

Quarantine Inspection of International Air Travelers

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AT 1:30 a.m., November 2, 1960, a flight originating in Brussels, Belgium, arrived at Idlewild Airport in Jamaica, N.Y. The plane carried 40 passengers. The 27 U.S. citizens and 13 aliens were met by a U.S. quarantine inspector, whose responsibility it is to protect the United States against the importation of disease.

As part of the regular inspection procedure, each passenger was asked to name the places he had visited within the past 14 days. The combined itineraries of the 40 passengers included visits to 16 different European countries. In addition, one or more passengers had visited India, Israel, Jordan, Lebanon, Egypt, Morocco, Congo, Union of South Africa, and Venezuela. Because of possible exposure to quarantinable diseases, 9 of the 40 passengers were judged a risk to public health in this country.

The flight from Brussels was one of 32 sample flights arriving at Idlewild Airport and included in a pilot study (1) conducted in 1960 at 14 international airports in the United States by the Division of Foreign Quarantine, Public Health Service.

Approximately one-half of all air passengers who are subject to U.S. quarantine inspection arrive at Idlewild Airport. In fiscal year 1960, 885,438 passengers subject to quarantine inspection entered the United States at this airport. Surveillance notices were issued to 42,779 of these passengers, a rate of 4.8 per 100 inspec-

tions. In fiscal year 1961 the number of passengers inspected for quarantine at the airport increased to 1,027,739, with 72,727 surveillance notices issued. The rate of issuance of surveillance notices had increased to 7.1 per 100 inspections.

In fiscal year 1961 more than 2 million air passengers arrived at all international airports in the United States from nonexempt areas of the world. The itineraries of many passengers included countries where quarantinable diseases are endemic, epidemic, or recurrent. As high speed travel between these countries and the United States increases, the danger of introducing quarantinable disease also increases.

Inspection Procedure

All travelers arriving from countries which are not exempt from U.S. quarantine regulations are subject to quarantine inspection and are required to present a valid smallpox vaccination certificate upon arrival at a U.S. port. Additional immunization requirements must be met if a person has visited an area infected with cholera, or if he has visited an area infected with yellow fever and is destined to reach a receptive area of the United States during the incubation period of the disease.

A traveler who does not meet the immunization requirements at the time of arrival is generally given a surveillance notice which specifies the disease to which he may have been exposed. He is instructed to present this notice to the health officer at his destination should he become ill within a specified period. If a person arrives unimmunized from an infected local area, or if he shows symptoms of having one

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of the quarantinable diseases, the medical officer determines whether isolation is necessary.

Through the *Weekly Epidemiological Record* prepared by the World Health Organization, supplemented by information from the Epidemiological Section of the Division of Foreign Quarantine, the quarantine inspectors are informed of health conditions around the world. They are alert for passengers arriving from countries or areas where a quarantinable disease—cholera, plague, smallpox, yellow fever, louseborne relapsing fever, or louseborne typhus—has been reported. Attention is also given to outbreaks of other communicable diseases as reported in foreign newspapers.

Reports available to the U.S. quarantine inspectors at the time of the survey indicated that health problems existed in many countries in which arriving passengers had visited. The following listing indicates the hazard of quarantinable disease present in these countries at that time:

Europe

Yugoslavia: Louseborne typhus.

Southwest Asia

Iran: Smallpox.

Far East

India: Plague, cholera, smallpox.

Pakistan: Cholera, smallpox.

Africa

Congo: Plague, yellow fever, smallpox.

Egypt: Louseborne typhus.

Ethiopia: Louseborne typhus, smallpox, louseborne relapsing fever.

Kenya: Plague, smallpox.

Libya: Louseborne typhus.

Nigeria: Yellow fever, smallpox.

Tunisia: Louseborne typhus.

South America

Argentina: Smallpox.

Bolivia: Yellow fever.

Brazil: Yellow fever, smallpox.

Colombia: Louseborne typhus, yellow fever, smallpox.

Ecuador: Louseborne typhus, plague, smallpox.

Peru: Louseborne typhus, yellow fever.

Survey at Idlewild Airport

The Division of Foreign Quarantine survey of the Idlewild Airport included a 10 percent sample of flights arriving October 24 through November 2, 1960. On the basis of a randomly selected number, the seventh flight arriving after 12:01 a.m., October 24, was selected as the first sample flight. Thereafter, each 10th arriving flight from nonexempt areas was specified as a sample flight.

All passengers on sample flights were included in the survey. Information gathered for the study was that routinely obtained in the course of quarantine inspection. For each individual passenger arriving on a sample flight, this information was recorded on a convenient checklist which provided space to indicate the citizenship of the traveler, his smallpox

Table 1. Summary of survey of international air travel and quarantine activities, Idlewild International Airport, October 24–November 2, 1960

Item	Total	Last departure—Europe			Last departure and origin in Western Hemisphere ¹
		Total	Origin in Europe	Origin in Southwest Asia	
Number of flights in sample.....	32	25	22	3	7
Total passengers.....	2, 437	2, 087	1, 758	329	350
Average passenger load.....	76. 2	83. 5	79. 9	109. 7	50. 0
Total visits by passengers to foreign countries.....	5, 029	4, 534	3, 856	678	495
Average number of countries visited.....	2. 1	2. 2	2. 2	2. 1	1. 4
Passengers without valid smallpox certificates.....	24	16	15	1	8
Percent without valid smallpox certificates.....	1. 0	0. 8	0. 9	0. 3	2. 3
Passengers issued surveillance notice.....	155	72	52	20	83
Percent issued surveillance notice.....	6. 4	3. 4	3. 0	6. 1	23. 7

¹ Flights from South America, Central America, and the Caribbean area.

vaccination status, any special processing required, and his itinerary within the past 14 days—the incubation period for smallpox as defined by international agreement. A country was not included in the itinerary listing if the

traveler only changed planes there and did not leave the airport.

During the survey period at the airport, 320 international flights arrived from nonexempt areas, bringing 24,246 passengers to the United

Table 2. Countries visited by 2,437 passengers arriving on 32 sample flights at Idlewild Airport, October 24–November 2, 1960

Area and country visited	Total visits	Last departure—Europe		Last departure and origin in Western Hemisphere ¹	Area and country visited	Total visits	Last departure—Europe		Last departure and origin in Western Hemisphere ¹
		Origin in Europe	Origin in south-west Asia				Origin in Europe	Origin in south-west Asia	
<i>Europe</i>					<i>Africa</i>				
Austria	101	83	18		Congo	2	1	1	
Belgium	104	95	9		Egypt	17	12	5	
Bulgaria	1		1		Ethiopia	2	2		
Czechoslovakia	9	7	2		Kenya	2	2		
Denmark	165	152	13		Libya	4	3	1	
England	843	784	57	2	Morocco	9	9		
Finland	10	9	1		Nigeria	3	3		
France	945	710	23	2	Tunisia	2		2	
Germany	422	379	43		Union of South Africa	6	6		
Gibraltar	2	2			<i>Oceania</i>				
Greece	49	47	2		Australia	1	1		
Hungary	2	2			<i>Caribbean</i>				
Iceland	4	4			Barbados	41			41
Ireland	37	34	3		Curacao	68			68
Italy	736	568	168		Jamaica	19			19
Liechtenstein	2	2			Trinidad	28			28
Luxembourg	7	6	1		<i>Central America</i>				
Malta	11	11			Canal Zone	2			2
Monaco	2	2			Costa Rica	2			2
Netherlands	146	126	20		El Salvador	2			2
Norway	37	37			Guatemala	2			2
Poland	10	8	2		Mexico	66			66
Portugal	19	15	4		Nicaragua	1			1
Romania	1	1			Panama	3			3
Scotland	67	66	1		<i>South America</i>				
Spain	150	135	15		Argentina	30	1		29
Sweden	105	102	3		Bolivia	1			1
Switzerland	369	327	42		Brazil	74			74
U.S.S.R.	9	7	2		Chile	4			4
Yugoslavia	7	4	3		Colombia	33			33
<i>Southwest Asia</i>					Dutch Guiana	4			4
Iran	7	2	5		Ecuador	2			2
Iraq	3	3			Paraguay	1			1
Israel	41	36	5		Peru	4			4
Jordan	9	7	2		Uruguay	23			23
Lebanon	18	12	6		Venezuela	83	1		82
Syria	3	1	2						
Turkey	16	12	4						
<i>Far East</i>									
Hong Kong	2	2							
India	8	8							
Japan	3	3							
Pakistan	5	3	2						
Thailand	1	1							

¹ Flights from South America, Central America, and the Caribbean Area.

States. Arriving on the 32 sample flights were 2,437 passengers: 1,556 were U.S. citizens and 881 were aliens. Of the 32 sample flights, 22 originated in and were directly from Europe (table 1). Three flights originated in southwest Asia and reached New York after a stop in Europe. Seven flights originated in the Western Hemisphere—South America, Central America, or the Caribbean.

Survey Results

The combined itineraries of the 2,437 passengers showed visits to 74 different countries within 14 days prior to arrival in New York (table 2).

Approximately 1 percent of the passengers surveyed failed to present a valid smallpox vaccination certificate upon arrival at New York. Six (0.4 percent) of the 1,556 U.S. citizens and 18 (2.0 percent) of the 881 aliens were in this group. In keeping with quarantine practice these 24 persons were offered vaccination upon arrival at the U.S. port. If for any reason vaccination is not accepted, passengers are placed under surveillance or in isolation for a period of 14 days from the date of the last possible exposure to smallpox. The decision is based on the presence or absence of the disease in areas visited or contacted en route during the same period.

Only 3 U.S. citizens and 3 aliens among these

Table 3. Itineraries¹ of 155 passengers issued surveillance notices following arrival of sample flights, Idlewild Airport, October 24–November 2, 1960

Number of passengers	Itinerary	Number of passengers	Itinerary
1	England, France, Germany, Italy Switzerland (no valid smallpox vaccination certificate)	1	<i>Congo</i> , Belgium
1	France, Italy, Switzerland (no valid smallpox vaccination certificate)	1	<i>Congo</i> , Portugal
1	Germany (no valid smallpox vaccination certificate)	2	<i>Egypt</i> , <i>Libya</i> , Turkey, Austria, Greece, Italy, Spain.
1	Greece, Italy, Spain (no valid smallpox vaccination certificate)	3	<i>Egypt</i> , Israel, Jordan, Lebanon, England, France, Germany, Italy.
47	<i>Brazil</i> (1 passenger with no valid smallpox vaccination certificate)	2	<i>Egypt</i> , Italy
18	<i>Brazil</i> , <i>Argentina</i> , Uruguay (1 passenger with no valid smallpox vaccination certificate)	1	<i>Egypt</i> , Jordan, Italy
2	<i>Brazil</i> , <i>Argentina</i>	1	<i>Ethiopia</i> , England
2	<i>Brazil</i> , <i>Argentina</i> , Chile, <i>Peru</i>	1	<i>Ethiopia</i> , Israel, Jordan, Lebanon, England, France, Germany, Italy.
2	<i>Brazil</i> , <i>Argentina</i> , Chile, <i>Peru</i> , Uruguay, Canal Zone, Panama	2	<i>Kenya</i>
1	<i>Brazil</i> , <i>Argentina</i> , Trinidad	1	<i>Nigeria</i> , England
1	<i>Brazil</i> , <i>Colombia</i>	1	<i>Nigeria</i>
1	<i>Brazil</i> , France	2	<i>Tunisia</i> , Italy
1	<i>Argentina</i>	1	Uruguay
1	<i>Argentina</i> , Trinidad	1	Uruguay, France
1	<i>Bolivia</i>	2	Trinidad
2	<i>Ecuador</i>	1	England, France
2	<i>Yugoslavia</i> , England	1	England, Spain
1	<i>Yugoslavia</i> , Belgium, England, France	2	England, France, Netherlands
2	<i>Yugoslavia</i> , Italy, Switzerland	1	Bulgaria, Denmark, England, U.S.S.R.
1	<i>Iran</i> , Denmark, England	3	Czechoslovakia, England
5	<i>Iran</i>	1	Czechoslovakia, Spain
1	<i>India</i> , U.S.S.R., Denmark, England, France.	1	Czechoslovakia, England, France
1	<i>India</i> , Belgium, Italy	1	Czechoslovakia, Sweden, Switzerland
1	<i>India</i> , England	2	Czechoslovakia, France, Germany, Poland
1	<i>India</i> , Denmark, England	1	Hungary, Belgium
2	<i>India</i> , Hong Kong, Japan, <i>Egypt</i> , Greece	1	Hungary, Romania
1	<i>Pakistan</i> , Thailand, England, France	1	Poland, Austria, U.S.S.R.
2	<i>Pakistan</i> , <i>Egypt</i> , Greece, Italy	5	Poland
		1	U.S.S.R., Denmark, France
		1	U.S.S.R., England, France
		1	U.S.S.R., England, France, Netherlands
		1	U.S.S.R., France
		2	Morocco, Scotland, Gibraltar
		3	Union of South Africa

¹ Countries with quarantinable diseases reported to the World Health Organization appear in italics.

24 were placed under surveillance, with the remaining 18 accepting vaccination. Thus, slightly more than two-tenths of 1 percent of the sample group entered the United States without complying with the foreign quarantine regulation requiring smallpox vaccination.

Surveillance notices were issued to 155 (6.5 percent) of the 2,437 passengers included in the sample: 79 (5.1 percent) of the U.S. citizens and 76 (8.6 percent) of the aliens. Of those issued surveillance notices, 6 had failed to present a valid smallpox vaccination certificate and 117 (including 2 without vaccination certificates) had visited in countries where quarantinable diseases were reported (table 3). The remaining 34 were issued notices for reasons other than those indicated by the check sheets. One U.S. citizen who had visited in India failed to present a valid cholera vaccination certificate. He was detained at the Public Health Service Hospital at Staten Island for 2 days, the remainder of the cholera incubation period.

Summary

To measure the extent of international air travel and its significance to the spread of com-

municable diseases, a pilot study was conducted by the Division of Foreign Quarantine, Public Health Service, at 14 international airports in 1960. The quarantine station at Idlewild Airport participated in this study, sampling 10 percent of the flights arriving October 24 through November 2, 1960. The sample included 32 flights, carrying 2,437 passengers, whose combined itineraries included visits to 74 countries within 14 days prior to arrival in New York. In 17 of these countries the presence of quarantinable disease—cholera, plague, smallpox, yellow fever, louseborne relapsing fever, or louseborne typhus—had been reported by the World Health Organization. Of the arriving passengers, 24 (1.0 percent) failed to present a valid smallpox vaccination certificate and 155 (6.5 percent) were placed under surveillance as presenting a possible threat to the health of U.S. citizens.

REFERENCE

- (1) U.S. Public Health Service, Division of Foreign Quarantine: Itineraries of international air travelers arriving at U.S. ports of entry, October 24 through November 27, 1960. Washington, D.C., 1961.

Analysis of Raritan Bay Waters

In conducting a comprehensive survey of water quality in Raritan Bay, Public Health Service scientists are employing two analytical techniques for the first time in this area of antipollution work. An automatic water-quality monitoring network in the tidal waters will make round-the-clock measurements, and photofluorescent dyes will be used to determine flow patterns of the waters.

About 500 outlets discharge wastes into the bay, which extends from Sandy Hook, N.J., to the southern end of Staten Island, N.Y. In studying the bay waters and shorelines, scientists and engineers will use laboratory-equipped boats and mobile land laboratories. They will travel on foot to discover waste water outlets and will analyze the effects of the discharges on the bay's water quality.

A study of the bay waters was undertaken following an outbreak of infectious hepatitis caused by clams taken from the bay.

Program Notes

In the second year of requiring prospective motorists to pass medical examinations, Pennsylvania officials announce that more specific research data are required before the experiment can be called a complete success. To date, 97 persons have been disqualified by heart and blood disorders; 79 rejected for repeated lapses of consciousness; and 68 eliminated by neurological disorders.

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A funeral directing advisory board has been appointed by the New York State Health Department to make recommendations on undertaking and embalming.

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Followup surveys have allowed tentative evaluations of the specialized treatment and rehabilitation programs established for the needs of alcoholics in Minnesota, according to J. J. Rossi and N. J. Bradley (Quart. J. Stud. Alcohol 21: 432-446, 1960).

Continuous sobriety was observed in about 30 percent of the patients and some improvement was noted in about 45 percent. Strong evidence emerged that Alcoholics Anonymous contributed largely to the improvement.

Rossi and Bradley strongly recommend an increase in the number of outpatient facilities with specialized services for alcoholics which coordinate with the hospital program. They stressed the major importance of interested and trained personnel who are aware of the special problems of the alcoholic.

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Five children in Tampa, Fla., beginning June 20, 1961, were poisoned by parathion, apparently absorbed from a contaminated burlap bag used as a swing. Two of the children died a few hours after becoming ill. The Public Health Service assisted in the investigation.

A safety code for the use of portable ladders, both metal and wood, has been issued by the American Standards Association.

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In a study of nearly 1,700 mice, osteoarthritis, a degenerative joint disease, was found to be under hereditary control, behaving as a recessive characteristic, according to Drs. Leon Sokoloff, Richard S. Yamamoto, Lyman B. Crittenden, and George E. Jay, Jr., at the National Institute of Arthritis and Metabolic Diseases and the National Cancer Institute.

The study was reported at the June 1961 meeting of the American Rheumatism Association.

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Rheumatic fever secondary prevention programs, based on the distribution of prophylactic antibiotic drugs by State and local health departments, are operating in 31 States and serving 58,000 persons, according to the Public Health Service's Heart Disease Control Program.

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Hospitals and nursing homes in eight communities are participating in a mutual-help program supported by the Public Health Service. Hospitals provide medical and paramedical consultation to nursing homes on a fee basis, and the nursing homes provide the hospitals with beds for both patient referral and teaching.

The projects are located in Anniston, Ala., Muskegon, Mich., Hastings, Nebr., Las Cruces, N. Mex., Harrisonburg, Va., Abilene, Kans., and Flemington and Ridgewood, N.J.

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"A Topical Bibliography of Accident Research and Related Topics" has been compiled by the Connecticut State Department of Health. It is 88 pages, mimeographed.

The following enactments were among those passed in 1961 to help improve the health of migrant farm workers.

California authorized the State health department to maintain a health program for seasonal workers and their families and has requested the department of industrial relations to survey family housing and sustenance facilities for such workers. New York strengthened provisions on registration with the State industrial commissioner of persons bringing into the State migrant farm or food-processing workers who are U.S. residents.

Illinois provided for the licensing and regulation of migrant labor camps by the State health department. North Carolina required that the State department of motor vehicles regulate the transportation of migratory farmworkers by motor carriers. Florida restricted to some extent the employment of school-age children in farm work and prohibited their working with chemical sprays. Indiana provided for increased medical aid to indigent migrant workers as well as to all other indigent nonresidents.

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The potential toxicity and hazards of coin-operated drycleaning machines include escape of vapor from the operating system; opening of the closed compartment before it is adequately ventilated; evaporation of residues in clothing, especially thick parts, in a confined space such as a closed automobile or closet; and contact of vapor with hot objects or flame, leading to formation of phosgene and hydrogen chloride.

Michigan has issued regulations to govern installation and operation of these machines.

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A new periodical, *Training Bulletin*, is being issued by the Virginia State Department of Health to inform public health workers in the State of developments in their field. It contains news items, film and book reviews, summaries of journal articles, lists of publications, and announcements of courses and meetings.