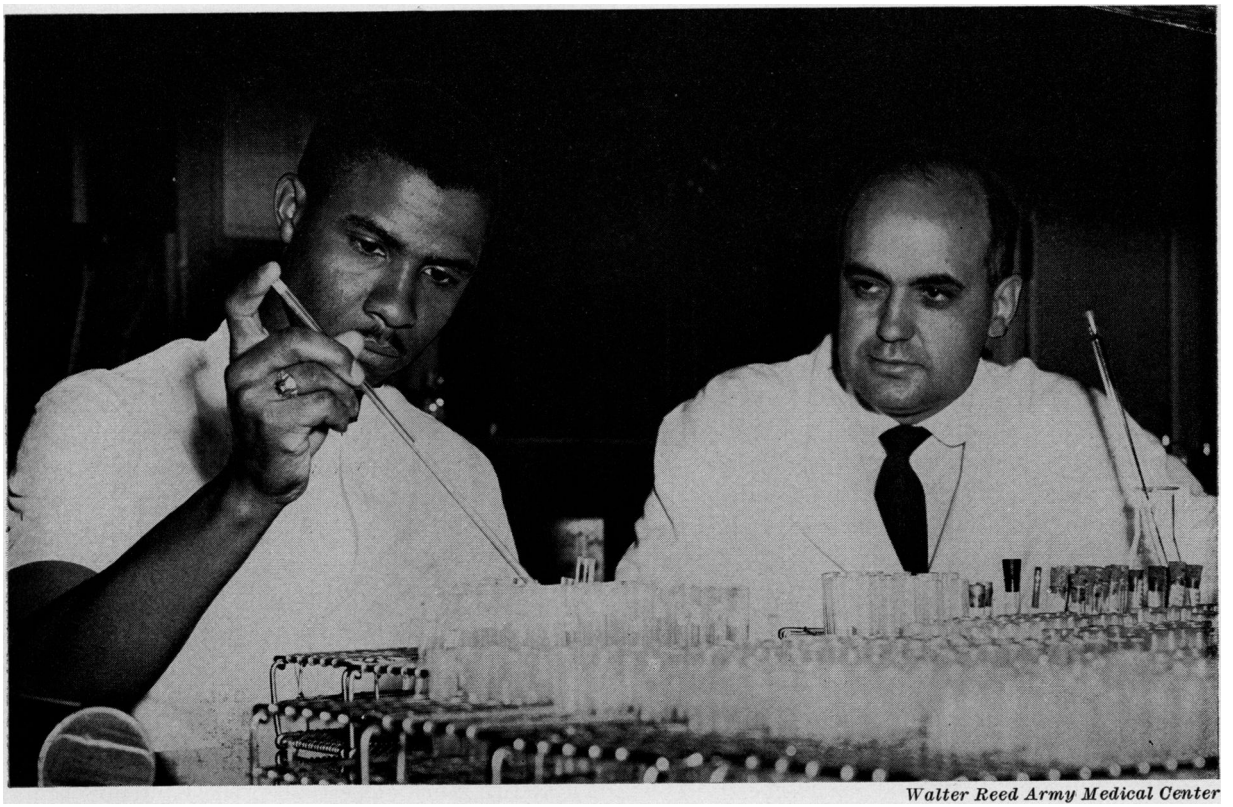
The Deputy Surgeon General, who was at this time acting head of the Public Health Service because the Surgeon General was in Geneva at a World Health Organization meeting, designated the associate director of the National Institutes of Health, a virologist, as technical point of contact for the Surgeon General with respect to the developing influenza situation. The Acting Surgeon General next informed the Assistant to the Surgeon General for Information and designated a medical officer to maintain special liaison with the Institutes.

On May 22, the National Office of Vital Statistics submitted a memorandum summarizing reports of the spread of the disease. During that first momentous week, the staff of the Special Assistant for Health and Medical Affairs to the Secretary was being kept apprised of the situation. From the National Institutes of Health came a report of a "dry run" exercise in vaccine production conducted by the manufacturers with the "London" strain in 1951, as well as a memorandum from the director of the Division of Biologics Standards outlining the technical steps that must precede mass immunization with a new vaccine. More specific information with respect to potential vaccine production was requested from the National Institutes of Health.

When the bureau chiefs met for their regular staff meeting with the Office of the Surgeon General on May 28, the Army had supplied Asian strains of the influenza virus that were not compatible with previously known strains. The National Institutes of Health had made the new strains available to licensed vaccine manufacturers, in accordance with established procedure, so that they could prepare to incorporate them in the polyvalent influenza vaccine then being produced, if this were deemed desirable.

The Acting Surgeon General recalled that when the Armed Forces began routine annual influenza immunization in 1954, the Public Health Service did not recommend comparable immunization of the general public. This decision was rooted in the relatively short duration of demonstrated immunity and lack of assurance that strains in the polyvalent vaccine would be the ones responsible for future epidemics. However, the Acting Surgeon General now believed it necessary to reexamine, in the light of later developments, the bases of Public Health Service policy on immunization of civilians against influenza. The Bureau of State Services and the National Institutes of Health were therefore asked to confer and to forward an analysis and recommendations.

Formal Public Health Service participation in the national common effort began on May 28 at a conference called at the requests of the chiefs of preventive medicine of the three military services to consider the control of influenza caused by the new strain of virus which had been first reported from Hong Kong on April 17. The Public Health Service was rep-



Walter Reed Army Medical Center

At the Walter Reed Army Institute of Research, Dr. Maurice R. Hilleman (right), who first identified the Asian influenza virus as a new strain of type A, observes as Pfc. Virgil Ewing tests the immunological response of the new vaccine developed against the virus.

resented by an associate director of the National Institutes of Health and the director of its Division of Biologics Standards.

The conference was informed that the disease was clinically mild with high attack rates on naval vessels and among civilians. Laboratory evidence indicated that the virus responsible was, for practical purposes, antigenically new; antibodies to it were absent in both animals and humans who had been highly immunized naturally or artificially against preceding strains of influenza virus. The virus had already reached the United States, in the opinion of the group, but the disease was not expected to reach major epidemic proportions until fall.

The conference recommended to the military Surgeons General that the Department of Defense procure about 3 million cubic centimeters of a monovalent vaccine containing the Hong Kong strain of the virus, the desired strength of this vaccine being tentatively set at 500 CCA units. September 1 was the target date recommended for the start of the vaccination program for military personnel. The Commission on Influenza of the Armed Forces Epidemiological Board was requested to propose as quickly as possible the composition of a polyvalent influenza virus vaccine to be used later in the year.

On May 29, the associate director of the National Institute of Allergy and Infectious Diseases forwarded a memorandum describing the Influenza Study Program of the World Health Organization and mentioning the probable need for an increase in the number of collaborating laboratories in the United States and for providing them with diagnostic reagents for detection of the Asian influenza virus. The director of the National Institutes of Health also submitted a memorandum, after consultation with the chief of the Communicable Disease Center, recommending that the monovalent vaccine desired by the Defense Depart-

ment be licensed; that the Communicable Disease Center furnish typing antiserums to State laboratories; that State epidemiologists be advised to watch for outbreaks of Asian influenza; that the Epidemic Intelligence Service of the Communicable Disease Center promptly investigate reported outbreaks; and that "the role of influenza vaccine as a public health measure be carefully studied . . . ."

The chief of the Division of Foreign Quarantine also forwarded a memorandum to the Office of the Surgeon General on May 29. It advised that quarantine officers at Honolulu, Seattle, San Francisco, and Los Angeles were inspecting inbound traffic for influenza signs and symptoms and notifying health officials of their occurrence. Passengers were being asked their itineraries for 2 weeks before and after quarantine inspection, with notification of local and State health departments following when indicated.

After reviewing these documents, the Acting Surgeon General met with the Assistant to the Surgeon General charged with special influenza responsibilities and the deputy chief of Information Services. It was decided to call the Bureau of State Services and the National Institutes of Health representatives together for more collaborative analyses and recommendations than had yet been presented. The information function was represented at this stage because of the public's obvious "need to know" about the nascent influenza policies.

Two days later, on May 31, the Acting Surgeon General wrote: "Nothing about influenza is more certain than that new strains appear, presumably by mutation, and epidemiologists have postulated that the 1918 pandemic was the result of such a mutation and that another pandemic may arise at any time from the same phenomenon. The question then is simply whether the current situation is sufficiently unusual to indicate the possibility that this has occurred. This decision requires careful consideration by the epidemiologists. If it [the current situation] is unusual or almost unique, the burden of proof would seem to be on those who oppose the recommendation to press for a mass immunization against the new strain with all possible vigor." The Acting Surgeon General then requested the principal staff officers to consider whether "the investment of the few million dollars necessary to develop and disseminate vaccine as widely as possible would be a logical step to recommend . . . if the current influenza situation was indeed unusual . . . [with] even a possibility of a widespread epidemic next fall."

Broad Planning

On the afternoon of May 31, officials of each bureau met with an Assistant to the Surgeon General to plan Public Health Service action with respect to Asian influenza. The conferees discussed coordination of Public Health Service activities, improvement of arrangements for influenza reporting, and influenza vaccine as a public health measure. The problems of producing a monovalent vaccine were compared with those of producing a polyvalent vaccine containing the new strain. The lack of comprehensive data dealing with effectiveness of influenza vaccines among the civilian population was noted.

The Division of Foreign Quarantine was asked to work closely with the Epidemic Intelligence Service of the Communicable Disease Center and to report all relevant information promptly to the National Office of Vital Statistics. The Communicable Disease Center was asked to alert State health departments and laboratories, intensify its influenza surveillance, and report its findings to the National Office of Vital Statistics, from whence information would be disseminated biweekly to all concerned in the Service and elsewhere. Announcement of the steps that were being taken would be released to the press on June 3 and an article alerting physicians prepared at once for the *Journal of the American Medical Association*. Meanwhile, the National Institutes of Health would continue work on problems of vaccine production. It was agreed that more time was needed to observe the course of the epidemic and progress in producing vaccine before it would be possible to give a mature judgment on the question of influenza immunization for the general public.

On June 5 the Division of Foreign Quarantine reported influenza aboard a civilian ship bound for San Francisco from the Orient. The Office of the Surgeon General was also advised

that inquiries had already been received from other Federal agencies and transportation lines concerning Service policy on use of the polyvalent influenza vaccine then available in small quantities through commercial channels.

Questions of this nature were discussed that day at a meeting called by the Assistant to the Surgeon General designated to deal with Asian influenza. Representatives of all bureaus were present. The associate director of the Institutes stated that the odds favored a mild epidemic in the fall or winter, but that there was some possibility of an epidemic on the order of the 1918 experience. The technical problem of vaccine production had been solved, he reported; a monovalent vaccine could be expected in September and a polyvalent vaccine incorporating an Asian strain a month later. Monovalent vaccine production had been started with purchases by the Department of Defense.

He suggested that certain groups, such as transportation, communications and utility workers, hospital personnel, and some Federal employees, receive the monovalent vaccine as soon as the Armed Forces. (A list of proposed civilian occupational priorities for vaccination against influenza had been prepared as part of the 1951 exercise.) These actions would not require additional funds. The deputy chief of the Bureau of State Services proposed that the Surgeon General seek the counsel of an advisory group representative of public health officials, practicing physicians, and the vaccine manufacturers. He foresaw advocacy by the Public Health Service of large-scale immunization, under certain conditions, and this would require additional expenditures.

The members of this meeting thereupon recommended that the Surgeon General confer with a representative professional group to ascertain its reaction to proposed recommendations by the Service that influenza vaccine be used generally in the civilian population and that certain special groups receive the monovalent vaccine as soon as it became available. No additional funds were believed necessary for these influenza activities. The advisers were to be told, however, that if the virulence of the virus increased or if the influenza case fatality rate turned upward, the Service would attempt to accomplish vaccination of all civilians. Authority to divert funds would be requested in this unlikely event, and supplemental funds would be requested to replace any so diverted.

There was, of course, considerable correspondence and informal liaison with congressional committee staffs and with offices of individual Senators and Representatives throughout the period described in this report. In reply to many inquiries, on June 7, after his return to the United States, the Surgeon General wrote to the chairmen of the committees and subcommittees of the House of Representatives and the Senate which are responsible for substantive and appropriations legislation for the Public Health Service. He advised them of the developing situation and furnished a summary of events and actions taken, including an announcement of a meeting on June 10 of a special advisory committee of physicians and health officers.

The Advisory Committee on Influenza, which first met on June 10, included the secretary of the Executive Committee and the chairman of the Civil Defense Committee of the Association of State and Territorial Health Officers; the president of the Academy of General Practice and a member of the board of trustees of the American Medical Association; representatives of the American Public Health Association and the American Academy of Pediatrics; the director of the Commission on Influenza, Armed Forces Epidemiological Board, and a spokesman for the Division of Preventive Medicine, Office of the Surgeon General of the Army; and the Special Assistant for Health and Medical Affairs, Office of the Secretary of Health, Education, and Welfare. Officials of the Service with influenza responsibilities also attended, as well as a representative of the Children's Bureau.

General findings of the meeting were:

1. No major outbreaks were expected to occur before fall, although sporadic occurrence could be expected throughout the summer.

2. Since limited information suggested that the existing polyvalent vaccine was not effective against the new influenza virus strain, an effective monovalent vaccine should be produced as soon as possible.

3. Every effort should be made to test vaccines and to collect, study, and disseminate

information on the epidemiology of Asian influenza. Consideration should be given, but based on later and more complete information, to the use of a vaccine by the civilian population.

4. No change should be recommended in private physicians' practice in utilizing the existing polyvalent vaccine. Physicians should immediately report suspicious cases to their health departments so that any occurrence of suspected influenza could be investigated quickly.

5. The situation did not yet appear to justify establishment of priorities for civilian use of the vaccine or consideration of government subsidy in its production.

The gist of these findings was telephoned on June 10 to the regional medical directors, who were directed to telephone the same information to the chief State health officials in their region. The Surgeon General had directed that the States be kept fully informed with all possible speed. To this end, among other measures, the chief of the Bureau of State Services frequently telegraphed State health officials during the summer to alert them to influenza information in the *Morbidity and Mortality Weekly Report* and to report other developments.

After the meeting of the Advisory Committee on Influenza, the Surgeon General held a general press conference. (He and other members of his staff were accessible to individual reporters throughout the period described.) Interest of the press and public in influenza rose sharply as a result. The voluntary health organizations were immediately alert to the various eventualities inherent in the situation. On June 11, the managing director of the National Tuberculosis Association, for example, generously offered the cooperation of the association and its affiliates for the health education of the public, if this should become necessary. Similar messages were received from other large voluntary health and welfare associations and professional societies.

Tempo Intensified

The June 10 meeting, as has been noted, marked the end of the first phase of the Asian influenza activities of the Public Health Service. After that meeting, the tempo of those activities increased markedly, as outbreaks of the disease increased across the Nation and as the time approached for decision on the major policy issues. As recognized on June 10, these were:

1. Whether to recommend vaccination and of what segments of the population.

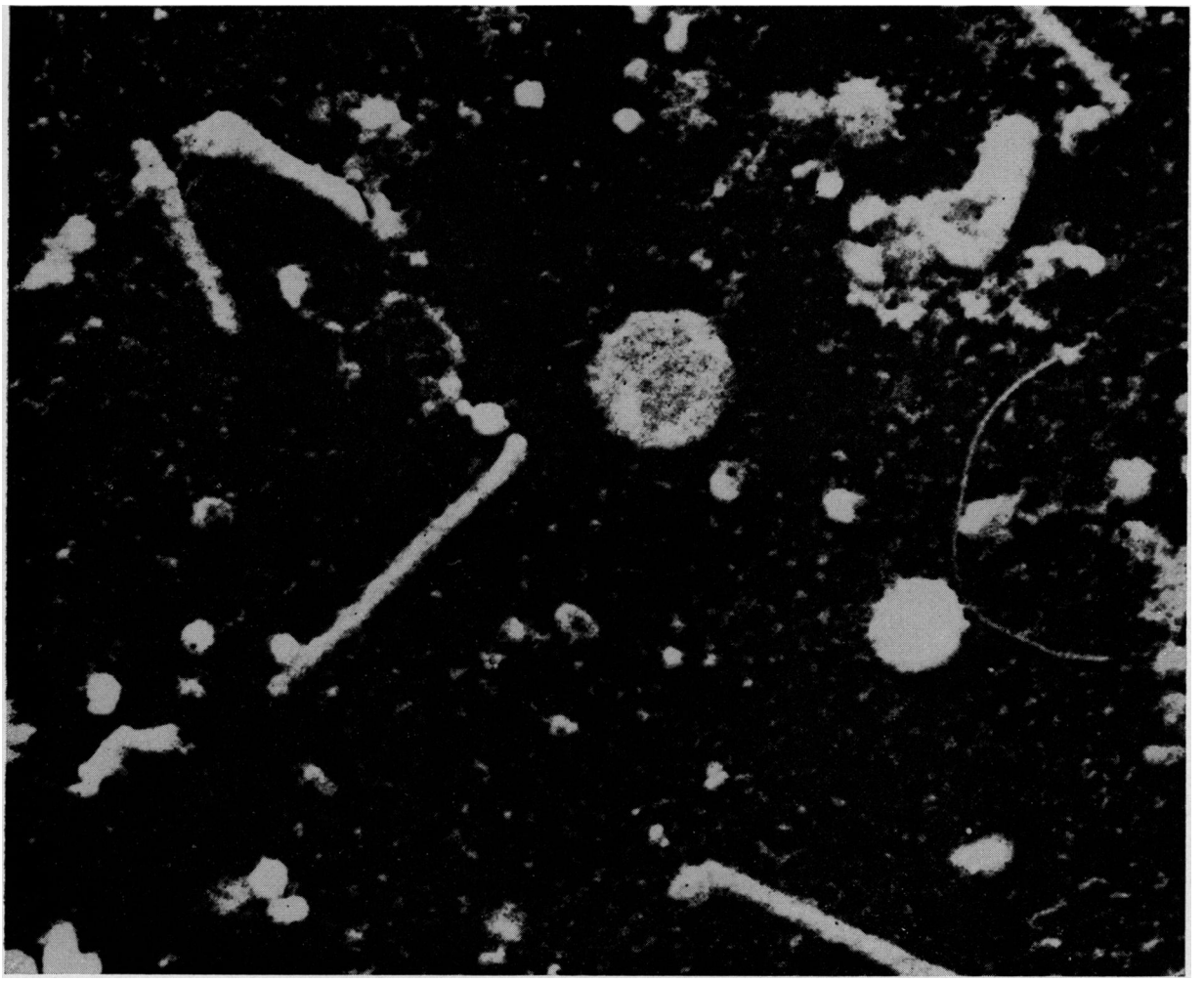
2. Whether to rely on a monovalent or polyvalent vaccine, a complex question related to factors of effectiveness and supply.

3. The extent of further Public Health Service participation in influenza programs.

The second or developmental phase of Public Health Service Asian influenza activities opened with a meeting on June 12 of technical representatives of the vaccine manufacturers with the National Institutes of Health. The latest epidemiological information was presented to the manufacturers, with data on the influenza virus strains encountered and their growth characteristics. Each firm summarized its experience with the growth of the various strains used in the production of influenza vaccine.

The proposed strain constitution of vaccines for military and civilian use was then discussed. The proposed formulas for military monovalent and polyvalent vaccine caused no comment, but some discussion concerned the proposed polyvalent vaccine for civilian use. The manufacturers expressed a preference for a monovalent vaccine containing the Asian strain. There was general agreement that the low antigen yield of the Asian strain as measured in CCA units made it difficult to obtain material of sufficient concentration for inclusion in the proposed polyvalent vaccine. It was pointed out that much of the vaccine prepared for the coming influenza season had already been pooled, and the Asian strain could not be added because it could not be produced in high concentration. In view of this difficulty, each manufacturer agreed to review its inventory and submit as quickly as possible an evaluation of the formula that would make best use of the material at hand.

By June 17 the special weekly influenza report to the Surgeon General brought word of potency studies of monovalent vaccines conducted by the Virus and Rickettsia Section,



Walter Reed Army Medical Center

Electron microscope photograph of Asian influenza virus.

Communicable Disease Center, Montgomery, Ala. Such studies are essential for standardization of vaccines. The reactivation of the Inter-Service Influenza Advisory Committee, which had been recommended at the June 10 meeting, was also reported. The Armed Forces Epidemiological Board, the National Institutes of Health, and the Communicable Disease Center each planned to have an epidemic intelligence team ready on short notice to investigate influenza outbreaks anywhere in the world. The Division of International Health of the Public Health Service and the Regional Office of the World Health Organization made arrangements to facilitate the rapid departure of these standby teams. It will be recalled that at that time no isolation of the Asian strain had yet been made in the United States. It was therefore important to learn as much as possible from epidemics abroad, looking especially for evidence of increased virulence.

The first report of Asian influenza in the United States came from the Navy by telephone on June 18. Aboard ships at the Naval Station at Newport, R. I., none of which had been in Far Eastern waters, the disease was running a course similar to that reported from the Orient and elsewhere.

Countering All Eventualities

On June 20 an Associate Director of the National Institutes of Health set down the following alternatives for the course of the disease and corresponding action to counter each:

1. *An explosive epidemic before September 1, 1957, with either (a) continued low mortality, or (b) increased virulence.*

Vaccination could not be considered, except for limited supplies of polyvalent vaccine and possible production for use in 1958.

A professional and public information program and mobilization of medical resources, both in cooperation with the American Medical Association, would be imperative.

Expansion of epidemic intelligence and diagnostic laboratory networks would be essential.

2. *Sporadic local occurrence during the summer with an explosive epidemic during the winter, again with*

(a) continued low mortality.

Vaccination of priority groups, as many as 6 million people, would be indicated.

A professional and public information program and mobilization of medical resources, both in cooperation with the AMA, would be imperative.

Expansion of epidemic intelligence and diagnostic laboratory networks would be essential.

(b) increased virulence.

Maximum vaccine production and immunization would be required, with priority groups vaccinated first.

A professional and public information program and mobilization of medical resources, both in cooperation with the AMA, would be imperative.

Expansion of epidemic intelligence and diagnostic laboratory networks would be essential.

3. *Sporadic local occurrence during the summer with a winter of normal influenza incidence.*

No recommendation of influenza vaccination would be indicated.

Expansion of epidemic intelligence and diagnostic laboratory networks would still be essential.

The appropriate staff members were directed to develop the personnel, financial, and legislative requirements of these alternatives.

The logical possibilities set down in this form represent the alternatives then facing the decision-makers in the Public Health Service and elsewhere. The consensus in the Public Health Service during the middle of June was that the most probable outcome would be sporadic local occurrence during the summer with an epidemic during the fall or winter that would result in a relatively small increase in mortality. A widespread epidemic before Labor Day with low mortality was considered a reasonable possibility, but the odds against this event were believed to be greater than those favoring a benign epidemic later.

The hypothesis that the Nation would experience a winter of normal influenza incidence was considered wishful thinking. On the other hand, a repetition of the notorious pandemic of 1918 was also considered most unlikely, with probabilities of 1 in 20 to 1 in 40 against such an event. It could not be overlooked, however, that, historically, pandemic influenza of high mortality has recurred at intervals of about 20 years, and there had been no such experience for 39 years.

It was clear at this time that quantities of potent vaccine sufficient for large-scale immunization could not be anticipated until after the middle of August. If an epidemic occurred before Labor Day, with either mild or extreme mortality, there would be virtually no vaccine available. If the epidemic developed during the fall and winter, as seemed most probable, it would be possible to immunize a substantial segment of the population, provided that vaccine production was at a high level during the summer and fall. This would assure continuity of essential civilian services and protect those vaccinated against the discomfort and danger (relatively high for aged persons and those with a history of chronic respiratory or cardiac disease) of an attack of influenza. Production of large quantities of vaccine was also indicated to protect against the possibility of increased virulence of the Asian strain.

The framework of alternatives and the reasoning described above was presented to the Secretary of Health, Education, and Welfare on June 24, with preliminary estimates of probable cost of each possibility and new legislative authority that might be needed. On June 26 the Surgeon General met with representatives of the American Medical Association to describe the progress of the disease toward this country and discuss the question of medical manpower in the event of a serious epidemic. The outlook for immunization against influenza was also discussed, and the alternative types of Federal action envisaged by the Service were described. It was made clear that the situation did not appear to warrant large-scale vaccine purchases or subsidization of production by the Government. Agreement was then reached on the conduct of a joint Public Health Service-American Medical Association cam-

paign of public information and health education. News of Asian influenza was on the front pages and television screens, but the public had not learned what it could do to protect itself. The association was represented at this meeting by two trustees, the chairman of the Committee on Civil Defense and the assistant secretary-general manager.

On the next day the National Institutes of Health reported plans for research on influenza that would take advantage of the unique opportunities expected during the 1957–58 season. These plans included clinical studies of patients experiencing epidemic influenza, with particular emphasis on cardiovascular and systemic manifestations; studies of the factors contributing to elevated influenza mortality among aged or debilitated patients; and studies of the disease among vaccinated civilian communities. Not only was it possible to support these research projects with funds previously made available, but no additional funds were requested by the National Institutes of Health for its influenza vaccine studies, microbiological studies of patients with influenza, or laboratory studies and normal statutory control of vaccine production.

On July 1 the Surgeon General's weekly memorandum to the Secretary's Special Assistant for Health and Medical Affairs reported a number of civilian cases in the United States that were believed to be Asian influenza, although it had not been possible to obtain laboratory confirmation of the tentative diagnoses. Influenza diagnostic reagents had been shipped to all domestic laboratories in the WHO Influenza Program, however, and improvement in the reporting of confirmed cases was expected. Advices from abroad indicated that morbidity and mortality rates were unchanged.

On July 2 officials of the Bureau of State Services and the Bureau of Medical Services discussed the possibility of an influenza outbreak at the International Boy Scout Jamboree to take place at Valley Forge, Pa., July 12–18. More than 50,000 Scouts were expected from all parts of the Nation and abroad. Physical examinations were to be made on arrival, a satisfactory physician-Scout ratio would exist, and as many as 25,000 hospital beds could be furnished in the vicinity by military, private, and Federal Civil Defense Administration hospitals, if an epidemic should develop. In addition to the Public Health Service, military, Scouter, and local civilian physicians, representatives of the State health department, and CDC Epidemic Intelligence Service officers were to be on the scene. These precautions were considered sufficient. During the Jamboree a few hundred Scouts were hospitalized because of upper respiratory infections, but this was not much more than normal incidence, in the opinion of the chief medical officer for the encampment, a physician from the PHS Hospital, Stapleton, N. Y. Confirmed cases of Asian influenza were largely confined to Scouts from California and Louisiana.

On July 3 the director of the National Institute of Allergy and Infectious Diseases was designated the "focal point" at the National Institutes of Health for influenza matters. NIH influenza research and licensing responsibilities involved the National Institute of Allergy and Infectious Diseases, the National Heart Institute, the National Institute of Mental Health, the National Institute of Neurological Diseases and Blindness, the Division of Biologics Standards, the Division of Research Grants, and the Clinical Center.

Confirmed Civilian Cases

Word came from the California State health officer on July 9 that laboratory results indicated Asian influenza as the cause of an outbreak of acute respiratory illness that had affected 200 teen-agers meeting at Davis, Calif., late in June. These were the first confirmed civilian cases of Asian influenza in the United States. Another outbreak then under investigation involved young people from 43 States and 10 other countries who had gathered at Grinnell, Iowa. Asian influenza was later proved in the laboratory to be responsible for this outbreak also, and it was further established that one of the young people at the Davis meeting afterward attended the Grinnell gathering.

An assistant to the Surgeon General met with officials of the American Medical Association in Chicago on July 9 to discuss recommenda-

tions with respect to influenza that were then being drawn up for action by the trustees of the association. The activities discussed at this meeting and later authorized by the trustees included professional information and education through the AMA publications, preparation of public information materials (in cooperation with the Public Health Service) for use when necessary, and standby plans by State and county medical societies to deal with serious epidemics.

On July 9 the Communicable Disease Center issued the first of a series of weekly reports summarizing laboratory information and epidemiological data reported by State health departments, Epidemic Intelligence Service officers, collaborating influenza diagnostic laboratories, and other sources.

On July 10 the Service announced establishment of specifications for manufacture of vaccines containing the Asian strain. On the same day the Executive Committee of the Association of State and Territorial Health Officers met in Washington, D. C., with Service officials. Influenza was discussed at length, with the Service urging more complete reporting from local sources and full utilization of laboratories for definitive diagnosis of the disease. The health officers agreed that the Public Health Service and the American Medical Association should conduct a vigorous campaign of public information and health education urging immunization against influenza. In the past, influenza vaccines had been used, for the most part, by large firms for the protection of their employees. However, the potential dangers accompanying a large-scale epidemic, which now appeared highly probable, made it advisable to stimulate wider use of the only preventive available.

On July 11 the Public Health Service consolidated recommendations from its bureaus and meetings with outside groups and developed proposals for further action against Asian influenza. These were submitted to the Secretary of Health, Education, and Welfare on the following day.

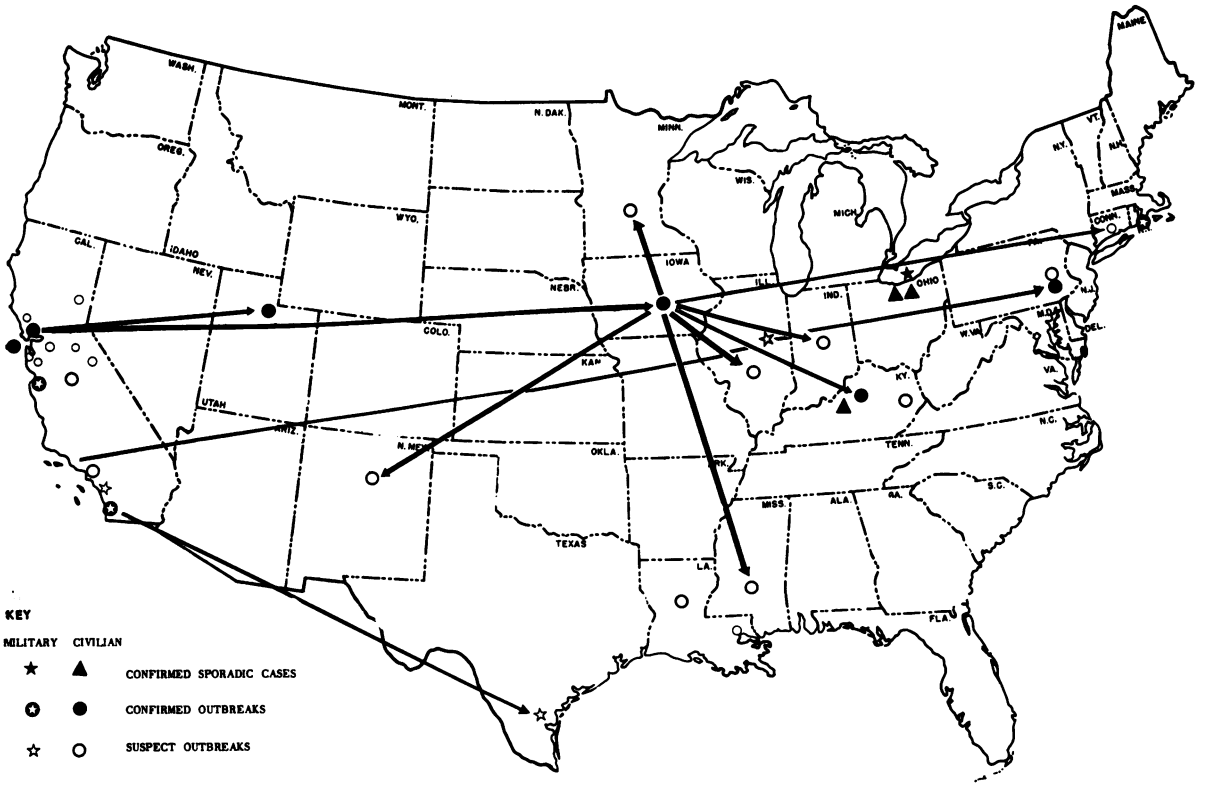
In Geneva on July 11, during the Fourth International Poliomyelitis Congress, the chief of the Endemoepidemic Diseases Section of the World Health Organization called an informal meeting of scientists present in Geneva to discuss the influenza situation. A useful exchange of information ensued. One of the incidental results of this meeting was international agreement that "Asian influenza" was both a descriptive and appropriate appellation for the contemporary manifestation of the ancient disease.

In mid-July two major policy decisions had to be made. Whether to recommend vaccination against influenza for civilians was one. Medically it was indicated, but the large quantities of vaccine that were needed had never been manufactured rapidly. The Surgeon General had decided to rely upon established physician-patient relationships for immunization. Except for protection of its own patients and employees, the Service did not plan purchases of vaccine. In these circumstances, could the manufacturers produce ample influenza vaccine? Would they shoulder the attendant risks?

From July 15 through July 19, the Surgeon General discussed the potential supply of influenza vaccine by telephone with each of the licensed manufacturers in turn. They appreciated the desirability, from the standpoint of public health, of immunizing as much as one-third of our population during the fall and winter. Given the forecasts of the epidemiologists and the plans being developed by the Public Health Service and the American Medical Association to meet an emergency, the manufacturers were willing to invest heavily in the production of influenza vaccine without financial assistance from the Government. Thus, a major administrative issue was resolved, and another significant contribution to the Nation's health was made by the industry.

The remaining unanswered question was whether to recommend that manufacturers continue making the monovalent vaccine then being produced solely to fulfill military contracts or to recommend production for civilian use of a polyvalent vaccine including the Asian strain. The opinion of the National Institutes of Health was that a polyvalent vaccine was preferable from an immunological standpoint, but the manufacturers were doubtful of their ability to produce large quantities of an effective polyvalent vaccine in the short time that remained. The National Institutes of Health conceded

Probable route of Asian influenza virus seeding, as of July 22, 1957.



that a monovalent vaccine would be preferable if the mortality associated with Asian influenza were to rise significantly. It seemed prudent as well as practical, therefore, to recommend a monovalent vaccine of the Asian strain for civilian use after the military needs had been met.

These were the crucial issues; the decisions were made by the Surgeon General. It was recognized also that these decisions should be "hedged" to reduce the adverse effects of rising influenza mortality, a possibility that could never be excluded. For this reason, the Division of Biologics Standards prepared a list of additional facilities that could produce influenza vaccine if the situation became more serious. It was believed that a mandatory allocation system for vaccine distribution and funds for purchase of vaccine and for public immunization clinics—all of which would also be necessary in the event of a grave emergency—could be obtained with relative speed if the situation ultimately warranted them.

On July 19 key officials of the Public Health Service discussed with the Under Secretary of Health, Education, and Welfare the plans of the Service, the American Medical Association, the State health officials, and the vaccine manufacturers to cooperate in an effort to control or minimize the expected epidemic and to utilize the opportunities for research that could be foreseen.

On July 23 the World Health Organization sent a circular letter describing the influenza situation and suggesting that "countries with good facilities for large-scale vaccine production should, after satisfying their priority requirements, make available at the lowest economic price any surplus vaccine for priority groups in countries less favorably situated."

On July 25 the Division of General Health Services was designated the "focal point" in the Bureau of State Services for information about BSS influenza activities. A memorandum from the National Institutes of Health of the same date reported that vaccine manufacturers were obtaining higher yields in terms of CCA units as they gained experience with the Asian strain, an optimistic report with respect to potential vaccine production. A larger out-

put or higher potency, or both, than heretofore anticipated now seemed ultimately feasible.

On July 26 the chairman of the Committee on Control of Infectious Disease, American Academy of Pediatrics, met with officials of the Office of the Surgeon General to discuss vaccination against influenza. The Service agreed to provide the committee with all relevant information as it became available; the committee in turn agreed to develop technical advice for the guidance of pediatricians with respect to vaccination.

On July 30 the Surgeon General wrote to all State and Territorial health officers summarizing developments in the influenza situation and advising them of a forthcoming public announcement of the Service campaign to encourage maximum use of influenza vaccine. On August 1 a representative group of State directors of health education met with the Assistant to the Surgeon General for Information and other officials in Washington, D. C., to learn in detail of the plans the Service was making to encourage use of the vaccine when it became available. The Public Health Service expected a major share of this campaign to be in the hands of the States, with materials and national efforts provided by the Service.

On August 2 the Service issued a statement to the press to launch its campaign of public information and health education, and the Surgeon General again met with the press en masse. It was then possible to state that the influenza vaccine manufacturers expected to produce about 8 million cubic centimeters by mid-September, half of which would be available for civilian use.

A meeting of representatives of the Armed Forces, Veterans Administration, and the Public Health Service on August 2 was devoted principally to the question of influenza vaccine dosage. The judgment of the Office of the Surgeon General, after reviewing studies reported by military, civilian, and Service investigators, was that inoculation of 1 cc. of monovalent Asian influenza vaccine with a strength of 200 CCA units was the most effective and practical dosage to recommend.

On August 6 the Surgeon General reviewed the situation in a conference with the Secretary of Health, Education, and Welfare. On the next day the Surgeon General and members of his immediate staff met with a committee representing the American Hospital Association to discuss the part hospitals could play in the care of the sick in the event of a serious epidemic.

Resources Readied for Epidemic

The Bureau of State Services reported on August 9 the first evidence of influenza occurring in epidemic proportions among the general population; previous outbreaks were among such "closed" groups as summer camps and naval vessels. On the same day the chief of the Civilian Health Requirements Unit completed an analysis of inventory increases by antibotics manufacturers in anticipation of greater needs for treatment of complications of influenza. It was estimated that from 25 to 40 percent more antibiotics than usual would be on hand during the fall and that inventories could be further increased to from 40 to 100 percent above normal requirements within 30 to 60 days. The Surgeon General recommended to the Office of the Secretary of Commerce on August 9 that the export of Asian influenza vaccine be controlled while it remained in short supply.

On August 12, by individual letters, the Surgeon General asked the vaccine manufacturers to cooperate with the Public Health Service in the maintenance of a voluntary system of equitable interstate allocations of vaccine so long as it remained in short supply. Plans for this system had been developed by the Bureau of State Services. All manufacturers agreed to cooperate.

On August 13 the Surgeon General called a special meeting of all State and Territorial health officers to consider plans for the prevention and control of influenza. This action was taken pursuant to authority contained under section 312 of the Public Health Service Act. Preparations for the meeting on August 27–28 were a major item of business during the rest of the month.

On the following day, the Public Health Service met with more than 50 representatives of official, voluntary, and professional groups in the fields of health, education, and welfare to plan cooperative efforts to deal with the anticipated epidemic. Much of the smooth function-

ing of the professional groups involved during the months ahead and the lack of alarm or hysteria on the part of the public may be attributed to the immediate and continuing response of the national organizations represented at this meeting.

On August 14, also, the Surgeon General appeared before the Committee on Appropriations of the Senate to testify with respect to the President's request for additional funds for influenza activities. The committee had before it the Supplemental Appropriation Bill, 1958, which had been passed by the House of Representatives. As finally enacted, this bill provided $800,000 in additional Public Health Service funds:

Production and distribution of diagnostic reagents	$225,000
Influenza surveillance and laboratory services	385,000
Data collection and dissemination	80,000
Public information and health education	110,000

In addition, transfer to influenza activities of $275,000 previously appropriated for communicable disease control was authorized. Standby authority was also granted to transfer as much as $2 million of emergency funds available to the President. Half was intended to defray the expense of calling several hundred Public Health Service reserve officers to active duty for loan to the States if the situation should worsen, and half was contemplated for purchase of medical supplies and equipment to be made available to States and communities in the event of a grave emergency.

On August 16 Public Health Service staff members met with representatives of the Army, the Committee on Disaster Studies of the National Academy of Sciences-National Research Council, the University of Pennsylvania (Project Big Ben), and the American Medical Association to discuss proposals for a study of the effects of an influenza epidemic on community organization and functioning. This study was later conducted, primarily by the Service.

On August 21 the Surgeon General forwarded to the President's adviser on personnel his recommendations with respect to influenza immunization for Federal employees, which had been developed after consulting the Civil Service Commission, the Federal Personnel Council, and others. On August 23 the Bureau of State Services reported influenza among school children in Louisiana and Mississippi communities where schools open during the summer before the fall harvest season begins. This development was correctly believed to foreshadow similar effects after schools opened in other communities during the fall.

With the special conference on influenza of the Surgeon General with the State and Territorial health officials on August 27–28, the Asian influenza program of the Service moved from its developmental phase into its operational period. The relevant information had been received and evaluated, the alternatives had been established, the major decisions had been made, the individuals and groups involved had been alerted, the necessary control activities had been started in the Service and elsewhere, and a campaign of public information and education had begun. A comprehensive account of the subsequent activities, however, must await a later diarist.

Income Tax Regulations on Medical Deductions

Internal Revenue Regulations which govern deductions for medical and dental expense have been published in the Federal Register, December 14, 1957 (22 FR 10054). They are sections 1.213 and 1.213–1 of title 26 of the Internal Revenue Code of 1954.

Medical care is defined, a special rule for decedents is spelled out, and examples illustrative of the regulations are included.

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