executive committee of the directing council

PAN AMERICAN HEALTH ORGANIZATION

working party of the regional committee

WORLD HEALTH ORGANIZATION

54th Meeting
Washington, D. C.
April 1966

Provisional Agenda Item 14

CE54/3 (Eng.)
16 March 1966
ORIGINAL: SPANISH

ESTIMATED REQUIREMENTS FOR SMALLPOX ERADICATION IN THE AMERICAS

The interest of the Pan American Sanitary Conference, the Directing Council, and the Executive Committee of the Pan American Health Organization in eradicating smallpox from the Western Hemisphere has been expressed in 13 different resolutions adopted between 1949 and 1965. The World Health Assembly also has adopted 7 different resolutions on this subject.

In the Region of the Americas, the Pan American Sanitary Bureau has cooperated in the study of the smallpox problem; the organization, conduct, and evaluation of eradication programs; the organization of consolidation programs; the provision of equipment; the organization and operation of vaccine producing laboratories; the training of personnel for the large scale production of freeze-dried smallpox vaccine; and the training of personnel for the laboratory diagnosis of smallpox. The Bureau has also made available to the countries the services of the Statens Serum Institut of Copenhagen (Denmark) for the purity and potency testing of the vaccine produced in the laboratories of the various countries. And, lastly, the Bureau has supplied limited amounts of field material in exceptional circumstances.

Pursuant to Resolution XXX of the XVI Meeting of the Directing Council, and in order to determine the resources available to the countries for a smallpox eradication program and to estimate what the Organization would have to contribute in, a special study was made by eight short-term consultants, a group of Country Representatives, and two Zone epidemiologists during January and February 1966. The study covered the situation in the countries and territories of Central America, Mexico, Panama, the Caribbean Area, and South America.

The questionnaires collected will be tabulated in Santiago, Chile in March 1966, under the direction of one short-term consultant and one member of Headquarters staff. The National Health Service of Chile is

collaborating in this project. Finally, a report covering all countries and territories south of the United States will hopefully be ready before 18 April 1966.

The document in question will be submitted to the Executive Committee for review and as a starting point for discussion and recommendations on the desirable future action in the Western Hemisphere.

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WORLD HEALTH ORGANIZATION

54th Meeting
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Provisional Agenda Item 14

CE54/3 (Eng.)
ADDENDUM I
17 April 1966
ORIGINAL: SPANISH

ESTIMATED REQUIREMENTS FOR THE ERADICATION OF SMALLPOX IN THE AMERICAS

ESTIMATE OF THE KIND AND AMOUNT OF INTERNATIONAL ASSISTANCE REQUIRED FOR THE SMALLPOX ERADICATION PROGRAM IN THE AMERICAS

***

PRELIMINARY REPORT

***

Present status of smallpox in the Americas

Between 1948 and 1965 the countries and territories of the Americas reported 170,957 cases of smallpox to the Pan American Sanitary Bureau. The disease attacked all age groups equally, without distinction of sex or race. In some countries the disease encountered favorable conditions and became endemic. In others it was eliminated by national smallpox vaccination campaigns. In a third group of countries, in which smallpox disappeared, it was subsequently reintroduced.

Smallpox disappeared from Mexico in 1952.

With the exception of Guatemala where one case of smallpox was notified in 1953, Panama in which there were cases in 1947 and 1958, and British Honduras where cases occurred in 1948, the disease did not appear in the other Central American countries.

In the Caribbean Area smallpox occurred in Martinique in 1951, in the Netherlands Antilles in 1951, and in Trinidad and Tobago in 1948.

In South America smallpox disappeared from Bolivia in 1961, although subsequently four cases were notified in 1964; no cases were reported in 1965. In Chile smallpox disappeared in 1954; in 1959 a secondary case, the offshoot of an imported case, was notified. Since that time Chile has been free of the disease. In Ecuador no new cases of smallpox have been reported since 1964. Uruguay reported no cases in 1965. Venezuela has reported no cases of smallpox since 1957 with the single exception of 1962 when 11 cases were notified.

In 1965 smallpox continued to be present in Argentina, Brazil, Colombia, Paraguay, and Peru (see Annex No. 1).

Present status of smallpox eradication programs in the Americas

In Paraguay (1961) and Peru (1955) smallpox was eliminated as a result of national smallpox vaccination campaigns which covered more than 80% of the population of the various geographical sectors into which these countries are divided. Subsequently the disease was reintroduced into both countries.

In Colombia a national smallpox vaccination campaign, which was begun in 1955 and completed in 1961, did not succeed in eliminating smallpox since cases of the disease had been reported continuously since 1957. However, it is clear that the intensive smallpox vaccination program did reduce the incidence of smallpox in that country. Colombia reported 7,356 cases in 1948 but only 149 cases in 1965. The smallest number of cases ever reported in Colombia, namely 4, occurred in 1963. Since that date there has been a resurgence of the disease.

Intensive smallpox vaccination campaigns carried out over short periods of time, using good quality smallpox vaccine, and covering 80% of the population of each of the various geographical sectors of the country have succeeded in eliminating smallpox in Bolivia, Chile, Ecuador, Mexico, and Venezuela. As a result of lack of eradication programs, premature termination of such programs or failure to complete them, smallpox continues to be present in Argentina, Uruguay, and Brazil.

The Pan American Sanitary Bureau has assisted the smallpox eradication programs in Bolivia, Colombia, Ecuador, Paraguay, and Peru. At the present time an eradication program is under way in Bolivia, and an agreement has been signed for the initiation of a nationwide program in Brazil. In the case of Brazil the Organization is providing equipment for transportation of personnel as well as jet injectors. Earlier it provided equipment for three laboratories producing freeze-dried smallpox vaccine.

Generally speaking, smallpox eradication programs have not been followed up with the corresponding maintenance or consolidation programs. Likewise epidemiological surveillance services have not been organized.

In short, smallpox still exists in the countries of South America. In some, it has been reintroduced after years of freedom from the disease; in others it persists because the efforts made have been neither complete nor definitive. In the countries and territories of Central America and the Caribbean Area from which smallpox has been absent for years, smallpox vaccination programs are being carried out as part of the routine activities of health services, their purpose being to raise the percentage of the population protected against the disease. This in itself is a contribution by these countries to the continental program for the eradication of smallpox.

The concern of the Governing Bodies of the Pan American Sanitary Bureau about smallpox in the Americas and their interest in having the disease eradicated have been expressed in successive resolutions of the Executive Committee, the Directing Council, and the Pan American Sanitary Conference (see Annex No. 2).

The Governing Bodies of the Pan American Sanitary Bureau have clearly expressed their resolve that smallpox must be eradicated from the Western Hemisphere. For that purpose they have recommended to the countries that they adopt the necessary measures for achieving this objective. They have also asked the Pan American Sanitary Bureau to provide the countries with technical assistance:

a) for the study of the problem

b) for the organization, conduct, and evaluation of eradication programs

c) for the organization of consolidation programs

d) for the organization of epidemiological surveillance services

e) for the preparation of smallpox vaccine, in particular freeze-dried vaccine

f) for the laboratory diagnosis of smallpox

g) exceptionally, a limited amount of field material.

Furthermore, the World Health Assembly from the Third Assembly onwards has drawn attention to the smallpox problem in the world. The Eleventh World Health Assembly called for the eradication of smallpox. Since the Twelth Assembly the urgent need for eradicating smallpox has been reiterated and the Sixteenth World Health Assembly asked the Member States to make voluntary contributions to the smallpox eradication program so that the Organization would be better able to assist countries in eradicating smallpox on a world scale (see Annex No. 3).

Activities of the Pan American Sanitary Bureau

The assistance provided by PAHO/WHO, in accordance with the instructions of the Governing Bodies, may be summarized as follows:

a) Organization of laboratories for the production of freeze-dried smallpox vaccine. Personnel from the countries have been trained in the large-scale production of freeze-dried smallpox vaccine; laboratory equipment has been provided in varying amounts, depending on the needs of the countries. As a result of these efforts Argentina, Bolivia, Brazil, Colombia, Cuba, Chile, Ecuador, Mexico, Peru, Uruguay, and Venezuela now have laboratories, suitable equipment, and technicians trained to produce glycerinated and dried smallpox vaccine in a sufficeent amount not only to meet their internal needs but also to provide with vaccine those countries which do not produce it but which need it. In addition, the organization has made available to the national laboratories the services of the Statenserum Institut in Copenhagen, Denmark, for the purity and potency testing of the vaccine prepared in the national laboratories.

b) Consultant services for the study of the smallpox problem as well as the organization, conduct, and evaluation of eradication programs; the services have been provided by both short-term and long-term consultants. Physicians and health inspectors specializing in smallpox eradication programs have worked side by side with national technicians to ensure the success of eradication programs.

c) Through the United Nations Expanded Technical Assistance Program material and supplies, including vehicles for the transportation of personnel, clothing, and footwear for vaccinators, etc., have been supplied.

d) Progress has been made in the study of the use of jet injectors for smallpox vaccination both in rural and in urban areas. Short-term consultants carried out an investigation of this type in Brazil in 1965. The experience acquired there can be put to good use in further programs.

In accordance with the request of the XV Pan American Sanitary Conference the Pan American Sanitary Bureau submitted to the XIII Directing Council Meeting the following criteria for the eradication of smallpox, which were approved unanimously:

> "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% 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 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."

It has been stated on more than one occasion that in order to eradicate smallpox the countries need more assistance from abroad. With a view to determining the resources available to Governments for eradication programs and the kind and amount of international assistance needed and in compliance with the request contained in Resolution XXX of the XVI Directing Council Meeting held in Washington, D.C. in 1965, the Pan American Sanitary Bureau undertook a study in the countries of Middle and South America, the results of which are summarized below.

Study of local conditions, characteristics, and resources for developing national eradication plans, national smallpox vaccination plans or maintenance programs, whichever is appropriate, in the Americas

In October 1965 a questionnaire was prepared with the view to studying local conditions, characteristics, and resources for developing national eradication plans, national smallpox vaccination plans or maintenance programs, whichever is appropriate, in the countries of Middle and South America and in the Caribbean Area. In December 1965 eight temporary PAHO/WHO consultants and officers of the Bureau met in Washington, D.C., to review the questionnaire and reach a unified approach to it. In the early days of January 1966 the temporary consultants began their work in the countries of Latin America and the Country Representatives of PAHO/WHO did likewise in the countries of Middle America and the Caribbean Area. Two PAHO/WHO medical epidemiologists also took part in the study which was completed on 28 February 1966.

Since the completion of the study there has not been sufficient time to elaborate the data collected in the detail it deserves. Thus, what is presented here is a preliminary report which will be completed at a later date.

The report is divided into two parts: (a) a report by countries; and (b) a summary report covering the countries of Middle America, South America, and the Caribbean Area.

This paper is the second part of the report mentioned above.

Population

Some of the demographic characteristics of the countries covered by the study are summed up in Annex No. 4. The total population of the territories and countries concerned amounted to 234,351,553.

In one of these countries the urban population accounts for 12.2% of the total population; in another it is 23.2%; in seven countries it ranged between 30 and 39%; in four countries between 40.9 and 49.6%; in five countries between 50.7 and 59.7%; and finally, in three between 67.5 and 80.2 per cent.

There is no uniform definition of an urban area in the continent. In some countries they are areas with more than 1,000 inhabitants; in others with more than 2,000 inhabitants (this is the commonest definition); and in a third group they are qualified as urban areas regardless of the number of inhabitants, the decision resting with the corresponding political and administrative authorities. In the last-mentioned case the urban area as thus defined includes the areas of influence of the above-mentioned authorities. Whatever the definition of urban area, they represent a concentration of population. According to the information collected, in 12 out of 21 countries mentioned in Annex No. 4, the population of urban

areas accounts for from 40 to 80.2% of the total population of the countries, a fact that should be taken into account in developing national smallpox vaccination programs.

The population density per Km^2 ranges between the extreme limits of 4.8 inhabitants in Paraguay and 168.2 inhabitants in Haiti.

In only a few countries was it possible to obtain information on the distribution of localities according to the number of inhabitants (Annex No. 4).

Means of communication

Annex No. 5 deals with means of communication by land, sea, river, and air. Taking means of communication as a whole it would appear they give access to most of the regions into which the countries are divided.

Cultural features

There is a wide variation in the degree of illiteracy in persons over 15 years of age, as shown in Annex No. 6. The same table shows the number of daily newspapers, radio stations and television stations. An information program which makes use of newspapers, radio, and television must reach a very high percentage of the population. Battery operated transistor radios now make it possible for persons who live in remote areas to keep abreast of what is going on.

Spanish, Portuguese, English, and French are the languages spoken in the countries of Middle America, South America, and the Caribbean Area. In a number of countries dialects are spoken side by side with the official languages. In three countries a high proportion of the population only speaks the local dialect. Language differences within the same country are not an obstacle to understanding in health programs since among the staff of health services there are always a number of officials who can act as interpreters in the day-to-day work. In addition, account must also be taken of the receptive attitude of the population in most of the countries toward health services. It is an accepted fact that a well-motivated and properly informed population never rejects the health services offered them. Smallpox eradication services are no exception to this rule.

Systems of Government

Two systems of Government are to be found in the areas covered by the study, the unitarian and the federal. Their health services are attached to the Ministries of Health, and the National Health Services of the States or Departments, Municipalities, or private organizations. Information on this point is to be found in Annex No. 7. Of the 20 Countries

for which information is cited in that annex, 11 have integrated health services whereas, in five, preventive services are separate from curative services. Four countries did not provide information on this point.

Obligatory nature of smallpox vaccination

Of the countries shown in Annex No. 7 smallpox vaccination is obligatory in 15 and optional in four. One country gave no information on this point. In addition, revaccination is obligatory in 12 countries but optional in three, and five countries gave no information on this point. The practice of issuing a vaccination certificate exists in 16 countries mentioned in Annex No. 7. In three countries no certificates are given and one country provided no information on this point.

Health services

The number of hospitals, outpatient departments, rural health posts, mobile units, and permanent smallpox vaccination posts is shown by country in Annex No. 8. The influence of these services in their areas of jurisdiction can be put to advantage in the development of national smallpox vaccination campaigns. At the same time they can be used as operational centers for vaccinations.

The coordination of public, semi-public, and private health services, etc. is not a routine activity everywhere, but it is possible to achieve it so as to develop programs for the eradication of smallpox or, simply, national smallpox vaccination programs. All countries are well disposed to this effort. It would be advisable when planning these programs at the national or local level, whichever is appropriate, for representatives of the different health institutions to take part in the coordinating process or at least be kept informed of what it is intended to do and how it is intended to do it.

Data registration system

All the countries of the Americas have statistical services at different degrees of development and of varying quality. These services do not always cover the entire country. It is not possible to generalize with respect to smallpox case-reporting in the countries. In some, reports appear to be made within relatively prudent time-limits but in others the delay is very considerable or no reports are made.

Reporting calls first for a suspected or confirmed case of smallpox. After that comes actual notification and case registration. Because the disease has disappeared in many countries for a considerable period of time, physicians have lost their skill in diagnosing it. Moreover, in

some countries there are physicians who have never had an opportunity to see a case of smallpox. If we also bear in mind that the predominant clinical form of smallpox is the benign form, which it is possible to confuse with other clinical entities with similar characteristics, it will be understood why smallpox, when it occurs, is not always diagnosed immediately. This is one reason, among many others, for the lag in the reporting of cases. As smallpox is disappearing from the American continent, so the clinical capacity of physicians to diagnose the disease is also diminishing. Hence, every suspected case of smallpox should henceforward be confirmed in a laboratory. The countries are not ready to assume this responsibility. The study made shows that there is a lack of establishments with the necessary resources and personnel trained to make laboratory tests for the diagnosis of smallpox.

Although information on smallpox is collected, there is evidence that only a very few countries have complete systems of data registration in operation. A data registration system comprises the notification, registration, tabulation, analysis, interpretation, and publication of the data collected. And this aspect is of capital importance when the end in view is the eradication of the disease. This fact explains to some extent the different values given for the same phenomenon, in the same period of time, when the information is collected at different dates or by different persons. Smallpox is a typical example of this.

Population vaccinated against smallpox, by age groups

It was not possible to collect sufficient information to compose a complete picture of the American continent with respect to the vaccinated population by country and by age-group.

Epidemiological surveillance services

As a consequence of national vaccination programs carried out in short periods of time, a group of countries where smallpox had previously existed succeeded in definitively eliminating it. In others the disease persists because these programs were interrupted or have been prematurely terminated. In a third group of countries the disease has been reintroduced after several years of absence owing to lack of a consolidation program. No country is operating epidemiological surveillance services as such. This is a pressing need which must be met without delay.

Smallpox vaccine: type, use, and complications

The smallpox vaccine used in the vaccination programs carried out in the countries of Middle America, South America, and the Caribbean Area is that prepared in various countries in the Region. Both glycerinated and dried vaccine has been used. PAHO/WHO have helped to set up and operated eleven laboratories producing freeze-dried smallpox vaccine in the

countries of the Region. They have also helped to train personnel responsible for the large-scale production of freeze-dried smallpox vaccine. Annex No. 9 gives the details of smallpox vaccine production in 1965.

Each type of smallpox vaccine has its own indications. Glycerinated vaccine has been utilized in areas in which it is possible to keep it refrigerated; freeze-dried vaccine in areas which do not have refrigerators or where environmental conditions are not favorable. The vaccine has been administered by the scarification and also by the multipressure method which is the more popular. In reply to inquiries concerning vaccination the health authorities in the countries covered by the study stated that smallpox vaccination did not produce any untoward effects. However, some countries reported complications such as postvaccinal encephalitis, dissemination, and gas gangrene. Postvaccinal encephalitis is described as such but the background surrounding the cases does not make it possible to confirm or reject the diagnosis. This fact will have to be borne in mind in the future and given the attention it merits.

Glycerinated or dried smallpox vaccine produced in national laboratories has been subject to the controls of the laboratories which produce it. In addition, on some occasions, field trials have been made. It will be necessary to be more exacting in the future with respect to the purity or potency testing of the vaccine, and to make more use of the services of the Statenserum Institut of Copenhagen, Denmark, which, under an agreement with PAHO/WHO, accepts specimens of various batches of vaccine prepared in national laboratories and tests them for purity and potency.

In the smallpox vaccination programs the percentage of "takes" in primo-vaccinees has been high, and ranges between 95 and 100 per cent.

General considerations

The natural environment, although unfavorable in some countries, should not be an obstacle to a continent-wide program for the eradication of smallpox. The combination of various means of transportation makes it possible to gain access to almost all places in which vaccination should be carried out. The information media and means of communication which the countries possess make it possible to give health education and to make the population aware of smallpox eradication programs or national smallpox vaccination programs. This also applies to maintenance programs. There is a network of health establishments which, if properly used, could make a major contribution to the development of the program in areas in which they are situated and could help reduce the duration of the program and operational costs. Furthermore, countries are able to produce all the glycerinated or dried vaccine they need for a continent-wide smallpox eradication program. In addition, there is a possibility that the services of the personnel mentioned in Annex No. 10 can be used.

To sum up, therefore, it is possible to eliminate smallpox in the Americas through the immunization of the susceptible population in a relatively short period of time as soon as the Governments assign the necessary resources for that purpose and solve the administrative problems impeding it. At this time international assistance can be useful and should take the form of advisory services, basic working equipment which is not produced in the countries or which it would be cheaper to bring from abraad. In addition, a considerable amount of money for the payment of the salaries and the per diem allowances of local personnel, in exceptional circumstances.

In proportion as smallpox eradication programs or national smallpox vaccination programs are terminated in the various geographical areas of the countries, it will be necessary to immediately initiate appropriate maintenance or consolidation programs. At the same time, in countries where smallpox exists and in countries where it has disappeared but especially in the former, it will be necessary to set up an epidemiological sueveillance system.

It would appear that, although it is possible to achieve good coordination of all health services for eradication programs or national smallpox vaccination program, the same is not true with respect to maintenance programs. This points up the need for the simultaneous development of smallpox eradication programs in as short a period of time as possible. If this is done, smallpox disappears, and there are good epidemiological surveillance services, intervals between revaccination may be extended and therefore the time table will be easier to comply with. The cost of programs will be substantially reduced and the money saved on this activity can be invested in other health activities. Likewise the work of the epidemiological surveillance services will be made easier.

Of the 21 countries covered by the study, three are in a position to give both technical assistance and smallpox vaccine, and nine are able to supply nothing but smallpox vaccine to the remaining countries of the American continent.

Likewise, 20 out of the 21 countries covered by the study are prepared to enlarge the international agreements they entered into with other countries with the view to eradicating smallpox, or to enter into new agreements with other countries with the same purpose.

Assistance requested by the countries, kind and amount of international assistance

Annex No. 11 shows the kind of technical assistance requested by the countries from PAHO/WHO for the study, organization, conduct and evaluation of smallpox eradication programs, national smallpox vaccination programs, consolidation programs, and programs for the organization of epidemiological surveillance services.

Annex No. 12 indicates the number of consultant-months that will be necessary in each country in order to meet the requests for technical assistance mentioned in Annex No. 11. Annex No. 13 shows the cost of international technical assistance by country. Annex No. 14, the equipment and supplies to be furnished with international financial assistance. The same annex also shows the money requested for the salaries and per diem allowances of local personnel.

Personnel should be trained in the techniques of preparing freeze-dried smallpox vaccine, in the techniques and methods of vaccine testing, and in the laboratory diagnosis of smallpox at courses to be attended by the professionals designated by the countries concerned.

A medical epidemiologist who will be the coordinator at the continental level and a statistician working at the same level must be added to the above-mentioned country personnel.

The international contributions summarized in Annex No. 15, calculated in the form described above, to insure the eradication of smallpox from the American continent, amount to not less than US$7,076,059.92 of which 49.26% will be for the salaries and per diem allowances of local personnel. This amount does not include international assistance which may be needed by some countries and territories in the Caribbean Area or in South America, five in all, which did not take p rt in the study.

The countries will have to contribute most of the budget to be assigned for the most part to salaries of personnel, per diem allowances, the cost of transporting persons and equipment, maintenance and repair of vehicles, insurance, health education, communications, and public information.

Annexes

REPORTED CASES AND DEATHS FROM SMALLPOX, IN THE AMERICAS, 1955-1965

Country	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965[a]
Cases											
Argentina	55	86	335	27	36	65	6	b) 2	-	c) 13	b) 15
Bolivia	372	499	1310	183	7	1	-	-	-	5	-
Brazil	d)2580	d)2385	d)1411	d)1544	d)2958	d)3010	8473	9450	6211	e)2502	f)1321
Canada	-	-	-	-	-	-	-	g) 1	-	-	-
Chile	-	-	-	-	1	-	-	-	-	-	-
Colombia	3404	2572	2145	2009	950	209	16	41	h) 4	h) 21	149
Ecuador	1831	669	913	863	1140	2185	496	204	45	i) 42	-
Panama	-	-	-	j) 8	-	-	-	-	-	-	-
Paraguay	57	132	103	21	-	35	-	-	-	7	32
Peru	-	-	-	-	-	-	-	-	865	454	18
United States	k) 2	-	k) 1	-	-	-	-	-	-	-	-
Uruguay	45	42	2	-	-	l) 19	g) 1	l) 10	g) 1	g) 3	-
Venezuela	2	m) 4	-	-	-	-	-	11	-	-	-
Deaths											
Argentina	3	5	...	...	-	2	4	5	...	...	...
Bolivia	553	72	...	...	...	...	...	...	...	...	...
Brazil (n)	45	44	30	65	72	82	59	...	62	4	...
Chile	-	1	-	-	-	-	-	-	-	-	...
Colombia	206	157	227	213	169	95	55	p) 31	8	3	...
Ecuador	219	181	140	156	178	298	...	88	66	...	...
Paraguay (q)	1	1	2	-	-	1	-	-	-	...	...
Peru (r)	-	-	4	3	2	1	1	10	6	20	...
Uruguay	2	-	-	-	-	-	-	g) 1	-	...	...

\- Quantity zero
... Data not available
a) Reports received to 8 April 1966.
b) Including 1 imported case.
c) Including 10 imported cases.
d) Incomplete data; State of Guanabara and capitals of several other States 1955-1960 (and State of Rio Grande do Sul in 1958-1960).
e) Data for 19 States and 1 Territory.
f) Data for 11 States and capitals of 2 other States.
g) Imported.
h) Confirmed cases only.
i) Hospital data.
j) Including 4 imported cases.
k) These cases do not fulfill the generally accepted criteria for a diagnosis of smallpox.
l) Including 2 imported cases.
m) Clinical diagnosis not supported by epidemiological evidence.
n) Data for a varying number of State capitals.
p) Provisional data.
q) Area of information.
r) Deaths with medical certification only 1955-1963 (in 1959 total deaths were 53 of which 51 without medical certification). Deaths for districts with medical certification 1964.

Resolutions on the Eradication of Smallpox in the Americas adopted by the Executive Committee, the Directing Council, and the Pan American Sanitary Conference (1941-1965)

a) May 1949, 7th Meeting of the PAHO Executive Committee, Washington, D. C.: Resolution XIII approved a proposal of the Director of the Bureau that the countries of the Hemisphere cooperate in the execution of programs aimed primarily at the eradication of smallpox in the Americas; and authorized the Director to discuss this problem with the Governments and to offer them the cooperation of PASB/WHO.

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; and 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, whether sanitary, economic, or legal.

c) September 1951, V Meeting of the PAHO Directing Council, III Meeting of the WHO Regional Committee, Washington, D. C.: Resolution XXXII called the attention of Governments to the Fourth World Health Assembly recommendation on raising the level of protection against smallpox.

d) September 1952, VI Meeting of the PAHO Directing Council, IV Meeting of the WHO Regional Committee, Havana, Cuba: Resolution IV-1-C approved the sum of $75,000 from the Working Capital Fund for the initiation of a program to eradicate smallpox. Resolution XXIII authorized the Executive Committee to include the supplementary program against smallpox in the intercountry programs of the 1954 PAHO budget and to assign an amount sufficient to ensure its continuity.

e) October 1953, VII Meeting of the PAHO Directing Council, V Meeting of the WHO Regional Committee, Washington, D. C.: Resolution III-1-C resolved to give special importance to the eradication of communicable diseases such as smallpox. Resolution XXVII, in reply to a WHO inquiry requesting suggestions from the Regional Committee on which to base a study of measures for a world-wide campaign against smallpox, stated that since 1950 PAHO had considered the execution of smallpox eradication campaigns to be one of its basic programs; it suggested that WHO promote intergovernmental agreements with a view to preventing border epidemies, promote the production of high-quality glycerinated or dried vaccine and for this purpose provide equipment or advisory services, or both, according to the needs of the countries, and furnish advisory services to countries desiring to intensify or reorganize their vaccination programs. It further recommended to the 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, VI Meeting of the WHO Regional Committee, Santiago, Chile: Resolution XIII authorized the Director to use $144,089 of the 1953 surplus funds for intensifyng the smallpox campaign in the Americas.

g) September 1958, XV Pan American Sanitary Conference, X Meeting of the WHO Regional Committee, 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 the Governments of countries where smallpox still existed to carry out nation-wide plans for eradication; requested the cooperation of Governments in supplying smallpox vaccine and technical advice so as to eradicate smallpox throughout the Hemisphere; recommended that PASB take all necessary measures to reach this goal, including collaboration in vaccine production, advice in campaign organization, and the holding of intercountry 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 that smallpox had already disappeared in some countries of the Americas and that nation-wide and intensive campaigns were being conducted in others; recommended that 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 nation-wide vaccination programs had not yet been initiated to undertake such programs as soon as possible; and 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, 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 Governments provide the public health services with the necessary facilities for the laboratory diagnosis of suspect cases of smallpox; and 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 PASB/WHO; 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; and 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 the provisions of the 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.

l) August-September 1964, XV Meeting of the PAHO Directing Council, XVI Meeting of the WHO Regional Committee, Mexico, D. F., Mexico: Resolution XLI, again emphasized the urgent necessity of eradicating smallpox from the Hemisphere; recommended to the Governments of the countries that have eradicated smallpox that they maintain a high level of immunity and maintain constant vigilance against the recurrence of the disease; again urged the Governments of the countries where smallpox still exists to institute eradication programs or to intensify those under way; instructed the Director to take all necessary steps to support and to provide the Goverments with advisory services to enable them to eradicate smallpox; authorized the Director to request and except contributions of equipment, personnel, material and other collaboration required to achieved the objective desired; recommended to the countries producing smallpox vaccine that they adopt measures to establish a "smallpox vaccine pool" through voluntary contributions of vaccine, so that supplies may be sent without delay to countries where emergency situation arise; recommended to the Governments that they adopt special measures for the confirmation, by all available means and particularly laboratories, of any suspected case of smallpox.

m) September-October 1965, XVI Meeting of the PAHO Directing Council, XVII Meeting of the WHO Regional Committee, Washington, D. C.: Resolution XXX declared smallpox eradication in the Americas to be one of the major objectives of the Pan American Health Organization; reiterated and confirmed the previous resolutions of the Governing Bodies of the Organization to the effect that smallpox must be eradicated from the Hemisphere as soon as possible; reminded the Governments that the organization and the execution of the national smallpox eradication programs is a specific obligation incumbent upon them; recommended to the Governments that they organize and implement consolidation programs; urged the Governments of countries in

which there is no smallpox and in which the level of immunity of the general population is low to institute programs for progressively increasing the percentage of the population vaccinated against smallpox; finally urged the Governments to intensify their epidemiological surveillance services for the early detection and investigation of suspect cases of smallpox in order to prevent the spread of the disease.

WORLD HEALTH ASSEMBLY

RESOLUTIONS ADOPTED ON SMALLPOX

Assembly	Resolution
Third World Health Assembly	WHA.3.18
Sixth World Health Assembly	WHA.6.18
Seventh World Health Assembly	WHA.7.5
Eleventh World Health Assembly	WHA.11.54
Twelfth World Health Assembly	WHA.12.54
Sixteenth World Health Assembly	WHA.16.37
Eighteenth World Health Assembly	WHA.18.38

THE AMERICAS

POPULATION

COUNTRY	POPULATION (1965 estimated)			AREA	DENSITY	COMMUNITIES OF:					
	TOTAL	% OF			PER	Less than*	100 to	500 to	1,000 to	5,000 to	20,000 or
		Urban	Rural	Km^2	Km^2	100	499	999	4,999	19,999	more
TOTAL	234,351,553			19,429,459	11.8						
ARGENTINA	22,352,000	59.7	40.3	2,791,810	8.0		1,459	538	741	173	45
BRITISH HONDURAS	106,000	53.9	46.1	8,833	12.0		-	-	-	-	-
BOLIVIA	4,330,404	34.0	66.0	1,098,581	3.9		123	198	498	203	16
BRAZIL	81,694,166	42.3	57.7	8,431,968	9.7		-	-	-	-	-
COLOMBIA	17,476,420	52.9	47.1	1,138,914	15.4		897	638	732	180	49
COSTA RICA (1963)	1,336,274	34.5	65.5	50,900	26.3		-	-	-	-	-
CUBA	7,434,200	57.7	42.3	114,524	64.9		-	-	-	-	-
CHILE	8,655,743	68.2	31.8	756,945	11.4		6,578	552	276	64	37
ECUADOR	4,476,007	36.0	64.0	270,670	16.5		19,718	815	236	31	12
EL SALVADOR	2,918,265	39.0	61.0	21,146	138.0		649	913	412	16	6
GUATEMALA	4,437,000	33.6	66.4	108,889	40.0		-	-	-	-	-
HAITI	4,330,619	25.0	75.0	27,609	157.0		-	-	-	-	-
HONDURAS	2,362,817	23.2	76.8	112,088	21.1		-	-	-	-	-
MEXICO	40,913,498	50.7	49.3	1,972,545	20.8		-	-	-	-	-
NICARAGUA	1,682,169	40.9	59.1	118,358	14.2		1,076	505	254	15	5
PANAMA	1,278,624	41.5	58.5	75,650	16.9		-	-	-	-	-
PARAGUAY	1,983,681	35.6	64.4	406,752	4.8		20	33	86	15	1
PERU	11,649,600	49.6	50.4	1,285,216	7.7		12,845	1,516	760	96	42
DOMINICAN REP.	3,572.700	30.7	69.3	48,411	73.8		-	-	-	-	-
URUGUAY	2,592,563	80.5	19.5	177,508	14.6		114	47	76	26	14
VENEZUELA	8,768,713	67.5	32.5	912,050	9.5		-	-	-	-	-

* No information available.

THE AMERICAS

MEANS OF COMMUNICATIONS

Country	LAND (x 10,000 Km^2)				AIR
	HIGHWAYS			RAILWAYS Km	Airports
	PAVED Km.	Dirt roads			
		Km.	Number of months usable		
ARGENTINA	72,0	108,00	± 10	175,0	192
BRITISH HONDURAS	-	-	-	-	-
BOLIVIA	5,5	79,8	± 8	3,5	40
BRAZIL	20,6	618,4	-	-	137
COLOMBIA	40,6	302,57	± 9	30,1	536
COSTA RICA	215,9	-	-	-	-
CUBA	-	-	12	446,8	12
CHILE	41,7	723,3	-	111,2	120
ECUADOR	40,3	122,1	12	30,8	16
EL SALVADOR	503,6	3,528,8	6	352,3	1
GUATEMALA	124,3	-	12	-	-
HAITI	-	-	-	-	-
HONDURAS	36,0	291,0	-	116,0	58
NICARAGUA	297,1	375,0	6	29,5	15
MEXICO	138,7	89,8	-	119,0	385
PANAMA	85,4	383,9	-	-	135
PARAGUAY	11,8	109,4	8	22,9	19
PERU	359,9	285,4	9	20,3	51
DOMINICAN REP.	450,1	467,4	12	-	2
URUGUAY	85,0	316,1	12	169,0	37
VENEZUELA	309,2	164,2	12	-	-

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THE AMERICAS

CULTURAL CHARACTERISTICS

COUNTRY	% of Illiterates over 15 years	Information Media			Languages Spoken %		
		Newspapers	Stations				
			Radio	Television	Official	Other	Dialects
Argentina	13,6	420	89	34	100,0	-	-
British Honduras	10,4	-	-	-	82,0	8,0	10,0
Bolivia	63,6	19	39	-	36,0	0,4	63,6
Brazil	55,0	148	108	22	100,0	-	-
Colombia	37,3	37	220	18	97,5	-	2,5
Costa Rica	14,6	-	-	-	100,0	-	-
Cuba	3,9	-	42	2	100,0	-	-
Chile	16,4	39	30	3	100,0	-	-
Ecuador	29,8	21	139	3	99,0	1,0	-
El Salvador	52,0	8	35	4	100,0	-	-
Guatemala	71,9	-	-	2	66,0	-	34,0
Haití	80,0	-	-	-	20,0	-	80,0
Honduras	52,7	6	39	1	98,0	-	2,0
* México	34,6	185	360	22	95,7	0,5	3,8
Nicaragua	49,2	-	-	1	100,0	-	-
Panamá	21,7	-	-	-	-	-	-
** Paraguay	31,8	5	11	1	53,8	40,1	1,4
Perú	36,9	-	-	-	60,0	37,4	2,6
Dominican Rep.	55,0	-	-	-	99,0	1,0	-
Uruguay	9,5	30	40	4	100,0	-	-
Venezuela	9,2	-	-	-	100,0	-	-

* Over 14 years of age.
** Over 10 years of age.

THE AMERICAS

SOME CHARACTERISTICS OF THE HEALTH ORGANIZATION AND LEGISLATION CONCERNING

SMALLPOX VACCINATION

COUNTRY	SERVICES ATTACHED TO				TYPE OF SERVICE		SMALLPOX VACCINATION			
	Ministry	National Health Services	Provincial or State Health Services, etc.	Municipal Private, Other	Integrated	Non-Integrated	Obligatory	Compliance	Periodic revaccination	Certificate issued
ARGENTINA	yes		yes	yes			yes	yes	3 years	
BRITISH HONDURAS	yes				yes		yes	yes	7 years	yes
BOLIVIA	yes	yes		yes			yes	yes	yes	yes
BRAZIL	yes		yes	yes			yes	no	3 years	yes
COLOMBIA	yes		yes	yes		yes	yes	no	3 years	yes
COSTA RICA	yes			yes		yes	yes	no	3 years	yes
CUBA	yes				yes		no	no		yes
CHILE	yes	yes		yes	yes		yes	yes	5 years	yes
ECUADOR	yes	yes		yes		yes	yes	yes		yes
EL SALVADOR	yes				yes		yes		5 years	no
GUATEMALA	yes			yes	yes	yes	yes	yes	5 years	yes
HAITI	yes					yes	no		no	no
HONDURAS	yes						yes	yes	5 years	yes
MEXICO	yes			yes	yes		yes	yes	5 years	yes
NICARAGUA	yes					yes	no	no	no	yes
PANAMA	yes				yes		no	no	yes	yes
PARAGUAY	yes			yes	yes		yes	no	no	no
PERU	yes			yes	yes		yes	no	yes	yes
DOMINICAN REP.	yes				yes		yes	no		yes
URUGUAY	yes			yes		yes	yes	no	no	yes
VENEZUELA	yes					yes	yes		7 years	yes

THE AMERICAS

HEALTH SERVICES

COUNTRY	HOSPITALS				OUTPATIENT DEPARTMENTS				RURAL HEALTH POSTS	MOBILE UNITS		No. of vaccinators
	PUBLIC AND ARMED FORCES		OTHER AND PRIVATE		ATTACHED TO HOSPITALS		INDEPENDENT			Urban areas	Rural areas	
	Number	Beds	Number	Beds	Pub. & Arm.For.	Other	Pub. & Arm.For.	Other				
TOTALS	4.599	443.679	2.871	137.319	4.125	438	3.029	6.827	4.072	46	101	2.961
ARGENTINA	1.186	68.750	1.187	25.832	1.274	269	1.253	1.910	959	28	38	705
BRIT. HONDURAS	-	-	-	-	-	-	-	-	-	-	-	-
BOLIVIA	52	3.096	15	2.824	85	52	126	-	32	-	2	9
BRAZIL	1.648	147.456	1 124	67.245	-	-	-	-	-	-	-	-
COLOMBIA	784	30.565	79	1.575	1.500	-	573	-	490	1	17	1.030
COSTA RICA	44	-	-	-	-	-	76	-	-	-	12	-
CUBA	159	31.152	-	-	159	-	161	-	-	-	-	-
CHILE	216	33.118	48	3.450	216	-	-	97	430	-	-	-
ECUADOR	62	7.921	104	3.270	-	-	118	148	-	-	-	-
EL SALVADOR	24	5.487	2	230	24	4	122	-	7	10	-	144
GUATEMALA	-	-	-	-	-	-		-	-	-	-	-
HAITI	-	2 322	21	713	15	21	140	-	140	-	-	1
HONDURAS	9	2 103	22	1 125	9		71	-	10	-	8	94
MEXICO	191	53.754	28	11 609	446	87	374	4.037	1.101	-	-	-
NICARAGUA	25	3 209	14	544	7	-	15	17	87	4	2	58
PANAMA	16	3.201	13	813	-	-	-	-	64	-	3	-
PARAGUAY	15	3.904	5	273	58	5	-	-	124	-	-	-
PERU	78	12.554	202	15.891	109	-	-	-	628	-	4	703
DOM. REPUBLIC	-	-	-	-	-	-	-	-	-	-	-	-
URUGUAY	76	15.047	7	1.888	223	-	-	18	-	3	15	217
VENEZUELA	-	-	-	-	-	-	-	-	-	-	-	-

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SMALLPOX VACCINE PRODUCTION

1964 and 1965

COUNTRY	Doses Glycerinated 1964	Doses Lyophilized 1964	Doses Glycerinated 1965	Doses Lyophilized 1965
Argentina	5,190,000 [a]	-	13,316,000	-
Bolivia	-	813,700	-	986,000
Brazil	-	27,040,878	500,000	27,000,000
Chile	3,075,000 [b]	582,500	3,000,000	400,000
Colombia	-	2,882,500	-	4,633,000
Cuba	666,600	-	555,850	-
Ecuador	-	715,004	1,512,280	-
El Salvador	-	-	180,000	-
Guatemala	1,417,165	-	379,300	-
Mexico	10,754,400	-	10,447,409	-
Peru	2,864,000 [c]	3,517,100 [c]	-	-
Uruguay	2,100,000 [c]	-	2,583,200	-
Venezuela	2,634,000	750,000	1,741,200	3,443,000
Totals	28,801,165	36,301,682	34,209,439	36,462,000

[a] January - July

[b] January - October

[c] January - August

THE AMERICAS

STAFF OF HEALTH SERVICES

Country	PHYSICIANS					NURSES			Auxiliaries	COMMUNITIES WITH HEALTH OFFICE	
	Total Physicians	Per 10,000 Inhabitants	No. Physicians P. H. S. Part Time	No. Physicians P. H. S. Full Time	Physicians Responsible Vaccination	With Public Health Training	Without Public Health Training	Per 10,000 Inhabitants		Urban	Rural
T O T A L	94.842	-	8.537	6.508	3.973	-	13.709	-	41.113	1.441	455
Argentina	12.555	5,6	2,175	81	-	-	-	-	10.702	649	818
British Honduras	26	2,45	6	-	1	-	75	7,0	23	-	-
Bolivia	1.032	2,19	319	11	1	-	488	1,0	254	-	-
Brazil	31.003	3,8	2,557	200	12	-	-	-	-	-	-
Colombia	7.453	4,0	10	105	575	112	1.086	-	3.012	709	224
Costa Rica	637	4,7	150	-	2	76	496	3,8	310	110	-
Cuba	6.815	9,2	2.900	2.442	-	-	3.561	-	4.125	126	-
Chile	4.842	5,7	-	-	-	-	1.188	1,4	11.044	-	-
Ecuador	1.698	3,7	41	1	1	311	3	0,7	106	98	-
El Salvador	664	2,3	561	176	74	203	347	1,8	1.452	123	-
Guatemala	790	2,0	91	-	91	491	-	1,1	236	-	-
Haití	400	1,0	8	-	2	44	270	0,8	-	-	-
Honduras	351	1,5	102	28	94	14	5	0,1	192	-	-
México	20,590	5,9	642	770	2.671	146	1.360	0,3	7.011	-	-
Nicaragua	698	4,1	115	10	56	62	250	1,9	309	47	91
Panamá	534	4,6	-	-	-	-	790	6,4	990	-	-
Paraguay	933	4,7	230	32	59	-	49	0,2	757	73	-
Perú	5.061	4,5	815	977	106	142	711	0,7	4.619	-	-
Dominican Rep.	1.744	4,8	-	626	65	104	-	0,2	123	-	-
Uruguay	3.051	11,8	307	-	161	15	750	2,9	993	155	-
Venezuela	7.774	9,3	-	1.230	2	2,280	-	2,4	6.766	-	-

THE AMERICAS

KIND OF ASSISTANCE REQUESTED BY THE COUNTRIES FOR THE EXECUTION OF NATIONAL ERADICATION PROGRAMS OR MAINTENANCE PROGRAMS

Country	Technical Assistance						Health Educ. material	Dried Small-pox vacc.	Jet in-jec-tors	Jeeps	Boats	Field equip-ment	Freeze-dried small-pox vac. equip.	Salaries and per diem allowances local personnel
	To organize, conduct and evaluate	Person. training vaccin..	Prepara-tion and/ or testing vaccine	Lab. diag. small-pox	Clin.diag. treatment and isola-tion	Sta-tis-tics								
Argentina	yes	yes	-	-	-	yes	yes	-	yes	yes	yes	yes	-	-
Brit.Hond.	-	-	-	yes	yes	yes	yes	yes	-	yes	-	yes	-	-
Bolivia	yes	yes	yes	yes	yes	yes	yes	-	-	-	-	yes	-	-
Brazil	yes	yes	-	yes	-	yes	-	-	yes	yes	yes	yes	-	yes
Colombia	-	-	-	yes	-	-	-	-	-	-	-	-	-	yes
Costa Rica	-	-	yes	yes	yes	-	yes	yes	yes	yes	-	yes	-	-
Cuba	-	-	-	yes	yes	-	-	yes	yes	-	-	-	-	-
Chile	-	-	yes	-	-	-	yes	-	yes	yes	-	yes	yes	-
Ecuador	yes	-	-	-	-	yes	yes	-	yes	yes	yes	yes	-	-
El Salvador	-	-	yes	yes	-	-	-	yes	-	yes	-	-	-	-
Guatemala	yes	yes	-	yes	yes	yes	yes	yes	yes	yes	-	yes	-	-
Haiti	yes	yes	yes	yes	yes	yes	yes	yes	-	yes	-	yes	-	yes
Honduras	yes	yes	-	-	yes	yes	yes	yes	yes	yes	-	yes	-	-
Mexico	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	yes	-	-	yes	yes	yes	yes	yes	yes	yes	-	yes	-	-
Panama	yes	-	-	-	-	-	yes	yes	yes	yes	-	yes	-	-
Paraguay	yes	-	-	-	-	-	yes	yes	-	yes	-	yes	-	-
Peru	-	-	-	yes	yes	-	yes	-	yes	yes	-	yes	-	-
Dom. Rep.	-	-	-	-	-	-	yes	yes	yes	yes	-	-	-	-
Uruguay	yes	yes	-	yes	-	yes	yes	-	-	yes	-	-	-	-
Venezuela	-	-	-	-	-	-	yes	-	yes	yes	-	-	-	-

THE AMERICAS

DISTRIBUTION OF INTERNATIONAL PERSONNEL FOR ERADICATION PROGRAMS, NATIONAL VACCINATION PROGRAMS, OR MAINTENANCE PROGRAMS

Country	EPIDEMIOLOGISTS				STATISTICIANS				
	Period of duty	Salary	Per diem and travel	Total	Period of duty	Salary	Per diem and travel	Total	Total cost
Cuba Haiti Jamaica Mexico Dominican Republic	30 months (1 expert)	50,760	13,125	63,885	30 months (1 expert)	50,760	8,750	59,510	123,395
Costa Rica El Salvador Guatemala Honduras Nicaragua Panama British Honduras	48 months (2 experts, 2 years each)	81,216	21,000	102,216	48 months (2 experts, 2 years each)	81,216	14,000	95,216	197,432
French Guiana British Guiana Surinam Trinidad and Tob. Venezuela	30 months (1 expert)	50,760	13,125	63,885	30 months (1 expert)	50,760	8,750	59,510	123,395
Colombia Ecuador	30 months (1 expert)	50,760	13,125	63,885	30 months (1 expert)	50,760	8,750	59,510	123,395

Annex 12

Country	EPIDEMIOLOGISTS				STATISTICIANS				
	Period of duty	Salary	Per diem and travel	Total	Period of duty	Salary	Per diem and travel	Total	Total cost
Bolivia Peru	30 months (1 expert)	50,760	13,125	63,885	30 months (1 expert)	50,760	8,750	59,510	123,395
Paraguay Uruguay	30 months (1 expert)	50,760	13,125	63,885	30 months (1 expert)	50,760	8,750	59,510	123,395
Argentina	30 months (1 expert)	50,760	13,125	63,885	30 months (1 expert)	50,760	8,750	59,510	123,395
Brasil	144 months (3 experts, 4 years each)	243,648	63,000	306,648	48 months (1 expert)	81,216	14,000	95,216	401,864
Chile									
CD	48 months (1 expert)	81,216	21,000	108,216	48 months (1 expert)	81,216	14,000	95,216	197,432
From Page 1		233,496	60,375	293,871		233,496	40,250	273,746	
Total:	420	710,640	183,750	894,390	324	548,208	94,500	642,708	1,537,098

DISTRIBUTION OF THE COST OF INTERNATIONAL PERSONNEL SMALLPOX ERADICATION PROGRAMS, NATIONAL VACCINATION PROGRAMS OR MAINTENANCE PROGRAMS BY COUNTRY

Country	Epidemiologists		Statisticians		Total
	Salary	Travel	Salary	Travel	
Argentina	50,760.00	13,125.00	50,760.00	8,750,00	123,395.00
British Honduras	11,602.28	3,000.00	11,602.28	2,000.00	28,204.56
Bolivia	25,380.00	6,562.50	25,380.00	4,375.00	61,697.50
Brazil	243,648.00	63,000.00	81,216.00	14,000.00	401,864.00
Colombia	25,380.00	6,562.50	25,380.00	4,375.00	61,697.50
Costa Rica	11,602.28	3,000.00	11,602.28	2,000.00	28,204.56
Cuba	10,152.00	2,625.00	10,152.00	1,750.00	24,679.00
Chile	-	-	-	-	-
Ecuador	25,380.00	6,562.50	25,380.00	4,375.00	61,697.50
El Salvador	11,602.28	3,000.00	11,602.28	2,000.00	28,204.56
Guatemala	11,602.28	3,000.00	11,602.28	2,000.00	28,204.56
Haiti	10,152.00	2,625.00	10,152.00	1,750.00	24,679.00
Honduras	11,602.28	3,000.00	11,602.28	2,000.00	28,204.56
Mexico	10,152.00	2,625.00	10,152.00	1,750.00	24,679.00
Nicaragua	11,602.28	3,000.00	11,602.28	2,000.00	28,204.56
Panama	11,602.28	3,000.00	11,602.28	2,000.00	28,204.56
Paraguay	25,380.00	6,562.50	25,380.00	4,375.00	61,697.50
Peru	25,380.00	6,562.50	25,380.00	4,375.00	61,697.50
Dominican Republic	10,152.00	2,625.00	10,152.00	1,750.00	24,679.00
Uruguay	25,380.00	6,562.50	25,380.00	4,375.00	61,697.50
Venezuela	10,152.00	2,625.00	10,152.00	1,750.00	24,679.00
French Guiana	10,152.00	2,625.00	10,152.00	1,750.00	24,679.00
British Guiana	10,152.00	2,625.00	10,152.00	1,750.00	24,679.00
Surinam	10,152.00	2,625.00	10,152.00	1,750.00	24,679.00
Trinidad and Tobago	10,152.00	2,625.00	10,152.00	1,750.00	24,679.00
Jamaica	10,152.00	2,625.00	10,152.00	1,750.00	24,679.00
PAHO	81,216.00	21,000.00	81,216.00	14,000.00	197,432.00
Total	710,640.00	183,750.00	548,208.00	94,500.00	1,537,098.00

THE A

ESTIMATED COST OF INTERNATIONAL ASS
PROGRAMS DISTRIBUTED BY

Country	JET INJECTORS					TRANSPORT				
	Foot	Hand	Foot US$	Hand US$	Total cost	Jeeps	Boats	Jeeps US$	Boats US$	Total cost
ARGENTINA	30	57	21.900	9.120	31.020	40	-	152.000	-	152.000
BOLIVIA	3	20	2.190	3.200	5.390	-	-	-	-	-
BRAZIL	40	154	29.200	24.640	53.840	100	11	380.000	100.000	480.000
COLOMBIA	18	49	13.140	7.840	20.980	17	4	64.600	40.000	104.600
COSTA RICA	3	18	2.190	2.880	5.070	4	-	15.200	-	15.200
CUBA	16	21	11.680	3.360	15.040	-	-	-	-	-
CHILE	12	24	8.760	3.840	12.600	5	-	19.000	-	19.000
ECUADOR	3	24	2.190	3.840	6.030	8	3	30.400	24.000	54.400
EL SALVADOR	3	12	2.190	1.920	4.110	9	-	34.200	-	34.200
GUATEMALA	3	24	2.190	3.840	6.030	5	-	19.000	-	19.000
HAITI	3	21	2.190	3.360	5.550	5	-	19.000	-	19.000
HONDURAS	3	12	2.190	1.920	4.110	4	-	15.200	-	15.200
JAMAICA	-	-	-	-	-	-	-	-	-	-
MEXICO	-	-	-	-	-	-	-	-	-	-
NICARAGUA	31	8	2.190	1.280	3.470	4	-	15.200	-	15.200
PANAMA	3	6	2.190	960	3.150	4	-	15.200	-	15.200
PARAGUAY	3	9	2.190	1.440	3.630	5	-	19.000	-	19.000
PERU	15	39	10.950	6.240	17.190	20	4	76.000	32.000	108.000
DOMINICAN REP.	3	17	2.190	2.720	4.910	3	-	11.400	-	11.400
T.- TOBAGO	-	-	-	-	-	-	-	-	-	-
URUGUAY	5	8	3.650	1.280	4.930	9	-	34.200	-	34.200
VENEZUELA	15	24	10.950	3.840	14.790	16	-	60.800	-	60.800
BRIT.HONDURAS	2	4	1.460	640	2.100	2	-	7.600	-	7.600
FRENCH GUIANA	-	-	-	-	-	-	-	-	-	-
BRIT.GUIANA	-	-	-	-	-	-	-	-	-	-
SURINAM	-	-	-	-	-	-	-	-	-	-
PAHO	-	-	-	-	-	-	-	-	-	-
%	214	551	135.780	88.160	223.940 3.16%	260	22	988.000	196.000	1.184.000 16.74%

THE AMERICAS

NATIONAL ASSISTANCE FOR SMALLPOX ERADICATION
TRIBUTED BY ITEM AND BY COUNTRY

	Total cost	Field equip.	Health educ. material	Freeze-dried equip.	Small-pox Vacc.	Salaries per diem local personn.	Interna-tional personn.	Lab. Diag. small-pox (4 courses)	Sta-tis-tics	Conting.	Total cost
	152.000	10.000	5.000	-	-	-	123.395.00	-	-	-	321.415.00
	-	3.000	3.000	-	-	15.000	61.697.50	-	-	-	88.087.50
0	480.000	70.000	15.000	-	-	3.438.000	401.864.00	-	-	-	4.458.704.00
0	104.600	-	-	-	-	11.222	61.697.50	-	-	-	198.499.50
	15.200	3.000	3.000	-	1.500	-	28.204.56	-	-	-	55.974.56
	-	-	-	-	500	-	24.679.00	-	-	-	40.219.00
	19.000	5.000	3.000	15.000	-	-	-	-	-	-	54.600.00
0	54.400	5.000	3.000	-	-	-	61.697.50	-	-	-	130.127.50
	34.200	3.000	-	-	1.500	-	28.204.56	-	-	-	71.014.56
	19.000	3.000	3.000	-	1.500	-	28.204.56	-	-	-	60.734.56
	19.000	10.000	5.000	-	1.500	20.000	24.679.00	-	-	-	85.729.00
	15.200	3.000	3.000	-	1.500	-	28.204.56	-	-	-	55.314.56
	-	-	-	-	-	-	24.679.00	-	-	-	24.679.00
	-	-	-	-	-	-	24.679.00	-	-	-	24.679.00
	15.200	3.000	3.000	-	1.500	-	28.204.56	-	-	-	54.374.56
	15.200	3.000	3.000	-	1.500	-	28.204.56	-	-	-	54.054.56
	19.000	5.000	3.000	-	1.500	-	61.697.50	-	-	-	93.827.50
0	108.000	10.000	5.000	-	-	-	61.697.50	-	-	-	201.887.50
	11.400	3.000	4.000	-	1.500	-	24.679.50	-	-	-	49.489.00
	-	-	-	-	-	-	24.679.50	-	-	-	24.679.00
	34.200	5.000	4.000	-	-	-	61.697.50	-	-	-	109.827.50
	60.800	10.000	5.000	15.000	-	-	24.679.00	-	-	-	130.269.00
	7.600	3.000	-	-	1.500	-	28.204.56	-	-	-	42.404.56
	-	-	-	-	-	-	24.679.00	-	-	-	24.679.00
	-	-	-	-	-	-	24.679.00	-	-	-	24.679.00
	-	-	-	-	-	-	24.679.00	-	-	-	24.679.00
	-	-	-	-	-	-	197.432.00	64.000	60.000	250.000	571.432.00
0	1.184.000	157.000	70.000	30.000	15.500	3.484.222	1.537.097.92	64.000	60.000	250.000	7.076.059.92
	16.74%	2.22%	0.98%	0.42%	0.21%	49.26%	21.73%	0.90%	0.84%	3.53%	100%

SUMMARY OF THE COST OF INTERNATIONAL ASSISTANCE TO THE SMALLPOX ERADICATION PROGRAM IN THE AMERICAS

1.	Medical Epidemiologists:	
	Salary	710,640.00
	per diem, travel	183,750.00
2.	Statisticians:	
	Salary	548.208.00
	per diem, travel	94,500.00
3.	Transportation:	
	Jeeps - 260 units at US$3,800 each	988,000.00
	Boats - 22 units	196,000.00
4.	Jet - injectors:	
	214 foot units at US$730 each	135,780.00
	551 hand units at US$160 each	88,160.00
5.	Field equipment	157,000.00
6.	Freeze drying equipment	30,000.00
7.	Health education material.	70,000.00
8.	Salary and per diem allowance for national personnel and other within-country costs	3,484,222.00
9.	Procurement and supply of dried smallpox vaccine	15,500.00
10.	Courses on the laboratory diagnosis of smallpox: 4 courses, each costing US$16,500	64,000.00
11.	International staff	1,537,097.92
12.	Statistical material	60,000.00
13.	Contingencies	250,000.00
	Total	$7,076,059.92