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XIV Regional Committee Meeting



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REPORT ON THE STATUS OF SMALLPOX ERADICATION IN THE AMERICAS

I - Background

The Governing Bodies of PAHO/WHO have expressed their interest in, and concern with, smallpox in the Americas and its eradication in a series of resolutions which are set out chronologically below:

- a) May 1949, VII Meeting of the Executive Committee, Washington, D. C.- Resolution XIII approved a proposal of the Director of the Bureau which recommended that the American countries cooperate in the execution of programs aimed primarily at the eradication of smallpox in the Americas; authorized the Director to discuss this problem with the Member Governments and to offer them the cooperation of PASB.
- b) October 1950, XIII Pan American Sanitary Conference, Santo Domingo, Dominican Republic: -Resolution XIX recommended to the countries the development of systematic programs of smallpox vaccination and revaccination with a view to eradicating the disease; resolved to develop these programs under the auspices of the PASB, which in agreement with the interested countries would take the necessary measures to solve the problems that might arise in the control of smallpox, whether they be sanitary, economic or legal.
- c) September 1951, V Meeting of the Directing Council of PAHO, III Meeting of the WHO Regional Committee, Washington, D. C. - Resolution XXXII called the attention of Governments to the WHA4 recommendation on raising the level of protection against smallpox.
- d) September 1952, VI Meeting of the Directing Council of PAHO, IV Meeting of WHO Regional Committee, La Havana, Cuba: - Resolution IV-1-C approved the sum of \$75,000 in the Working Capital Fund for the initiation of a program against smallpox. Resolution XXIII authorized the Executive Committee to include the supplementary program against smallpox in the inter-country programs of the 1954 PAHO Budget and to assign an amount sufficient to insure its continuity.

- e) October 1953, VII Meeting of the Directing Council of PAHO, V Meeting of the WHO Regional Committee. Resolution III-1-C resolved to give special importance to the eradication of communicable diseases such as smallpox. Resolution XXVII replied to the WHO inquiry for suggestions from the Regional Committee to serve as the basis for a study of the measures that should be taken to carry out a world-wide campaign against smallpox; and stated that since 1950 PAHO had considered as one of its basic programs the execution of campaigns for the eradication of smallpox in the Americas, suggested that WHO promote inter-governmental agreements with a view to preventing border epidemics, promote the production of glycerinated or dried vaccine, provide equipment or advisory services or both to promote the production of glycerinated or dried smallpox vaccine according to the needs of the countries; recommended that WHO provide advisory services to countries desiring to intensify or reorganize their smallpox vaccination programs; recommended to countries that smallpox vaccination campaigns be an integral part or the starting point of permanent public health programs.
- f) October 1954, XIV Pan American Sanitary Conference, Santiago, Chile. Resolution XIII authorized the Director to use \$144,089 of the 1953 surplus funds for the intensification of the smallpox campaign in the Americas.
- g) September 1958, XV Pan American Sanitary Conference, San Juan, Puerto Rico. Resolution VI declared that the eradication of smallpox was a public health necessity urgently requiring the attention of all the countries of the Americas; urged Governments of countries where smallpox still existed to carry out nationwide plans for eradication; requested the cooperation of Member Governments in supplying smallpox vaccine and technical advice so as to eradicate smallpox throughout the Continent; recommended PASB to take all necessary measures to reach this goal, including collaboration in vaccine production, advice in campaign organization, holding of inter-country meetings to coordinate activities; and requested PASB to prepare a definition of eradication suitable for uniform application in the countries.
- h) September, 1959, XI Meeting of the Directing Council of PAHO, Washington, D. C. Resolution XXI expressed satisfaction at the fact that smallpox had already disappeared in some countries of the Americas and that nationwide and intensive campaigns were being conducted in others; recommended that Member Governments give special attention to the maintenance of high levels of immunity in their countries; called upon the Governments of countries where smallpox still existed and nationwide vaccination programs had not yet been initiated to undertake such programs as soon as possible; recommended that Governments study ways and means of

producing and storing sufficient quantities of smallpox vaccine for national vaccination programs and the control of possible epidemics.

- i) August 1960, XII Meeting of the Directing Council, La Havana, Cuba. Resolution XVII urged Governments of countries where smallpox still existed but where no eradication programs had been undertaken to implement such programs as soon as possible; recommended that Member Governments provide the public health services with the necessary facilities for the laboratory diagnosis of suspect cases of smallpox; called the attention of Governments to the importance of the correct application of the special measures concerning smallpox set forth in the International Sanitary Regulations.
- j) October 1961, XIII Meeting of the Directing Council, Washington, D. C. Resolution XXXII took note of the report of the Director on the status of the smallpox eradication program in the Americas; approved the criteria for smallpox eradication proposed by the Pan American Sanitary Bureau, Regional Office of the World Health Organization; urged Governments of countries that had not yet eliminated smallpox to accelerate or initiate eradication programs; recommended that the Governments endeavor to produce smallpox vaccines in amounts sufficient not only to meet the needs of their own countries but also to maintain a reserve for meeting emergency situations and for rendering assistance to other countries that may require the vaccine; recommended that so long as smallpox continued to represent an international problem the countries endeavor to maintain adequate levels of immunity in the population and that they ensure strict application of provisions of International Sanitary Regulations, especially Article 3 on the notification of cases.

The resolutions summarized above are a clear expression of the resolve of the Governing Bodies of PAHO to eliminate smallpox from the Western Hemisphere as soon as possible by means of extensive and orderly use of smallpox vaccination.

II - Criteria for the Eradication of Smallpox

The XV Pan American Sanitary Conference requested PASB to prepare a definition of smallpox eradication that would be applicable to all countries. After thorough study and consultation with scientific authorities, criteria for the eradication of smallpox were drawn up, and after discussions with the World Health Organization these criteria were submitted to the XIII Meeting of the Directing Council in October 1961, which unanimously approved them. These criteria are as follows:

"From a practical viewpoint countries in which smallpox is endemic may consider the disease eradicated when no new cases of smallpox occur during the three years immediately following the completion of a suitable vaccination campaign.

Although the particular conditions in individual countries may require change in the manner of conducting the vaccination program, it is generally accepted that the correct vaccination of 80 per cent of each of the sectors of the population within no more than five years will result in the disappearance of smallpox.

Countries where smallpox has been eradicated should adopt measures to maintain such eradication through either a permanent immunization program or, in the event of the disease being reintroduced into the country, the combined application of isolation and immunization measures. In countries exposed to the risk of the introduction of smallpox - for example when the disease is endemic in neighboring countries - it is recommended that an attempt be made to maintain suitable levels of immunity in the population through (a) the vaccination of all new members of the population and (b) the periodic revaccination of the population, especially the more exposed sectors.

In view of increased international travel the strict application of the pertinent provisions of the International Sanitary Regulations is recommended as a measure to protect countries free from the disease until such time as smallpox eradication is accomplished throughout the world."

III - Extent of the Problem

Between 1947 and 1961, 165,846 cases of smallpox were reported to the Pan American Sanitary Bureau.

Table A shows the distribution of smallpox in the Western Hemisphere by country and by year. From 1951 onwards the total annual number of cases remained more or less stationary until 1954, when there was a considerable increase; the number then fell progressively until 1958, when it began to rise only to diminish again in 1961.

Of the 1923 cases of smallpox reported to PASB in 1961, 1411 or 73.37 per cent occurred in Rio de Janeiro, Brazil; 491 or 25.53 per cent in Ecuador; 16 or 0.83 per cent in Colombia; 4 or 0.20 per cent in Argentina; and 1 (imported) in Uruguay. In 1962, up to 30 May, Argentina had reported 3 cases, Brazil 244 (State of Guanabara only), and Ecuador 74.

Table A also shows that smallpox occurred in all the countries of South America in the last 15 years. The disease spread rapidly from one country to another and gave rise to epidemics of various magnitudes which caused serious harm in all of them. In some, the disease found favorable conditions and became endemic; in others, soundly conceived vaccination programs carried on for short periods of time led to the disappearance of the disease or are doing so. Smallpox no longer exists in Bolivia, Chile, Paraguay, Peru, Venezuela, and British Guiana. It is about to disappear in Argentina, and Ecuador may be able to eliminate it in the near future. In Colombia the last reported cases occurred in August 1961. On the other hand, in Brazil, the number of smallpox cases continued to increase.

Mexico eliminated smallpox in 1952.

With the exceptions of Guatemala, where a case of smallpox was reported in 1953; of Panama, where cases occurred in 1947 and in 1958; and of British Honduras, where there were cases in 1948, the countries of Central America are free from the disease.

In the Caribbean area smallpox cases occurred only in Martinique (1951), in the Netherland Antilles (1951), and in Trinidad and Tobago (1948).

Owing to the lack of regular smallpox vaccination programs most of the population of the countries and territories of Central America, Panama and the Caribbean area, is susceptible to the disease. The same holds true in Uruguay (Table B).

In Costa Rica, Dominican Republic, Guatemala, Haiti, and Honduras, practical measures have recently been, or will soon be, taken to develop smallpox vaccination programs aimed at raising the level of immunity.

Smallpox vaccine of acknowledged efficacy, easy to produce and simple to apply, has been known for slightly over 150 years. New techniques have led to the preparation of lyophilized smallpox vaccine that can withstand adverse environmental conditions, especially temperatures, without its basic properties being affected.

In Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Mexico, Peru, Uruguay, and Venezuela (Table C), there are suitably equipped laboratories manned by trained technicians capable of producing a sufficient amount of both glycerinated and dried smallpox vaccine to cover the needs of each country and even to supply it to neighboring countries and territories that need but do not produce it. PAHO/WHO provided material and equipment and furnished technical advisory services for preparing such vaccine, as well as fellowships for training personnel in large-scale smallpox vaccine production techniques. In addition, the Organization has made available to the Governments the services of an internationally known laboratory for

testing the purity and potency of the vaccines prepared in national laboratories (Table D).

PAHO/WHO also continued to cooperate with the Governments in the study and planning of smallpox vaccination programs aimed at eradicating the disease or preventing its occurrence, as well as in the development and evaluation of such programs.

A summary of the smallpox eradication activities of the Governments is given below.

1. ARGENTINA

A smallpox vaccination program to be carried out jointly by the National Government and the Provincial Governments and aimed at reaching 80 per cent of the population in 16 provinces was begun in October 1960. Between then and 30 April 1962 a total of 5,621,896 persons were vaccinated.

The total number of smallpox vaccinations given during 1961, in both the special program in the 16 provinces and in the remainder of the country, was 4,407,020.

In 1961, 19,300,000 doses of glycerinated vaccine were produced, and in the first four months of 1962, 4,750,000 doses. Four cases of smallpox occurred in 1961 and 3 in 1962 up to 30 May.

2. BOLIVIA

A national vaccination smallpox program that was begun in 1957, and was to have reached 80 per cent of the country's population, was interrupted in December 1959 for various reasons, after 2,758,567 persons had been vaccinated and 700,000 persons still remained to be vaccinated. In view of the fact that the percentage of population protected against smallpox is very low in some places and nil in others, it is urgently necessary to complete this program.

The dried vaccine production laboratory, for which the Organization provided the equipment, produced 269,000 doses of vaccine in 1961. During that year (up to November), a total of 34,215 persons were vaccinated against smallpox. No smallpox cases were reported in 1961.

3. BRAZIL

In Brazil smallpox is endemic, and epidemic outbreaks of varying intensity frequently occur. There were 1,411 cases of the disease in Rio de Janeiro in 1961, and in 1962, up to 6 June, Guanabara State reported 261 new cases of smallpox.

That a national smallpox vaccination program is urgently needed in order to eradicate the disease from the country is evident. The Government of Brazil has recognized the need and decided to initiate the program experimentally in some areas of Rio de Janeiro and Sergipe State, and subsequently to extend it to Alagoas State. Once the most suitable work methods have been established, the vaccination campaign will be extended to embrace the entire country until 80 per cent of the population is reached.

The Organization provided equipment for producing dried vaccine to Rio Grande do Sul and Pernambuco States, and supplied additional laboratory equipment to the Oswaldo Cruz Institute to enable it to increase its capacity for producing lyophilized vaccine; in addition, a fellowship was awarded to a medical officer to allow him to visit various scientific centers in South America, the United States, and Europe that are producing dried vaccine on a large scale.

4. CHILE

The National Health Service, through its local executive agencies, is responsible for the regular program of smallpox vaccination in the country, which consists in vaccinating all the newborn and immigrants, and revaccinating 20 per cent of the population every five years.

The Institute of Bacteriology, for which the Organization furnished additional laboratory equipment in 1958, produced 1,050,000 doses of glycerinated and 360,000 doses of dried vaccine in 1961. In that year a total of 131,966 persons were vaccinated.

5. COLOMBIA

The smallpox vaccination program initiated in October 1955 was completed on 10 April 1962. A total of 11,273,085 persons were vaccinated, of which about 4,484,000 were primo-vaccinations. According to the population census made by the smallpox eradication campaign, the country has a population of 12,117,509. The number of persons vaccinated, therefore, represents 93 per cent of the total population. The house-to-house technique was employed and over 2,050,000 home visits were made.

No new cases of smallpox have occurred in Colombia since September 1961. This fact is of special importance if it is borne in mind that the smallpox eradication program uses a system that ensures the early

detection and reporting of new cases, which are subjected to careful clinical and epidemiological examination.

At this time it is especially important to establish the procedures and systems to be used for maintaining the level of immunity at that achieved during the smallpox eradication campaign. This is especially important in Colombia owing to its vicinity to areas where smallpox is still endemic.

The Samper Martinez Institute produced 2,809,865 doses of dried smallpox vaccine in 1961, and 1,224,025 doses during the first four months of 1962.

The smallpox eradication campaign in Colombia is a good example of proper planning, organization, and operation, which is reflected in the absence of any smallpox cases for almost one year. The Organization collaborated with the Government of Colombia in the conduct of this program by furnishing a full-time consultant and a consultant specialized in large-scale dry vaccine production, and by providing fellowships abroad to enable three professionals to study dried smallpox vaccine production and the organization and development of smallpox vaccination campaigns.

6. CUBA

In 1961 a total of 518,500 doses of glycerinated smallpox vaccine were prepared. The Organization furnished laboratory equipment for dried vaccine production. In 1961, 129,647 persons were vaccinated, and in the first quarter of 1962, 55,410 persons.

7. ECUADOR

The aim of the smallpox eradication program in Ecuador, which was resumed in 1958, was the vaccination, within a period of five years, of 80 per cent of the country's population, which in July 1961 was estimated at 4,455,000.

Between 1958 and December 1961 a total of 1,885,096 persons were vaccinated in the Provinces of Loja, Esmeraldas, El Oro, Los Rios, Guayas, Chimborazo, Pichincha, and Manabi. During that same period there were 510,571 primovaccinations. Over 1,500,000 persons who live in remote areas in the mountains and on the coast still remain to be vaccinated.

The reason for the low number of vaccinations is the irregular development of the program and the frequent interruptions. To overcome the financial and administrative difficulties, the Government of Ecuador introduced important changes in early 1962 in the allocation of funds and their utilization, with a view to greater speed in both. Earlier,

at the end of 1961, the Government had asked the United Nations Technical Assistance Emergency Fund for material assistance consisting of 11 vehicles for the transportation of personnel, laboratory equipment to increase dried smallpox vaccine production, field equipment, as well as for sanitary inspectors to cooperate with local personnel in the organization, development, and supervision of field activities. The request amounted to approximately \$57,000. In view of the fact that the UN/TA Emergency Fund was not in a position to carry the costs of the entire request, the balance was made up by PASB and UN/TA.

The Institute of Hygiene produced 41,020 doses of glycerinated smallpox vaccine and 1,095,220 doses of dried vaccine in 1961, and 287,490 doses of dried vaccine between 1 January and 30 April 1962.

8. HAITI

The smallpox vaccination program, which was begun in 1957 and suspended in 1958, has now been resumed. However, the Government is interested in finding the best way of conducting this program in keeping with the possibilities and resources available. PASB personnel is cooperating with the Government of Haiti in a study of this problem. A total of 3,135 persons were vaccinated in 1961.

9. MEXICO

In Mexico the local health services are responsible for maintaining a high level of immunity against smallpox in the population. This is done by conducting a regular immunization program. In 1961 3,250,000 persons were vaccinated and in 1962 (up to 30 March) 1,379,775 persons.

10. PARAGUAY

In September 1957 Paraguay began a program aimed at vaccinating at least 80 per cent of the country's population within three years. The program was concluded in February 1960, by which time 1,462,904 persons, or 86.7 per cent of the population as estimated on 30 June 1959, had been vaccinated. Glycerinated vaccine produced in Uruguay was used in the campaign and the method of numerous small population nuclei was used. The maintenance of a satisfactory level of immunity is the responsibility of the health service. Thus, in 1961, 110,142 persons were vaccinated and, in the first four months of 1962, 28,283, which shows that the maintenance work is not extensive enough.

Other than the 35 cases reported in 1960 in nomads whom it had not been possible to locate in the jungle areas during the vaccination campaign, no case of smallpox has been reported in Paraguay since the

second half of 1958. There were no secondary cases despite the opportunities for infection, a fact which demonstrated the efficacy of the vaccine used and the soundness of the technique employed.

11. PERU

As a consequence of the smallpox eradication campaign begun in 1950, which covered 87 per cent of the country's population, there have been no cases of smallpox since December 1954. In 1961, 969,808 persons were vaccinated.

The National Institute of Hygiene produced 1,299,800 doses of dried vaccine and 433,400 doses of glycerinated vaccine in 1961.

12. URUGUAY

Uruguay reported one imported case of smallpox in 1961 and one autochthonous case in May 1962.

As a result of the lack of a regular smallpox immunization program, the percentage of the population protected against this disease is low. It is therefore necessary for Uruguay to undertake a national smallpox vaccination campaign to remedy this situation as soon as possible.

In 1961 the laboratory of the Municipality of Montevideo produced 70,000 doses of dried vaccine and 1,480,000 doses of glycerinated vaccine. During the first four months of 1962 it produced 1,260,000 doses of glycerinated vaccine.

13. VENEZUELA

After a smallpox campaign begun in 1957 which covered the entire country, no cases of smallpox have occurred in Venezuela. The local health services have included smallpox vaccination into their regular activities.

In 1961 the production of dried smallpox vaccine was 4,600,000 doses and of glycerinated vaccine 278,000 doses. Up to 30 April 1962, production was 257,000 doses of dried and 1,963,000 doses of glycerinated vaccine.

The Organization assisted the Government of Venezuela by providing the necessary laboratory equipment for dried vaccine production.

IV - General Considerations

It is difficult to express the economic consequences of smallpox in figures. Nevertheless there are certain indicators. If 14 days is accepted as the average duration of the disease, then the 165,846 cases of smallpox in the period 1947-1961 represent 2,321,844 bed-days. Most of these cases must have been hospitalized, which means that elaborate and costly isolation measures were applied. The deaths that occurred, in addition to their human worth, which cannot be measured, represented a loss of productivity, and homes deprived of support.

Every smallpox epidemic causes violent upsets in the health administration of the countries where it occurs and gives rise to a state of emergency with all its inherent disturbances that lead to the postponement of other urgent activities, the costly displacement of personnel, etc. Equally important are the repercussions on international trade and traffic.

Communicable diseases, especially those which owing to their rapid spread can readily affect a large number of persons, are a source of concern to health authorities. Smallpox, which fits that description, is one of the most important of those diseases.

Limited smallpox vaccination campaigns are not justified in the face of the known efficacy of nation-wide campaigns which, when carried out within reasonable periods of time and conducted according to the established technical standards, bring about the disappearance of the disease. The concerted action of the countries of the Hemisphere must lead to the eradication of smallpox in the Americas.

Once the threshold of continent-wide eradication has been crossed, only general surveillance measures will be necessary, especially in international ports and airports. The countries will then be able to assign the human, economic, and material resources previously employed in smallpox control activities to other health areas that may be equally important.

The brilliant success of eliminating smallpox in most of the countries of the Americas, which has been achieved at the cost of great efforts, is now obscured through the persistence of important foci of the disease in the midst of areas already free. Under such circumstances it will be necessary to continue to conduct regular smallpox vaccination programs to protect at least 80 per cent of the population within periods not exceeding five years in order to prevent the disease being reintroduced into these countries. This measure, which has many financial and administrative implications, can only be discontinued when smallpox has been eradicated from the entire continent.

At the present time Brazil and Ecuador are the chief foci of smallpox in the continent. Ecuador has an eradication program under way which, with the financial and administrative changes recently introduced by the Government and the special material assistance provided by the TA Emergency Fund, TA, and PASB, should make it possible to complete the campaign within the next two years. As to Brazil, the recently initiated campaign should be accelerated as much as possible so that the smallpox eradication campaign may reach its peak at the earliest possible moment.

Enclosures: Tables A, B, C, and D.

TABLE A
REPORTED CASES OF SMALLPOX IN THE AMERICAS
 1947 - 1961

Area:	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Total:	20.009	30.034	17.910	21.318	9.221	9.301	8.930	11.979	8.348	6.389	6.220	4.343	4.763	5.158	1.923
Argentina	46	166	1.176	4.462	1.404	982	309	256	55	86	335	27	36	65	4
Bolivia	500	831	805	644	728	432	429	624	372	499	1.310	183	7	1	--
Brazil(a)	869	1.288	670	706	1.190	1.668	923	1.035	2.580	2.385	1.411	1.232	2.629	2.644(b)	1.411(d)
British Guiana	--	--	--	--	11	--	--	--	--	--	--	--	--	--	--
British Honduras	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--
Chile	--	5	4	3.564	47	15	9	--	--	--	--	--	1	--	--
Colombia	4.903	7.356	3.040	4.818	3.844	3.235	5.526	7.203	3.404	2.572	2.145	2.009	950	209	16
Costa Rica	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cuba	--	--	5	--	--	--	--	--	--	--	--	--	--	--	--
Dominican Republic	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ecuador	2.984	3.856	657	241	174	665	708	2.516	1.831	669	913	863	1.140	2.185	491
El Salvador	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Guatemala	11	6	4	10	3	1	1	--	--	--	--	--	--	--	--
Haiti	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Honduras	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Martinique	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--
Mexico	1.125	1.541	1.060	762	27	--	--	--	--	--	--	--	--	--	--
Netherland Antilles	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--
Nicaragua	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Panamá	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Paraguay	2.207	1.451	175	135	282	797	770	207	57	132	103	21	8(b)	--	--
Perú	537	7.105	6.305	3.753	1.218	1.360	172	115	--	--	--	--	--	35	--
Trinidad-Tobago	--	13	--	--	--	--	--	--	--	--	--	--	--	--	--
United States	176	57	49	39	11	21	4	9	2	--	1	--	--	--	--
Uruguay	326	--	9	3	--	16	7	1	45	42	2	--	--	--	--
Venezuela	6.315	6.358	3.951	2.181	280	109	72	13	2(f)	4(e)	--	--	--	19(f)	1(e)

(a) State capitals only
 (b) Includes 4 imported cases
 (c) Clinical diagnosis only

(d) State of Guanabara only
 (e) Imported case
 (f) Includes 2 imported cases

Table B

SMALLPOX VACCINATIONS, 1960-1962

	1 9 6 0	1 9 6 1	1 9 6 2 (up to 30 April)
Argentina	1.608.597	--	535.819
Bolivia (1)	42.603	34.215	--
Brasil	4.910.091	--	--
Chile	1.276.000	131.966	--
Colombia	1.988.386	1.250.685	191.083
Costa Rica	14.657	79.553	21.012
Cuba	38.635	129.647	55.410
Dominican Republic	26.057	10.000	--
Ecuador	507.361	--	221.318
El Salvador	29.383	24.554	--
Guatemala (2)	58.160	120.590(Nov.61)	3.423
Haiti	441	3.135	--
Honduras (3)	17.843	9.509(Oct.61)	9.425
Mexico	3.637.334	3.250.000	1.379.775(4)
Nicaragua	8.803	19.385	3.335
Panama	24.835	31.596	6.643
Paraguay	122.897	110.142	28.283
Peru	884.392	969.808	--
Uruguay	214.360	188.674	81.754
Venezuela	920.969	1.140.842	336.337
French Guiana	--	--	667
Guadeloupe	--	--	750
Martinique	14.094	--	1.734
Aruba	--	--	--
Curaçao	3.665	--	2.400
Surinam	3.665	--	1.000
Antigua	1.859	1.186	446
Bahamas	--	--	--
Barbados	10.741	--	73.046
Bermuda	--	579	--
British Guiana	--	--	3.760
British Honduras	4.050	--	4.418
Dominica	--	--	--
Granada	3.402	--	--
Jamaica	79.060	--	--
Montserrat	1.204	903	618
St. Kitts-Nevis-Anguilla	3.300	--	--
Saint Lucia	--	--	1.257
Trinidad and Tobago	3.839	11.438	1.271

(1) and (2) up to November 1961

(3) up to October 1961

(4) up to 31 March 1962

Table C

Smallpox vaccine production, 1960 - 1962
(in doses)

	1960		1961		1962 (up to 30 April)	
	Glycerinated	Dried	Glycerinated	Dried	Glycerinated	Dried
Argentina	6,600,000		11,418,100		4,750,000	
Bolivia		310,000	1,376,640			
Brazil	11,792,304	889,700				
Chile	960,000	530,000	1,050,000	360,000	691,000	252,500
Colombia		2,473,240		2,809,865		1,224,025
Costa Rica	no	no	no	no	no	no
Cuba	1,360,000		518,500		242,500	no
Dominican Republic			no	no	no	no
Ecuador		1,055,740	41,020	1,095,220	9,000	287,490
El Salvador	60,300		127,650	no	76,515	no
Guatemala	484,400		283,400		217,420	no
Haiti			no	no	no	no
Honduras	20,200		no	no	no	no
Mexico	10,477,800		12,661,794	no	7,467,714	
Nicaragua	15,300		40,000		424,000	
Panamá			no	no	no	no
Paraguay			no	no	no	no
Peru	563,465	1,362,300	433,400	1,299,900		
Uruguay	1,982,000	68,500	1,480,000	70,000	1,260,000	
Venezuela	3,925,000	316,000	278,000	4,600,000	1,963,000	257,000
Surinam			15,000			

Table D

PAHO/WHO and UNICEF Funds Allotted to Smallpox Eradication Projects 1948 - 1961
(in U.S. Dollars)

<u>Projects</u>	<u>PAHO/WHO</u>	<u>UNICEF</u>	<u>Total</u>
AMRO-60	71.746		71.746
ARGENTINA-2	9.736		9.736
BOLIVIA-8	10.263		10.263
BRAZIL-38	44.696		44.696
CHILE-32	12.172		12.172
COLOMBIA-17	103.789	15.000	118.789
CUBA-8	30.741		30.741
ECUADOR-20	62.918		62.918
HAITI-18	3.848		3.848
MEXICO-31	5.307		5.307
PARAGUAY-15	10.164		10.164
PERU-51	1.148		1.148
URUGUAY-12	6.870		6.870
VENEZUELA-12	5.728		5.728
TOTALS:	379.126	15.000	394.126