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HEALTH
ORGANIZATION

XV Meeting

regional committee

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STATUS OF SMALLPOX ERADICATION IN THE AMERICAS

In a series of resolutions, twelve in all, approved between 1949 and 1962, the Governing Bodies of PAHO/WHO expressed their concern about smallpox in the Americas and their desire to see the disease eradicated in the Western Hemisphere. A summary of these resolutions appears in Annex I. Two of them merit special attention:

- a) Resolution XIX of the XIII Pan American Sanitary Conference held in Santo Domingo, Dominican Republic, in October 1950, which recommended that the countries organize smallpox vaccination programs with a view to eradicating the disease and requested PAHO/WHO to help the Governments to solve such problems as might arise in the technical, economic and legal aspects of the eradication programs.
- b) Resolution XXX of the XVI Pan American Sanitary Conference, held in Minneapolis, Minnesota, U.S.A., in 1962, which once again urged the Governments to accelerate their smallpox eradication programs, and to give them high priority. It also recommended that they seek the necessary additional funds for this undertaking from national or international sources. It again instructed PAHO to help the Governments to attain the goal of smallpox eradication in the Americas. In addition, this resolution recommended that countries that had already completed their eradication programs should maintain the level of immunity of the population at that reached in the course of the programs and should apply the relevant provisions of the International Sanitary Regulations in order to prevent the reintroduction of smallpox into countries that were free from it.

In compliance with the instructions of the XV Pan American Sanitary Conference, PAHO prepared criteria for the eradication of smallpox. These were submitted to the XIII Directing Council and approved. The text of "Criteria for the eradication of smallpox" is 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 a 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 not 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 of the more exposed sectors.

In view of increasing 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."

In 1963 the countries of America reported 353 cases of smallpox to PAHO/WHO: 300 from Brazil, 4 from Colombia, 45 from Ecuador and 4 from Peru.

The appreciable reduction in the incidence of smallpox in the American Continent in 1963 parallels the progress made by eradication programs that the countries are conducting. The efforts made by the countries to improve systems for the notification, registration, and diagnosis of smallpox is gradually leading to an improvement in our knowledge of the disease.

Because of the persistence of foci of smallpox in the Americas, countries which have already completed their eradication programs have to continue their efforts to maintain the level of immunity of the population at that reached in the course of the programs. This health practice can only be discontinued without danger when smallpox has definitely been eliminated from the Americas.

Satisfactory progress has been made in the smallpox vaccination programs in El Salvador, Guatemala, Haiti and Honduras, where the percentage of the population that had been vaccinated against smallpox was low. The vaccination campaigns were carried out as part of the routine activities of health services or in conjunction with special campaigns. Colombia, Mexico, Brazil and Venezuela are donating glycerinated and dried vaccine, to the vaccination programs being carried out in Central America and the Caribbean Area.

The amount of glycerinated and dried smallpox vaccine produced by the various laboratories has been sufficient to meet not only the needs of the producer countries but also those of the vaccination programs being carried out in non-producer countries.

PAHO/WHO has made arrangements whereby the Statens Seruminstitut in Copenhagen, Denmark, carries out free of charge potency and innocuity tests on the lots of vaccine prepared by national laboratories producing smallpox vaccine. Unfortunately, the countries are not making use of this free service to the extent they should.

In Argentina, financial difficulties have hampered the vigorous eradication program begun in 1960. Up to December 1963 a total of 638,502 persons had been vaccinated. Of the 17 provinces included in the program 80 per cent or more of the population had been vaccinated in seven of them by the end of 1963; 77 per cent in one of them; and in the remaining nine the percentage vaccinated was lower.

The national smallpox vaccination program in Bolivia, which was approved in 1962, was initiated in 1963 with the assistance of PAHO/WHO and TAB despite financial, technical and administrative difficulties. Between September and November 280,427 persons were vaccinated - 31,867 for the first time- in the cities of La Paz, Cochabamba, Santa Cruz, Sucre, Quillacollo, Sacaba, and Pillapi.

The contributions of PAHO/WHO and TAB to the program were paid on time. A health inspector appointed by PAHO/WHO to organize and conduct field activities took up his post in mid-1963.

The dried smallpox vaccine production laboratory, which was supplied by PAHO/WHO, is in a position to produce two million doses a year. That amount is more than enough to meet the needs of the country. In addition, a fellowship has been awarded to the physician in charge of the laboratory to enable him to study modern methods and techniques of large-scale dried smallpox vaccine production.

In Brazil, the intensive smallpox vaccination program was completed in the States of Sergipe, Guanabara, and the Federal District (Brasilia). In 1963, 6,955,330 personas were vaccinated, and in the same period 300 cases of smallpox were reported.

The smallpox vaccination program is continuing in the States of Rio Grande del Norte, Pernambuco, Alagoas, Rio de Janeiro, Minas Gerais, Parana, Piaui, Ceara, Paraiba, Espiritu Santo, Bahia, Rio Grande del Sur and Matto Grosso; as well as in the territory of Rio Branco.

In the preceding year PAHO/WHO had provided equipment for two dried smallpox vaccine production laboratories, one in Recife and the other in Porto Alegre. In addition it had supplied the laboratory of the Instituto Oswaldo Cruz with additional equipment to enable it to increase its output of dried smallpox vaccine. At the present time all these laboratories are producing good quality dried smallpox vaccine and, when working at full capacity, could easily produce forty million doses a year.

The smallpox eradication program in Ecuador, which was begun in 1951, was interrupted temporarily on two occasions for administrative and financial reasons. It was renewed in 1958 and is scheduled to end in the first half of 1964. In the period 1958-1963, 3,273,445 persons were vaccinated against smallpox -707,559 in 1963. In 16 provinces between 80 and 98 per cent of the population has been vaccinated. Smallpox vaccination is being completed in the Provinces of Chimborazo and the Cantons of Cuenca and Sigsig, in the Province of Azuay.

In the first three months of 1964, 186,175 persons were vaccinated. About 150,000 persons are still to be vaccinated, and it is hoped to complete vaccination in the first half of 1964.

In addition to other difficulties, the smallpox vaccination program in Ecuador had to face violent opposition to vaccination on the part of the indian population in the Provinces of Chimborazo (1960), Bolivar (1962) and Tungurahua and Cotopaxi (1963). The violence of the opposition of the indian population endangered the lives of the vaccinators. Only the prudent and considered attitude of the vaccinators and the heads of the program prevented serious trouble, and finally made it possible to vaccinate this primitive population against smallpox. This is an appropriate moment to pay homage to the devotion to work and the courage of the national and international personnel taking part in this program.

In 1963 Ecuador reported 45 cases of smallpox in persons who had not been vaccinated against the disease. Of these 44 occurred in areas which the smallpox eradication program had not reached, and one in a region where, owing to the resistance of indian population, only 34 per cent of the population was immunized.

As soon as the vigorous smallpox vaccination program is completed in 1964, it will be necessary to strengthen measures to keep the percentage of the population immunized at that attained during the program. In addition, it will be necessary to improve the machinery for vigilance and case notification, diagnosis and epidemiological investigation of such new patients as occur in the future.

The Leopoldo Izquieta Pérez Institute continues to produce good quality dried smallpox vaccine in sufficient quantity to satisfy the needs of the country.

In Haiti, in 1963, 350,156 persons were vaccinated against smallpox in the Artibonite, Western and Northern Departments. The percentage of population vaccinated in each of these Departments at the end of 1963 was 74,6, 75,1 and 75,8 respectively.

Between 9 July 1962 and 3 October 1963, 510,957 persons were vaccinated. The positivity rate in primo-vaccines was between 93,2 and 96,7 per cent.

In Haiti dried smallpox vaccine donated by the Governments of Brazil and Colombia is being used.

The continued demand for smallpox vaccine, especially dried smallpox vaccine, by non-producing countries, which need it for their vaccination programs, has been satisfied, at the request of PAHO/WHO, through direct donation of the vaccine by the producing countries.

The spirit of generosity and solidarity of the American countries has again been manifested. PAHO/WHO is of the opinion that without in any way detracting from the spirit of cooperation which animates the countries, the procedure used could be changed in such a way as to allow countries requesting vaccine to receive it more rapidly. It is suggested that a smallpox vaccine reserve fund should be established. It would contain stocks of glycerinated and dried vaccine contributed by the producing countries, and PAHO/WHO would be responsible for its safekeeping and distribution.

Annexes: I, II, III and IV

- 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 IV World Health Assembly 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 PAHO Directing Council, XI Meeting of the WHO Regional Committee, 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 PAHO Directing Council, XII Meeting of the WHO Regional Committee, 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 PAHO Directing Council, XIII Meeting of the WHO Regional Committee, 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.
- k) August-September 1962, XVI Pan American Sanitary Conference, XIV Meeting of the WHO Regional Committee, Minneapolis, Minnesota, U.S.A. Resolution XXX expressed satisfaction with the success achieved by various Governments in their eradication programs; urged the Governments of countries where smallpox still existed to expand and accelerate eradication programs, to give them high priority among national health plans and recommended that they seek the necessary funds from national and international sources of credit; instructed PAHO/WHO to continue to assist the Governments with smallpox vaccination and urged Governments to maintain the level of immunity of the population at that attained during the course of the eradication programs.

REPORTED NUMBER OF SMALLPOX VACCINATIONS
IN THE AMERICAS, 1960-1963

Country	1960	1961	1962	1963	
Argentina	1,990,467	4,407,020	1,344,401	638,502	(1)
Bolivia	42,603	34,215 ^{a/}	164,449	31,124	(2)
Brasil	4,910,091	...	2,061,179 ^{b/}	5,557,127	(1)
Canada	1,332,000	...	...	...	...
Colombia	3,195,355	1,250,685	191,083 ^{c/}	1,327,882	(7)
Costa Rica	14,657	79,553	106,252 ^{d/}	39,224	(3)
Cuba	38,635 ^{a/}	129,647	135,319 ^{e/}	50,755	(3)
Chile	285,314	382,946	703,297	786,624	(3)
Ecuador	783,338	535,668	685,595	653,517	(3)
El Salvador	33,373	24,554 ^{a/}	143,835	200,091	(4)
Guatemala	123,590 ^{f/}	129,590 ^{a/}	127,004	109,249	(3)
Haiti	441 ^{f/}	3,135	180,719	350,156	(1)
Honduras	17,843	9,509	127,144 ^{d/}	51,069	(3)
Jamaica	79,973	70,129	131,652	47,333	(2)
Mexico	3,637,334	2,588,149	5,226,096 ^{g/}	3,143,916	(6)
Nicaragua	8,803	19,385	3,335 ^{c/}	19,280	(3)
Panama	24,835	31,596	11,547 ^{a/}	12,591	(3)
Paraguay	122,897	110,142	28,283 ^{c/}	88,350	(3)
Peru	1,049,740	969,808	593,336	277,298	(5)
Dominican Republic	26,057	10,000	35,135	20,492	(3)
Trinidad and Tobago	3,839	11,438	1,271 ^{h/}	40,730	(3)
Uruguay	214,360	188,674	81,754 ^{c/}	55,364	(3)
Venezuela	1,104,389	1,140,842	1,147,574 ^{g/}	1,150,324	(1)
Antigua	1,603	1,186	446 ^{c/}	3,552	(3)
Netherlands Antilles	3,665 ^{f/}	...	2,400 ^{c/}	...	...
Barbados	10,564 ^{i/}	14,070	86,507	3,171	(5)
British Honduras	3,939	4,900	10,617	4,953	(3)
Bermuda	783 ^{i/}	579	...	...	...
Dominica .....	...	1,351 ^{a/}	2,315 ^{c/}	...	...
Grenada	3,402	2,695	1,031	1,445	(5)
Guadeloupe	13,567 ^{f/}	5,000 ^{a/}	750 ^{c/}	...	...
British Guiana	3,165	...	6,982	4,087	(3)
French Guiana	2,204 ^{a/}	1,120 ^{a/}	1,122 ^{g/}	1,922	(5)
Bahama Islands .....	...	17,941	3,196	7,653	(3)
Cayman Islands .....	...	...	...	...	...
Falkland Islands	128	...	...	...	...
Turks and Caicos Islands .....	...	...	...	58	(5)
Virgin Islands, U.S.A. ....	...	...	...	...	...
Virgin Islands, U. K.	44	...	...	...	...
Martinique	18,817	7,650 ^{a/}	10,685	11,641	(5)
Montserrat	1,204	903	927	873	(3)
Puerto Rico .....	...	...	...	...	...
St. Kitts-Nevis- Anguilla	3,300 224	2,979	...	...	...
St. Pierre and Miquelon .....	...	...	3,200	1,500	(5)
St. Lucia .....	...	...	2,405	1,512	(3)
St. Vincent	6,375 ^{f/}	8,400	5,286	6,237	(3)
Surinam	9,528 ^{f/}	...	...	...	...
Panama Canal Zone .....	...	...	...	...	...

... No data available
^{a/} Incomplete data
^{c/} January-April
^{e/} January-September
^{g/} Provisional

^{b/} São Paulo State
^{d/} January-November
^{f/} Primo-vaccinations
^{h/} January-March
^{i/} Excludes vaccinations given by general practitioners. Source of data: Government reports.

- (1) January - December 1963
- (2) January - June 1964
- (3) January - October 1963
- (4) January - September 1963
- (5) January - August 1963
- (6) January - November
- (7) January - July 1963

REPORTED CASES OF SMALLPOX IN THE AMERICAS

1947 - 1963

Area:	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
Total:	20,009	30,034	17,910	21,318	9,221	9,301	8,930	11,979	8,348	6,339	6,220	4,343	4,763	5,158	1,923	3,082	353
Argentina	46	166	1,176	4,462	1,404	982	309	256	55	86	335	27	36	65	4	2(g)	--
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(d)	1,232	2,629	2,644(b)	1,411(d)	2,812(h)	300(k)
British Guiana	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
British Honduras	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Canada	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2(i)	--
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	41	4
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	205	45
El Salvador	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Guatemala	11	6	4	10	3	1	1	--	--	--	--	--	--	--	--	--	--
Haiti	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Honduras	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Martinique	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--
Mexico	1,125	1,541	1,060	762	27	--	--	--	--	--	--	--	--	--	--	--	--
Netherlands Antilles	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--
Nicaragua	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Panama	1	--	--	--	--	--	--	--	--	--	--	8(b)	--	--	--	--	--
Paraguay	2,207	1,451	175	135	282	797	770	207	57	132	103	21	--	35	--	--	--
Peru	537	7,105	6,305	3,753	1,218	1,360	172	115	--	--	--	--	--	--	--	--	4
Trinidad and Tobago	--	13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
United States of America	176	57	49	39	11	21	4	9	2	--	1	--	--	--	--	--	--
Uruguay	326	--	9	3	--	16	7	1	45	42	2	--	--	19(f)	1(e)	10	--
Venezuela	6,315	6,358	3,951	2,181	280	109	72	13	2(f)	4(c)	--	--	--	--	--	11	--

- (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
- (g) Includes 1 imported case
- (h) Partial data for Guanabara, Pernambuco, São Paulo and capitals, several other states and territories

- (i) Imported case
- (j) Includes 2 imported cases
- (k) States of Guanabara, Paraíba, Pernambuco and city of Natal, Rio Grande do Norte.

VACCINE PRODUCTION, 1963

Country	In doses		Total
	Fluid	Dried	
ARGENTINA	13,300,000		13,300,000
BOLIVIA		377,000	377,000
BRASIL	6,432,000	14,485,000	20,917,000
CHILE	1,730,000	460,000	2,190,000
COLOMBIA		2,584,000	2,584,000
CUBA	350,000		350,000
ECUADOR		1,400,000	1,400,000
EL SALVADOR	100,000		100,000
GUATEMALA	500,000	1,000,000	1,500,000
MEXICO	18,000,000	19,000	18,019,000
PERU	1,069,060	2,594,600	3,663,660
URUGUAY	1,874,000		1,874,000
VENEZUELA	4,300,000	700,000	5,000,000
	<u>47,655,060</u>	<u>23,619,600</u>	<u>71,274,660</u>