PANAMERICAN HEALTH ORGANIZATION

WORLD HEALTH ORGANIZATION

XIX PAN AMERICAN SANITARY CONFERENCE

XXVI REGIONAL COMMITTEE MEETING

WASHINGTON, D.C., U.S.A.

September-October 1974

Provisional Agenda Item 22

CSP19/18 (Eng.)
2 August 1974
ORIGINAL: ENGLISH

VII INTER-AMERICAN MEETING, AT THE MINISTERIAL LEVEL, ON FOOT-AND-MOUTH DISEASE AND ZOONOSES CONTROL

In compliance with Resolution XIX, adopted by the Directing Council at its XVII Meeting, the Director convened the VII Inter-American Meeting, at the Ministerial Level, on Foot-and-Mouth Disease and Zoonoses Control.

The Executive Committee, at its 72nd Meeting, took note of the following documentation of the Ministerial Meeting:

- Agenda
- Final Report
- Program and Budget of the Pan American Zoonoses Center
- Program and Budget of the Pan American Foot-and-Mouth Disease Center

After reviewing this documentation, the Executive Committee approved the following Resolution XVII:

THE EXECUTIVE COMMITTEE,

Having studied the Final Report of the VII Inter-American Meeting, at the Ministerial Level, on Foot-and-Mouth Disease and Zoonoses Control (Document RICAZ7/24) appearing in Document CE72/5; and

Bearing in mind the importance that the Governments have assigned to programs of animal health and production in furtherance of the improved nutrition of their peoples,

RESOLVES:

1. To request the Director to transmit the above-mentioned Final Report to the XIX Pan American Sanitary Conference.

2. To recommend that the XIX Pan American Sanitary Conference adopt a resolution along the following lines:

THE XIX PAN AMERICAN SANITARY CONFERENCE,

Having considered the Final Report of the VII Inter-American Meeting, at the Ministerial Level, on Foot-and-Mouth Disease and Zoonoses Control (Document RICAZ7/24) appearing in Document CSP19/18; and

Bearing in mind the need for the Governments to undertake special studies on the nutritional aspects of the production of food of animal origin, to carry out surveys to determine the economic impact of cysticercosis and taeniasis, to plan for improved training facilities for animal health assistants, and to upgrade inspection services at slaughterhouses and meat processing plants,

RESOLVES:

1. To take note of the Final Report of the VII Inter-American Meeting, at the Ministerial Level, on Foot-and-Mouth Disease and Zoonoses Control (Document RICAZ7/24) appearing in Document CSP19/18.

2. To commend the Ministries of Agriculture for the efforts they have made in the control of diseases of importance to human and animal health, which ultimately have great bearing on socioeconomic development.

3. To express its appreciation to the Ministries of both Agriculture and Health for their cooperative efforts toward the more effective use of common resources in these undertakings.

Annexes

executive committee of the directing council

PAN AMERICAN HEALTH ORGANIZATION

working party of ANNEX *the regional committee*

WORLD HEALTH ORGANIZATION

72nd Meeting
Washington, D.C.
July 1974

Provisional Agenda Item 13

CE72/5 (Eng.)
24 May 1974
ORIGINAL: ENGLISH

VII INTER-AMERICAN MEETING, AT THE MINISTERIAL LEVEL, ON FOOT-AND-MOUTH DISEASE AND ZOONOSES CONTROL

In compliance with Resolution XIX approved by the Directing Council at its XVII Meeting, the Director convened the VII Inter-American Meeting, at the Ministerial Level, on Foot-and-Mouth Disease and Zoonoses Control, which was held in Port of Spain, Trinidad and Tobago, from 17 to 20 April 1974. Representatives from 27 Member Countries and seven international agencies participated in the Meeting.

The Director takes pleasure in presenting for the consideration of the Executive Committee the following documents, for transmittal to the XIX Pan American Sanitary Conference with the recommendations that the Committee considers appropriate:

- Agenda
- Final Report
- Program and Budget of the Pan American Zoonoses Center
- Program and Budget of the Pan American Foot-and-Mouth Disease Center

The documents on the related technical activities of the various subjects of this Meeting are available for study and review by the Members of the Executive Committee, who may request them through the Secretariat.

In this VII Inter-American Meeting the principal subjects discussed included processes for the improvement of animal nutrition in the tropics, health and economic importance of cysticercosis to the countries, training of personnel in meat inspection and protection and in the improvement of the infrastructure of veterinary services in slaughterhouses and processing plants, and current status of the development and achievements of the recommendations and targets for animal health and veterinary public health as established in the Ten-year Health Plan for the Americas.

In the Final Report will be found 22 resolutions approved by the Ministers of Agriculture pertaining principally to animal nutrition, cysticercosis and taeniasis, guide for evaluation of foot-and-mouth disease control programs, Caribbean Regional Center for the Education and Training of Animal Health Assistants, production of rabies vaccine, and international standards for meat inspection and hygiene.

The two principal resolutions that have budgetary consequences are: Resolution I, Proposed Program and Budget Estimates of the Pan American Foot-and-Mouth Disease Center for 1975 and Provisional Draft for 1976; and Resolution II, Proposed Program and Budget Estimates of the Pan American Zoonoses Center for 1975 and Provisional Draft for 1976.

Annexes

PAN AMERICAN HEALTH ORGANIZATION

CE72/5 (Eng.)
ANNEX I

VII INTER-AMERICAN MEETING AT THE MINISTERIAL LEVEL ON FOOT-AND-MOUTH DISEASE AND ZOONOSES CONTROL

WORLD HEALTH ORGANIZATION

PORT OF SPAIN, TRINIDAD, 17-20 APRIL 1974

RICAZ7/1, Rev. 1 (Eng.)
3 April 1974
ORIGINAL: SPANISH

PROVISIONAL AGENDA

		Document No.
1.	Preliminary Session. Election of the Chairman and Two Vice Chairmen	
2.	Inaugural Session. Presentations by the Minister of Agriculture, Lands, and Fisheries of Trinidad and Tobago and by the Director of the Pan American Sanitary Bureau	
3.	Approval of the Agenda and the Program of Sessions	RICAZ7/1, Rev.1 and RICAZ7/1A
4.	Processes for the Improvement of Animal Nutrition in the Tropics	
	A. Animal Nutrition and Livestock Development	RICAZ7/19
	B. Elaborate Systems of Meat and Milk Production Using Tropical Pastures With and Without Supplements	RICAZ7/14
	C. Utilization of Sugarcane By-products in Animal Feeds	RICAZ7/15
	D. Utilization of Coffee By-products in Animal Feeds	RICAZ7/12
	E. Elaborate System of Growth and Fattening of Beef Cattle in Confinement with a Forage-based Diet	RICAZ7/11
5.	Current Status of the Development and Achievement of the Recommendations and Targets for Animal Health and Veterinary Public Health as Established in the Ten-year Health Plan for the Americas, Approved by the Governing Bodies of the Pan American Health Organization, Santiago, Chile, October 1972. Country Reports	

	Document No.
6. Research Program of the Pan American Foot-and-Mouth Disease Center	RICAZ7/2
7. Program and Budget of the Pan American Foot-and-Mouth Disease Center	RICAZ7/6
8. Program and Budget of the Pan American Zoonoses Center	RICAZ7/3
9. Panel on the Health and Economic Importance of Cysticercosis to the Countries	
A. Cysticercosis. World Situation	RICAZ7/7
B. Cysticercosis as a Public Health and Animal Health Problem	RICAZ7/4
C. Parasitological and Economic Aspects of Cysticercosis in Europe and Africa	RICAZ7/8
D. Parasitological and Economic Aspects of Cysticercosis in the Americas	RICAZ7/5
10. Panel on Training of Personnel in Meat Inspection and Protection and in the Improvement of the Infrastructure of Veterinary Services in Slaughterhouses and Processing Plants	
A. Preparation of Professional and Technical Personnel in Meat Inspection and Protection	RICAZ7/9
B. Organization and Operation of Veterinary Services in Slaughterhouses and Processing Plants	RICAZ7/16
C. Meat Inspection Service as an Element of Epidemiological Surveillance and a Component of Animal Disease Control Programs	RICAZ7/10
D. International Processes and Standards for Inspection, Protection and Classification of Meat. Codex Alimentarius	RICAZ7/20
11. Epidemiological Surveillance of Rabies, Equine Encephalitis, Foot-and-Mouth Disease and Other Vesicular Diseases	RICAZ7/13, RICAZ7/17, RICAZ7/18, RICAZ7/21, and RICAZ7/22

PAN AMERICAN HEALTH ORGANIZATION

WORLD HEALTH ORGANIZATION

CE72/5 (Eng.)
ANNEX II

VII INTER-AMERICAN MEETING AT THE MINISTERIAL LEVEL ON FOOT-AND-MOUTH DISEASE AND ZOONOSES CONTROL

PORT OF SPAIN, TRINIDAD, 17-20 APRIL 1974

RICAZ7/24 (Eng.)
20 April 1974
ORIGINAL: ENGLISH-SPANISH

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FINAL REPORT

The VII Inter-American Meeting, at the Ministerial Level, on Foot-and-Mouth Disease and Zoonoses Control was held at the Holiday Inn, Port of Spain, Trinidad and Tobago, from 17 to 20 April 1974, having been convened by the Director of the Pan American Sanitary Bureau pursuant to Resolution XIX approved by the Directing Council of the Pan American Health Organization at its XVII Meeting.

OFFICERS

The heads of delegations met to elect the officers of the meeting, with the following results:

Chairman:	Hon. Lionel M. Robinson, Minister of Agriculture, Lands, and Fisheries, Trinidad and Tobago
Vice Chairmen:	Dr. Clayton K. Yeutter, Assistant Secretary, Department of Agriculture, United States of America
	Dr. Osvaldo Luján Ibarra, Inspector General, Sanitary Control Service, Ministry of Agriculture and Livestock, Argentina

Dr. Abraham Horwitz, Director of the Pan American Sanitary Bureau, served as Secretary ex officio.

PARTICIPANTS

The following Governments were represented: Argentina, Barbados, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, El Salvador, France, Guatemala, Guyana, Haiti, Honduras, Jamaica, Kingdom of the Netherlands, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, United Kingdom, United States of America, and Venezuela. Observers from the following international organizations were also present: Food and Agriculture Organization of the United Nations, Inter-American Development Bank, Inter-American Institute of Agricultural Sciences, International Bank for Reconstruction and Development, International Office of Epizootics, International Regional Organization for Health in Agriculture and Livestock, and United Nations Development Program.

PLENARY SESSIONS

At the inaugural session, held on 17 April, addresses were given by Dr. Abraham Horwitz, Director of the Pan American Sanitary Bureau, and Hon. Lionel M. Robinson, Minister of Agriculture, Lands, and Fisheries of Trinidad and Tobago.

Dr. Horwitz called attention to the historical significance of the meeting, since it was in Trinidad and Tobago that the XVII Meeting of the Directing Council of PAHO in 1967 requested the Ministers of Agriculture to review the activities of the Pan American Foot-and-Mouth Disease and Zoonoses Centers and to formulate recommendations thereon. As part of this task, the Ministers decided to hold annual meetings, which have become "a true forum for analyzing the continuing relationship between agriculture and health." The dialogue of the last six years, he said, has made it clear that the control of foot-and-mouth disease and some of the prevalent zoonoses is an urgent necessity if the loss of animal protein, especially indispensable for mothers and children, is to be checked.

Pointing to the enormity of the task involved in controlling foot-and-mouth disease--including the vaccination of more than 200 million head of bovine cattle annually, at a cost that will come to US$350 million in the next four years--Dr. Horwitz declared that the work of the Pan American Foot-and-Mouth Disease and Zoonoses Centers is essential to the countries in their efforts to combat the animal diseases. He went on to say that the Organization has encouraged training activities as part of the effort to support animal health programs, and that the number of schools of veterinary medicine has risen considerably in the last years--though in some cases their curricula need to be updated so that they are more in keeping with the current needs of the countries. He also stressed the importance of planning in the programs for controlling animal diseases and increasing livestock production.

In closing, Dr. Horwitz stated that the meeting's contemplated review of animal health and veterinary public health programs in the light of the goals contained in the Ten-year Health Plan for the Americas is of fundamental importance.

Hon. Lionel M. Robinson welcomed the participants and pointed out that the present series of inter-American meetings has provided an excellent opportunity for the exchange of ideas and the formulation of plans and strategies for improving animal health programs. The livestock industry is of great importance in almost all the countries, he declared, in that it is a prime source of essential food, it generates employment opportunities, and it brings in valuable foreign exchange.

No matter how great a country's resources are, the Minister said, international cooperation is needed to carry out effective programs for the control of foot-and-mouth disease and the prevalent zoonoses. He reported

that the Government of Trinidad and Tobago has given its support to the establishment of a training center for animal health assistants, a joint undertaking of the Governments of the Member Countries of the Caribbean Community and of Guyana, which will contribute importantly to the manpower resources of the area.

Stressing the serious impact of foot-and-mouth and other vesicular diseases on the economies of the countries, the Minister felt that every effort should be made to develop effective programs for prevention and control. Precisely because his country is free of these diseases, he is concerned that the necessary steps be taken to avoid their introduction within the territory. Likewise, it is proposed to encourage increased livestock production in the public and private sectors in order to strengthen the institutional framework necessary for producing with maximum efficiency.

The Minister closed by expressing his satisfaction that the meeting is to consider procedures for improving animal nutrition in the tropics, a question of great interest to Trinidad and Tobago, which is anxious to utilize as many local ingredients as possible in the formulation of economical livestock feeds. The meeting was thereupon officially declared in session.

The first plenary opened with the report of the Second Meeting of the South American Commission on Foot-and-Mouth Disease, presented by Dr. Osvaldo Luján Ibarra, Representative of Argentina, in his capacity as President of that meeting. Reference was made to the principal matters dealt with on that occasion, among them the exchange of information on the FMD situation among the different countries, relations with the European Commission on Foot-and-Mouth Disease, research programs, criteria to be followed in deciding that areas are free of the disease, programs in border areas, and efforts undertaken to control the outbreak that occurred in Colombia in 1973. The Representative of Paraguay expressed appreciation for the help that his country is receiving from PAHO in the control of foot-and-mouth disease and presented a draft resolution on the report of the Commission's meeting.

Dr. Jerry J. Callis, Director of the Plum Island Animal Disease Laboratory of the U.S. Agricultural Research Service in Greenport, New York, then gave the report of the PAHO Scientific Advisory Committee on the Pan American Zoonoses Center. He pointed out important aspects of the Center's work that were considered by the Committee at its meeting in October 1973 and which led to recommendations on laboratory animal installations, a pilot plant for vaccine production, personnel training, and epidemiologic surveillance. The Representative of Trinidad and Tobago recorded his satisfaction with the report of the Committee and presented a draft resolution on the subject.

Dr. Horwitz thanked the members of the Scientific Advisory Committee for their collaboration with the Center, having given so altruistically of their talent and experience on behalf of the countries. With the Committee's

valuable advice, he said, PAHO feels that it has scientific support for the programs and budgets that it presents to the Governments for their consideration.

Dr. Mário V. Fernandes, Director of the Pan American Foot-and-Mouth Disease Center, then presented the proposed program and budget estimates of the Center for 1975 and the provisional draft for 1976, calling attention to the main activities carried out in support of the countries' efforts to control FMD in the affected area and prevent its introduction in the area now free of it. He pointed out that the 10% increase over the year before is sufficient only to cover normal rises in costs. Dr. Clayton K. Yeutter, Representative of the United States of America, asked Dr. Fernandes what had been the criteria used in deciding how many fellowships should be given to the different countries, since it would appear that in some cases they are insufficient. In reply, Dr. Fernandes explained that both the countries' needs and their requests for seminars and courses are taken into account. Dr. Yeutter then suggested that, in view of the importance of training within the control programs, an increase be made in the allocation for fellowships, to be reflected in a higher overall total. The Representatives of Costa Rica, Guyana, Panama, and Venezuela acknowledged the assistance that they receive from the Center, and the Delegate from Venezuela introduced a draft resolution endorsing the proposed program and budget estimates, which was approved unanimously.

Next, Dr. Ramón Rodríguez Toro, Director of the Pan American Zoonoses Center, submitted his institution's proposed program and budget estimates for 1975 and provisional draft for 1976, for consideration. The Center's activities with regard to control of the principal zoonoses--technical assistance, personnel training, diagnostic reference, distribution of biologicals, research, and provision of technical information--were described. On behalf of the countries of Central America and Panama, the Representative of Guatemala presented a draft resolution thanking the Center for its collaboration in the development of programs to combat the zoonoses and in the preparation of proposals for financial assistance from the IDB in this field particularly, and in animal health in general. The Representatives of Mexico and the United States of America expressed concern over the small percentage increase in the Center's budget, which they felt was insufficient to offset inflation and normal rises in costs, and suggested that the total budget reflect a larger increase. Likewise congratulating the Center on its good work, the Representative of Canada submitted a draft resolution in support of the proposed program and budget estimates, which was approved unanimously.

As the last speaker in the session, the Representative of Colombia reported on the Guide for the Evaluation of Foot-and-Mouth Disease Control Programs developed by the Advisory Study Group constituted for this purpose and presented a draft resolution on the subject.

At the second plenary Mr. Carlos A. Prato, observer from the Inter-American Development Bank, reviewed the assistance being given by his agency to the agricultural and livestock development of the countries. In 1973, the Bank's loans under this heading amounted to US$187 million, of which $22 million were for projects in the field of animal health. He emphasized that the IDB will continue aiding the countries in these activities.

The Representative of Honduras expressed his country's gratitude for the aid given by the Bank to its programs to control bovine tuberculosis and brucellosis and presented a draft resolution which was seconded by the Representative of the Dominican Republic.

The rest of the session was devoted to reports from the individual countries on fulfillment of the recommendations and targets set forth in the Ten-year Health Plan for the Americas in the fields of animal health and veterinary public health. In the order in which they were registered, the following representatives spoke in the name of their respective countries: Dr. Carlos M. Martínez Reyes (Cuba), Dr. José Luis Ramírez Pacheco (Bolivia), Dr. Miguel Reyes Gómez (Colombia), Dr. Richard Gorsira (Kingdom of the Netherlands), Dr. Keble A. Munn (Jamaica), Hon. Mohamed Kasim (Guyana), Dr. Vincent G. Moe (Trinidad and Tobago), Hon. Anderson Morrison (Barbados), Dr. Humberto Olmos Colmenares (Venezuela), Dr. Jorge A. Argueta Morales (El Salvador), Dr. Mario A. Motta González (Guatemala), Dr. Alcides E. Salas Domínguez (Panama), Dr. José Luis Solano (Costa Rica), Dr. Oscar Umaña Erazo (Honduras), and Dr. Rodrigo González Q. (Nicaragua).

The third plenary session, held on 18 April, was devoted to Agenda Item 4, "Processes for the Improvement of Animal Nutrition in the Tropics." The first speaker was Dr. Gustavo Reta Pettersson, Deputy Minister of Livestock in the Mexican Ministry of Agriculture and Livestock, whose paper was entitled, "Animal Nutrition and Livestock Development." He reviewed the various processes and resources that have been effectively used in the tropics for conversion of raw material for animal feeds--yucca, plantain, rice and others--and suggested that most of these countries might consider utilizing such feeds more generally in place of forage that is more difficult to obtain, especially during dry spells.

The next study, "Elaborate Systems of Meat and Milk Production Using Tropical Pastures With and Without Supplements," was presented by Dr. Claudio F. Chicco of the National Agricultural Research Center in Maracay, Venezuela. Calling attention to the vast forage reserves available in the American tropics, the author stressed the need to maximize the utilization of this resource through techniques of proper soil management, animal genetics, and protein supplements, as well as the role of climate, fertilizers, and other factors in the production of pastures and feeds.

Dr. A. Elías, of the University of Havana Animal Science Institute in Cuba, described results obtained from feeding cane molasses in his paper on "Utilization of Sugarcane By-products in Animal Feeds." He also joined

his colleagues in underscoring the importance of employing elements that are not useful for human consumption in order to help meet the great demand for ruminant feeds.

Next, Dr. Ricardo Bressani, Chief of the Agricultural Sciences Division of the Institute of Nutrition of Central America and Panama, discussed "Coffee Pulp and Coffee Hulls as Potential Animal Feeds." Reporting on the experiments that INCAP is conducting on this subject, in view of the abundance of coffee pulp available in the Americas, he declared that the disadvantages which might be caused by the caffein in such a feed can be overcome with easily applied methods.

As the final panelist, Dr. Marco Tulio Cabezas, Scientist in the Animal Nutrition Section, INCAP, presented his study on "Elaborate System of Growth and Fattening of Beef Cattle in Confinement with a Forage-based Diet." He indicated that there are many products which are not being efficiently utilized for the production of meat--for example, male calves, which are sacrificed at birth owing to the high cost of feeding them milk. The staff of INCAP has been developing an intensive production system based on keeping the animals confined from the second week of life until they reach a weight of 400 kg and using a diet of small quantities of milk to which forage and other supplements are added. The process covers the periods of growth, development, and fattening, and economic estimates show that the process is feasible and that reasonable financial returns can be obtained.

The floor was then opened to discussion of some of the specific points in the papers. In reply to a question from the Representative of Jamaica, Dr. Bressani stated that the industrial techniques and procedures involved in processing and utilizing coffee pulp for animal feed do exist, and the cost is well within the small farmer's reach. The Representative of Costa Rica took the opportunity to tell about some of the experiences his country has had using coffee pulp for cattle feed, citing in particular the work of the Tropical Agricultural Center for Teaching and Research in Turrialba. He announced also that an international meeting, the first of its kind, on the utilization of coffee by-products for animal feeds and other agricultural and industrial applications, is to be held in Costa Rica in June 1974.

The Representative of Brazil made brief reference to the programs on animal nutrition that his country is carrying out and presented a draft resolution which was seconded by the Representative of Chile.

Congratulating the speakers on their presentations, the Representative of Peru mentioned the research being carried out in his country on the utilization of high-value fish meal protein concentrates without polysaturated fats for the feeding of poultry. In addition, he referred to experiments that have been conducted in Peru based on hydrogenated fish oil, which can also serve as feed, thus avoiding the use of human food for animals.

The Representative from Trinidad and Tobago asked for clarification on the ratio of molasses as used in the animal diet. Dr. Elías explained that this by-product should be given in low proportions when the basic diet is forage or in high proportions when the molasses itself is the energy giving dietary base, but never in equal amounts matching the forage, since this ratio inhibits the digestibility of the forage and therefore leads to adverse effects.

The fourth plenary session was chaired by Dr. Clayton K. Yeutter and began with consideration of a series of draft resolutions presented in previous sessions, all of which were approved unanimously.

The second part of the session was devoted to the country reports, which were given in the following order: Dr. Osvaldo Luján Ibarra (Argentina), Dr. José Pedro Gonzales (Brazil), Dr. Kenneth F. Wells (Canada), Dr. Jorge Gastó Corderch (Chile), Dr. Gilbert H. Wise (United States of America), Dr. Luis Perpère (France), Dr. Héctor Campos López (Mexico), Dr. Raúl Prieto Busto (Paraguay), Dr. Teodorico Terry Elejalde (Peru), and Dr. Miguel A. Corniell (Dominican Republic).

The fifth session, held on 19 April, dealt with Agenda Item 9, "Health and Economic Importance of Cysticercosis to the Countries." Dr. Abdussalam, Chief of the WHO Veterinary Public Health Section, presented the document "The Problem of Taeniasis-Cysticercosis." Pointing to the high prevalence of this zoonosis in man and in animals, as well as the economic losses that it causes for many exporting countries, he emphasized the need to harmonize policies for human and animal health with those for agricultural development in order to permit the close collaboration necessary among the agencies concerned in the Ministries of Health, Agriculture, and Education. He then went on to refer to the technical control measures that may be used, emphasizing the importance of health education for workers in the field and in the meat industry; detection and treatment of tenia carriers; improvement of rural sanitation, including range management; and the proper inspection of meats to be consumed.

The next paper was that of Dr. Hugo Schenone, Director of the Department of Microbiology and Parasitology in the School of Medicine of the University of Chile, "Cysticercosis as a Public Health and Animal Health Problem." In it, the author discussed the risk of human auto-infection with larval forms of the tenias, leading to cysticercosis. Conservative estimates set the number of people in the world infected by Taenia solium at 2.5 million. Central nervous system involvement, for which the only possible treatment is surgery, is found in 74% of the cases of human cysticercosis. Neurocysticercosis in man represents a tremendous economic burden: US$2,000 per patient. The disease is known to exist in 16 countries of Latin America, and it may possibly exist in the others as well. Over all, it is estimated

that some 300,000 people in the Region are affected by neurocysticercosis. In swine, the disease produces losses amounting to approximately $67 million in Latin America.

Dr. E. J. L. Soulsby of the Department of Pathobiology, School of Veterinary Medicine, University of Pennsylvania, presented his paper "Taeniasis and Cysticercosis: The Problem in the Old World," in which he referred to the widespread occurrence of these diseases in Africa and Europe, mentioning that T. saginata and bovine cysticercosis is more prevalent in Europe and that T. solium and porcine cysticercosis is declining as a result of improved environmental sanitation. Better immunodiagnostic techniques in animals and in man are needed, and research on immunization should also be continued. Studies are currently being conducted on drugs capable of destroying the tenia eggs in the intestine, thus avoiding their introduction through the mucosa.

Next, Dr. L. W. Dewhirst, of the Department of Veterinary Science of the University of Arizona, presented his study on "Parasitological and Economic Aspects of Cysticercosis in the Americas," in which he stressed the need for a multidisciplinary focus in order to solve the problem. He cited the epidemiologic factors involved in the appearance of the parasitosis in bovine feed lots and the economic losses caused by the infection in these establishments. The risks are so great, he said, that insurance companies will no longer cover such operations. Identification of the human tenia carriers in these places so that they may be treated is highly important. Meat inspection does not detect all the cases of localized cysticerci, which allows continuation of a serious public health hazard. Another subject that needs to be studied is the time that tenia eggs can remain active in the pastures, drains, and other likely places.

Discussion of the papers was then begun. The Representative of Costa Rica requested further clarification on the question of veterinary inspection of food-producing animals. In reply, the panelists explained that the cysticerci do not show a preference for any particular site, so that earlier thinking in this regard has now been rejected. The Representative of France mentioned the situation of bovine cysticercosis in his country, which is principally an economic problem. With regard to the apparent rise in bovine cysticercosis in Europe, he believes that what there is in reality is improved knowledge and more efficient diagnosis.

Dr. Abdussalam said that although it is true that detection methods have improved, there are also slaughterhouse statistics showing that the problem has increased, provoked in many cases by greater environmental contamination. The Representative of Nicaragua expressed thanks for the opportunity provided by inclusion of this topic on the agenda to discuss such important matters, following which he asked about the possibility of wildlife reservoirs. Dr. Dewhirst replied that reindeer and antelope may possibly be

intermediate hosts of T. saginata, but that no definitive conclusions have been reached in this regard. As for T. solium, man is the only known host. However, monkeys can have cysticercosis similar to the CNS form in man, and the dog can also be infected with the disease. Dr. Schenone reported that cysticerci had been found in wild boars. The Representative of Argentina asked how long immunity lasts in animals, and Dr. Soulsby answered that there are two kinds of immunity, one at the intestinal level and the other that occurs when the cysticercus becomes localized in the muscle, which varies with each case.

The Representative of Honduras presented a draft resolution on the subject. Several of the representatives proposed that PAHO formulate recommended standards governing the methods to be followed in the surveys mentioned in the draft resolution. In reply to a question from the Representative of Trinidad and Tobago on control procedures for imported animals, Dr. Soulsby stated that there is no diagnostic method that permits detection of cysticercosis in live animals; the only possibility exists at slaughter. Put to the vote, the draft resolution was approved unanimously.

The Representative of Guyana then presented a report on the proposal for a Caribbean Regional Center for the Education and Training of Animal Health Assistants, which would be established in Guyana with financial support from the UNDP and other agencies. The UNDP observer, Dr. Frank Vandemaels, said that the proposal appeared to be suitable for the Caribbean area and his agency would be prepared to consider a request to support the Center, which should be formulated in keeping with certain requirements, which he then listed.

The Representative of Jamaica endorsed the project, stressing the need for register under the law that will give them status with the public and at the same time help to assure protection for the livestock raisers and the veterinary profession, and presented a draft resolution. The Representative of Bolivia said that his country had not had a very fortunate experience with the use of animal health assistants, but the Representative of Cuba reported that in his country the training of more than 6,000 such personnel to work in human and animal health activities has proved to be very successful. The Representatives of Costa Rica, Dominican Republic, Panama, Paraguay, and the United States of America expressed themselves in favor of programs for the training of animal health assistants. The draft resolution was approved unanimously.

Under the chairmanship of Dr. Osvaldo Luján Ibarra, the sixth plenary session began with the presentation of papers by the panel on "Training of Personnel in Meat Inspection and Protection and in the Improvement of the Infrastructure of Veterinary Services in Slaughterhouses and Processing Plants."

Dr. M. A. Simmons, Director, Meat and Poultry Inspection Program, Training Staff, Animal and Plant Health Inspection Service, U.S. Department

of Agriculture, presented a paper on "Preparation of Professional and Technical Personnel in Meat Inspection and Protection." He stressed the importance of the problem for health and its effect on the supply of protein-rich food, as well as the need to train manpower for the corresponding programs. This question was considered at a seminar convened recently by PAHO/WHO, where pertinent recommendations were formulated, especially with regard to having the schools of veterinary medicine fulfill this mission, with the Ministries of Agriculture providing the necessary support. Dr. Simmons indicated that in personnel training the policies, requirements, and customs of each country should be borne in mind, remembering that the problem cannot be solved simply by sending professionals abroad for training. As far as costs are concerned, it is important to reduce them by the use of regional centers supported by the countries and assisted by organizations such as PAHO/WHO.

The second document, entitled "Organization and Operation of Veterinary Services in Slaughterhouses and Processing Plants," was presented by Dr. P. Mucciolo, who pointed out that human health is one of the primary objectives of these programs. He underscored how important it is for professionals in charge of inspection to also have skills in meat technology, which can only be acquired at schools of veterinary medicine. Pertinent legislation should be constantly updated so that it is in line with the internal situation in each country and the needs of importers. In reviewing some of the requirements for inspection, he indicated that it should be a full-time operation and cover all viscera and carcasses, as well as environmental hygiene, with routine work assigned to nonprofessional staff so that the supervisory functions can be handled by professionals. He urged that clandestine slaughterhouses be eliminated and small establishments be replaced by regional slaughterhouses in order to lower inspection costs and improve meat supply services.

Dr. E. A. Schilf of the U.S. Department of Agriculture Veterinary Services discussed the topic "Meat Inspection Service as an Element of Epidemiologic Surveillance and a Component of Animal Disease Control Programs." He underlined the advantages of using slaughterhouses for identifying problem areas in control programs for tuberculosis, brucellosis, and other zoonoses. To this end, adequate identification of animals on ranges and in markets is essential.

Dr. K. Gerigk, Director, Federal Health Office of the Federal Republic of Germany, then presented his paper, "International Processes and Standards for Inspection, Protection and Classification of Meat: Codex Alimentarius." The speaker indicated that sanitation requirements could cause difficulties for both exporting and importing countries, and that consequently special committees should be set up to prepare standard procedures which would be submitted to the countries for their consideration. A problem with the Code is that difficulties might arise with changes in meat processing technology.

Accordingly, a clause has been included allowing for the introduction of modifications required by technological advances. With regard to slaughterhouse processes, all requirements and facilities needed to ensure good meat hygiene and avoid contamination, from slaughter until the time the meat is ready for sale, were emphasized.

Debate being opened on the panel, the Representative of the Dominican Republic referred to the problems which occur in the serological diagnosis of swine brucellosis. Dr. Schilf indicated that the card test is used in swine in the United States of America with satisfactory results. The Representative of Jamaica stressed that currently brucellosis surveillance in his country is done through slaughterhouses, using a trace-back system to locate affected herds. The Representative of Paraguay mentioned the regulation on meat hygiene which was recently approved by his Government. The Representative of El Salvador submitted a draft resolution on services for veterinary inspection at slaughterhouses, packing plants, and other establishments, which was approved unanimously, and the Representative from Brazil proposed one on international standards for meat inspection, likewise approved unanimously. The Representative of Venezuela asked the panel how many veterinarians and assistants were needed in slaughterhouses handling 100 to 500 head a day, and Dr. Mucciolo and Dr. Simmons replied that it is difficult to quote an exact figure because there are several factors to consider, such as the type and size of the slaughterhouse; there are, however, publications with figures that can be used as reference.

The Secretary presented a draft resolution on behalf of the Representative of Argentina on the utilization of meat inspection services in the collection of data, which was approved with an amendment suggested by the Representative of the Dominican Republic.

Next, Agenda Item 11 began with the report of Dr. R. Goić of the Pan American Foot-and-Mouth Disease Center on epidemiologic surveillance of foot-and-mouth and other vesicular diseases. He underlined important aspects such as: regular transmittal of routine data from some countries to the Center, shortening of the period between reporting and notification to the Center, and timely communication of epidemic outbreaks--a vital aspect of surveillance which has been satisfactory in the area of Latin America free of the disease but not in the area where it is still endemic. Experience has shown that in order to improve this situation it will be indispensable to set up a mechanism for the collection of statistical data with field units covering the entire work area and directed by a central unit. To this end, PAHO assists in the development of training programs and furnishes technical advice on animal health statistics.

Dr. Rubén Lombardo of the Pan American Zoonoses Center spoke on "Epidemiological Surveillance of Rabies and Equine Encephalitis." He stressed the high rate of canine rabies in cities and mentioned the successes achieved through control measures in Lima, Panama City, and Cali, Colombia. In other

cities these activities are currently in the consolidation phase, and they are in the attack phase in El Salvador, Brazil, Guatemala, and Honduras. He also touched on the matter of bovine rabies transmitted by vampire bats. As regards surveillance of equine encephalitis, he emphasized the importance of coordination between the health and agriculture sectors and also mentioned certain outbreaks of this disease which had occurred in the Hemisphere.

Dr. Ramón Rodríguez Toro, Director of the Center, indicated that 98% of human and canine rabies cases in the Region had been diagnosed in Latin America. There is a serious lag in the production of rabies vaccine: whereas at present the annual level is 7 million doses, the real need is for 14 million. He stressed the importance of initiating rabies control programs with the view to creating the demand for and promoting the increase of vaccine production.

During the ensuing discussion the Representative of Brazil submitted a draft resolution on the surveillance of vesicular diseases, which was unanimously approved. The Representative of Cuba presented another one on the surveillance of equine encephalitis, which was likewise approved.

The Representative of Mexico requested that PAHO add another topic at the meeting scheduled for August 1974 on equine encephalitis vaccines, which would cover epidemiology and the latest research. The secretariat explained that it would not be feasible to do so, since the meeting in question had been called on an emergency basis by the countries that produce VEE vaccine, in addition to which there were budgetary limitations.

The Representatives of Costa Rica, Guatemala, Nicaragua, and Trinidad and Tobago, each submitted draft resolutions on the papers presented, all of which were unanimously approved.

In the name of the countries of Central America and Panama, the Representative of Nicaragua then submitted a draft resolution on training in health education and mass communication for control and eradication of the zoonoses and prevention of foot-and-mouth disease in his area, the text of which took into account the recommendations of the seminar on this subject held in Guatemala. Seconding the resolution, the Representative of the United States of America called attention to the urgent need to training personnel for programs to control the zoonoses and prevent foot-and-mouth disease. Put to the vote, the resolution was approved unanimously.

The representatives were then asked to propose topics for the agenda of the next meeting. The Representative of Mexico suggested the subjects "Role of the Tick in Livestock Development in the Countries of the Americas," and "Advisable Exploitation of Smaller Species for Food Purposes in the Americas." The Representative of Jamaica submitted a draft resolution requesting that the subject of leptospirosis also be added to the next meeting's agenda, which was approved. The Representative of Cuba asked that in the

second topic proposed by the Mexican Representative the subject of laying hens and fattened chickens be included, an addition to which the Representative of Mexico agreed. The Representative of Costa Rica proposed the subject "Status of the Teaching of Veterinary Medicine in the Americas." It was agreed that all the topics suggested would be taken into account when the agenda for the next meeting is prepared.

The Representative of Venezuela submitted a draft resolution on the sites of the forthcoming meetings, which was unanimously approved. The Representative of Guatemala expressed gratification that his country had been selected as the host for the meeting to be held in 1975 and thanked the delegates for accepting the invitation.

Finally, the Representative of the United States of America submitted a draft resolution in which appreciation was expressed to the Government of Trinidad and Tobago for the splendid organization of the present meeting and for the many facilities that had been provided, which resolution was also unanimously approved.

The closing session, held on 20 April, was chaired by Hon. Lionel M. Robinson.

The Secretary presented the final report for consideration by the meeting and it was approved unanimously.

Dr. Pedro N. Acha, Chief of the PAHO Department of Human and Animal Health extended thanks in the name of the Director of the Pan American Sanitary Bureau to the representatives for their attendance and for the fruitful work accomplished in the course of the deliberations and to the Government of Trinidad and Tobago for its kind and helpful support to the meeting.

Hon. Lionel M. Robinson then expressed appreciation to the Pan American Health Organization for holding the meeting in his country and to Dr. Acha and the personnel of the secretariat for their cooperative efforts. In closing he manifested his wishes for progress and success in the countries' activities in the field of animal health.

RESOLUTION I

PROPOSED PROGRAM AND BUDGET ESTIMATES OF THE PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER FOR 1975 AND PROVISIONAL DRAFT FOR 1976

THE VII INTER-AMERICAN MEETING,

Recognizing the importance of the foot-and-mouth disease problem for nutrition, livestock development, and economic progress in the countries of the Americas;

Taking cognizance of the work that the Pan American Foot-and-Mouth Disease Center has done toward promoting, executing, and coordinating programs for the prevention and control of this disease;

Taking into account Resolution IV of the VI Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control on the proposed program and budget estimates of the Center for 1974 and the provisional draft for 1975; and

Having carefully examined the proposed program and budget estimates for 1975 and the provisional draft for 1976 (Document RICAZ7/6),

RESOLVES:

1. To express its full support of the Pan American Foot-and-Mouth Disease Center and the work that it is doing.

2. To reaffirm the need for the Center to continue its activities for the promotion, development, and coordination of programs for the prevention and control of foot-and-mouth disease, together with research and the training of personnel from the countries of the Americas, as called for in the proposed program and budget estimates for 1975 and the provisional draft for 1976.

3. To recognize that the proposed program and budget estimates of the Center provide for activities essential to rendering scientific collaboration and technical advice to the Governments in the planning, execution, and coordination of national and regional programs for the prevention and control of foot-and-mouth disease.

4. To express its appreciation to the Government of Brazil for its unfailing goodwill and its continuing support of the Center's activities.

5. To recommend to the XIX Pan American Sanitary Conference that it give favorable consideration to approval of the proposed program and budget estimates of the Center for 1975, as set forth in Document RICAZ7/6.

6. To recognize that the provisional draft for 1976 contains necessary and well-planned activities that will be submitted in 1975 for consideration by the VIII Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control and by the Directing Council of the Pan American Health Organization.

(Approved at the first plenary session,
17 April 1974)

RESOLUTION II

PROPOSED PROGRAM AND BUDGET ESTIMATES OF THE PAN AMERICAN ZOONOSES CENTER FOR 1975 AND PROVISIONAL DRAFT FOR 1976

THE VII INTER-AMERICAN MEETING,

Conscious of the grave threat that the zoonoses represent for human and animal health in the countries of the Americas, as well as their serious effects on economic growth and the development of the livestock industry;

Recognizing the essential role that the Pan American Zoonoses Center has been carrying out in providing the Governments with services in the areas of education, research, and technical advice on the control and prevention of the zoonoses;

Taking into account Resolution V of the VI Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control on the proposed program and budget estimates of the Pan American Zoonoses Center for 1974 and the provisional draft for 1975; and

Having carefully studied the proposed program and budget estimates for 1975 and the provisional draft for 1976 (Document RICAZ7/3),

RESOLVES:

1. To express its satisfaction with respect to the work that the Pan American Zoonoses Center is doing in behalf of the countries.

2. To reaffirm the need for the Center to continue and expand its activities in order to provide the Governments with the services in research, training, and technical assistance that are indispensable for planning, organizing, and carrying out national and regional programs for control of the zoonoses.

3. To express its appreciation once again to the Government of Argentina and to the United Nations Development Program for their contributions to the operation and financing of the Center.

4. To recommend to the XIX Pan American Sanitary Conference that it approve the proposed program and budget estimates of the Center for 1975, as presented in Document RICAZ7/3.

5. To recognize that the provisional draft for 1976 reflects a suitable balance among the areas of technical assistance, training, and research (to be conducted in behalf of the countries), and that this provisional draft is to be submitted for consideration by the VIII Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control and by the Executive Committee and the Directing Council of the Pan American Health Organization.

(Approved at the first plenary session,
17 April 1974)

RESOLUTION III

SOUTH AMERICAN COMMISSION ON FOOT-AND-MOUTH DISEASE

THE VII INTER-AMERICAN MEETING,

Having noted the report of the Second Meeting of the South American Commission on Foot-and-Mouth Disease;

Having been favorably impressed by the achievements of the Commission in promoting and coordinating the campaign against this disease in South America; and

Recognizing the need for the Commission to continue and consolidate its work,

RESOLVES:

1. To endorse the resolutions of the Second Meeting of the South American Commission on Foot-and-Mouth Disease and urge that the Member Countries of the Commission and the Pan American Health Organization furnish the necessary support in order that they may be put into practice.

2. To request the Commission to give priority to activities aimed at more fully establishing the foot-and-mouth disease campaign in the border areas of the respective countries.

3. To recommend to the Governments that they contribute the financial support needed by the Research Committee of the Commission.

4. To thank the Pan American Health Organization for the cooperation it has been giving to the Commission, and to request that it render all possible assistance in the coordination of the countries' programs being conducted in border areas and in the formation of a continental program for research on foot-and-mouth disease.

(Approved at the fourth plenary session,
18 April 1974)

RESOLUTION IV

VOTE OF THANKS TO THE SCIENTIFIC ADVISORY COMMITTEE OF THE PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

THE VII INTER-AMERICAN MEETING,

Having appreciated, in all its worth, the report of the Scientific Advisory Committee of the Pan American Foot-and-Mouth Disease Center on the work accomplished by that institution during 1972 and 1973 (Document RICAZ7/2);

Considering the importance of the research activities being conducted by the Center toward gaining a better understanding and control of this disease; and

Recognizing the distinguished scientific qualifications of the members of the Scientific Advisory Committee,

RESOLVES:

1. To express its appreciation of the Scientific Advisory Committee's broad and profound analysis of the activities carried out by the Pan American Foot-and-Mouth Disease Center.

2. To call attention to the Committee's recommendations in regard to the orientation that should be given to the scientific research and technical assistance to be undertaken by the Center on problems related to this disease.

3. To extend its thanks to the Scientific Advisory Committee for the work it has done and to support its recommendations.

(Approved at the fourth plenary session,
18 April 1974)

RESOLUTION V

GUIDE FOR THE EVALUATION OF FOOT-AND-MOUTH DISEASE CONTROL PROGRAMS

THE VII INTER-AMERICAN MEETING,

Having considered the Guide for the Evaluation of Foot-and-Mouth Disease Control Programs prepared by the Advisory Study Group convened by the Pan American Health Organization in Washington, D.C., on 11 and 12 February 1974;

Recognizing that the Guide constitutes a valuable tool for the foot-and-mouth disease control activities being carried out by the countries of the Americas; and

Conscious of the urgent need to include evaluation as an integral resource, together with programming and execution, in the campaign against foot-and-mouth disease,

RESOLVES:

1. To recommend to the countries that they adopt the Guide for the Evaluation of Foot-and-Mouth Disease Control Programs.

2. To urge that the countries include evaluation as a continuing activity of their services against foot-and-mouth disease, particularly in relation to the administrative conduct of the programs.

3. To request the Pan American Health Organization to implement the recommendations approved by the Advisory Study Group which prepared the Guide, especially in regard to the conduct of research on the economic losses caused by foot-and-mouth disease.

(Approved at the fourth plenary session,
18 April 1974)

RESOLUTION VI

CONTRIBUTION OF THE INTER-AMERICAN DEVELOPMENT BANK TO ANIMAL HEALTH PROGRAMS

THE VII INTER-AMERICAN MEETING,

Recognizing the valuable financial support that has been given by the Inter-American Development Bank for programs to control foot-and-mouth disease and the development of animal health activities in the Americas;

Having noted the results achieved by the countries in their campaigns against the disease, conducted in collaboration with the Bank, as well as the need to continue and expand activities aimed at consolidating these programs; and

Having studied the report and the recommendations of the Advisory Study Group on the Guide for the Evaluation of Foot-and-Mouth Disease Control Programs, in particular those relative to the need to carry out studies in the field to determine more precisely the extent of economic losses being caused by this disease,

RESOLVES:

1. To thank the Inter-American Development Bank for the financial assistance it is providing to the countries in the campaign against foot-and-mouth disease, in zoonoses control programs, and in the development of animal health activities.

2. To recommend to the Bank that it give favorable consideration to requests from the countries for the continuation and intensification of foot-and-mouth disease control programs, including the research needed to improve the planning, execution, and evaluation.

3. To ask that the Bank furnish financial assistance for the implementation of field studies designed to determine more precisely the extent of economic losses being caused by foot-and-mouth disease.

4. To request that the Pan American Health Organization assume responsibility for the programming and execution of this research in collaboration with the countries and with the Inter-American Development Bank.

(Approved at the fourth plenary session, 18 April 1974)

RESOLUTION VII

VOTE OF SUPPORT FOR THE PAN AMERICAN ZOONOSES CENTER

THE VII INTER-AMERICAN MEETING,

Considering that the Pan American Zoonoses Center maintains close and continuing cooperative relations with the countries of Central America and Panama, that it renders them technical advisory assistance, and that it serves as a reference center for all the animal health programs, especially those concerned with control of the zoonoses; and

Taking into account that the Center is in the process of implementing new programs in this field which will include advisory services, personnel training, and assistance in obtaining cooperation from international lending institutions in order to establish and strengthen national and regional activities aimed at combating the principal zoonoses,

RESOLVES:

1. To express its appreciation to the Pan American Zoonoses Center for its great interest and continuing concern with respect to the animal health problems of Central America and Panama.

2. To request not only that this cooperation be continued but that it be increased in order to achieve better results and maximum benefits in the programs.

(Approved at the fourth plenary session,
18 April 1974)

RESOLUTION VIII

ANIMAL NUTRITION

THE VII INTER-AMERICAN MEETING,

Having considered the studies presented on processes for the improvement of animal nutrition in the tropics (Documents RICAZ7/11, 12, 14, and 15);

Bearing in mind the need to apply the most advanced technology if livestock production is to be significantly increased in order to make up for the shortage of animal protein in the developing countries;

Considering that proper feeding of animals is essential for increased production and productivity of the ranges;

Recognizing that most of the countries, especially those in the tropics, have large quantities of agricultural and industrial by-products available that cannot be used for human consumption but which can be applied to the development of efficient systems for raising and fattening animals; and

Taking into account the need to expand research in order to improve application of the most suitable techniques for animal feeding and nutrition in accordance with the resources and the conditions existing in the different areas of the Americas,

RESOLVES:

1. To recommend to those Governments that have not yet done so that they establish institutes for animal science research in order to conduct the necessary studies and develop suitable technologies for the improvement of livestock feeding through the massive use of agricultural and industrial by-products.

2. To request these animal science research institutes to disseminate the results of their studies through scientific publications or other media in order to stimulate interinstitutional collaboration, academic excellence, and the application of available knowledge to the particular ecologic conditions in the countries of Latin America.

3. To urge that the Governments carry out information programs on animal feeding technology based on improved utilization of the feeds available in each country that cannot serve for human consumption.

4. To recommend to the Governments that they intensify their programs for the training of professional and auxiliary personnel in this field with the participation of the universities.

5. To request that the appropriate international agencies collaborate with the countries in carrying out the aforementioned activities with a view to improving animal nutrition.

(Approved at the fourth plenary session,
18 April 1974)

RESOLUTION IX

CYSTICERCOSIS AND TAENIASIS

THE VII INTER-AMERICAN MEETING,

Bearing in mind the seriousness of cysticercosis as a public health problem and a cause of economic losses in the countries of the Americas, and the considerably greater importance of both cysticercosis and taeniasis in man than is generally believed;

Being aware that these parasitic diseases constitute a significant hinderance to the full development of the meat industry;

Recognizing that current slaughterhouse inspection practices do not produce enough of the information that is needed on this subject, and that the absence of detection systems contributes to the spread of infection to man; and

Wishing to emphasize that basic information leading to understanding the epidemiology, diagnosis, immunology, and control of these diseases is seriously deficient,

RESOLVES:

1. To recommend to the countries of the Region that they carry out careful sample surveys to determine the extent to which these cestodes are present in man and in meat animals, including studies of the epidemiologic factors involved in their transmission.

2. To recommend that, on the basis of the results from the foregoing studies of epidemiologic factors, intensified control measures be undertaken, with particular emphasis on the health education of persons in rural areas working in cattle and swine husbandry and of the meat-eating public in general, and that cooperation between the public health and animal health services in this matter be strengthened.

3. To recommend to the Governments that efficient veterinary inspection of meat in all slaughterhouses be instituted, and that standardized procedures be supported by corresponding legislation based on present-day knowledge.

4. To recommend that PAHO/WHO and FAO render assistance to the countries in these efforts, with special reference to the training of workers and to the intensification and coordination of research in order to fill in the serious gaps still existing in the understanding of these widespread infections.

(Approved at the fifth plenary session,
19 April 1974)

RESOLUTION X

CARIBBEAN REGIONAL CENTER FOR THE EDUCATION AND TRAINING OF ANIMAL HEALTH ASSISTANTS

THE VII INTER-AMERICAN MEETING,

Considering the importance of having adequate human resources in the fields of livestock production and animal health, and of implementing the pertinent resolutions adopted by the Ministers of Agriculture in the III, IV, V, and VI Inter-American Meetings on Foot-and-Mouth Disease and Zoonoses Control;

Recognizing the initiative taken by the Governments of the Caribbean Community and the assistance provided by the United Nations Development Program and the Pan American Health Organization in organizing the Intra-Caribbean Conference on the Education and Training of Animal Health Assistants, held at Kingston, Jamaica, in February 1974; and

Bearing in mind the decision of the Conference to establish a Caribbean Regional Center for the Education and Training of Animal Health Assistants,

RESOLVES:

1. To commend the Governments of the Caribbean Community for their decisiveness in establishing the Caribbean Regional Center for the Education and Training of Animal Health Assistants, and the Government of Guyana in particular for assuming the responsibilities of operating the Center.

2. To support the request of the Governments of the Caribbean countries to the United Nations Development Program for assistance in the development of this program, and to recommend that this request be given the highest possible priority and maximum aid.

3. To ask the Pan American Health Organization to continue with its technical guidance and assistance in the planning and development of this Center, which will unquestionably contribute to the improvement of animal health services in the countries.

4. To recommend that the Inter-American Development Bank and other international lending agencies furnish maximum financial support for the establishment of the Center and the other vital training activities in this field.

(Approved at the fifth plenary session,
19 April 1974)

RESOLUTION XI

VETERINARY INSPECTION SERVICES IN SLAUGHTERHOUSES, PROCESSING PLANTS, AND OTHER ESTABLISHMENTS

THE VII INTER-AMERICAN MEETING,

Considering that the veterinary inspection of slaughterhouses, processing plants, and other establishments is of great importance for protecting the health of consumers and at the same time indispensable for facilitating international trade in raw and processed food materials;

Recognizing that this inspection should reflect application of the latest modern technology to the meat industry, the hygiene and sanitation standards of the consumer market, and the requirements of animal disease control programs;

Considering that the Advisory Study Group on Teaching of Meat Hygiene in Latin America, convened by the Pan American Health Organization at Buenos Aires in December 1973, recognized the urgent need to intensify and update the teaching of this specialized subject; and

Bearing in mind the need for the veterinary inspection services to be supported by control laboratories that are suitably equipped and staffed with the necessary number of professionals and properly trained auxiliaries,

RESOLVES:

1. To recommend to the Governments that they intensify their efforts to provide slaughterhouses and processing plants with adequate veterinary inspection services.

2. To recommend to the Governments that they organize control laboratories that are properly equipped in accordance with up-to-date technological requirements and are sufficiently staffed.

3. To recommend to the Governments that they make available to the schools of veterinary medicine such resources as may be needed in order to amplify and update the teaching of meat hygiene.

4. To urge that the Governments organize permanent programs for the training of professional and auxiliary personnel in all aspects of meat hygiene and technology.

5. To request the Pan American Health Organization to consider the advantages of establishing regional centers to train the personnel needed for the meat hygiene and technical services.

(Approved at the sixth plenary session, 19 April 1974)

RESOLUTION XII

INTERNATIONAL STANDARDS FOR MEAT INSPECTION AND HYGIENE

THE VII INTER-AMERICAN MEETING,

Bearing in mind the importance that the international meat trade has for the countries, and the need for international conformity on standards of hygiene and sanitation to protect the consumer and promote this trade;

Recognizing that such international standards should be capable of being applied in actual practice, and that the importing and exporting countries should make an effort to uniformize the different criteria currently in effect regarding installations, equipment, and inspection and sanitation in slaughterhouses, processing plants, and other establishments; and

Considering that the joint FAO/WHO Food Standards Program of the Codex Alimentarius has been specifically entrusted with the preparation of such international standards,

RESOLVES:

1. To express to the international agencies responsible for the preparation of the Codex Alimentarius, the interest of the countries of the Americas in establishing international standards for meat inspection and hygiene that will meet the needs of both the importing and exporting countries while at the same time avoiding measures that would be difficult to apply and might therefore inhibit the international meat trade.

2. To point out to the Governments the advantages to be achieved from their representation at the meetings for establishing international standards on meat inspection and hygiene by professionals from the specific technical services.

RESOLUTION XIII

USE OF MEAT INSPECTION SERVICES IN DATA COLLECTION

THE VII INTER-AMERICAN MEETING,

Considering that in the programs for prevention and control of animal diseases in Latin America emphasis is placed on the urgent need to improve the collection, availability, and quality of data;

Bearing in mind that the inspection of meat in slaughterhouses and packing plants carried out either by professional veterinarians or under their supervision can provide valuable information in regard to disease prevention that could be used in setting program priorities, and that full advantage of this resource is not currently being taken; and

Considering that the gathering of this type of information through the veterinary inspection services in slaughterhouses and packing plants is in some cases faster and less costly than through field surveys,

RESOLVES:

1. To recommend to the Governments that they make use of the meat inspection services in slaughterhouses and packing plants as part of an epidemiologic surveillance system so as thus to take advantage of this source of information, and that they take the necessary steps to improve the collection, availability, and analysis of such data.

2. To recommend to the Governments that they undertake the action necessary to obtain data on bovine tuberculosis in regard to its prevalence and the location of disease foci.

3. To request that the Pan American Health Organization expand its collaboration with the Governments with a view to improving the collection, availability, and distribution of data.

(Approved at the sixth plenary session,
19 April 1974)

RESOLUTION XIV

EPIDEMIOLOGIC SURVEILLANCE OF VESICULAR DISEASES

THE VII INTER-AMERICAN MEETING,

Having reviewed the report on the program for the epidemiologic surveillance of foot-and-mouth disease (Document RICAZ7/21);

Noting with satisfaction the positive results from the experimental phase of the surveillance system for vesicular diseases approved in the First Meeting of the South American Commission on Foot-and-Mouth Disease and presented at the Regional Seminar on Epidemiologic Surveillance Systems for Communicable Diseases and Zoonoses held at Rio de Janeiro in December 1973; and

Recognizing that timely information on the occurrence of outbreaks of vesicular diseases in animals is not yet available at the continental level, and that this knowledge is essential to the proper development of programs for the prevention, control, and eradication of foot-and-mouth disease,

RESOLVES:

1. To recommend to the countries of the Americas affected by foot-and-mouth disease that they adopt the epidemiologic surveillance system for vesicular diseases.

2. To urge the countries of the Americas that are free of foot-and-mouth disease but affected by vesicular stomatitis to also adhere to the system.

3. To recommend to the countries that they give due priority to the establishment and development of the epidemiologic and statistical information units that are indispensable for the implementation of epidemiologic surveillance.

4. To express its appreciation to the Pan American Health Organization for the work it has been doing in the provision of training in statistics and epidemiology, and to request that it continue this support.

(Approved at the sixth plenary session, 19 April 1974)

RESOLUTION XV

EPIDEMIOLOGIC SURVEILLANCE OF EQUINE ENCEPHALITIS

THE VII INTER-AMERICAN MEETING,

Having noted with satisfaction the report on the surveillance of equine encephalitis presented by the Pan American Zoonoses Center (RICAZ7/17); and

Considering that the monthly bulletins that have been published since January 1972 have made it possible to accumulate valuable knowledge on the activity of these diseases in the Americas and to call special attention to the production of vaccines,

RESOLVES:

1. To request the Pan American Health Organization, through the Pan American Zoonoses Center, to continue with its system for the eipdemiologic surveillance of equine encephalitis in the Americas.

2. To ask that the Governments establish the technical methods that will permit an exchange of information on equine encephalitis among the animal health and public health agencies in order to have the most complete possible data for implementing the epidemiologic surveillance of equine encephalitis in the countries.

3. To recommend to the Governments that they lend their support to the International Conference on Equine Encephalitis Vaccines which the Pan American Health Organization plans to hold in Maracay, Venezuela, in August 1974.

(Approved at the sixth plenary session,
19 April 1974)

RESOLUTION XVI

PUBLICATION OF INFORMATION BULLETINS

THE VII INTER-AMERICAN MEETING,

Considering that a central service does not exist in the Americas for providing the countries with periodic information on brucellosis, hydatidosis, leptospirosis, tuberculosis, and food intoxications and infections;

Recognizing that this kind of information is useful for the adoption of measures designed to prevent these diseases or diminish their economic and social impact; and

Bearing in mind that the Pan American Health Organization, through the Pan American Zoonoses Center, maintains an efficient system for the epidemiologic surveillance of rabies and equine encephalitis, and that in regard to the diseases mentioned above it would be desirable to take advantage of this experience,

RESOLVES:

To request the Pan American Health Organization, through the Pan American Zoonoses Center, to publish annual information bulletins that would contain summaries of the epidemiologic status of brucellosis, hydatidosis, leptospirosis, tuberculosis, and food intoxications and infections in the Americas.

(Approved at the sixth plenary session,
19 April 1974)

RESOLUTION XVII

EPIDEMIOLOGIC SURVEILLANCE OF RABIES

THE VII INTER-AMERICAN MEETING,

Having noted with satisfaction the report of the Pan American Zoonoses Center on the epidemiologic surveillance of rabies in the Americas (Document RICAZ7/13); and

Recognizing that since July 1969 epidemiologic reports have been published regularly, which have contributed to greater knowledge of the status of this disease,

RESOLVES:

1. To commend the Pan American Zoonoses Center for the service it has been performing in the epidemiologic surveillance of rabies in the Americas.

2. To recommend to the countries that they continue to furnish the information needed for this service within the time periods set.

3. To request the Pan American Zoonoses Center to continue its rabies surveillance service in view of its importance to the knowledge of disease trends, the evaluation of ongoing programs, the promotion of liaison among the activities of the different countries, and the attainment of the goals set forth in the Ten-year Health Plan for the Americas.

4. To stress to the countries the importance of their submitting the necessary information to the Pan American Zoonoses Center so that it may be included in the regular bulletins containing the corresponding official data.

(Approved at the sixth plenary session,
19 April 1974)

RESOLUTION XVIII

PRODUCTION OF RABIES VACCINE

THE VII INTER-AMERICAN MEETING,

Having considered the report presented by the Pan American Zoonoses Center on the production of rabies vaccine for animal use in Latin America (Document RICAZ7/18), prepared in fulfillment of Resolution VII of the VI Inter-American Meeting, at the Ministerial Level, on Foot-and-Mouth Disease and Zoonoses Control;

Taking note of the urgent need to produce substantial quantities of rabies vaccine in Latin America in order to assure the due control and eradication of rabies;

Considering that vaccine production should be properly planned, both in the implementation of new rabies control programs and in the expansion of existing ones;

Recognizing that it has been shown in the past that the principal limiting factor in the production of rabies vaccine is the lack of effective programs;

Considering that the official and private laboratories in the countries have the installed capacity that would enable them to increase their production at a reasonable cost if they were provided with adequate incentives and if their activities were coordinated; and

Bearing in mind that it will be necessary to join forces and follow policy firmly in order to achieve the goals that have been set forth in regard to rabies in the Ten-year Health Plan for the Americas,

RESOLVES:

1. To recommend to the Governments that they establish properly planned programs for the control of animal rabies in order to assure the provision and regular distribution of quality-controlled vaccine.

2. To recommend that the necessary measures be adopted so that advantage can be taken of the potential production capability existing in official laboratories, providing them with the resources they need for their regular operation.

3. To recommend that, whenever necessary, the regular supply of vaccine to the rabies control programs be coordinated with private industry.

4. To request the Pan American Health Organization to render all possible support in order to assure the regular supply of rabies vaccine for animal use to the programs, helping to establish regional production laboratories for the benefit of those countries in which it is either not feasible or advisable to undertake local production.

(Approved at the sixth plenary session, 19 April 1974)

RESOLUTION XIX

TRAINING IN HEALTH EDUCATION AND MASS COMMUNICATION FOR CONTROL AND ERADICATION OF THE ZOONOSES AND PREVENTION OF FOOT-AND-MOUTH DISEASE IN CENTRAL AMERICA AND PANAMA

THE VII INTER-AMERICAN MEETING,

Recognizing that the epidemiologic status of the zoonoses in Central America and Panama has not changed in the last five years despite the favorable development of control and eradication programs in these countries in terms of epizootiologic knowledge, surveillance, and the planning of activities, and that the completion of the Pan American Highway through the Darién Gap creates the potential risk of foot-and-mouth disease being introduced into the aforementioned countries, which are now free of the disease;

Bearing in mind that health education and mass communication activities within the programs to combat the zoonoses and prevent foot-and-mouth disease are inadequate, and that the lack of properly trained personnel in these disciplines constitutes a basic limitation to the enlistment of active community participation;

Considering that the Ministers of Agriculture of the Americas have manifested their interest in health education and mass communication programs on various occasions, and that the Ministers of Health stipulated in the Ten-year Health Plan for the Americas that zoonoses control requires, in addition to the technical elements, the direct involvement of the community;

Recognizing the attention given by the Pan American Health Organization and the Inter-American Development Bank to the requests from their Member Countries in sponsoring the Seminar on Information and Community Education Techniques for Foot-and-Mouth Disease Control and Prevention Programs, held in Bogotá in 1973, and the Seminar on the Programming of Mass Communication for Zoonoses Control and Eradication and Foot-and-Mouth Disease Prevention in Central America and Panama, held in Guatemala in April 1974; and

Having noted that in the Guatemala seminar a proposal on training in mass communication for the countries of Central America and Panama was approved by the respective Ministers of Agriculture,

RESOLVES:

1. To express its appreciation to the Pan American Health Organization and the Inter-American Development Bank for their support in conducting the Seminar on Techniques of Information and Community Education for Foot-and-Mouth Disease Control and Prevention Programs and the Seminar on the Programming of Mass Communication for Zoonoses Control and Eradication and Foot-and-Mouth Disease Prevention in Central America and Panama.

2. To request that the Inter-American Development Bank extend financial support to the project for training in mass communication for programs of zoonoses control and eradication and foot-and-mouth disease prevention in Central America and Panama, drawn up and approved at the seminar held in Guatemala in April 1974, to be carried out with technical assistance from the Pan American Health Organization.

3. To recommend to the Governments of the countries of Central America and Panama that they present the project jointly for consideration by these agencies and that they combine their forces to execute it on a regional basis.

(Approved at the sixth plenary session, 19 April 1974)

RESOLUTION XX

IMPORTANCE OF LEPTOSPIROSIS

THE VII INTER-AMERICAN MEETING,

Considering that the information available indicates that leptospirosis is of considerable importance to human health in some countries of the Hemisphere, and that it occurs in different animal species, bearing in mind the economic losses that this situation implies; and

Recognizing that it would be desirable to include on the agenda of the next meeting an analysis of the problem of leptospirosis in the Americas, including its repercussions for the livestock industry and public health, and the possibilities of preventing and controlling this zoonosis,

RESOLVES:

To recommend that on the agenda of the VIII Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control the following topic be included: "Economic and Health Importance of Leptospirosis, and Possibilities for Achieving Effective Control."

(Approved at the sixth plenary session, 19 April 1974)

RESOLUTION XXI

PLACE OF THE NEXT MEETINGS

THE VII INTER-AMERICAN MEETING,

Bearing in mind the growing importance of animal health for the production of foodstuffs in the Americas and, more importantly, for the economic development of the countries; and

Considering that Resolution XIX of the XVII Meeting of the Directing Council of the Pan American Health Organization authorized the Director of the Pan American Sanitary Bureau to convene annually a meeting of the Ministers of Agriculture or their representatives to review the programs of the Pan American Foot-and-Mouth Disease and Zoonoses Centers and to discuss matters of mutual interest,

RESOLVES:

1. To express its satisfaction with the interest shown by the Governments of the Americas in the present meeting, and with the valuable information presented on this occasion.

2. To emphasize once again that it is of the utmost importance that the Governments of the Hemisphere be provided with the opportunity to exchange ideas and experiences at regular intervals in the field of animal health, in furtherance of the health and development of their peoples.

3. To thank the Governments of Guatemala and Venezuela, respectively, for their kind invitations to serve as host for the forthcoming meetings, and to recommend to the Director of the Pan American Sanitary Bureau that he convene the VIII Inter-American Meeting, at the Ministerial Level, on Foot-and-Mouth Disease and Zoonoses Control in Guatemala City in 1975, and the IX Inter-American Meeting in Caracas in 1976.

4. To thank the Director of the Bureau and his staff for their assistance in the organization and conduct of the present meeting.

(Approved at the sixth plenary session,
19 April 1974)

RESOLUTION XXII

VOTE OF THANKS TO THE GOVERNMENT OF TRINIDAD AND TOBAGO

THE VII INTER-AMERICAN MEETING,

Bearing in mind the valuable collaboration rendered by the Government of Trinidad and Tobago, which has helped in large measure to make the present meeting a success, as well as its generous support and active participation in the organization of this event,

RESOLVES:

To express sincere appreciation to the Government of Trinidad and Tobago for its cooperation in the conduct of the VII Inter-American Meeting, at the Ministerial Level, on Foot-and-Mouth Disease and Zoonoses Control.

(Approved at the sixth plenary session, 19 April 1974)

IN WITNESS WHEREOF, the Chairman of the Meeting and the Director of the Pan American Sanitary Bureau, Secretary ex officio, sign the present Final Report in the English and the Spanish languages, both texts being equally authentic.

DONE in Port of Spain, Trinidad and Tobago, this twentieth day of April, nineteen hundred and seventy four. The Secretary shall deposit the original texts in the archives of the Pan American Sanitary Bureau and shall send copies thereof to the Governments of the Organization.

Dr. Lionel M. Robinson
Chairman of the Meeting
Representative of Trinidad and Tobago

for Dr. Abraham Horwitz
Director of the
Pan American Sanitary Bureau
Secretary ex officio of the Meeting

PAN AMERICAN HEALTH ORGANIZATION

CE72/5 (Eng.)
ANNEX III

VII INTER-AMERICAN MEETING AT THE MINISTERIAL LEVEL ON FOOT-AND-MOUTH DISEASE AND ZOONOSES CONTROL

WORLD HEALTH ORGANIZATION

PORT OF SPAIN, TRINIDAD, 17-20 APRIL 1974

Provisional Agenda Item 8

RICAZ7/3 (Eng.)
15 February 1974
ORIGINAL: SPANISH

PROGRAM AND BUDGET OF THE PAN AMERICAN ZOONOSES CENTER FOR 1974, PROPOSED ESTIMATES FOR 1975, AND PROVISIONAL DRAFT FOR 1976

INTRODUCTION

The favorable development of the countries of our Hemisphere can only be achieved by joint action, which is capable of ensuring the highest standards of regional interrelation. The fact that development has always been focussed on the economic sectors should not divert attention from the necessary links between development and health.

The zoonoses, which concern both human health and animal health, are a manifestation of pathological entities which can undermine human health and are factors causing a fundamental economic deterioration of our stockbreeding industry. We realize how the urgent need for increasing the production of animal foods is hampered by barriers attributable to factors directly affecting that industry.

There is awareness of the need to find clear formulae for a strategy to control the zoonoses which cannot be confined or limited to the particular geographical areas of each country, and of the desirability of finding regional models which can embrace multinational areas united in a joint effort of control.

A fundamental trend of a strategy of this kind can be seen in the various resolutions adopted by the international meetings at the ministerial level on foot-and-mouth disease and zoonoses control, and a similar pattern is apparent in the important decisions contained in the Ten-year Health Plan for the Americas adopted at the III Special Meeting of Ministers of Health of the Americas, which was held in Santiago, Chile, in October 1972. The constant goal of all these decisions has been to achieve proper coordination between the programs of the health and agriculture ministries of the various countries.

All the tasks undertaken by the Pan American Health Organization through the Zoonoses Center have this aim. Since 1967 the countries of the American Continent, through our Organization and with the assistance of UNDP funds, have been directing their efforts towards finding the correct machinery for carrying out suitable action to control the zoonoses.

It is realized, for instance, that the ability of various countries to supply themselves with the biologicals needed for control or eradication campaigns is inadequate. All this delays the program prepared for these campaigns or, what may be more serious still, results in a substantial wastage of earlier efforts.

There is no doubt that one of the essential tasks facing our Hemisphere is the starting of combined campaigns by a number of countries to ensure stocks of biologicals. The search for relationships that will establish a proper balance between the production and consumption of vaccines, in programs duly studied and planned in different areas of our

Continent, would speed up the finding of urgent solutions that are still lacking in a large number of our countries. This is particularly true of the control of canine and bovine rabies, encephalomyelitis, foot-and-mouth disease, etcetera.

Similarly, the investigation of the various causal agents of some diseases, such as equine encephalitis, entails the establishment of regional diagnostic laboratories. Countries which are free of this disease could have a flexible and effective aid system to protect their health interests and consequently their human and animal populations.

The Inter-American Development Bank is mobilizing substantial credits to consolidate situations like those described, while strengthening the very bases of all the technical services in different countries. The protection of animal health, which is an essential means of protecting human health, promoting the livestock programs and increasing the production of animal foods, can confidently be expected to develop efficiently, thanks to the combined efforts of the countries and the action of the United Nations Development Programme, the Inter-American Development Bank and the Pan American Health Organization.

As has already been observed, the main preoccupations of the Pan American Zoonoses Center include efforts to consolidate and expand the infrastructure of the animal health services in the countries of the Region. The task of assisting the programming, statistical and epidemiological units and collaborating with countries in the development of programming guidelines belongs to the formulation stage of animal health programs. This contribution has not just been confined to the actual program, but methodologies for preparing and executing the programs have been perfected. The experience acquired jointly with the fellowship holders in the animal health planning courses in field exercises has made it possible to collect considerable information on links between animal health and socioeconomic development. Similarly, this has favored the use of quantitative methods of establishing the evolution and economic significance of the processes.

The statistical services have been given the task of training personnel from the relevant services in the different countries, through the animal health planning course and courses at the national level. Technical guides on statistical methods have also been prepared. The Center has given advice to the information units of the animal health services.

Previous reports have emphasized the need for establishing epidemiologic surveillance systems for the zoonoses. In this connection, the Pan American Zoonoses Center participated in the I Regional Seminar on Epidemiologic Surveillance of Communicable Diseases, including Zoonoses, held in Rio de Janeiro, Brazil, from 2 to 8 December 1973. It contributed correlated studies and technical guides on the surveillance of toxic infections by food, brucellosis, equine encephalitis, hydatidosis and rabies.

We believe that these guides will be of real assistance to American countries. It has already been possible to cooperate with animal health services in some countries with a view to promoting surveillance units.

The Center would also like to point out that it will publish, initially, in the course of 1974, epidemiologic surveillance bulletins for brucellosis, leptospirosis, hydatidosis, toxic infections by food, and tuberculosis.

The linking of these programming, statistical and epidemiologic efforts, in conjunction with the existence of technological advances and research on the special problems of the pathological entities of each country or group of countries, will make an effective contribution to greater progress in the livestock industry throughout the Region.

The various ecological aspects of each country and the greater or lesser technological advances made by countries, in accordance with their own development and their actual needs, mean that it should be possible to have more effective and adequate means of control for certain diseases. The countries that have completed these stages are well placed to cooperate in a whole range of new ways by providing a proportion of their surplus capacities to service control programs required by countries in the Region. In this way the zoonoses control campaigns can achieve favorable and integrated results in our Continent.

The experience required by the Pan American Zoonoses Center shows that efforts should be related to multinational goals, more particularly in the contexts of acute and epizootic diseases.

The contribution made by the Argentine Republic to the great continental effort to discover and study the zoonoses merits special attention. The technical training provided by the Center is becoming more effective thanks to the valuable infrastructure of the animal health and production services. The countries of the Americas are indebted to Argentina as most of them have sent fellowship holders to the Center.

The Pan American Zoonoses Center will cooperate to the fullest in each country's own projects, and it will organize courses or seminars on specific aspects of the zoonoses in order to provide professionals with up-to-date information on the advances made in each of these aspects.

The animal program in one of the states of Brazil (Rio Grande do Sul) will make it possible to use advanced experiences in order to adapt them to procedures and situations specific to each disease. Since this aspect will directly affect the actual livestock situation, the teaching facilities will make it possible to achieve favorable results, especially for the field services of the countries sending fellowship holders to this demonstration sector.

We are confident that an initiative in this direction will be possible with the help of the Ministry of Agriculture and Stockbreeding of the Argentine Republic. Consequently, every fellowship holder attending the Pan American Zoonoses Center will also receive valuable practical experience in one of the world's leading stockbreeding countries.

The multiple efforts now being made in the field of animal health oblige the Center to participate directly in each country by granting technical assistance to certain specific programs. In this way the Center will contribute to the training of human resources in all the different evolutive stages of the animal health context.

The need for coordination of scientific research, so that it will include the study of the various aspects of the zoonotic contexts of the American Continent, is generally recognized. Besides good laboratories for diagnosis and the production of biologicals there is a need for groups of advanced specialists who will study the many unknown factors in the complex stockbreeding system. These groups must be made up entirely of nationals of one country, and further training will enable them to find a lasting solution for the country's specific problems.

The aim of the Pan American Zoonoses Center is precisely to encourage the rapid growth of all this system of resources so as to achieve the fundamental advances that can solve our Continent's urgent food problems and the animal protein requirements of the highly developed countries.

Concise information on the special activities of the Center in 1973 is provided, and the 1974 Program and Budget of the Pan American Zoonoses Center, the Proposed Estimates for 1975, and the Provisional Draft for 1976 are submitted.

FOLLOW UP OF RESOLUTIONS APPROVED AT THE VI INTERAMERICAN MEETING ON FOOT AND MOUTH DISEASE AND OTHER ZOONOSES
Medellin, Colombia, 9-12 April 1973

RESOLUTION VII

PRODUCTION OF RABIES VACCINE FOR ANIMAL USE

This resolution requests PAHO to carry out studies which might indicate which units could function as regional laboratories in the production of rabies vaccine.

It is recommended that the Pan American Zoonoses Center collaborates in these studies.

The Pan American Zoonoses Center prepared a preliminary analysis (see i) which indicated that for 1973 in Latin America, a total of 12 million doses of canine rabies vaccine would be required, in addition to 2 million doses for the rural area. The expected production for 1973 of canine rabies vaccine is likely to reach 7 million doses, about half of what is considered necessary for that year. With regard to production of bovine rabies vaccine, about 7 million doses are presently being produced, even though the bovine population at risk is estimated at 180 million. It is calculated that the annual production of this vaccine should be at least 20 million doses.

A list of six laboratories is provided which it is thought might make up a regional production system (see point i). It is hoped to finish this preliminary phase of the study during 1974 and to complete technical feasibility, administrative and financial aspects of the project. These aspects are considerably well advanced with the Microbiological Institute "Dr. Carlos G. Malbrán" in Buenos Aires, Argentina.

i) Canine rabies in Latin America

Of all human and canine cases of rabies reported in the Americas, 98 % occur in Latin America.

Information collected during the five year period 1968-1972 confirms that rabies is enzootic throughout the whole Latin American region.

The average annual number of cases of rabies (1969-1972) is 258 human cases and 18,664 canine cases. A high endemic rabies situation with regard to both human and canine cases, which show little variation from year to year, and which are also the result of epidemic outbreaks in the countries concerned. This latter situation is explained by the fact that control methods are sporadic, and do not have sufficient geographical or population coverage. It is admitted that the vaccination of at least 70 %

of the total canine population is sufficient to interrupt the transmission of the disease to man and to domestic animals.

ii) Rabies in Latin America

For many years it was claimed that the scarcity of resources to carry out the programs was responsible for the present state of rabies. Nevertheless, during the past three years it was evident that another limiting factor in the control programs was the limited production of rabies vaccine for animal use. It is possible to develop a regional plan for production of canine rabies vaccine at reasonable cost capable of covering the needs for the next five years, based on the availability of external financial assistance. Once the attack phase has been completed, and when the area is free from autochthonous canine cases for two consecutive years, the policy of wholesale vaccination over large areas should be replaced by vaccination in selected areas which continue to be under risk of rabies reintroduction. This measure must be allied with epidemiological surveillance, quarantine, health education and the application of appropriate health regulations. It is recognized that in Latin America, a renewal of the canine population occurs during 3-4 year periods, thus abolishing the mass immunity of the canine population.

Regional producers of canine vaccine provide 3 million doses of vaccine when the needs (of the urban sector alone) are of the order of 12 million doses.

TABLE I

Human and Canine Rabies, by semester, America, 1969-1972

Species	Semester						
	II 69	I 70	II 70	I 71	II 71	I 72	II 72
Human rabies	112	140	152	144	142	104	92
Canine rabies	4,844	10,472	10,898	10,962	11,087	5,654	4,591

Comment : Throughout the above period, Latin America contributed 98 % - 100 % of the cases of human rabies. The contribution of canine rabies is similar. The United States of America and Canada account for 2 % of cases of canine rabies reported in the Americas. If a comparison is made of the average number of cases of canine rabies in the two year period 1970-1971 (21,709) with cases occurring during 1972 (10,245) this reduction can be explained in part by variations in the reporting procedures (Mexico omitted 5,000 clinical cases; under reporting

in Brazil, etc.). In addition, it should be borne in mind that 1972 was a post-epidemic year.

Critical areas for canine rabies : Available information indicated that 80 % of the cases are reported from Colombia, Mexico, Ecuador and Brazil which are considered to be areas of high endemicity with frequent epidemics. Several studies (Guatemala and Paraguay) indicate that 80 % of reported cases occur in the capitals of the countries.

TABLE II

Urban and Rural Canine Populations, and targets for canine rabies vaccination (estimated), Latin America - 1972-1973

Year	Canine population in millions (a)			Vaccination Target in millions doses (b)		
	Total	Urban	Rural	Total	Urban	Rural
1972	29.7	17.9	11.8	20.8	12.5	8.3
1973	30.6	18.5	12.1	21.4	13.0	8.4

(a) Estimated at 10 % of the human population
(b) Targets estimated at 70 % of the canine population

It is presumed that 70 % of the canine population is concentrated in the major cities, and that it would be possible to carry out control programs in such areas. Table III gives an indication of this sector.

TABLE III

Latin American cities of 100,000 inhabitants or more

Year	No.	Canine Population (in millions)	Canine Vaccination Target (in millions)
1970	232	10.3	7.2

TABLE IV

Canine Rabies Vaccines : Types, Total and Unit Cost

Type of vaccine	C O S T (x)		
	Unit US$	6 million doses US$	12 million doses US$
LEP (U.S.A.)	0.62	3,720,000	7,440,000
Norden (U.S.A.)	0.75	4,500,000	9,000,000
ERA (Canada)	0.51	3,060,000	6,120,000
SMB (Argentina)	0.30	1,800,000	3,600,000

(x) Prices F.O.B. Transport and insurance costs should be added.

It is estimated that there is a 15 % loss from the point of production until the vaccine is finally administered (This cost not included in the estimates given above).

The importation of vaccine from countries outside of Latin America is not possible because of prohibitive cost. In addition to the investment of scarce hard currency in such a procedure, importation does not assist in generating productive work within the country, reflects a technological inability to produce, and when the importation comes to an end, leaves a vacuum in the area.

Technical problems of vaccine production in Latin America :

A) Selection of vaccine

B) Selection of Production Units

For both aspects, it would appear advisable to adopt a flexible policy, trying not to create new production units, or introduce new types of vaccines, but to amplify existing resources.

TABLE V

Provisional list of canine rabies vaccine production units in Latin America, and volume of vaccine produced in 1970 (observed) and in 1973 (projected).

Production Unit	Production 1970		Projected Production in 1973
	No. of doses (in millions)	Type of Vaccine	
Mexico	400	LEP	2,741
Guatemala	50	LEP	-
Lima	300	LEP	383
Sub-total	750	-	3,124
Buenos Aires	1,100	SMB	679
Bogota	300	SMB	718
Brazil	300	SMB	1,100
Sub-total	1,700	-	2,497
Total	2,450	Various	5,621
Other production units	1,150	Various	2,000
Total	3,600	-	7,621

If the hoped for production in 1973 reaches the target of 7,621,000 doses it should be borne in mind that the application of this vaccine will be made with national criteria, and not regional, since it is not possible to ignore political factors in the assignment of vaccine by area.

iii) Proposals

In order to eliminate canine rabies, it appears reasonable to obtain external credit with the object of increasing by 6 million doses more, the vaccine required to attack 90 % of the problem in the major cities. It is possible to reach this goal in two years and to review the results obtained at the end of the third year of the program. The new production goals will be assigned to six laboratory production units of the region and external assistance will be directed towards increasing production (installations, materials, supplies, etc.).

Summary

In America 98 % of cases of human and canine cases of rabies are

reported from Latin America, which during past decades, has exhibited a high level of endemicity of rabies, coupled with frequent outbreaks. The annual average of human cases during the period 1969-1972 is 258 cases.

Similarly, an average of 18,664 cases of canine rabies are reported annually. The vaccination of at least 70 % of the canine population constitutes an efficient control method. The problem is predominantly one of the urban area. If urban dog population is to be vaccinated, a production goal of 12 million doses of vaccine will be required (six million doses for the large metropolitan areas and six for the smaller areas).

The production of canine rabies vaccine in Latin America is insufficient in quantity and in quality. It is hoped that by 1973 about half the actual needs will be covered. It is not possible to rely on the prospect of importation of vaccine from outside the Latin American area. With external finance, it will be possible to increase production by the 6 million doses required. These funds will be invested in installations, materials, supplies, etc. in approximately six Latin American laboratories.

It is calculated that the production goals can be reached in two years. It is expected that by the third year a reduction of 90 % will be effected in the incidence of human and canine rabies.

Preliminary list of laboratories producing canine rabies vaccine (selected with the purpose of studying regional production - 1974-1976)

1. Mexico - National Institute of Virology
2. Guatemala - Biological Institute - Public Health Services
3. Colombia - National Health Laboratory (INPES)
4. Peru - National Health Institute
5. Brazil - Biological Institute of Parana
6. Argentina - National Microbiological Institute "Dr. Carlos G. Malbran"

RESOLUTION XI

RABIES SURVEILLANCE

This resolution recommends that Governments continue their participation in the epidemiological surveillance program and that they lend support to the I Regional Seminar on Epidemiological Surveillance of Transmissible Disease, including Zoonoses.

The Pan American Zoonoses Center initiated an opinion survey among contributing countries, regarding the usefulness of the surveillance system operated by the Center. The Center will introduce changes considered necessary.

The I Regional Seminar had an excellent reception by countries and received full support from the government. The Seminar was held from 2

to 8 December 1973, in Rio de Janeiro, Brazil. Participants to the Seminar reviewed five technical guide for zoonoses: food poisoning, brucellosis, equine encephalitis, hydatidosis, and rabies. We believe that these guides will assist in standardizing surveillance procedures in animal health in the countries of the Region.

RESOLUTION XII

SURVEILLANCE AND CONTROL OF VENEZUELAN EQUINE ENCEPHALITIS

This resolution requests that PAHO through the Pan American Zoonoses Center continues the encephalitis surveillance system and that the Center provides technical assistance in the further development of the infrastructure needed in the countries.

The Pan American Zoonoses Center continued its publication of monthly reports, and provided its collaboration for the solution of practical problems, such as serological surveys in equines and in man in the southern part of the continent. Assistance was also provided in the diagnosis of several outbreaks.

RESOLUTION XIX

EPIDEMIOLOGICAL SURVEILLANCE FOR EASTERN AND WESTERN ENCEPHALITIS

This resolution requests that PAHO, through the Pan American Zoonoses Center, includes surveillance on eastern and western encephalitis.

This resolution consolidates a situation to which attention has been given. From the beginning of its surveillance programme the Pan American Zoonoses Center has included both these types of encephalitis. During recent years, it is known that outbreaks of eastern encephalitis had occurred in Cuba. During the first three months of 1973, an outbreak of western encephalitis was identified in Argentina and in Uruguay. During the same period, in Beni, Bolivia, an unspecific outbreak in horses was reported. In July, an equine outbreak of Eastern was reported from Panama and surrounding area.

TECHNICAL ASSISTANCE

During the year it is recognized that the financial support of the Inter-American Development Bank (IDB) and the United Nations Development Program (UNDP) has played an important role in the original development of programs against the principal zoonoses.

Mention can be made of the main events in which the Pan American Zoonoses Center participated during 1973, providing direct technical assistance to the field or through offices of PAHO and its country representatives and veterinary advisers.

Brucellosis and Tuberculosis control programs

In several countries significant steps have been taken with regard to the control of these important diseases,which have now been assigned sufficient degree of priority within programs of animal health.

The IDB approved the request presented by Honduras for financial support and the Center collaborated actively in the preparation of the request as well as in the pre-program activities.

Similarly, the Center collaborated with the project of Dominican Republic which also is being developed with assistance of the IDB and which is concerned with the development of program of animal health with emphasis in brucellosis, tuberculosis and tick eradication.

The Center has provided assistance to El Salvador and Guatemala in obtaining non-reimbursable grant support for a feasibility study of a program of animal health,within which the zoonoses control constitutes a principal component.

It is hoped that during 1974 the preparation of these projects will be completed and a formal credit request will be prepared.

Similar collaboration was provided to Chile in the definition of the basic outline of a program of control of reproductive diseases including brucellosis, tuberculosis and leptospirosis.

It should be mentioned that Bolivia has prepared a project including control of foot-and-mouth disease, brucellosis and bovine rabies. The Center has carried out an initial review of this project.

Technical assistance has been provided to Ecuador in the study of the prevalence of bovine brucellosis as a basis for the establishment of a control program supported by UNDP.

In Peru, the Center has collaborated in the evaluation of the results of the caprine brucellosis control programs which have been carried out since 1969 with our participation.

In Rio Grande do Sul, Brazil, the Center has collaborated in the design of a brucellosis prevalence survey to be carried out during 1974. This will permit the authorities concerned to make whatever adjustments are indicated in the control program which has now being carried out during the past few years in this State.

Similar assistance was provided at the request of the authorities concerned of Cuba and Mexico in the control of tuberculosis and brucellosis.

Rabies Programs

An important event which should be mentioned is the extension, at the national level, of programs of canine rabies control carried out in Brazil, Colombia and Peru. In addition, national programs were prepared in Guatemala and Honduras.

Ecuador has developed a successful pilot control program as has Bolivia and it is hoped that in shortly this will be extended to other regions of each of these two countries.

The Center has actively participated in all of these programs, not only in their development but also in the provision of technical assistance to laboratories or in the provision of reference services in the control of vaccines and diagnosis and in the staff training.

The Center has cooperated with Argentina in the revision of rabies legislation in the Province of Buenos Aires and in the bovine rabies control program carried out by SELSA.

In Bolivia, the Center participated in an experimental project for the control of vampire bats using anticoagulants and early in 1974 similar work will be carried out with the agricultural authorities in Rio Grande do Sul.

With regard to the supply of rabies vaccines for use in cattle and in dogs, a separate report is presented regarding the possibility of regional production of such biologicals. It will be recalled in a previous meeting of RICAZ, the Center was given the responsibility for this study.

Hydatidosis Programs

The Center continued its collaboration with Argentine authorities in the pilot hydatidosis project in Neuquen Province.

In Uruguay, the Center cooperated in field aspects and laboratory operations as well as in epidemiological studies related to the projects of Flores and Durazno. A study was begun on economic losses caused by hydatidosis, results of which will be included in an agreement during 1974.

In Peru, collaboration was provided for the design of a pilot control program to be carried out within the agrarian reform program of the Sierra Central.

In Rio Grande do Sul, Brazil, preliminary contacts were made for the study of the present hydatidosis situation during the first three months of 1974.

Leptospirosis Programs

Special attention has been given to the problem in the Caribbean area. The Center collaborated in the diagnosis of the disease in Barbados, Guyana, and Curaçao and in the training of staff from Jamaica.

Equine Encephalitis control programs

Collaboration was provided to Argentina in epidemiological investigations of an outbreak of Western Equine Encephalitis and in the possibility of studying the prevalence of different types of encephalitis in Argentina, Paraguay and Uruguay.

Programs of Food Hygiene and Food Microbiology

Technical assistance in this field was provided to Brazil and Argentina. Similar collaboration was provided to other countries in varying aspects in this field.

Animal Health Program in Rio Grande do Sul, Brazil

During 1973 activities on this program continued, based on an agreement between the Ministry of Agriculture, Ministry of Health in Brazil, the State Department of Agriculture in Rio Grande do Sul and PAHO.

TRAINING AND TECHNICAL INFORMATION

A. Training

During 1973, a total of 34 fellows received training on an individual basis at the Center. The students came from 17 countries. The main areas of study were in diagnostic laboratory techniques in rabies, brucellosis, hydatidosis, leptospirosis, tuberculosis and food microbiology. Also training was provided in vaccine production and preparation of biological materials and reagents.

The III Animal Health Planning Course was carried out at the Center during 1973. A total of 26 veterinarians from 14 countries were selected to attend.

In addition to the training provided at the Center, courses and seminars were conducted in a variety of countries.

B. Technical Information

During 1973 the Center continued the reference library services; a total of 6,286 publications were received, and 91,668 copies of articles were made for reference and for distribution.

The Center published the Quarterly Information Bulletin "Zoonoses" with a distribution of 2,000 copies. The Monthly Epidemiological Surveillance Reports on Rabies and Equine Encephalitis, in separate English and Spanish languages, were distributed to 2,000 individuals and institutions.

The Center prepared the following Technical Notes :

- Technical Note No. 15, "Guide for Bovine Tuberculosis Projects" (English and Spanish versions)
- Technical Note No. 16, "Diagnosis de laboratorio de la Tuberculosis animal"
- Technical Note No. 17, "Preparación y estandarización del derivado proteico purificado (PPD) de la tuberculina"
- Technical Note No. 18, "Procedimientos para estudios de prevalencia de enfermedades crónicas en el ganado"

In the Center's Monograph series, the following titles were published :

- Monograph No. 4, Sanmartín, C., Mackenzie, R.B., Trapido, H., Barreto, P., Mullenax, C.H., Gutierrez, E., Lesmes, C. "Encefalitis Equina Venezolana en Colombia", 1967.
- Monograph No. 5, Peluffo, C. "Método simplificado de diagnóstico serológico de las salmonelas".
- Monograph No. 6, USDA, ARS, Tuberculosis Unit. "Métodos de laboratorio de micobacteriología veterinaria para el aislamiento e identificación de micobacterias".

The Center has also published the proceedings of the "First International Seminar on Bovine Tuberculosis for the Americas", based on the meeting held at Santiago, Chile, 21-25 September 1970. This constitutes PASB Scientific Publication No. 258 and has been edited in both Spanish and English versions.

INDIVIDUAL TRAINING OF FELLOWS, BY COUNTRY - 1973

Country	Number of Fellows
Argentina	10
Barbados	1
Bolivia	1
Brazil	1
Colombia	2
Cuba	3
Ecuador	2
Haiti	1
Honduras	1
Jamaica	1
Mexico	4
Paraguay	1
Peru	1
Philippines	1
Trinidad	2
United States of America	1
Uruguay	1
TOTAL	34

NATIONAL, REGIONAL AND INTERNATIONAL COURSES AND SEMINARS - 1973
(Organized by CEPANZO, or held with the Center's participation)

Subject	No. of participants	Place and dates
III Animal Health Planning Course	26	Ramos Mejía, Buenos Aires, Argentina; 14 May 15 Dec 1973, CEPANZO
Course on Ecological Aspects of the Zoonoses	11	Ramos Mejía, Buenos Aires, Argentina; 4-30 June 1973, CEPANZO
Course on Quality Control of Food	20	Panama, Panama, 13-22 June 1973
Regional Seminar on Production, Hygiene, Technology and Marketing of Meat	52	Buenos Aires, Argentina; 2-7 July 1973

Subject	No. of participants	Place and dates
Course on cell culture	25	Buenos Aires, Argentina, 5-12 November 1973
III Special Meeting on Microbiology	450	Tucumán, Argentina, 16-21 September 1973
Symposium on Zoonoses and their Possible Relationship with Human Lymphoma and Leukemia	100	Buenos Aires, Argentina, 22-26 October 1973
XIV Argentine Congress on Pneumological Diseases	100	Rosario, Argentina, 21-26 October 1973
Advisory Study Group on Learning and Teaching Processes in Meat Hygiene	16	Ramos Mejía, Buenos Aires, Argentina, 10-14 December, CEPANZO
Course on Microbiological Techniques	22	Sao Paulo, Brazil, 30 July-11 August 1973
IV International Conference on Global Impact of Applied Microbiology	60	Sao Paulo, Brazil, 23-28 July 1973
Course on Immunopathology	8	Sao Paulo, Brazil, August-November 1973
Seminar on Epidemiological Surveillance of Communicable Diseases	82	Rio de Janeiro, Brazil, 2-8 December 1973
VII Pan American Congress of Veterinary Medicine and Animal Husbandry	1100	Bogota, Colombia, 23-28 July 1973
Short Course in Epidemiology of Rabies and Treatment of Persons Exposed	40	Cali, Colombia, 8-10 November 1973
Short Course on Epidemiology of rabies and treatment of persons exposed	50	Bogotá, Colombia, 5-7 November 1973
Course for Post-graduate Epidemiologists	24	Santiago, Chile, 13-22 July 1973

Subject	No. of participants	Place and dates
Seminar on Zoonoses	50	Havana, Cuba, 12-16 November 1973
Course in Biostatistics for Veterinarians of Ministry of Agriculture and of the Faculties of Veterinary Medicine	22	Quito, Ecuador, 1-12 October 1973
I Seminar on Bovine Tuberculosis	65	Gomez Palacio, Mexico, 10-13 September 1973
Regional Seminar on Brucellosis and Tuberculosis for Panama, Central America and Mexico	78	Panama, Panama, 16-21 July 1973
Seminar on Epidemiology of the Zoonoses	30	Asunción, Paraguay, 26-28 November 1973
Course in Clinical Immunology	23	Lima, Peru, 28 October - 3 November 1973
IV National Congress of Veterinary Medicine and Animal Husbandry	350	Huancayo, Peru, 25 November-1 December 1973
International Course on Sheep Production	80	Huancayo, Peru, 23-28 November 1973
I National Seminar on Brucellosis	149	Caracas, Venezuela, 10-13 July 1973

REPORT OF THE UNITS

BRUCELLOSIS

During 1973, the Center has continued its efforts in support of control programs for bovine brucellosis and, in some countries,caprine brucellosis.

The Center participated in the design of new programs in Brazil, Chile, Colombia, Costa Rica, El Salvador, the Dominican Republic, Guatemala, Panama and Venezuela and also collaborated in the operational phase of control programs already in progress in Cuba, Mexico and Peru.

Field Advisory Services

ARGENTINA : Advisory service was given to official and private institutions in the use and interpretation of diagnostic tests, vaccine production, prevention of caprine brucellosis and diagnosis and prevention of human infection.

Professional staff of the SENASA-SELAB, were trained in methodology of production of Brucella in liquid media (tank fermentation) and were given advise concerning the selection of appropriate equipment necessary for future instalation of this production method in their laboratory.

BRAZIL : Advise was given concerning : the preparation and use of monospecific serums and the international reference serum; preparation of antigens for diagnosis of ram epididymitis (B. ovis infection); diagnostic criteria used in animals vaccinated with strain 19, the use of supplementary tests in brucellosis diagnosis and standard requirements for strain 19 vaccine.

COLOMBIA : The Center's specialist participated in the 7th Pan American Congress of Veterinary Medicine and Zootechnics held in Bogota during July.

CHILE : The Center prepared a document concerning basic guideline procedures for control of reproductive diseases in bovines.

CUBA : The Center participated in the Seminar on Zoonoses in Havana in November.

EL SALVADOR : The Center collaborated in the formulation of a national control program for the zoonoses and other infections diseases.

ECUADOR : The Center assisted in the design of standards required for the production and use of antigens for brucellosis produced by national laboratories.

GUATEMALA : The Center promoted a national program of Zoonoses Control with special emphasis on brucellosis.

HONDURAS : The Center provided consultation in the design of Animal Health Laboratories again with emphasis in brucellosis.

MEXICO : The Center assisted in the design of a zoonoses control program. The National Control Program has progressed well during the year. To August 31, 304,803 cattle had been examined with a general prevalence ratesof 5 percent. Corresponding rate for other species were: swine, 0,7 percent of 928 animals tested; sheep, 0.1 percent of 2,384 goats, 4.6 percent of 5,860 animals examined.

PARAGUAY : Specialists from the Brucellosis Unit participated in the Segundas Jornadas de Ciencias Veterinarias in Asuncion in

September and were responsible for the presentation of the theme : "Serological diagnosis of brucellosis".

PERU : The Center continued to collaborate with national authorities in caprine brucellosis control programs (provision of vaccines, production methods of Rev. 1 vaccine). A design for the evaluation of the brucellosis caprine program was prepared. During the ten years prior to the initiation of the program (1960-1969) in the Department of ICA, an average of 389 human cases were reported annually (range 194 to 934). In contrast, during the 3 years following the initiation of the program the annual average was 218 cases. In the first 6 months of 1973 only 57 cases have been reported. Since 1970 the tendency has shown a constant reduction in numbers of cases and this is evident also at the national level. In 1968, 1,719 cases were notified in the country giving a rate of 13 cases per 100,000 population. In contrast in 1971 only 1,284 cases were notified with a rate of 9.2 per 100,000.

URUGUAY : A serological survey was designed and carried out for the purpose of determining the prevalence of brucellosis in both dairy and beef cattle populations in order to evaluate the results of the national vaccination campaign that has been in progress for the past ten years.

Among beef cattle, which total approximately 7 million animals, a sample of 3,259 sera were examined from cows over 30 months of age. The results showed that 1.4 % of the animals were positive and 5.9% were considered as being suspicious.

Among dairy cattle, which total more than 1.2 million animals, a sample of 2,711 cows sera were examined with 0.5 % being positive and 3.2 % as suspicious.

Advice was also given to the Veterinary Research Center "Miguel C. Rubino" concerning diagnostic criteria used for bulls and in research programs for brucellosis.

VENEZUELA : The Center participated in the First National Brucellosis Seminar carried out in Caracas in the month of July.

Training

Professionals and technicians from the following countries received training :

Country	Profession	Duration of Fellowship	Specialty Area
Argentina	Physician	3 months	Serological diagnosis of human brucellosis
Barbados	Technician	6 months	Bacteriology and Serology

Country	Profession	Duration of Fellowship	Specialty Area
Brazil	Veterinarian	13 months	Laboratory, epidemiological and control techniques
Colombia	Veterinarian	5 months	Control of antigens and vaccines
	Veterinarian	6 months	Diagnosis and production of antigens and vaccines
Cuba	Veterinarian	1 week	Review of diagnostic and control techniques and epidemiology
	Chemist	4 months	Production of Biologicals
Haiti	Auxiliary	3 months	Diagnosis
Mexico	Veterinarian	1 week	Review of diagnostic and control methods and epidemiology
	Veterinarian	5 months	Production of antigens and vaccines
Peru	Veterinarian	9 months	Serological and bacteriologic diagnosis, epidemiology and control

Seminars

PANAMA : The Center participated in the First Seminar on Brucellosis and Tuberculosis for Central America and Panama.

Laboratory Services

Quality control of antigens and vaccines: Five antigen samples were received and four of these were satisfactory. Four countries sent vaccine samples to the Center; 5 of 7 lots of strain 19 vaccine were satisfactory and 1 out of 2 lots of Rev.1 was satisfactory.

Strain typing of Brucella isolated from man and animals: Of a total of 92 cultures submitted to the Center the following results were obtained :

BRAZIL (Sao Paulo) : 2 strains of B. abortus biotype 1

CHILE : 28 cultures, 17 strains of B. abortus biotype 1 and 2 strains of B. abortus biotype 1 with characteristics of strain 19; 1 strain of B. abortus biotype 2, 6 of B. abortus biotype 4 and 2 of B.ovis

COLOMBIA : 28 strains of B. abortus biotype 1

CUBA : 17 cultures, 14 of B. abortus biotype 1, 2 strains B. abortus biotype 4 and 1 strain B. suis biotype 1

PERU : 15 cultures, all B. melitensis biotype 1

VENEZUELA : 2 cultures, all B. melitensis biotype 1

Distribution of reference biological

Antigens and other reference biologicals were distributed to Argentina, Barbados, Brazil, Chile, Colombia, Curaçao, Ecuador, Guyana, West Indies, Paraguay, Uruguay and Venezuela.

Research Projects

Work continued on 12 projects covering aspects of epidemiology, diagnosis, prevention and control.

The typing of Brucella strains in Latin America continued. A total of 735 strains have been typed by the Center with the following results: B. abortus 281; B. suis 98; B. melitensis 300 and B. ovis 56.

The protection confered by strain 19 vaccine is being evaluated in guinea-pigs challenged with native strains of B. abortus biotypes 1,2 and 4. Other vaccines tested have included: B. abortus 45/20 with adjuvant; B. melitensis H38; B. abortus strain PB19; and B. suis in adjuvant.

The Center is collaborating with the National Institute of Livestock and Agricultural Technology (INTA) in the evaluation of different vaccines for protection of swine against B. suis.

The Center has continued with the study of experimental infection of goats with B. melitensis. The evolution of immunoglobulins and the effect of treatment on the serologic response to infection are being studied.

Also being studied is the evolution of antibodies in calves vaccinated with B. melitensis H38 and strain 19, using the classical and supplementary serological tests.

The "Card Test" is being evaluated using non-disposable materials and the antigen prepared by the Center. To date, the results are comparable to those obtained using the standardized commercial "kit" method. Although the efficiency this test has been proven, its use is limited in South America for reasons of cost when using the disposable commercial "kit."

Studies are being realized concerning conservation of lyophilized B. melitensis Rev. 1 vaccine and B. abortus strain 19 vaccine stored at different temperatures and varying degrees of vacuum conditions. In addition, other factors such as residual humidity and stabilizers for lyophilization are also being studied.

Technical Guide for Epidemiological Surveillance of Brucellosis

This guide was prepared for the I Regional Seminar of Epidemiological Surveillance of Transmissible Diseases and Zoonoses which was held in Rio de Janeiro in December.

Anthrax

Fellows from Colombia, Barbados, Brazil, Haiti and Peru received training in laboratory techniques for anthrax diagnosis, production and control of vaccines prepared with Sterne strain. A total of 150,000 doses of anthrax vaccine (Sterne strain) were supplied to Chile.

HYDATIDOSIS

During 1973, the Center continued to collaborate with national authorities in the realization of pilot hydatidosis control projects. In Argentina, advice and assistance were provided to the "Programa Integral de Estudio y Lucha contra la Hidatidosis" in the Province of Neuquen. Collaborative research was continued on two projects: 1) the importance of sylvatic animals as reservoirs of echinococcosis and 2) the evaluation of immunodiagnostic tests for detecting hydatid cyst carriers in endemic populations. Activities realized in the latter project included the examination of 1,300 persons with the intradermal, indirect haemagglutination, latex agglutination and immunoelectrophoresis tests for hydatid disease. The results of these tests were compared with the findings of thoracic radiographs and seropositive persons will be examined further by clinic-radiological means to determine possible indications for surgery. It is expected that the results of this study will provide a basis for selection of the appropriate diagnostic method (s) to be used in the future and also as a baseline prevalence index for measuring future changes in infection levels.

In Uruguay, advice was provided on field and laboratory problems relating to the Pilot Control Program in the Department of Flores. An article reporting the findings of a survey of human hydatidosis as determined by hospital cases and mass miniature radiography was prepared in collaboration with the "Comisión Honoraria de Lucha contra la Hidatidosis" and accepted for publication in the Bulletin of the World Health Organization. Additionally an agreement was reached between PAHO and the Comission regarding financial and technical support for a study designed to measure production losses suffered by sheep as a result of hydatid cyst infection.

In Peru, the government has initiated a pilot control program within the agrarian Reform Program in the Central Sierra of Peru. The Center's specialist worked with Peruvian authorities for two weeks at the site of the program to assist in the coordination of activities immediately prior to the initiation of the program.

A guide was prepared for the epidemiological surveillance of hydatid disease in the Americas and it was proposed that the Center initiate a surveillance service by collecting and analyzing data collected in individual countries.

Much was accomplished in the diverse research program in 1973. The study was continued to determine the role of sylvatic animals in the maintainance and dissemination of E. granulosus infection. Infection has been found in three species of foxes captured from different localities of Argentina. Prevalence in some cases was high but individual worm burdens were low. Foxes appeared to be infected only in regions where sheep are present. Hares were occasionally found infected with cysts but no other sylvatic herbivores have yet been found infected. Morphological study revealed that the worms in foxes are E. granulosus (Batsch, 1786) and all three fox species of ovine origin. The resulting infections contained a large number of gravid worms which were morphologically different from the normal as compared with those in control dogs. In conclusion, it appears that foxes are an important reservoir host of E. granulosus and probably contribute to pasture contamination but they acquire their infections from sheep and apparently do not maintain the parasite in cycles independent of domestic animals.

Incidental to the studies of E. granulosus in sylvatic animals, adult-form Echinococcus spp were found in wild felids. These were identified as E. oligarthrus. This confirmed the presence of more than one species of Echinococcus in Argentina and was the first reported finding of E. oligarthrus outside of the American neotropical zone. Nothing is yet known concerning the intermediate hosts of this parasite nor of the public significance.

Because we still do not have a truly effective anthelmintic drug for Echinococcus infection in dogs the Center has initiated an evaluation of several new and promising drugs. Our program is coordinated with that of the Hydatid Research Unit in New Zealand, and is designed to determine the optimum dose and number of treatments necessary to eliminate all worms.

The Center has continued to study several laboratory rodents as laboratory models for larval infection. In 1973, the effect of egg dose, and host strain, age and sex was studied and the results were prepared for publication. Both the laboratory mouse and the jird (Meriones unguiculatus) have been found highly susceptible to infection.

Previous work at the Center has demonstrated that bunamidine hydrochloride in solution was lethal to eggs of E. granulosus. In 1973 this effect was confirmed and extended to prove that the ovacidal effect

was also produced against eggs contained in proglottids. Eggs produced by parasites which survived anthelmintic treatment with bunamidine in dogs were infective to mice, however.

Because there does not exist an effective chemotherapy of hydatid cysts (larval E. granulosus), studies were conducted of some metabolic aspects of the parasite to provide a more rational basis for the selection of potentially effective compounds. The evaluation of several drugs against larval infection in mice failed to give positive results. A review of the present status of hydatid cyst chemotherapy was published in the OPS Bulletin.

The Center's specialist participated in the National Congress of Veterinary Medicine and the International Course on Ovine Reproduction held in Huancayo, Peru in November 1973.

Hydatid Immunodiagnosis

The Center's Immunology Unit is engaged in an intensive research and service program on the immunology and immunodiagnosis of hydatid disease. It is actively promoting the establishment and development of hydatid serology laboratories in Hospitals, Universities and Government Institutes in the countries of the Americas affected by this zoonotic disease. This is being achieved through lectures, courses, distribution of laboratory manuals and publications on the most recent advances in hydatid immunodiagnosis and immunology resulting from the Center's research program; distribution of reference antigens and sera for hydatid serological tests for quality control purposes in the different laboratories; training of individual fellows on hydatid immunodiagnosis.

Recent work has centered on the evaluation of the technical variants of each technique in terms of their optimal sensitivity and specificity. The immunoelectrophoresis (IEP) test for the diagnosis of human hydatidosis has been employed by several investigators in different areas of the world. The test, however, as performed by the various laboratories differed by several criteria: the supporting medium; the voltage and timing of the run; the antigens employed and their concentration and the criteria for test positivity, among others. The optimal conditions for performing the test with the possible maximum of efficiency however was not known. All these technical variants, therefore, were evaluated in a comparative study.

The optimal technical conditions for performing the IEP test were then selected on the basis of a comparative study of the known test variants. The test, in its presently standardized form is now being recommended to interested laboratories. The choice criterion for IEP test positivity was found to be the Echinococcus granulosus-specific arc 5 since no positive reactions have been observed with sera from non-hydatid patients. In contrast, the purified lipoprotein antigen, previously considered to be equally specific for hydatidosis, was found to give a high rate of false

positive results and its use is therefore, not recommended. It was also found that in those hydatid cases in which the disease cannot be immunologically confirmed (since the arc 5 is not detected in the patient's serum) quantitation of the number of uncharacterized arcs may be suggestive of hydatid disease and thus help the physician in diagnosing the infection.

Further studies have resulted in a revision of the traditional views on the antigens employed in hydatid serology. Thus, when properly standardized on the basis of the presence of the antigens for the E. granulosus specific ar 5, hydatid cyst fluid may be employed for human immunodiagnosis by IEP, regardless of its animal host source. Our studies have shown that hydatid fluid collected from sheep cysts is as good an antigen as that from other species, in contrast to previously held views. Now antigens may be prepared from sheep material in diagnostic laboratories in areas where infected sheep (rather than horses or bovines) are readily available.

The research program on the evaluation and standardization of the serological tests used for the diagnosis of human hydatid disease has also dealt with the indirect haemagglutinating (IHA) test. Four technical variants of the test have been described in the literature and these are employed by different laboratories in various areas of the world. These include IHA tests employing cells sensitized with tannic acid, formol, benzidine and glutaraldehyde. Since these tests were evaluated employing different antigens and patients' sera, the relative value and limitations of these test variants was not known.

A comparative study was thus conducted at CPZ in which sera from hydatid and non-hydatid patients and normal donors were examined, using the same lot of standardized antigen, by each IHA technique. The results showed that the tannic acid IHA test was the test of choice in terms of sensitivity and specificity. The formol IHA test was equally effective but the procedure for preparing the cells is more time consuming, more complex and the reproducibility of the test results is not as reliable. The glutaraldehyede test was the lowest in sensitivity and the benzidine test gave the highest rate of positive reactors in non-hydatid patients. As a result of these studies, the tanned cell IHA test is being recommended to interested laboratories and taught to the fellows trained at the Center in Hydatid immunodiagnosis.

The "Biological treatment" for human hydatidosis, consisting of a series of hydatid fluid inoculations has been and still is widely used in Latin America. A study at the Center however, has concluded that there is no unequivocal evidence of its effectiveness in the treatment of the disease while, on the contrary it involves a risk to the patient. This treatment may sensitize previously unsensitized patients to hydatid fluid antigens, thus favouring the conditions for the onset of allergic responses to the cystantigens. A publication has been prepared and this information is being distributed to National Institutes and medical practitioners to provide them with a proper perspective of the hazards and limitations of this procedure.

LEPTOSPIROSIS

The leptospirosis laboratory of CEPANZO serves as a reference center for Latin America. In this function the laboratory maintains the complete culture collection of Leptospira reference serotypes and corresponding antisera for distribution as diagnostic reagents. Classification of leptospiras isolated in Latin America are referred to CEPANZO for definitive identification using cross-agglutination-absorption procedures has begun as a service during the past year. Requests for reagents and culture typing were received from Argentina, Barbados, West Indies, Colombia, Brazil, Jamaica, Surinam, Trinidad/Tobago, and Venezuela.

The laboratory also provides serological diagnostic assistance in testing sera of animal or human origin for the countries in which diagnostic facilities are not currently available. During the past year 2,327 sera from five Latin American countries were received and tested for leptospirosis.

During 1973 individual training was given to one fellowship recipient from Jamaica and one from Trinidad in microscopic, cultural and biological techniques for the diagnosis of human and animal leptospirosis.

Laboratory investigations

Research studies are directed toward investigations for prevalence and distribution of leptospiral serotypes in wild and domestic animals and the development of new and reliable diagnostic test methods in leptospirosis which are adaptable to the Americas. The highlights of some of these studies demonstrate that :

The incorporation of neomycin sulfate to leptospiral culture media aids in the control of contaminans without interfering with the growth of Leptospira from clinical material. The wide spectrum antibiotic was also found to stimulate the growth of leptospirae resulting in a greater number of isolations from infected material than resulted from culture media without the antimicrobial agent.

A method of drying sera for serological studies in leptospirosis on common washed beach sand or table sugar cubes was developed and evaluated. The technique was found to be an effective means of collecting, holding and shipping samples without adversly affecting leptospiral antibody. Titers of sera dried on either of the two substrates compared with titers obtained with fluid sera are eliminated problems such as contamination or denaturation which can be expected in fluid serum samples held without refrigeration.

The incorporation of animal activated charcoal to leptospiral media was found to be more suitable than media without charcoal for the prolonged maintenance of Leptospira cultures. The charcoal apparently facilitates the removal of toxic products of metabolism permitting long-term survival of leptospiras in stored cultures. The

frequency of periodic subculturing currently required for the maintenance of stock cultures can be reduced by the addition of charcoal to the medium.

Additional studies in continuation involve isolation of leptospira from abattoir collected bovine and swine kidneys and blood from infected laboratory animals using improved culture methodology. Also, studies which deal with the influence of the various commonly used leptospiral media on antigenic stability and reproducibility of titers as based upon the microscopic-agglutination test which is used for the sero-diagnosis of leptospirosis.

FOOD MICROBIOLOGY

One of the principal objectives of the Center in relation to food microbiology is the standardization of analytical techniques used in official food hygiene laboratories of the countries of the area. With this goal, the Center has continued to provide preferential attention to training.

More candidates from different countries received individual training at the Center. During the period of their training, these fellows were able to gain a good grounding in analytical techniques in food microbiology. These techniques have been chosen by the Center to be the most useful and able to applied in Latin American countries. Again, with the same goal in mind, the Center collaborated in the organization and development of intensive courses of food microbiology. In these a total of 42 officers responsible for such control at official laboratories.

The Center provided technical assistance to countries in the Region, in the organization or improvement of central food microbiological laboratories. In addition, technical assistance for the improved functioning of laboratories concerned with microbiology of meat and meat products of meat exporting countries. Reference material to this end was published studies and technical assistance was provided to a hospital institution to control food borne or water borne infection. Such studies will serve as the basis for the preparation of specific recommendations to be applied in similar institutions.

The Center continued its service of typing of salmonella strains and supplied reference strains.

In addition to the studies on salmonellosis and *E. coli* begun in previous years, the Center continued its work on vacuum packed refrigerated meats, since this form of meat export continues to increase in importance. Nevertheless, many shipments have not reached the bacteriological standards set by importers, since, among other reasons, the material used for canning appears to be unsuitable. Thus, the Center has begun its study by comparing the quantitative evolution of the microbiological flora, and examining the organoleptic and physico-chemical characteristics

of meat which occur in canned products under a variety of packing conditions and material. The results will permit the formulation of recommendations on the processing techniques which should be adopted and the most suitable material to be employed.

RABIES

Laboratory

Control of vaccines : Twenty seven vaccines from six countries, 15 for human use and 12 for animals, were received and tested. Of the human vaccines received, 4 were rejected, 1 for containing live virus and 3 because of low potency. Of the animal vaccines received, 2 were not satisfactory because of low potency. In summary, of a total of 27 vaccines received, 21 were judged acceptable.

Diagnosis of rabies : CEPANZO maintains a diagnostic service for the purpose of obtaining material for the training of fellows. A total of 456 heads, mostly dogs and cats, were received from the Rabies Control Institutes of Moron and Moreno, Province of Buenos Aires, and a few were received from the Institute of Hygiene in Caracas, Venezuela. The number of positives was 87.

Biological reference products : Preparation and distribution of biological reference products for the preparation of vaccines and rabies diagnosis continued.

Tissue culture vaccines : Fifteen experimental lots of tissue culture vaccine were prepared using different virus strains and inactivants. All the lots except one satisfactorily passed the potency tests.

Studies of material from bats

Virus isolation attempts : Brains, interscapular fat and salivary glands of 220 bats were processed.

Serological tests: A total of 460 bat sera were tested for rabies neutralizing antibodies; sera from vampire bats will also be tested by the indirect immunofluorescent antibody test.

Studies of vaccines in bovines : Antibodies were checked in 40 bovines which are being held for 3 years after receiving live modified virus vaccine, when they will then be challanged with live rabies virus. The same thing was done with another group of 48 animals which received suckling mouse brain vaccine with adjuvants and which were challenged 2 years later.

Field Work

Studies of vampire bats : In the Province of Santiago del Estero censuses were made of some vampire populations from a region from which there is no evidence of bovine rabies. At the same time 230 Desmodus rotundus were captured for virological and serological studies.

Preliminary evaluation studies of the control of vampires by topical application of diphenadione were made in Bolivia with promising results.

Rabies epidemiological surveillance for the Americas : Regular publication of the monthly reports continued. The detailed report may be seen in Item 11 of the Provisional Agenda. Beginning in January new forms will be used. In Argentina, the telephone survey was increased with the inclusion of the Province of Jujuy. Both coverage and the opportunity of obtaining information is being maintained at an acceptable level. With the survey of the laboratory diagnostic methods for rabies (1972) it was possible to check retrospectively the quantity and quality of the reports received for that period.

With the expectation of introducing some changes, a survey was initiated requesting the opinion of workers in animal and human health on the usefulness of the surveillance services for rabies and encephalitis of the Pan American Zoonoses Center. Another survey was made of urban canine rabies and canine vaccination in 1972 in Latin America for the purpose of amplifying knowledge in this area. As in previous years the surveillance service collaborated with the WHO world survey of rabies (1972), receiving a response of 82 %.

The II table of basic information on the human population and populations of some animal species for the countries and territories of the zones of the Pan American Health Organization was edited and distributed bringing it up to date to 1973.

With the expectation of bettering the information system, a cooperative plan was initiated between diverse levels of operation of PAHO, integrating the sectors of statistics, epidemiology, veterinary public health, veterinary consultants in foot and mouth disease and the zoonoses, in both laboratory and field aspects.

This year the formulation of programs for the control of canine rabies in Paraguay were terminated and the creation of a regional system of epizootiological information was discussed with representatives of ALALC (Latin American Association of Free Commerce).

Consultation and Training

Material for seminars : Information was edited in collaboration with seminars on the Zoonoses and Rabies held in Mexico (August); Cuba (November); Colombia (November); Avellaneda, Argentina (November) and Rio de Janeiro, Brazil.

Other consultation : The Center's advice was solicited in a revision of the legislation on rabies in the Province of Buenos Aires. Likewise, the authorities were advised of the possibility of a serious epidemic of canine and human rabies in the metropolitan area of Buenos Aires.

Participation in scientific meetings:

IV International Conference on the Global Impact of Applied Microbiology. Sao Paulo, Brazil (July 23-28)

International Symposium on the control of Infectious Diseases, Buenos Aires, Argentina (September)

III Argentine Conference on Microbiology, Tucuman, Argentina (17-21 September), where several papers were presented

I International Seminar on the Surveillance of Communicable Diseases including the Zoonoses, Rio de Janeiro, Brazil (2-8 December)

Participation in courses or seminars : Epidemiology for Microbiologists, Buenos Aires, Argentina (June); for Epidemiologists, School of Public Health, Santiago, Chile (July); Basic Epidemiology in the Course on Planning in Animal Health, CEPANZO (August); Seminar on Epidemiology of the Zoonoses, Asuncion, Paraguay (November); on Equine Encephalitis and Field Instruction on Censusing and the Control of Vampire Bats in the Course on the Ecology of the Zoonoses, CEPANZO, (August).

Training : Four persons were trained in rabies diagnosis and the production and control of vaccines for a total of 14 months. Four fellows were received for training in epidemiology.

TUBERCULOSIS

Training : A total of 5 fellows from Cuba and Brazil received training in PPD production and standardization and in the isolation and typing of strains of mycobacteria. Training assistance was provided for a four day seminar on bovine tuberculosis in Mexico and one-day session as part of a 4 day seminar on Zoonotic Diseases in Cuba. The Center's tuberculosis bacteriologist presented papers at three national meetings in Argentina concerning tuberculosis.

Reference Assistance : The Center continued to provide reference assistance to the various countries through isolation and typing of mycobacteria from cultures and specimens submitted. Mammalian and avian Standard PPDs were supplied to the Veterinary Institute of the National University of Buenos Aires for teaching purposes.

Quality control of biological products: Batches of BCG vaccine from Argentina and Uruguay were tested for potency (counting of viable units) and safety. Tuberculins produced in Argentina, Brazil and Peru were tested for biological potency.

Production of tuberculin : Avian and mammalian tuberculins produced at the Center last year were submitted to chemical and biological control tests. Three batches of PPD from human standard strains C, DT and Pn were produced.

Planning was completed to run relative potency tests in infected cattle between the International Standard mammalian PPD and the Center's Reference mammalian PPD.

Field and Laboratory Advisory Services : The Center continued its cooperation with the Ministry of Agriculture and the Secretariat of Public Health, Argentina, through the National Zoonoses Commission, in a pilot project to demonstrate the eradication of bovine tuberculosis cattle herds in the provinces of Buenos Aires, Córdoba and Santa Fe. Numerous visiting scientists and health program officials visited the laboratory for exchange of ideas and consultation concerning tuberculosis problems. Cooperative projects were made to study mycobacteria strains which could be isolated from raw milk and slaughter swine.

Research Projects : Several projects are completed and several are in progress. These projects concern the sensitivity and specificity of PPDs from human and bovine PPD, in humans and cattle, virulence of drug resistant strains of M. bovis and M. tuberculosis, enzimatic, biochemical and antigenic characteristics of mycobacteria found in swine and milk.

BIOLOGICALS DISTRIBUTED UPON OFFICIAL REQUEST DURING 1973

BRUCELLOSIS

Brucella plate test antigen	3220 ml
Brucella tube test antigen	1570 ml
Brucella ring test antigen	1300 ml
Brucella card test antigen	1090 ml
Rivanol antigen	120 ml
IgM serum	1 vial
B. abortus, strain 19	39 vials
B. abortus, strain 544	6 vials
B. abortus, strain 2308	3 vials
B. abortus, biotype 9, strain C-68	2 vials
B. melitensis, Rev. 1 strain	3 vials
B. melitensis, 16 M strain	5 vials
B. melitensis, strain 53H38	4 vials

B. melitensis, biotype 2, strain 6319	2 vials
B. suis, strain 1330	3 vials
B. suis, strain 644-3B	3 vials
B. suis, biotype 4, strain 40	2 vials
B. ovis	4 vials
B. canis	1 vial
B. abortus, strain 1119-3	34 vials
B. melitensis Ethel strain	1 vial
B. abortus, 8685	1 vial
B. abortus, 45/20	1 vial
B. suis, 298	1 vial
B. suis Thompson	1 vial
B. suis 686	1 vial
B. abortus Tulya strain	1 vial
B. abortus 292	1 vial
B. abortus 3196	1 vial
B. abortus 6375	1 vial
B. canis RM 666	2 vials
Rabbit B. canis antiserum	1 vial
International standard B. abortus serum	6 ml
Monospecific anti-B. abortus serum	7 ml
Monospecific anti-B. melitensis serum	7 ml
Hyperimmune rabbit serum	1 ml
Soluble antigen	10 ml
Sera for sensitivity tests	20 samples
Positive B. ovis serum	2 ml
Bovine anti-globulin (AG-B)	35 ml
Pig anti-globulin (AG-C)	10 ml
Anti-B. abortus 544/2 complement	30 ml
Anti-B. melitensis 16 M complement	30 ml
Anti-Brucella phage	2 vials
Rev.1 vaccine	177,800 doses
Anti B. abortus Standard Serum	3 vials
B. ovis gel-diffusion test antigen	70 ml
Bovine serum	3 vials

ANTHRAX

Concentrated spore suspension	15 flasks (200 ml each)
20 % sterile saponine solution	15 flasks
B. anthracis, Pasteur IV strain	2 vials
B. anthracis, Sterne 3472 strain	2 vials
B. anthracis, 34 F_2	1 vial
Sterne vaccine	60,000 doses

LEPTOSPIROSIS

Plate International Standard Serum (10I.U.)	1 vial
Leptospira antisera	12 vials
Leptospira serotypes	24 vials

RABIES

Rabies conjugate	44 vials
CVS infected mouse brain suspension	60 ml
CVS normal mouse brain suspension	60 ml
Rabies standard serum	9 ml
CVS virus	27 vials
HEP virus	5 vials
LEP virus	3 vials
DR19 virus	4 vials
PV virus	3 vials
Horse hyperimmune serum	1 vial
Rabbit hyperimmune serum	2 vials
91 virus	6 vials
51 virus	6 vials
Rabies Reference Vaccine	12 vials
BHK21 C13 cells	13 bottles
BHK21 13 S	8 bottles
VERO cells	6 bottles
PPLO	1 vial
Seed virus	1 vial
NIL-2 virus	1 bottle

TUBERCULOSIS

PPD tuberculin (mammalian)	640 ml
PPD Tuberculin (avian)	640 ml
M. bovis strain	5 vials
M. tuberculosis C strain	3 tubes
M. tuberculosis DT strain	3 tubes
M. tuberculosis PN strain	3 tubes
M. avium D4 strain	4 tubes

AGREEMENTS ON ZOONOSES BETWEEN COUNTRIES AND PAHO

Agreements signed in previous years still in force during 1973

Country	Subject
Argentina (four)	. Zoonoses research and training . Evaluation of vaccines used in brucellosis of swine . Experimental study of bovine rabies control . Ecological studies on Desmodus rotundus
Barbados (One)	. Veterinary public health
Bolivia (Two)	. Zoonoses control . Veterinary medical education

Country	Subject
Brazil (four)	. Research in biology of insectiverous bats . Demonstration of animal disease control in Rio Grande do Sul . Establishment and operation of the National Reference Laboratory, and training in animal health . Production and control of rabies vaccine for human use
Chile (three)	. Control of anthrax . Eradication of canine rabies . Veterinary medical education
Colombia (three)	. Control of canine rabies . Control of brucellosis and Foot-and-Mouth Disease . Veterinary Public Health
Cuba (One)	. Zoonoses control
Ecuador (Two)	. Zoonoses control . Veterinary Medical Education
Guatemala (Two)	. Production of rabies vaccines . Veterinary Medical Education
Guyana (One)	. Veterinary Public Health
Jamaica (One)	. Veterinary Public Health
Mexico (Two)	. Zoonoses control . Veterinary Medical Education
Paraguay (One)	. Veterinary Public Health
Peru (Four)	. Control of canine rabies . Control of brucellosis in goats . Control of hydatidosis . Veterinary medical education
Surinam (One)	. Veterinary Public Health
Trinidad (One)	. Veterinary Public Health
Uruguay (One)	. Control of hydatidosis
Venezuela (Three)	. Veterinary Public Health . Venezuelan equine encephalitis . Veterinary Medical Education

Country	Subject
West Indies (One)	. Veterinary Public Health

Agreements signed during 1973

Brazil (Two)	. Veterinary Medical Education . National program of rabies control
Peru (One)	. Biological investigation in non-human primates

AMROS

AMRO-0701, Veterinary Public Health (Zone I) - 1972 ....
AMRO-0702, Veterinary Public Health (Zone II) - 1968 ...
AMRO-0703, Veterinary Public Health (Zone III) - 1957 ...
AMRO-0704, Veterinary Public Health (Zone IV) - 1968 ...
AMRO-0708, Rabies control 1971 ...
AMRO-0710, Rabies control (Mexico-United States of America Border) - 1966 ...
AMRO-0719, Primate census 1972-1973
AMRO-0721, Determinant factors in the eradication of animal diseases - 1972-1973
AMRO-6500, Veterinary Medical Education - 1966 ...

PROGRAM AND BUDGET OF THE PAN AMERICAN ZOONOSES CENTER FOR 1974, PROPOSED ESTIMATES FOR 1975, AND PROVISIONAL DRAFT FOR 1976

INTRODUCTION

The year of 1974 corresponds to the third yearly stage of the administration of the Pan American Zoonoses Center as a Regional Project under the support of the United Nations Development Program.

The Government of Argentina participates decisively with its contribution in the purposes that prompted the establishment of this United Nations project.

The UNDP contribution was approved in January 1972, and as regional project, the Center will now be able to increase the technical assistance it provides to the American countries in support of their zoonoses control and/or their eradication programs.

SOURCE OF FUNDS

Under the Regional Project, the funds allocated for financing the activities of the Pan American Zoonoses Center during the period 1972-1976 come from the four following sources :

a. The United Nations Development Program (UNDP);

b. An annual contribution from the Government of Argentina;

c. Funds from the Regular Budget of the Pan American Health Organization (PAHO) (including the contributions of the Ministries of Agriculture as per Resolution II of RICAZ III, 15 April 1970);

d. Funds from the Regular Budget of the World Health Organization (WHO).

Tables 1 and 1A show the budgetary projection for the years 1974 through 1976 as well as the allocation of quotas to the corresponding Ministries of Agriculture.

TABLE 1

PAN AMERICAN ZOONOSES CENTER

BUDGETARY PROJECTIONS FOR THE YEARS 1974 THROUGH 1976

(In US dollars)

	1974	1975	1976
Contribution from the United Nations Development Program (UNDP)	325,760	271,560	284,434
Contribution from the Government of Argentina	448,947	460,361	470,926
Funds from regular budget of the Pan American Health Organization *	599,400	658,741	691,678
Funds from regular budget of the World Health Organization	109,200	120,011	126,012
	1,483,307	1,510,673	1,573,050

* In the funds of the PAHO Regular Budget there are included the corresponding contributions for the ministries of agriculture, in the amounts of $ 399,300 (1974); $ 439,230 (1975); and $ 483,153 (1976). These amounts, included in the PAHO regular budget and approved by the Direction Council of PAHO (or the Pan American Sanitary Conference), form an integral part of the quota assessment of each Member Government.

For the information of those Member Government who decide to allocate to the Ministry of Agriculture a portion of the quota for support of the Pan American Zoonoses Center, there is a schedule in Table 1A, showing the amount by country.

TABLE 1A

PROPORTION OF CONTRIBUTIONS OF MEMBER GOVERNMENTS OF PAHO PROJECTED FOR FINANCING THE EXPANDED PROGRAM OF SERVICES OF THE PAN AMERICAN ZOONOSES CENTER

Country	%	1974 $	Tentative 1975 $	Tentative 1976 $
Argentina	6.89	25,519	28,071	30,878
Barbados	0.08	296	326	359
Bolivia	0.32	1,185	1,304	1,434
Brazil	6.49	24,037	26,441	29,085
Chile	1.63	6,037	6,641	7,305
Colombia	1.54	5,704	6,274	6,902
Costa Rica	0.32	1,185	1,304	1,434
Cuba	1.30	4,815	5,296	5,826
Dominican Republic	0.32	1,185	1,304	1,434
Ecuador	0.32	1,185	1,304	1,434
El Salvador	0.32	1,185	1,304	1,434
Guatemala	0.41	1,519	1,670	1,837
Haiti	0.32	1,185	1,304	1,434
Honduras	0.32	1,185	1,304	1,434
Jamaica	0.32	1,185	1,304	1,434
Mexico	7.13	26,408	29,048	31,953
Nicaragua	0.32	1,185	1,304	1,434
Panama	0.32	1,185	1,304	1,434
Paraguay	0.32	1,185	1,304	1,434
Peru	0.81	3,000	3,300	3,630
Trinidad and Tobago	0.30	1,111	1,222	1,344
United States of America	66.00	244,449	268,889	295,782
Uruguay	0.57	2,111	2,322	2,554
Venezuela	3.33	12,333	13,567	14,923
	100.00	370,374	407,411	448,152
Other Member and Participating Governments				
Canada	6.86	25,407	27,948	30,743
France	0.23	852	937	1,031
Guyana	0.24	889	978	1,076
Kingdom of the Netherlands	0.20	741	815	896
United Kingdom	0.28	1,037	1,141	1,255
		28,926	31,819	35,001
	TOTAL	399,300	439,230	483,153

DISTRIBUTION OF FUNDS

The following percentages will be alloted, within the budget for each year, to each of the main headings listed below, which comprise the objectives of the Center and the activities for achieving them :

Year	Training and Technical Information	Technical Advisory Services	Research Projects
1974	20.6	47.4	27.5
1975	20.7	47.5	27.3
1976	20.8	47.5	27.2

The distribution of funds for 1974, 1975 and 1976 according to the program of activities and administrative expenses, is in Table 2.

TABLE 2

PAN AMERICAN ZOONOSES CENTER

PLAN OF EXPENDITURES IN ACCORDANCE WITH THE PROGRAM OF SERVICES TO COUNTRIES

Year	Training and Technical Information (a)	%	Technical Assistance: Field Services for Zoonoses Control (b)	%	Technical Assistance: Laboratory Services (c)	%	Research (d)	%	Administration (e)	%	Total Budget	%
1974	305,562	20.6	412,359	27.8	290,728	19.6	407,908	27.5	66,750	4.5	1,483,307	100.0
1975	312,709	20.7	426,010	28.2	291,560	19.3	412,414	27.3	67,980	4.5	1,510,673	100.0
1976	327,194	20.8	446,746	28.4	300,453	19.1	427,870	27.2	70,787	4.5	1,573,050	100.0

(a) The funds include fellowships for courses and national and international seminars, salaries of the Center's staff and special consultants, supplies, materials, teaching equipment, personnel materials and cost of shipping publications.

(b) Includes salaries of staff, duty travel, supplies and equipment for epidemiological studies, vaccine field trials and other control procedures; administrative costs and meetings.

(c) Includes staff for the production of standards reagents, quality testing of vaccines and antigens, duty travel, supplies and equipment, and common costs.

(d) Includes the costs of research projects at the Center itself and in the countries, including costs of personnel, consultants, duty travel, supplies and equipment, and administrative costs.

(e) Funds for staff salaries and general administrative expenses of the Center (finances, personnel, supplies and general services).

TABLE 3

PAN AMERICAN ZOONOSES CENTER STAFF

For the accomplishment of the objectives contemplated in the corresponding programs, as well as for the achievement of its internal organization, the Center has a body of international and local staff which is shown below :

	1974	1975	1976
Office of the Director			
Director	1	1	1
Administrative Officer	1	1	1
Local staff	3	3	3
Administrative Services			
Local staff	9	9	9
Training and Technical Information			
Chief of Training	1	1	1
Editor-Translator	1	1	1
Audiovisual Aids Officer	1	1	1
Local staff	5	5	5
Field Services			
Chief of Department	1	1	1
Epidemiologist (Physician)	1	1	1
Epidemiologist (Veterinarian)	1	1	1
Mastozoologist (Ecology)	1	1	1
Consultant, Control Programs	1	1	1
Biostatistician	1	1	1
Zoonoses Specialist	3	3	3
Local Staff	13	13	13
Laboratory Services			
Chief of Laboratories (50%)	0.5	0.5	0.5
Bacteriologist (Tb)	1	1	1
Bacteriologist (Bru)	1	1	1
Expert in biological products	1	1	1
Local staff	27	27	27

TABLE 3 (cont.)

PAN AMERICAN ZOONOSES CENTER STAFF

Research	1974	1975	1976
Scientific Adviser	1	1	1
Chief of Laboratories (50 %)	0.5	0.5	0.5
Parasitologist	1	1	1
Serologist	1	1	1
Virologist	1	1	1
Food Microbiologist	1	1	1
Immunologist	1	1	1
Specialist in Laboratory Animals	1	1	1
Assistant Scientist	1	1	1
Local staff	34	34	34
	117	117	117

PAN AMERICAN ZOONOSES CENTER
BREAKDOWN OF THE BUDGET FOR 1974

	Office of Director	Training and Technical Information	Technical Advisory Services: Field Services for Zoonoses Control	Technical Advisory Services: Laboratory Services	Research	Administration	Meetings	Local Costs	Total	Percentage of Total
Salaries and Allowances	55,402	137,503	335,190	220,382	298,478	65,525	-	-	1,112,480	75.0
Short-term Consultants	-	7,417	7,417	3,708	3,708	-	-	-	22,250	1.5
Duty Travel	5,414	6,262	25,299	21,075	9,282	-	-	-	67,332	4.5
Fellowships	-	86,032	-	-	-	-	-	-	86,032	5.8
Supplies and Equipment	-	7,298	2,821	25,534	21,754	1,225	-	-	58,632	4.0
Common Services	-	10,067	10,483	28,726	34,127	-	-	-	83,403	5.6
Contractual Services	-	516	-	1,686	1,994	-	-	-	4,196	0.3
Meetings	-	-	-	-	-	-	11,866	-	11,866	0.8
Local Costs	-	-	-	-	-	-	-	29,666	29,666	2.0
Publications	-	7,450	-	-	-	-	-	-	7,450	0.5
Totals	60,816	262,545	381,210	301,111	369,343	66,750	11,866	29,666	1,483,307	
			(682,321)							
Percentage of total	4.1	17.7	25.7	20.3	24.9	4.5	0.8	2.0		100.0
			(46.0)							

PAN AMERICAN ZOONOSES CENTER

BUDGET

1 January - 31 December 1974

I.	Office of the Director	60,816
	a. Salaries and allowances	55,402
	Professional staff (2)	
	Director, P.5 Administrative Officer, P.3	
	Local staff (3)	
	b. Duty travel	5,414
II.	Training and Technical Information	262,545
	a. Salaries and allowances	137,503
	Professional staff (3)	
	Chief of Training P.4 Translator and Publication Officer, P.2 Specialist in Audiovisual Aids, P.1	
	Local staff (5)	
	b. Short-term consultants	7,417
	c. Duty travel	6,262
	d. Fellowships	86,032
	e. Supplies and equipment	7,298
	f. Common services	10,067
	g. Contractual services	516
	h. Publications	7,450
III.	Field Services for Zoonoses Control	381,210
	a. Salaries and allowances	335,190
	Professional staff (9)	
	Chief of Technical Services, P.5 Consultant, Control Programs, P.4 Epidemiologist (Physician), P.4	

BUDGET FOR 1974 (cont.)

	Epidemiologist (Veterinarian), P.4 3 Specialists in zoonoses, P.4 Mastozoologist (Ecology), P.4 Biostatistician, P.4	
	Local staff (13)	
b.	Short-term consultants	7,417
c.	Duty travel	25,299
d.	Supplies and equipment	2,821
e.	Common services	10,483
IV	Laboratory services	301,111
a.	Salaries and allowances	220,382
	Professional staff (3.5)	
	Chief of Laboratories (50%) P.5 Bacteriologist (Tb), P.4 Bacteriologist (Bru), P.4 Expert in biological products, P.4	
	Local staff (27)	
b.	Short-term consultants	3,708
c.	Duty travel	21,075
d.	Supplies and equipment	25,534
e.	Common services	28,726
f.	Contractual services	1,686
V.	Research	369,343
a.	Salaries and allowances	298,478
	Professional staff (8.5)	
	Scientific adviser, P.5 Chief of laboratories (50%), P.5 Parasitologist, P.4 Serologist, P.4 Virologist, P.4 Food microbiologist, P.4 Serologist (Immunologist), P.4 Specialist in laboratory animals, P.2 Scientist, assistant, P.2	
	Local staff (34)	

BUDGET FOR 1974 (Cont.)

	b. Short-term consultants		3,708
	c. Duty travel		9,282
	d. Supplies and equipment		21,754
	e. Common services		34,127
	f. Contractual services		1,994
VI.	Administrative Services		66,750
	a. Salaries and allowances		65,525
	Local staff (9)		
	b. Supplies and equipment		1,225
VII.	Meetings		11,866
	Scientific Advisory Committee		
	Travel	10,066	
	Per diem	1,800	
VIII.	Local Costs		29,666
	Local Operating Costs		29,666
		Total	1,483,307

PAN AMERICAN ZOONOSES CENTER

1974 BUDGET
TRAINING AND TECHNICAL INFORMATION

	National Courses*	International Courses and Short Courses	Individual Training	Publications	Total	Percentage of Total
Salaries and Allowances						
International staff	32,225	28,326	13,565	7,798	81,914	31.2
Local staff	22,764	20,502	11,139	8,601	63,006	24.0
Duty Travel	2,693	2,391	1,178	-	6,262	2.4
Fellowships	35,531	34,826	15,675	-	86,032	32.8
Supplies and Equipment	1,807	1,502	585	3,404	7,298	2.7
Common Services	2,432	1,969	266	5,400	10,067	3.9
Contractual Services	194	170	82	70	516	0.2
Publications	3,072	2,613	1,765	-	7,450	2.8
Total	100,718	92,299	44,255	25,273	262,545	
Percentage of total	38.4	35.2	16.8	9.6		100.0

* To be held in the countries with the assistance of the Center

PAN AMERICAN ZOONOSES CENTER

1974 BUDGET

TECHNICAL ADVISORY SERVICES

	Field Services	%	Laboratory Services	%	Total
Salaries and Allowances					
International staff	263,034	69.0	160,034	53.1	423,068
Local staff	79,573	21.0	64,056	21.3	143,629
Duty travel	25,299	6.6	21,075	7.0	46,374
Supplies and Equipment	2,821	0.7	25,534	8.5	28,355
Common services	10,483	2.7	28,726	9.5	39,209
Contractual Services	-	-	1,686	0.6	1,686
Totals	381,210	100.0	301,111	100.0	682,321
Percentage of Total	55.9		44.1		100.0

PAN AMERICAN ZOONOSES CENTER

1974 BUDGET

RESEARCH PROJECTS

Salaries and Allowances	Epidemiological Research	Improvement of Diagnosis	Improvement of Vaccines	Basic Research	Total	Percentage of total
International staff	66.911	62.424	54,174	30,197	213,706	57.8
Local staff	26,358	25.243	22,439	14.440	88.480	23.9
Duty Travel	3,026	2,742	2,307	1,207	9.282	2.7
Supplies and Equipment	6,861	6,441	5.532	2.920	21.754	5.9
Common Services	10,692	10,009	8,672	4,754	34.127	9.2
Contractual Services	618	575	492	309	1,994	0.5
Totals	114,466	107,434	93,616	53,827	369,343	
Percentage of Total	31.0	29.1	25.3	14.6		100.0

PAN AMERICAN ZOONOSES CENTER

BREAKDOWN OF THE BUDGET FOR 1975

	Office of Director	Training and Technical Information	Technical Advisory Services: Field Services for Zoonoses Control	Technical Advisory Services: Laboratory Services	Research	Administration	Meetings	Local Costs	Total	Percentage of Total
Salaries and Allowances	52,217	140,061	336,124	221,448	297,156	66,355	-	-	1,113,361	73.7
Short-term Consultants	-	7,050	7,050	3,525	3.525	-	-	-	21,150	1.4
Duty Travel	4.732	6,361	22,502	17,832	10.511	-	-	-	61,938	4.1
Fellowships	-	81,576	-	-	-	-	-	-	81,576	5.4
Supplies and Equipment	-	8,105	2,912	36,349	27,982	1,696	-	-	77,044	5.1
Common Services	-	11,734	12,156	33,710	40,594	-	-	-	98,194	6.5
Contractual Services	-	1,849	-	1,632	2,562	-	-	-	6,043	0.4
Meetings	-	-	-	-	-	-	16,617	-	16,617	1.1
Local Costs	-	-	-	-	-	-	-	28,700	28,700	1.9
Publications	-	6,050	-	-	-	-	-	-	6,050	0.4
Totals	56,949	262,786	380,744 /695,240/	314,496	382,330	68,051	16,617	28,700	1,510,673	
Percentage of Total	3.8	17.4	25.2 /46.0/	20.8	25.3	4.5	1.1	1.9		100.0

PAN AMERICAN ZOONOSES CENTER

BUDGET

1 January - 31 December 1975

I.	Office of the Director	56,949
	(a) Salaries and allowances	52,217
	Professional staff (2)	
	Director, P.5 Administrative Officer, P.3	
	Local staff (3)	
	(b) Duty travel	4,732
II.	Training and Technical Information	262,786
	(a) Salaries and allowances	140,061
	Professional staff (3)	
	Chief of Training, P.4 Translator and Publications Officer, P.2 Specialist in Audiovisual Aids, P.1	
	Local staff (5)	
	(b) Short-term consultants	7,050
	(c) Duty travel	6,361
	(d) Fellowships	81,576
	(e) Supplies and equipment	8,105
	(f) Common services	11,734
	(g) Contractual services	1,849
	(h) Publications	6,050
III.	Field Services for Zoonoses Control	380,744
	(a) Salaries and allowances	336,124
	Professional staff (9)	
	Chief of Technical Services, P.5 Consultant, Control Programs, P.4 Epidemiologist (Physician), P.4	

BUDGET FOR 1975 (cont.)

Epidemiologist (Veterinarian), P.4
3 Specialists in zoonoses, P.4
Mastozoologist (Ecology), P.4
Biostatistician, P.4

Local staff (13)

(b)	Short-term consultants	7,050
(c)	Dugy travel	22,502
(d)	Supplies and equipment	2,912
(e)	Common services	12,156
IV	Laboratory Services	314,496
(a)	Salaries and allowances	221,448

Professional staff (3.5)

Chief of Laboratories (50%), P.5
Bacteriologist (Tb), P.4
Bacteriologist (Bru), P.4
Expert in biological products, P.4

Local staff (27)

(b)	Short-term consultants	3,525
(c)	Duty travel	17,832
(d)	Supplies and equipment	36,349
(e)	Common services	33,710
(f)	Contractual services	1,632
V.	Research	382,330
(a)	Salaries and allowances	297,156

Professional staff (8.5)

Scientific adviser, P.5
Chief of laboratories (50%), P.5
Parasitologist, P.4
Serologist, P.4
Virologist, P.4
Food microbiologist, P.4
Serologist (Immunologist), P.4
Specialist in Laboratory animals, P.2
Scientist, assistant, P.2

Local staff (34)

BUDGET FOR 1975 (cont.)

(b)	Short-term consultants		3,525
(c)	Duty travel		10,511
(d)	Supplies and equipment		27,982
(e)	Common services		40,594
(f)	Contractual services		2,562
VI.	Administrative Services		68,051
(a)	Salaries and allowances		66,355
	Local staff (9)		
(b)	Supplies and equipment		1,696
VII.	Meetings		16,617
	Scientific Advisory Committee Technical Coordinating Committee		
	Travel	13,317	
	Per diem	3,300	
VIII.	Local Costs		28,700
	Local operating costs		28,700
	T O T A L		1,510,673

PAN AMERICAN ZOONOSES CENTER

1975 BUDGET

TRAINING AND TECHNICAL INFORMATION

Salaries and Allowances	National Courses *	International Courses and Short Courses	Individual Training	Publications	Total	Percentage of Total
International staff	32,238	27,584	12,533	7,879	80.234	30.5
Local staff	24.156	21,969	11,443	9.309	66,877	25.4
Duty Travel	2.195	2.869	1,297	-	6,361	2.4
Fellowships	31,087	30,542	19.947	-	81,576	31.0
Supplies and Equipment	1,889	1,656	238	4,322	8,105	3.1
Common Services	2.571	2,065	523	6,575	11.734	4.5
Contractual Services	745	651	249	204	1,849	0.7
Publications	2,521	2,521	1,008	-	6,050	2.4
Total	97,402	89,857	47,238	28,289	262,786	
Percentage of Total	37.1	34.2	18.0	10.7		100.0

* To be held in the countries with the assistance of the Center

PAN AMERICAN ZOONOSES CENTER

1975 BUDGET

TECHNICAL ADVISORY SERVICES

	Field Services	%	Laboratory Services	%	Total
Salaries and Allowances					
International staff	259,680	68.2	158,673	50.4	418,353
Local staff	83,494	21.9	66,300	21.1	149,794
Duty Travel	22,502	5.9	17,832	5.6	40,334
Supplies and Equipment	2,912	0.8	36,349	11.6	39,261
Common Services	12,156	3.2	33,710	10.7	45,866
Contractual Services	-	-	1,632	0.6	1,632
Totals	380,744	100.0	314,496	100.0	695,240
Percentaje of Total	54.8		45.2		100.0

PAN AMERICAN ZOONOSES CENTER

1975 BUDGET

RESEARCH PROJECTS

Salaries and Allowances	Epidemiological Research	Improvement of Diagnosis	Improvement of Vaccines	Basic Research	Total	Percentage of total
International staff	64,016	63,178	52,910	29,441	209,545	54.8
Local staff	26,858	26,557	22,948	14,773	91,136	23.8
Duty Travel	3,543	3,496	2,378	1,094	10,511	2.7
Supplies and Equipment	8,537	8,425	7,051	3,969	27,982	7.4
Common Services	10,924	12,954	11,630	5,086	40,594	10.6
Contractual Services	799	787	660	316	2,562	0.7
Totals	114,677	115,397	97,577	54,679	382,330	
Percentage of Total	30.0	30.2	25.5	14.3		100.0

PAN AMERICAN ZOONOSES CENTER

BREAKDOWN OF THE BUDGET FOR 1976

	Office of Director	Training and Technical Information	Technical Advisory Services: Field Services for Zoonoses Control	Technical Advisory Services: Laboratory Services	Research	Administration	Meetings	Local Costs	Total	Percentage of Total
Salaries and Allowances	57,582	145,704	353,419	228,463	310,757	69,705	-	-	1,165,630	74.1
Short-term Consultants	-	7,340	7,340	3,670	3,670	-	-	-	22,020	1.4
Duty travel	4,918	6,663	26,773	18,358	10,930	-	-	-	67,642	4.3
Fellowships	-	75,500	-	-	-	-	-	-	75,500	4.8
Supplies and Equipment	-	11,793	3,060	35,811	24,673	1,743	-	-	77,080	4.9
Common Services	-	12,407	12,853	35,674	42,891	-	-	-	103,825	6.6
Contractual Services	-	1,969	-	1,772	2,559	-	-	-	6,300	0.4
Meetings	-	-	-	-	-	-	22,023	-	22,023	1.4
Local Costs	-	-	-	-	-	-	-	25,170	25,170	1.6
Publications	-	7,860	-	-	-	-	-	-	7,860	0.5
Totals	62,500	269,236	403,445	323,748	395,480	71,448	22,023	25,170	1,573,050	
			(727,193)							
Percentage of Total	3.9	17.1	25.7	20.6	25.2	4.5	1.4	1.6		100.0
			(46.3)							

PAN AMERICAN ZOONOSES CENTER

BUDGET

1 January - 31 December 1976

I.	Office of the Director	62,500
	(a) Salaries and allowances	57,582
	Professional staff (2)	
	Director, P.5 Administrative Officer, P.2	
	Local Staff (3)	
	(b) Duty travel	4,918
II.	Training and Technical Information	269,236
	(a) Salaries and allowances	145,704
	Professional staff (3)	
	Chief of Training, P.4 Translator and Publications Officer, P.2 Specialist in Audiovisual Aids, P.1	
	Local staff (5)	
	(b) Short-term consultants	7,340
	(c) Duty travel	6,663
	(d) Fellowships	75,500
	(e) Supplies and equipment	11,793
	(f) Common services	12,407
	(g) Contractual services	1,969
	(h) Publications	7,860
III.	Field Services for Zoonoses Control	403,445
	(a) Salaries and allowances	353,419
	Professional staff (9)	
	Chief of Technical Services, P.5 Consultant, Control Programs, P.4 Epidemiologist (Physician), P.4	

BUDGET FOR 1976 (Cont.)

Epidemiologist (Veterinarian), P.4
3 Specialists in zoonoses, P.4
Mastozoologist (Ecology), P.4
Biostatistician, P.4

Local staff (13)

(b)	Short-term consultants	7,340
(c)	Duty travel	26,773
(d)	Supplies and equipment	3,060
(e)	Common services	12,853
IV	Laboratory Services	323,748
(a)	Salaries and allowances	228,463

Professional staff (3.5)

Chief of Laboratories, (50%), P.5
Bacteriologist (Tb), P.4
Bacteriologist (Bru), P.4
Expert in biological products, P.4

Local staff (27)

(b)	Short-term consultants	3,670
(c)	Duty travel	18,358
(d)	Supplies and equipment	35,811
(e)	Common services	35,674
(f)	Contractual services	1,772
V.	Research	395,480
(a)	Salaries and allowances	310,757

Professional staff (8.5)

Scientific adviser, P.5
Chief of Laboratories (50%), P.5
Parasitologist, P.4
Serologist, P.4
Virologist, P.4
Food microbiologist, P.4
Serologist (Immunologist), P.4
Specialist in laboratory animals, P.2
Scientist, assistant, P.2

Local staff (34)

BUDGET FOR 1976 (Cont.)

	(b) Short-term consultants		3,670
	(c) Duty travel		10,930
	(d) Supplies and equipment		24,673
	(e) Common services		42,891
	(f) Contractual services		2,559
VI.	Administrative Services		71,448
	(a) Salaries and allowances		69,705
	Local staff (9)		
	(b) Supplies and equipment		1,743
VII.	Meetings		22,023
	Scientific Advisory Committee Technical Coordination Committee		
	Travel	17,623	
	Per diem	4,400	
VIII.	Local Costs		25,170
	Local operating costs		25,170
	T O T A L		1,573,050

PAN AMERICAN ZOONOSES CENTER

1976 BUDGET

TRAINING AND TECHNICAL INFORMATION

	National Courses *	International Courses and Short Courses	Individual Training	Publications	Total	Percentage of Total
Salaries and Allowances						
International staff	34,467	29,515	13,322	8,370	85,674	31.8
Local staff	24,415	22,212	11,419	9,324	67,370	25.0
Duty travel	2,403	3,058	1,202	-	6,663	2.5
Fellowships	29,407	28,856	17,237	-	75,500	28.1
Supplies and Equipment	2,730	2,402	328	6,333	11,793	4.4
Common Services	2,659	2,216	553	6,979	12,407	4.6
Contractual Services	788	689	295	197	1,969	0.7
Publications	3,230	3,230	1,400	-	7,860	2.9
Totals	100,099	92,178	45,756	31,203	269,236	
Percentage of total	37.2	34.2	17.0	11.6		100.0

* To be held in the countries with the assistance of the Center.

PAN AMERICAN ZOONOSES CENTER

1976 BUDGET

TECHNICAL ADVISORY SERVICES

	Field Services	%	Laboratory Services	%	Total
Salaries and Allowances					
International staff	276,702	68.6	168,529	52.1	445,231
Local staff	84,057	20.8	63,604	19.6	147,661
Duty travel	26,773	6.6	18,358	5.7	45,131
Supplies and Equipment	3,060	0.8	35,811	11.1	38,871
Common Services	12,853	3.2	35,674	11.0	48,527
Contractual Services	-	-	1,772	0.5	1,772
Totals	403,445	100.0	323,748	100.0	727,193
Percentage of Total	55.4		44.6		100.0

PAN AMERICAN ZOONOSES CENTER

1976 BUDGET
RESEARCH PROJECTS

	Epidemiological Research	Improvement of Diagnosis	Improvement of Vaccines	Basic Research	Total	Percentage of Total
Salaries and Allowances						
International staff	67,279	66,398	55,607	30,941	220,225	55.7
Local staff	27,818	27,479	23,739	15,166	94,202	23.8
Duty Travel	3,716	3,607	2,405	1,202	10,930	2.8
Supplies and Equipment	7,533	7,424	6,223	3,493	24,673	6.3
Common Services	11,525	13,631	12,301	5,434	42,891	10.8
Contractual Services	788	788	688	295	2,559	0.6
Totals	118,659	119,327	100,963	56,531	395,480	
Percentage of Total	30.0	30.2	25.5	14.3		100.0

PAN AMERICAN HEALTH ORGANIZATION

CE72/5 (Eng.)
ANNEX IV

VII INTER-AMERICAN MEETING AT THE MINISTERIAL LEVEL ON FOOT-AND-MOUTH DISEASE AND ZOONOSES CONTROL

WORLD HEALTH ORGANIZATION

PORT OF SPAIN, TRINIDAD, 17-20 APRIL 1974

Provisional Agenda Item 7

RICAZ7/6 (Eng.)
1 March 1974
ORIGINAL: ENGLISH-SPANISH

PROGRAM AND BUDGET OF THE PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER FOR 1974, PROPOSED BUDGET FOR 1975, AND PROVISIONAL DRAFT FOR 1976

PROGRAM AND BUDGET OF THE PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER FOR 1974, PROPOSED BUDGET FOR 1975, AND PROVISIONAL DRAFT FOR 1976

INTRODUCTION

The Pan American Foot-and-Mouth Disease Center was created in 1951 by the Organization of American States, for the purpose of promoting, advising, guiding and coordinating in the Americas the activities concerning the prevention, control and eradication of the foot-and-mouth disease, which is the disease that produces the most damaging consequences for the development of livestock in the countries where that scourge exists. Since 1968 the Center constitutes a regular program of the Pan-American Health Organization, financed by contributions from the Member Countries of the Organization, in accordance with the respective resolutions which were adopted at meetings of the Inter-American Economic and Social Council (Viña del Mar, Chile, June 1967), the Inter-American Committee on the Alliance for Progress (Rio de Janeiro, Brazil, September-October 1967), and the Directing Council of the Pan-American Health Organization (Port-of-Spain, Trinidad and Tobago, October 1967). The Center also benefits from the financial cooperation of France, the United Kingdom and the Kingdom of the Netherlands.

The Ministries of Agriculture of the Hemisphere constitute the Center's Technical Council, which meets annually at the Inter-American Meeting on Foot-and-Mouth Disease and Other Zoonoses Control, to consider and make recommendations on the Center's budget and program of activities to the Directing Council of the Organization. At the Sixth Meeting which was held in Medellín, Colombia, from 9 to 12 April 1973, the Ministers (Secretaries) of Agriculture of the American States, and the Representatives of France, the United Kingdom, and the Kingdom of the Netherlands, reviewed and recommended the approval of the program and budget estimates of the Center for 1974, in conformity with Resolution IV, which reads as follows:

RESOLUTION IV

PROPOSED PROGRAM AND BUDGET ESTIMATES OF THE PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER FOR 1974 AND PROVISIONAL BUDGET FOR 1975

THE VI INTER-AMERICAN MEETING, AT THE MINISTERIAL LEVEL, ON FOOT-AND-MOUTH DISEASE AND ZOONOSES CONTROL,

Bearing in mind the serious and damaging consequences of foot-and-mouth disease for nutrition, the livestock industry, and the economic development of the affected countries, as well as the continuing threat that it represents for countries free of the disease;

Recognizing the indispensable role of the Pan American Foot-and-Mouth Disease Center in the promotion, development, and coordination of programs for prevention and control;

Taking into account Resolution I of the V Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control on the proposed program and budget estimates of the Center for 1973 and the provisional budget for 1974; and

Having carefully examined the proposed program and budget estimates for 1974 and the provisional budget for 1975 (Document RICAZ6/4),

RESOLVES:

1. To express its full support of the Pan American Foot-and Mouth Disease Center and its programs.

2. To reaffirm the need for the Center to continue and to expand its activities in order to provide the Governments with the personnel training and technical advisory services that are indispensable for planning, carrying out, and coordinating national and regional programs for the prevention and control of foot-and-mouth disease.

3. To express its appreciation to the Government of Brazil for its unfailing goodwill and continuing support of the activities of the Center.

4. To recommend to the XXII Meeting of the Directing Council of the Pan American Health Organization that favorable consideration be given to the approval of the proposed program and budget estimates of the Center for 1974, as set forth in Document RICAZ6/4.

THE NATURE OF THE PROBLEM

Foot-and-mouth disease affects practically all of South America and represents a permanent threat to the other countries of the rest of the Hemisphere. Its large economic significance lies in the insidious presence and epidemic frequency of the disease among the species of domestic animals that are meat and milk producers, and constitutes a serious handicap in the international trading of animals and animal by-products. The main factors which characterize the foot-and-mouth disease are the following:

1. The diversity of types of virus which cause the disease, and which bear no immunological relationship among themselves.

2. The highly contagious nature of the disease and the rapidity with which it can spread among cattle, sheep and swine.

3. The increase in the cost of production that has to be met by the breeder, and concomitant social consequences for the consumer.

4. The reduction in the availability of animal protein that is required to correct protein malnutrition in the human population of many countries.

5. Lesser income of foreign exchange by the exporting countries following the reduction of exportable amounts of livestock products, and resulting detriment in regard to world market process.

In view of such factors, fighting foot-and-mouth disease in South America has become a continental undertaking, with direct participation of all affected countries and with the financial assistance of the Inter-American Development Bank. It is estimated that in 1973 over half of the cattle population of South America - which was calculated to be 190 million heads - was covered by the disease control programs.

PURPOSES AND OBJECTIVES

The purpose of the Center is to prevent the introduction and establishment of foot-and-mouth disease in the area of the Americas free from the disease, and to achieve control and eradication from the affected area, through the promotion, coordination and advice of the countries, and by carrying out specific activities in research, evaluation and technical training. In order to undertake these functions, the Center maintains three divisions, as follows: Research, Diagnosis, and Reference; Training and Information; and Field Advisory Services. The purposes of each of these divisions are as follows:

1. RESEARCH, DIAGNOSIS, AND REFERENCE

1. Identification and study of the characteristics of strains of foot-and-mouth disease and vesicular stomatitis viruses causing field outbreaks, as well as those used for the production of vaccines and in potency control. It serves as the reference laboratory for the countries of the Hemisphere.

2. Study of new foot-and-mouth disease viruses and improvement of inactivated and modified live virus vaccines with a view to obtaining better and more lasting immunity.

3. Preparation and maintenance of a strain collection of various subtypes of foot-and-mouth disease virus considered to be of epidemiological importance and adapted to the Frenkel method, to cell lines, and to rabbit embryo organs for dispatch to the countries in the event of emergencies in their vaccine production.

4. Study of new methods for ascertaining the effectiveness of foot-and-mouth disease vaccines, their uniformity, and simplification and adaptation of existing vaccines to conditions in the Hemisphere.

5. Solution of problems arising from the effects of the disease on international trade in meat and meat by-products, such as that of the survival of the virus and study of carriers.

6. Basic studies of the biological and physico-chemical characteristics of foot-and-mout disease and vesicular stomatitis viruses.

7. Provision of advisory services to national centers engaged in research on foot-and-mouth disease.

II. TRAINING AND INFORMATION

1. Organization and conduct of international seminars.

2. Organization and conduct of national courses.

3. Attendance of its expert staff of the Research and Field Advisory Services Departments at seminars, courses, and meetings organized by other national or international institutions.

4. Award of fellowship for individual training at the Center or in other institutions.

5. Provision of information available about the epizootiology of vesicular diseases.

6. Provision of library services and up to date bibliographies on works published on specific topics of those diseases.

III FIELD ADVISORY SERVICES

1. Encouragement of and assistance in the planning of national foot-and-mouth disease programs.

2. Studies of technico-administrative methods for the control of foot-and-mouth disease through demonstration pilot areas.

3. Advisory services to the countries in the preparation of loan applications for foot-and-mouth disease control campaigns to be submitted to international lending agencies.

4. Promotion of intercountry coordination through bilateral, regional, or multilateral meetings and agreements for the control and prevention of foot-and-mouth disease.

5. Advisory services on the organization and conduct of preventive programs in disease-free countries.

6. Field studies of the most effective preventive and control methods, and evaluation of national campaigns.

7. Establishment of a continent-wide vesicular disease surveillance system including the collection, compilation, analysis, publication, and distribution of epidemiological data.

In the annual budgets the following percentages will be assigned to each of the above-mentioned activities in accordance with the administrative structure of the Center.

Year	Research Diagnosis Reference	Training	Field Advisory Services
1974	51.3%	9.4%	22.8%
1975	51.5%	9.8%	21.3%
1976	52.7%	10.6%	20.2%

Distribution of the funds in accordance with the program of direct services to the Governments is shown in Table I.

ADMINISTRATIVE AND TECHNICAL ORGANIZATION OF THE CENTER

The organization of the Center comprises the office of the Director, three departments (Research, Diagnosis and Reference; Training Activities and Information; and Field Advisory Activities) and Administrative Services, as indicated in the attached organizational chart.

Research and Diagnosis activities are carried out by the group of laboratories at headquarters with sections dealing with Diagnosis and Reference, Inactivated Vaccines, Modified Live Virus Vaccines, Virus Survival, and General Research. Some research activities are carried out jointly with the countries.

The Department of Training Activities is responsible for fellowships, the organization of training courses and other scientific meetings, the library, publications and

information services.

The activities of the Department of Field Advisory Services are undertaken by the technical staff, from headquarters in Rio de Janeiro, and by means of advisers in various countries. Such activities provide advice on epidemiology, administrative methods, statistics, planning, and evaluation of foot-and-mouth disease control campaigns.

The Department of Administrative Services comprises the following sections: Finance, Personnel, Supplies and General Services.

In alternate years the Scientific Advisory Committee, whose members are personalities of international repute, meets at the Center in order to discuss, analyze and comment on the different projects that are being executed or that are being planned, together with the Director and members of the technical staff.

ACTIVITIES, METHODS, RESULTS

I. OFFICE OF THE DIRECTOR

There will be no changes in the Office of the Director in 1974, 1975 and 1976. The international staff as well as local auxiliary and secretarial staff will be maintained at their present level and number

II. RESEARCH ACTIVITIES

1. Diagnosis and Reference

The plasticity of the foot-and-mouth disease virus, which is revealed by the existence of a large amount of subtypes, some of which present considerable immunological differences within one given type, requires that field viruses be constantly typed and subtyped particularly in the countries that have control programs of the disease, on the basis of preventive immunization, in order to maintain a perfect immunological equilibrium of field strains and production and control of vaccines. For this reason, classification of a new subtype, aside from the antigen study, implies the determination of the immunological relationship among the field strains bearing

epidemiological significance and those used in producing the vaccines, in accordance with the directives established at the International Symposium on Foot-and-Mouth Disease, Immunity Variants, held in Lyon, France, in 1967.

In addition to having available the appropriate reactives, the classification of foot-and-mouth disease viruses requires that an identical methodology be followed in order to achieve similar and reproductible results that could be interpreted in the same manner in every diagnostic center, which requires maintaining an up to date strain collection, that the techniques that are used be standardized, and frequently holding symposia of technical experts from all the countries. On the other hand, the fact that other diseases exist that present similar symptoms, such as vesicular stomatitis, vesicular exanthema, and swine vesicular disease, makes it imperative that differential diagnosis be rapidly and accurately performed.

In view of the above considerations, this sector of Research carries out the following activities:

1. Performs differential diagnoses of vesicular diseases of the specimens which are forwarded by the countries.

2. Identifies the type and subtype of all specimens received in order to accurately determine which viruses exist in the field.

3. Establishes the serological and immunological classification of any strains which may be epidemiologically significant.

4. Maintains an up to date strain collection, including all strains presenting vast immunological properties and classified as relevant subtypes, adapted to the various antigen production systems.

5. Coordinates and instructs the diagnosis of vesicular diseases throughout the Hemisphere.

6. Functions as Reference Center for the Americas, working in close coordination with the World Reference Laboratory.

7. Carriers out all diagnoses and references work on behalf of the Center's various research projects.

The technique which is used with respect to differential diagnosis, typing, subtyping and serological classification of foot-and-mouth disease and vesicular stomatitis viruses, is a combination of passages of the specimens in cell cultures, unweaned and adult mice, with the complement-fixation test at 50% (CF_{50}). following the basic technique as described by Osler et al. With respect to the diagnoses performed from sera, in addition to CF_{50}, the following are also used: CF_{50} in Marucci cold test, agar gel double diffusion test (Ouchterlony), radial immune diffusion test (Cowan and Wagner), complement-fixation inhibition test as described by Rice and Brooksby, sero-protection index (Cunha et al.), and sera neutralization index test (Lucam et al.).

For the purpose of establishing the immunological relationship, the following techniques are used: sero protection index in unweaned mice, sero-neutralization index in tissue culture, including microtechnique and color test, anti-VIA antibody detection, Index C in guinea pigs and Index K (Lucam et al.) as modified by the Center.

Since its establishment the Center has examined around 14,000 vesicular disease specimens from 19 American countries. 9,492 specimens of foot-and-mouth disease, from South American countries, were diagnosed between 1952 and 1972, their annual distribution being shown in Table II. During the period 1958-1972 the Center identified 20 subtypes of foot-and-mouth disease virus and 2 of vesicular stomatitis virus, as indicated in Tables III and IV.

2,730 biological specimens from countries affected by the disease were typified and subtypified during 1973. 140 of the above total number of specimens corresponded to foot-and-mouth disease cases which occurred in the field (Table V), also including 2,584 sera from various species, in which the presence of anti-VIA antibodies was studied (Table VI).

It is anticipated that diagnosis and reference activities will continue to show growing importance

in the following years in view of the development of natioanl control programs of the disease. Consolidation of those programs requires a thorough study of the serological and immunological features of the virus strains, so that those which are deemed to be more adequate should be used in vaccines.

The Center supplies reference sera and viruses to national diagnoses and control laboratories. During 1973 all countries in the affected area received various biological materials for diagnosis, on vaccine research production and control, including guinea pig hyper-immune serum, in sufficient quantities to carry out 400,000 complement-fixation tests. Taking into account the increase in diagnosis activities carried out in the countries, it is estimated that it will become necessary to expand considerably the above amount in forthcoming years.

Studies on 2,215 specimens corresponding to the Center's research work were carried out throughout 1973.

With reference to typing and subtyping of vesicular stomatitis virus, the Center examined, during the year 1973, 190 specimens from Central-American countries and Panama, of which 133 were positive. Table VII contains a resumé of this work.

In view of the fact that the Central-American countries and Panama are now in process of substantially improving epidemiological surveillance of vesicular disease, it is anticipated that the number of specimens that will be forthcoming from that area in the near future will increase considerably. It should be stressed that the Center continues to give priority attention to the activities which are related with the diagnosis of vesicular diseases in countries that are free from foot-and-mouth disease, since they do not possess laboratories for such purposes.

Within the research projects that are carried out in the laboratory sector, emphasis must be given to studies regarding concentration and purification techniques of VIA-antigen, available to South-American diagnostic laboratories and not excessively costly, so that this technique may be utilized as routine procedure in serological surveys. It has been demonstrated that it is feasible to obtain VIA-antigen.

- which can be used for purposes of diagnosis and epidemiological studies - from virological suspensions obtained from BHK-21 cells, treated in combination with 10% PEG, 35% $SO_4(NH_4)_2$ and low speed centrifugation. This antigen is being used in routine operations for serological surveys performed in some of the epidemiological projects that are being carried out by the Center.

The sensitivity of double diffusion and radial diffusion in agar gel is being compared, in order to detect anti-VIA antibodies in various sera, and the production of specific hyper-immune sera for the various antigens of the foot-and-mouth disease virus has been started.

The Center also supplies direct advisory services to Member Countries through periodic visits to diagnostic laboratories which are made by the Center's technical staff assigned to that sector.

The following percentages of the research activities budget shall be allocated to the work of the Diagnosis and Reference Laboratory:

1974	18.7%
1975	18.7%
1976	18.5%

2. Inactivated Vaccines

Inactivated vaccines constitute approximately 96 to 98% of the total vaccines applied in the various programs in fighting foot-and-mouth disease in South America. Any improvement in the quality and duration of the immunity provided by these vaccines shall obviously have very favorable repercussions in terms of efficiency and lowering of costs of these campaigns. This is the reason why the Center assigns priority to research work regarding the process of virus multiplication, new inactivants that provide a better guarantee of safety of the vaccines produced, without

impairing their immunizing and antigenic qualities, and new adjuvants that will make it possible to obtain more potent vaccines, and which will provide longer lasting immunity.

In the laboratories of this sector the production of antigen is carried out by the Frenkel method, in newborn rabbits and by tissue culture techniques, in tanks for suspension cultures and in roller bottles. It should be pointed out that the tanks for Frenkel cultures and for suspension cells were built in Latin-America, a fact which enables the various countries to obtain such materials with relative ease, at lower cost, and with permanent technical assistance.

In the research work on inactivants preference is given to the study of substances pertaining to the ethylenimine group, which are not patented and are easily available. It has been ascertained that ethylenimine (EI) and propylenimine (PI) inactivate the foot-and-mouth disease virus in a way which is similar to that of the reference inactivator acetyl-ethylenimine (AEI). It has been proven that the inactivating rate of PI is similar to that of AEI, while EI has an inactivating rate which is more rapid and that it, in addition, remains stable after more than one year in storage at ambient air temperature. The immunogenic qualities of the antigens that have been studied are not impaired by the inactivant, as has been proved by preliminary tests that have been carried out in guinea pigs and in bovines.

In the research work on coadjuvants priority is given to the study of oil adjuvanted vaccines. Initial studies at the laboratory level, on a good number of cattle and pigs, have been carried out in cooperation with the Plum Island Animal Diseases Laboratory of the United States Department of Agriculture. The results which have been obtained from this research work, at the laboratory level, on representative animals of South-America's livestock, have permitted to envisage the possibility of carrying out only two annual vaccinations on cattle, in control campaigns. Primo-vaccinees showed a good level of protection six months later and the challenge performed 12 months after revaccination also showed a good level of protection. In view of these results a series of field experiments were initiated, in cooperation with

the Ministry of Agriculture of Brazil, featuring an experimental design enabling to supply thorough information on the vaccination scheme which is to be used, about the way of inoculation, about the influence on the production of milk and about the weight of the animal, and possible collateral effects. These experiments conducted at the field level are showing very promising results. With respect to the degree of immunity achieved by this type of vaccine the conclusion that can be already reached is that it will be possible to reduce the number of annual vaccination during the campaigns. Charts 1, 2, 3 and 4 are a resumé of the results that have been obtained during the first phase of these studies.

Nevertheless, since there is still a series of problems that must be solved, particularly in regard to the collateral effects of the vaccine and the technical prerequisites for large scale production of this type of vaccines, it will certainly take some time before large scale application becomes possible. The following time-schedule shows the periods in which we expect to conclude the different phases of this research activity.

In view of the fact that foot-and-mouth disease virus multiplied in unweaned rabbits is broadly used for the industrial production of foot-and-mouth disease vaccines in South America, and considering also that there was a lack of information on many basic aspects regarding these techniques for the production of antigen, a series of experiments were carried out during 1973 aimed at clarifying these questions. Fundamental aspects such as adaptation and maintenance of the virus strains, the condition of newborn rabbits at the time of inoculation, processing the antigen until used in the vaccine and the concentration of antigen per dose, were thoroughly studied. These experiments, which were carried out with several hundred cattle, indicated that it was possible to produce an acceptable vaccine with that type of antigen.

With a view to dealing promptly with requests that may be made by the countries, the Center maintains a strain collection containing specimens of the most common viruses in South America adapted to the Frenkel method, newborn rabbits, and BHK-21 cell lines.

Efficiency control of all batches of foot-and-mouth disease vaccines that are used in the campaigns is absolutely essential. Because direct control methods are very expensive exclusive use of such methods makes it impossible to achieve total control of the vaccines that are produced. Because of the limiting factor represented by the difficulty encountered in obtaining highly susceptible bovines, since in many countries there are no areas free from the disease, special priority must be assigned to controlling the immunity, to the study and research on various indirect methods and on the use of bovines from enzootic areas, in order to arrive at some method which could be translated into routine practice and at the same time could correlate to the indirect methods.

A guide on detailed techniques and interpretation of such techniques, is being completed.

The Center also supplies permanent assistance to the countries in matters concerning the drafting of their respective inspection and control regulations, as well as through periodic visits and meetings with the technical staff of the control laboratories of the various countries.

Studies on inactivated vaccines and on the control of said vaccines have been assigned the following percentages within the budget for research activities:

1974	30.5%
1975	30.2%
1976	30.3%

3. Modified Live Virus Vaccines

Modified live virus vaccines have been one of the major contributions of the Center and over the years it has acquired great experience in this field. Even though at the present time most of the countries do not use this type of vaccine in their campaigns, mainly because of limitations established by the importing countries, the Center continues the research

on this matter because of the following reasons:

a) The multiplication of a virus in the living organism generally produces a solid and lasting immunity;

b) From the immunogenic point of view, the foot-and-mouth disease virus is a poor antigen.

c) It is necessary to obtain vaccines giving longer lasting immunity than what is obtained with the vaccines presently in use in the campaigns.

d) Some countries use, or may use this type of vaccine in their campaigns.

During 1973 research was continued on various clones of modified foot-and-mouth disease virus, on attenuation of several strains by means of physical and chemical processes and by selection of plaques; and the genetic and biologic characteristics of some of those strains were studied.

From some of these studies it was possible to deduct that clones which are capable of producing acute viremia without any pathogenic manifestation in the inoculated animals, are those that possess the best immunogenic capacity. Some strains with good immunogenic capacity and without any signs of pathogenic reaction were obtained, thus considerably shortening the time required for the modification by passage in embryonated eggs.

Special attention is conferred to studies concerning the persistence of modified live virus in inoculated bovines, for the purpose of clarifying certain aspects relating to the multiplication of the virus in different organs and tissues. Preliminary experiments carried out during 1973 and using the anti-VIA antibody detection technique, aiming at a better understanding of the mechanism of modified live virus in revaccination and circulating antibodies have shown that the multiplication of the virus occurs even in the presence of the above-mentioned circulating antibodies. In carrying out these experiments, primovaccination was made with vaccines prepared from the antigen produced in BHK-21 cells inactivated by AEI and absorved on aluminum hydroxide.

Two of the main problems of this type of vaccines are related to the time required for modification, which can be several months, and the fact that once that the virus is adequately modified by the bovine species it still remains pathogenic for other species, particularly swine. Thus, in future research work emphasis will be given to the study of these two aspects which have been mentioned.

In view of the present day trend towards using modified vaccines in diseases produced by the virus, and having discussed the matter with several groups of scientific experts from different parts of the world, and at the special meeting on foot-and-mouth disease held in New York by the Gustav Stern Foundation in June 1973, we believe that it is important that this line of research be kept active, since it could become a valuable weapon for some South American countries in their fight against foot-and-mouth disease.

Modified live virus vaccine studies have been assigned the following percentages within the budget for research activities:

1974	22.9%
1975	23.0%
1976	22.8%

4. Carriers

The problem of the persistence of foot-and-mouth disease virus in carrier animals has received particular attention by the Center in recent years. Two aspects were assigned priority consideration in view of the consequences affecting international trading of animals and the preventive measures which the countries are now putting into effect.

The first question is of particularly immediate relevance, if we take into account the fact that foot and mouth disease virus type C, which is endemic in most of the affected countries, does not exist in Venezuela, Colombia and Ecuador. The Center has carried out a series of studies on this question which have lead to the preparation of a test that considerably reduces the risks involved in importing carrier animals. This test is being successfully applied to imports of cebú cattle from Brazil, into Venezuela, which have been going on during recent years.

Although at present these tests are not performed at the Center, the technical staff continues giving permanent technical assistance to both countries in regard to all matters related to this problem. In addition to the assistance, the Center has supplied biological products, culture media, cells, etc. to the laboratory that is in charge of performing those tests in Brazil. Several hundred animals have been tested, and a number of carriers - about 10% of the total number of animals studied - were eliminated.

In this manner the risks involved are largely being eliminated in the transportation toward the northern countries of South America of animal carriers with type C Waldmann virus and other subtypes of the O and A Vallée types.

The other question refers to the characterization of the role played by healthy carriers of foot-and-mouth disease virus in the epidemiological chain of the disease. The lack of information regarding the question if a carrier may become a source of infection of foot-and-mouth disease, which is a problem that put up to now has not been given adequate response, constitutes one of the epidemiological problems which commands priority attention in order

that appropriate measures on the prevention and eradication of foot-and-mouth disease in South America can be achieved.

During 1974 and ensuing years the Center shall devote special attention to the two questions that have been stated above, pursuing the research work that may lead to the discovery of new and more accurate and economic methods for detecting healthy animals that are carriers of the virus, and to design a series of experiments to speed up the following three alternative hypothesis:

1. The sick animal with foot-and-mouth disease can only transmit the infection during the acute phase of the disease.

2. The animal carrier of foot-and-mouth disease virus may be a source of infection wherever certain conditional factors are present.

3. Every animal carrier is potentially able to transmit the infection

These studies will be assigned the following percentages within the budget for research activities:

1974	13.9%
1975	14.0%
1976	14.2%

5. **Other Research Studies**

The Center is giving special attention to studies related to research on the susceptibility of various cell lines to foot-and-mouth disease virus as well as to culture media for the multiplication of foot- and mouth disease virus in vitro, in order to obtain more economic sources for the production of antigens to be used in the preparation of the vaccines.

Considering that material and personnel requirements for implementing the tests of quantitative

measurement of antibodies in foot-and-mouth disease virus, such as the sero-protection test in unweaned mice and the sero-neutralization test in tissue culture in monolayer impose certain limitations upon the ability of the laboratories to study a large number of serum specimens, the Center started a series of investigations aiming at developing some micro-technique for this type of study. During the year 1973 the first phase of those investigations was completed, and one micro-test was worked out that will increase the number of specimens that may be tested into a small space of the laboratory, thus reducing significantly the cost per test and allowing for partial automation. A major start was made in regard to comparative studies for evaluating these tests as related to the above-mentioned conventional test systems. In the course of these studies a special culture medium was developed and which expedites adequate pH control without the need of having CO_2 incubators.

The IBRS-2 line was also adapted to the color test as described by Martin and Chapman in which cell metabolism produces a change in pH which cannot be detected in cultures infected by virus. Result obtained up to the present show neutralization titers that are similar to those obtained with parallel tests carried out with the sero-protection test in unweaned rats and in the sero-neutralization test in tissue cultures in tubes.

Studies were begun on local (nasal and oral) immunologic response in newborn calves and young bovines with modified live virus vaccines and on the biological significance of secretory immunoglobulins in defense mechanisms agains foot-and-mouth disease virus. This type of study is being carried out in view of indications that local immunity could be quite important since the development of a good immunologic defense at oral-nasal level could efficiently protect the animal against foot-and-mouth disease.

Considering the fact that latent infections with foot-and-mouth disease virus are characterized by the presence of small amounts of infectious virus in the esophago-pharyngeal region, new improved methods are being studied to detect these small quantities of virus by means of simple and easy to perform tests in every tissue culture laboratory. Due to the fact that

primary cultures of animal tissue from endemic areas may cause trouble by not being susceptible to foot-and-mouth disease viruses, cell lines in this type of study are being investigated. Results obtained up to the present regarding the influence of serum deprivation previous to the inoculation of the cells have shown that susceptibility to the virus increases with serum deprivation.

Studies on immunological methods for the detection of antibodies and new techniques for obtaining plaques in tissue cultures, as well as for detecting antibodies in non specific secretory and inhibitory organs have been continued.

In 1972 the Center started a process of selecting the best animals for the establishment of its mouse colony. By the end of that year 100 male and 100 female mice of the same stock were imported from the Rockefeller Foundation in the United States. New males were paired with before available females, and new females with before available males. This was done in view of a possible increase in sensitivity to foot-and-mouth disease virus as a consequence of many years of inbreeding. During 1973 the whole colony was transferred to new facilities built by an agreement with the Government of Brazil. At the present time the whole colony is functioning under the system of random breeding. In view of this fact and in order to achieve better management and environmental control, the colony's average yield per litter increased substantially. At the present time the average per litter of the established colony is 10.

Nearly 350,000 mice were used in the Center's research activities during 1973.

This sector of research has the following percentage of the budget for research activities assigned to it:

1974	14.0%
1975	14.1%
1976	14.2%

To reach the research targets that have been set, provision must be made in the budgets for 1974-1976 for the following international and local staff:

International Staff	1974	1975	1976
Chief	1	1	1
Virologist	1	1	1
Serologist	2	2	2
Research Officer	3	3	3
Bio-chemist	1	1	1
Immunologist	1	1	1
Research Assistant	2	2	2
TOTAL	11	11	11
Local Staff	114	118	118

There will be no change in the international staff posts in 1975 or 1976 in relation to 1974.

Local staff will be increased by one senior technician and three laboratory assistants. Such expansion of the local staff was made necessary in view

of the increase in laboratory activities, particularly in regard to the sector dealing with inactivated vaccines, vaccine control and reference.

Supplies and equipment. In 1975 there will be a slight decrease in this item as compared with 1974, since it will not be necessary to purchase any heavy equipment. The slight increase in 1976 is required to cover cost increases and for purchasing some additional equipment.

Contractual services. Only required increases have been projected for 1975 and 1976, in view of cost increases, to maintain the present level of operations.

III. TRAINING AND INFORMATION

As programs against foot-and-mouth disease in the various countries of South America expand their geographic and population coverage there is a corresponding increase of activities leading inevitably to the engagement of new personnel. This new personnel is nearly always composed of young veterinarians with limited professional experience, having had no chance of developing any specialized skill and who are now beginning to acquire such skill in the course of their service wherein they must often shoulder responsibilities for which they are not yet adequately prepared.

Veterinarians who have been at their service posts for some time must bring their knowledge up to date, acquire manual skills and master new techniques and unify criteria in order to keep abreast of scientific and technological progress, and in certain cases maintain coordination with their colleagues from other countries who discharge similar functions.

On the other hand, the majority of Schools of Veterinary Medicine in Latin American universities do not provide courses on some basic subjects - or if they do - these courses are insufficient and unrelated to foot-and-mouth disease prevention and control. This problem sometimes becomes quite serious in some particular fields, such as immunology, bio statistics, epidemiology, and communications.

Those are the main reasons why the personnel working in the services concerned with fighting and preventing foot-and-mouth disease in the various countries must be adequately trained.

Undoubtedly, the Center is one of the few institutions that can offer both general and specialized training. The fact that the Center has specialists in various branches: virologists, epidemiologists, immunologists, statisticians, etc. permits the student to come in contact with these specialists, exchange views, and clarify any douhts; and the student also attends monthly seminars of the professional staff during which the work, that is being carried out by all sections is freely discussed, and he can also take part in lectures and technical meetings that are held often.

On the other hand, almost every member of the Center's professional staff is fully versed in the Spanish or Portuguese languages, or both a circum - stance singularly advantageous for specialists from Latin America, as against other institutions in the Hemisphere.

Lastly, emphasis must be placed upon the Center's environmental circumstances with respect to location, equipment, supplies, water, electric power facilities, etc. which are quite similar to those prevailing in the other South American countries. Thus, the training that a professional receives at the Center fits in perfectly with the work that he shall eventually carry out in his own country and environment.

A foot-and-mouth disease program encompasses different aspects and different levels, and each require that the action to be developed should also be different. At the central level, planning, evaluation, decision-making and management have the major role, together with data processing and epidemiological surveillance. In recent years it has become imperative that modern scientific and dynamic planning be applied to foot-and-mouth disease campaigns, and the experience gained in the field of human health and other activities show that in addition to saving efforts and resources planning also permits more adequate evaluation and adjustment of activities.

In regard to laboratory tasks, serologic diagnosis and typing of the viruses, both from outbreak specimens and from strains for the production of vaccines, are paramount. Training in vaccine production and control must be singled out since special attention has been given to this activity in view of the millions of doses which will be required for the campaigns during the coming years. By agreement with the government of Brazil and the Inter-American Development Bank, a laboratory has been built and equipped precisely for the purpose of training professional people in vaccine production and control at the industrial level, applying the most modern and sophisticated techniques. This is the only existing laboratory offering this type of training.

At the field level, the tasks performed are practical or supervisory in character. The Center has a unit specifically in charge of this type of training, which was set up through an agreement with the Federal and State governments, with headquarters in Porto Alegre, Brazil.

In addition, there are other matters which constitute an important part of the anti-foot-and-mouth disease programs, matters in which the Center also offers training opportunities. In the field of epidemiology courses are being taught in cooperation with the School of Veterinary Medicine of the University of São Paulo and the Ministry of Agriculture of Brazil. In regard to statistics, a number of fellows have been trained at the Center or at the statistical services installed, with advice from the Center, in Rio Grande do Sul.

Finally, a truly new field must be mentioned, revealed by the campaigns of animal health and which was brought out at a seminar held in June 1973 in Bogotá, Colombia, and that is the field of communications. To reach the large audience interested in the fight against foot-and-mouth disease, conveying the right message in order to secure their indispensable cooperation which only they can bestow, is a task which must be carried out by specially trained personnel. The seminar which was just mentioned recommended that the Center expand its field of action by introducing in its current activities communication techniques and methods and the preparation and utilization of audio-visual aids; some action has already been taken in this regard.

The Center carried out its training activities in various ways: through individual training, courses, seminars, training units in specific sectors, field exercises, and information.

A brief explanation of the character of each system, on what was accomplished in 1973 in each field, and projections for 1975 and 1976, follows:

1. Individual training

Through this system, veterinarians and other professionals have an opportunity, besides improving their knowledge, of acquiring a mastery of techniques in the case of laboratory work, performing special duties in research work of interest to their own countries, observing, personally in the field, the organization and development of activities in other countries, etc.

In 1973, 35 professionals from 10 countries of South America profited by this training system, most of them through fellowships.

2. Courses

The object of the courses is to improve the qualifications and broaden or refresh the knowledge of groups of professionals in a given country or state. Sometimes they are organized by the Center itself, with its own personnel and elements; sometimes by agreement with universities or other institutions so as to take advantage of human and physical resources; and occasions also arise for professional from the Center to be invited to lecture in courses sponsored by other agencies.

Achievements in this field, in 1973, are:

a) Courses on Foot-and-Mouth Disease Epidemiology and Profilaxis

By an agreement concluded between the Federal government of Brazil, the University of São Paulo and the Pan-American Health Organization two courses in these disciplines were given, each lasting one month. They were attended by 20 and 18 veterinarians respectively, all

of them belonging to the official foot-and-mouth disease combat services of Brazil.

b) Courses in Animal Health Planning

These courses, sponsored by the Pan-American Health Organization are given in the Pan-American Zoonoses Center, in Argentina, and programmed in conjunction with the Pan- American Foot-and-Mouth Disease Center.

The purpose is to train veterinarians of the animal health services from different countries in the Americas in the planning, organization, management and evaluation of health programs, and introduce them to modern concepts within the context of the overall development planning of the countries. To this end, the program includes subjects that, in nearly every case, do not figure on the syllabus of veterinary schools and comprise among others: administration, economic analysis, accounting economics, statistics, economic policy, theory and practice of planning, and project formulation and evaluation.

The courses last for about 30 weeks and, in the last two months, practical exercises are done in the field and consist in preparing animal health projects for specific regions.

The first course was given in 1971, the second in 1972 and the third in 1973, attendance being 13, 18 and 23 veterinarians respectively, belonging to the following countries: Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Honduras, Mexico, Panama, Paraguay, Peru, Uruguay and Venezuela.

The practical exercises are performed in regions of Argentina, Brazil and Chile, and the health authorities in those countries afford efficient collaboration.

c) Course in Breeding and Management of Laboratory Animals

The first course under this topic, with a duration of three months, was held; 3 Brazilian and 3 Colombian veterinarians participated in the course.

3. Seminars

The seminars organized by the Center are international in character and designed to gather professionals working in their countries at a given activity, to discuss their problems and difficulties, besides briefing them in the most recent advances in their particular field.

a) Seminar on Techniques of Dissemination and Community Education for Foot-and-Mouth Disease Control and Prevention Programs, Bogotá (Colombia), July 2 through 20, 1973.

Veterinarians and other professionals responsible for the diffusion and disemination of foot-and-mouth disease programs took part in the above seminar, and the respective chief of those programs were present at the discussions and work sessions of the last week.

The seminar was sponsored by the Inter-American Development Bank and the Pan-American Health Organisation, and advantage was taken of the valuable cooperation of the Inter-American Institute of Agricultural Science and the Colombian Plant and Animal Institute (ICA).

At the meeting, discussion turned on the problems and difficulties encountered, and successes achieved, in each country as regards disseminating foot-and-mouth disease programs, and an analysis was made of the factors intervening in the process of persuading the community to participate in these programs.

A guide was also prepared to serve as a basis for the planning, execution and evaluation

of the communication-education processes required to support the national campaigns of the countries.

b) Seminar on Animal Health Planning Medellín (Colombia), July 23 through 27, 1973

This seminar was complementary to the activity pursued at the two first courses on this subject given at the Pan American Zoonoses Center in 1971 and 1972. Indeed, former students participated in this seminar, and together with the Director of those courses and the personnel of the Field Activities of the Center, analized the actions that had been going ahead in those countries in the field of animal health planning.

4. Units for training in specific sectors

The experience gathered in the last few years with regard to personnel training, and future prospects in this domain, have pinpointed critical fields in which the Center was not in a position to supply the services that the countries are needing ever more urgently: training of field veterinarians and preparation of professionals in vaccine production and control. The study of this problem, effected in conjunction with the health authorities of Brazil and furthered by consulting the Inter-American Development Bank, led to a satisfactory solution: the creation of special units for executing these commitments.

a) Training unit for field activities

This unit was created in the middle of 1972 by agreement between the Federal government of Brazil, the state government of Rio Grande do Sul and the Pan-American Health Organisation. The purpose is to improve and homogenise operative procedure on field activities; bring up-to-date the knowledge of the personnel assigned to those services; develop elements of health education; visit affected farms; follow up the development of programs

in pilot areas, etc. The courses last six months, full time.

In 1972, two courses were given, respectively, to 28 and 24 veterinarians, mainly Brazilian, but including 4 Paraguayans, one Bolivian and one Uruguayan.

In 1973, three more courses were organized with an attendance of more than sixty Brazilian veterinarians, one Colombian, one Chilean, two Ecuadorians, one Mexican, one Panamenian and two Uruguayans.

In short, in little more than one year, training was given in the Unit to more than a hundred Brazilian veterinarians and 13 veterinarians from 8 other South and Central American countries.

b) Pilot Plant for vaccine production

This plant is the outcome of a joint effort on the part of the Brazilian government, the Inter-American Development Bank and the Pan American Health Organization. Built in the grounds of the Center, it is equipped to produce, on a small scale but with the use of standard manufacturing processes, inactivated vaccines of any of the types now on the market. The plant was inaugurated towards the end of 1972, but owing to unforseen circumstances it could not start operating until the middle of 1973.

Though it is intended to organize courses on various levels in the oncoming years, in the first year a course lasting 9 months was given, which was attended by three Brazilian veterinarians, one Colombian, one Peruvian, and one Venezuelan. In addition, briefing and training was given to two additional Colombian veterinarians and one Argentinian, on techniques of cell cultures and on typing and subtyping of viruses, topics which are basic for vaccine production.

5. Exercises in the field

This type of training is the most adequate for meeting the requirements of the foot-and-mouth disease free area. It consists in preparing and performing the action that should be taken in the case of a real outbreak of foot-and-mouth disease, accompanied by criticism of the work done. The exercise includes, not only participation in the operation of notification, diagnosis, quarentine services, etc., but also involves the movilization of other agencies and resources in the country as may be necessary,namely: the police, the army, the county authorities, etc.

a) El Salvador - May 29 through June 1, 1973

This exercise, similar to the preceding one, was performed with the participation of 24 veterinarians belonging to the prevention services of that country.

b) Panamá - November 17 through 22, and December 10 through 12, 1973.

Two exercises were carried out in the above mentioned time periods, the first one in the province of Chiriquí, and the second one in the provinces of Herrera and Los Santos.

Training activities to be provided for in 1974, 1975 and 1976 are as follows:

1. Individual training

24 fellowships for professionals from 17 countries, totalling 72 fellowship/months in each year.

2. Courses

The course on Animal Health Planning will continue to be proferred in Buenos Aires (Argentina).

In addition to the courses given at the Center headquarters, two national courses in two different countries will be given each year.

3. Seminars

A seminar on Statistics will be held in 1974 at Center headquarters, with 11 professionals from 10 countries participating. During 1975, also at headquarters, a seminar on Diagnosis of Vesicular Diseases, for 10 veterinarians from the same number of countries, will take place, as well as one seminar in Buenos Aires (Argentina) on Campaign Evaluation,with the participation of 11 veterinarians from 10 countries in the affected area. Finally, one seminar is to be held in Nicaragua, on the Prevention of Exotic Diseases, for 12 veterinarians from countries in the area free from foot-and-mouth disease.

Three international seminars have also been planned for 1976: two at the Center headquarters, for professionals from countries of the affected area, and one in Panama for those from countries in the area that is free from the disease.

4. Training units in specific sectors

a) Field Activities Unit. The three annual courses of six month duration will be continued.

b) Vaccine Production Unit. Annual courses in this speciality will be continued, in addition to auxiliary courses on virus typing and subtyping, laboratory techniques, and vaccine control.

5. Field exercises

The program of exercises on simulated outbreaks of foot-and-mouth disease in Central America and Caribbean countries will be continued during the years 1974, 1975 and 1976.

6. Information

Quarterly publication of the BULLETIN, and the fornightly edition of EPIDEMIOLOGICAL REPORT, shall be continued, as well as the series of Scientific and Technical monographs. Publication of Technical Handbooks shall be started in 1974.

In order to attain the goals proposed in the training program, the following will be required:

International staff - There will be no change in 1975/1976 with regard to 1974.

Local staff - One draftsman charged with preparing audio-visual aids will be added in 1975.

The following table shows the personnel that will be required for training activities:

International staff	1974	1975	1976
Chief	1	1	1
Publications technician	1	1	1
Translator	1	1	1
Local staff			
Librarian	1	1	1
Secretaries	2	2	2
Draftsman	-	1	1
Reproduction equipment technician	1	1	1
Clerks	2	2	2
Reproduction clerks	2	2	2
TOTAL	11	12	12

IV. FIELD ADVISORY SERVICES

1. Countries in the disease-free area

The Center continued supplying assistance to the countries in disease-free area with respect to the organization and conduct of preventive programs, training and diagnosis services on vesicular diseases.

During 1973, special attention was given in Central America and Panama to the development of simulated eradication of an outbreak of foot-and-mouth disease, and exercises were carried out in El Salvador and Panama. These exercises made all too evident the need for more adequate preparation of the appropriate services in order to develop an efficient action in the event of an emergency of this nature, and the need for continuing to expand training activities of those professionals who are responsible for the prevention of foot-and-mouth disease in the whole area.

In view of its vast experience in regard to the problems involved in training of technicians in the various fields that make up the programs for the control and prevention of foot-and-mouth disease, of its present installations and agreements with several universities and the Ministry of Agriculture of Brazil, one of the services that the Center can successfully render to the countries of the disease-free area is precisely that of training professionals. Therefore, considering that training of human resources is absolutely essential in order to plan and carry out prevention programs, the Center will assign major priority during 1974, 1975 and 1976 to the training of professionals from the disease-free area.

The Center also continues to give priority attention to the activities concerning the diagnosis of vesicular diseases in the countries of the area that are free of foot-and-mouth disease, since such countries do not have available laboratories that could perform such diagnoses. As a consequence of the exercises that were carried out in the countries of that area, in view of the fact that new technicians have been engaged, and taking into account the existing agreements between several countries and the United States of America, there has been considerable increase in the number of samples received, and that

number is expected to rise in the near future.

During 1973 improvements were made in the Center's system for the reception of samples at the Rio de Janeiro airport, in transporting those samples to the Center's diagnosis and reference laboratory, and in forwarding the cables with information on the respective results. If samples are received in good condition, it then becomes possible to carry out the complete process in about two and a half hours. This is a matter of fundamental importance in view of the steps that the countries must take in the eventuality that an outbreak of foot-and-mouth disease may be confirmed.

The Center's zonal consultant assigned to Panama and Central-America inspected, during 1973, the Eastern region of Panama for the purpose of cooperating in the program of prevention of the disease at the Colombian border and which is implemented through an agreement between the government of Panama and OIRSA. This is particularly important work, inasmuch as the agreement with Colombia has not been accomplished as yet. Within the area of Panama, the Center's consultant participated in several meetings with cattle breeders, aiming at promoting surveillance activities in regard to vesicular diseases. The same consultant also went to several Central-America countries, for the same purpose, and cooperated also in the adoption of the extraordinary measures that were made necessary after the earthquake in Nicaragua. Again, and in collaboration with OIRSA, he participated in evaluating quarantine veterinarian services in Mexico, Central-America and Panama, and on several problems related to the international commerce of animal products from countries affected by foot-and-mouth disease or other animal diseases which are exotic to that area.

The Center's consultant assigned to the Caribbean visited several of the area's countries and territories, chiefly in order to promote the strengthening of the infrastructure of official veterinarian services. In view of the direct risks involved in importing live bovines or meat from certain South-American countries that are affected by foot-and-mouth disease, he gave special attention to Aruba, Curaçao, Guadeloupe, Guyana, French Guiana, Martinique and Saint-Martin.

The Center cooperated with the Government of the Netherlands Antilles with regard to the diagnosis and eradication of an outbreak of vesicular stomatitis that affected imported cattle for the Curaçao slaughterhouse.

By the end of August 1973 an outbreak of foot-and-mouth disease type A, subtype A_{24}, occurred in Rupununi Savannah, Guyana. The Center gave all posible assistance to Guyana in eradicating the outbreak, and the consultant of the Center assigned to the area an epidemiologist travelled to that country. In addition to technical assistance in situ, the Center sent about 40,000 doses of monovalent vaccine.

The problem of preventing foot-and-mouth disease in the border region of Panama and Colombia shall continue to demand priority attention, in view of the work on the Pan-American Highway. The Center will continue to support and encourage the unification of efforts of the countries and the various international agencies, in order to carry out the recommendations formulated by the technical committee that prepared the studies on the regions of Darién and Chocó, and to select the plans that should be followed for the prevention of the disease in the area.

2. Countries of the affected area

During recent years there has been continuous expansion of the programs of control of the foot-and-mouth disease in the majority of the countries of South America. This expansion has implied an increased demand for technical assistance from the Center, chiefly in the areas of planning, organization of statistical services, vaccine production and control, training of human resources, and international coordination.

In the programs against foot-and-mouth disease, the administrative methodology that has been utilized sometimes evidences certain deficiencies which must be corrected in order to rationalize the activities and thus attain positive results without any waste of resources. One of the main problems in this regard is the poorness of the information, almost always accompanied by very limited circulation of the collected

data, thus hampering communication and integration among the service sectors, with damage to the coordination activities of the program, at times quite significantly. In many cases statistical activities are not systematized towards the goal in view, and registration of data appears merely as a bureaucratic requirement bearing no particular importance in the figth against the disease. Another negative factor is represented by the fact that the majority of technical staff members are not accustomed to deal with statistics and are inclined to ignore or underestimate that problems regarding data collection, poor circulation and absense of periodic publications.

It is, therefore, essential that the countries take steps to reorganize, or to organize, their information mechanisms, so as the implementation of the programs of fighting foot-and-mouth disease may be improved. The purposes of a mechanism of this type should include identification and analysis of problems in order to find out the possible causes that give rise to them, and their solution by means of corrective measures. Taking into consideration that utilization of the information on foot-and-mouth disease programs must be conceived along simple and objective lines, and that the efficient use of the data should be a gradual process, the strategy followed by the Center in regard to the technical assistance given to the countries starts off by the organization of a system for producing information upon the following basis:

a) To create statistical awareness in the field personnel in charge of data collecting.

b) Community cooperation regarding communication of statistically significant facts.

c) To devise simple collection procedures, aiming at gathering indispensable and obtainable data for evaluating the program.

d) Training in statistics given to the technical staff at central level.

e) Processing, publication and timely dissemination of statistics on foot-and-mouth disease

Thereafter, a system of analysis and interpretation of the information elaborated by inter-disciplinary study groups is organized. Results indicated in statistical periodicals are compared with the program's objectives, endeavoring to identify the discrepancies and inquiring into their possible causes.

Finally, decisions are classified according to their nature in strategic, tactical and operative, and service levels called upon to take decisions are defined. The information already elaborated and analyzed is then supplied to those levels, so that the process of selecting the corrective measures can be started.

The Center has been concentrating this type of advisory assistance to the animal health services of the State of Rio Grande do Sul, Brazil, and Paraguay, and the results obtained look very promising.

A new technical and administrative organization of the statistical service was set up in Rio Grande do Sul, defining the tasks and responsibilities of the staff at central level, regional inspectors, and local veterinarians, reducing and simplifying the contents of the forms used for registering the data. In 1973 the following publications were issued on a regular basis: a forthnightly report on affected herds according to the geographic distribution and typed virus; a monthly bulletin of occurrences of foot-and-mouth disease, with reference to sick and dead animals, according to species and type of virus, the duration of the outbreak, and administrative information; a monthly bulletin on the movement of animals according to origin and destination, and reference as to the purpose envisaged: slaughter, or breeding; and finally, a four-monthly bulletin on the bovine population and on administrative aspects of vaccination against foot-and-mouth disease.

The project in Paraguay has recently been started, and counts already with a fortnightly report showing the occurrence of foot-and-mouth disease in terms of affected herds according to the geographic distribution and typed virus.

It is understood that this same procedure should be used and implemented in every country in order that the information services may have a common basis, and

a better comprehension among the technicians of the various countries achieved, thereby standardising and improving the epidemiological surveillance of foot-and-mouth disease at Hemisphere level. It must be noted that this same system, adequately adjusted, could be later applied to other animal diseases.

During 1973 the Center supplied permanent assistance in this sector to Brazil and Paraguay, and shall give major priority in the near future to establishing a fast, up to date and uniform information system, which will meet the needs for epidemiological surveillance of foot-and-mouth disease in the remaining countries of South-America. In 1973, and in cooperation with the Brazilian Institute of Geography and Statistics (IBGE), reticulated and coded maps of South-America and of every country of the Hemisphere were prepared. These maps will be used in the program of epidemiological surveillance of foot-and-mouth disease which the Center has proposed to COSALFA (South-American Committee to Fight Foot-and-Mouth Disease). The State of Rio Grande do Sul, in Brazil, and Paraguay, are already using these maps in their respective projects.

During 1973 the Center devoted special attention to the preparation of guide lines for evaluating foot-and-mouth disease programs; these guide lines cover the following basic aspects:

a) Effect of the program upon the disease, as expressed through the evolution of the indicators.

b) Resumé of the prognosis of risks.

c) Positive and negative (direct and indirect) factors that have influenced the development of the program.

d) Indirect effects of the program.

Evaluation of the program against foot-and-mouth disease in Paraguay was started, at the request of the authorities of that country, on the basis of these guide lines.

In cooperation with Paraguayan authorities, a pilot plan for control and eradication of foot-and-

mouth disease in the Paraguayan Chaco was started at the close of 1972; an outbreak that occurred in that region at the start of that year was eradicated, and since that time no other case of the disease has come up in that area. This pilot plan is accomplishing its principal target and has opened up the possibility of achieving the goal of freeing from foot-and-mouth disease other sectors of the Paraguayan Chaco. The feasibility of accomplishing this objective increases by virtue of the experience garnered by SENALFA and the joint collaborative efforts of important sectors of the breeder community. Although it should be viewed restrictively and with caution, this is a significant fact, since it is the first animal health program carried out in the Chaco, and besides it is a program that has been well succeeded.

Foot-and-mouth disease is a problem which is common to all the countries of America because of reciprocal influences within the affected area and the threat it poses for the area that is free from the disease. So then, prevention activities as well as control and eradication measures are interdependent between the countries, there being only some variations in number and degree among them. This gives rise to the need for standardizing techniques and procedures in the fight against foot-and-mouth disease, and for coordinating the fight in neighbouring countries. In this lines of thought, the Center has been divulging, instructing, promoting and counselling on the application of techniques and procedures for fighting the disease, and promoting and advising on the establishment of multinational foot-and-mouth disease agreements. It has also been sponsoring meetings on foot-and-mouth disease, with the countries and with other international agencies.

The main results of these activities carried out by the Center are: the adoption of a common methodology for classifying the virus of vesicular diseases, and the definition of a methodology on quality control of foot-and-mouth disease vaccines, adapted to the circumstances existing in each country. The establishment of common methodologies for planning anti foot-and-mouth disease campaign projects, are being presently promoted, as well as standardization of informative and statistical systems, as previously mentioned.

Coordination of the fight against foot-and-mouth disease between neighboring countries has produced a series of border agreements, totalling eleven in 1973. As national programs achieve significant results, the need for increasing such bilateral agreements grows. Special attention should be given to the creation of COSALFA (South-American Committee to Fight Foot-and-Mouth Disease), that constitutes one valuable means for providing favorable environment for such coordination. In view of all these motives, a surer and more solid evolution in the near future is expected to take place.

Every country affected by foot-and-mouth disease received permanent attention in 1973, through area consultants detached in Colombia, Chile, Ecuador, Paraguay, Peru, Venezuela, in the State of Rio Grande do Sul, Brazil, and from the Center headquarters. During this period, foot-and-mouth disease was manifest in every South-American country except French Guiana and Surinam. There was an outbreak in Guyana by the year's end, which was successfully and thoroughly eliminated. Chile, Paraguay and Peru registered very low incidence, which is indicative that the disease is well controlled. Table VIII shows the subtypes of foot-and-mouth disease virus identified by national diagnosis laboratories and by the Center's reference laboratory, during the year 1973. Emphasis must be placed on the fact that no new subtypes have been detected in recent years.

Six countries are carrying out campaigns at national level for the control of foot-and-mouth disease (Argentina, Brazil, Colombia, Chile, Paraguay, and Uruguay); three other are organizing their activities towards this objective (Ecuador, Peru, and Venezuela); and Bolivia is now in the process of planning its campaign.

The Inter-American Development Bank (IDB) has approved, or is completing at present its analysis, loans to every country except Uruguay that has declined the Bank's assistance.

To carry out the activities that have been previously mentioned, the following personnel will be required:

International Staff	1974	1975	1976
Chief of Service	1	1	1
Epidemiologist	1	1	1
Area Consultants	6	6	6
State Consultant	1	1	1
Headquarters Consultants in:			
Biostatistics	2	2	2
Administrative Methods	1	1	1
Vaccine Production and Control	1	1	1
Local Staff			
Secretaries	2	2	2
Programmer	-	1	1
Clerks	3	3	3
Total	18	19	19

The creation of a position of programmer, within the roster of local personnel, is anticipated; this programmer will be charged with compiling the data which is to be computorized.

Activities relating to field assistance have been assigned the following percentages of the Center's budget:

	1974	1975	1976
Services at Center headquarters	45.5%	46.6%	48.4%
Area consultants	54.5%	53.4%	51.6%

V. ADMINISTRATIVE SERVICES

There will be no changes in the local staff of the Administrative Services during 1975 and 1976.

VI. COMMON SERVICES

Provision is made for slight increases for supplies and equipment in 1975 and 1976, to cover possible price increases in products and equipment and additional maintenance service that will be needed for the laboratories and animal quarters, and for the replacement of one bus in 1975, and three vehicles in 1976.

VII. ORGANIZATION OF MEETINGS

There will be no substantial changes in the cost of the meetings of the Technical Council in 1975 and 1976. Funds for the Scientific Advisory Committee were not considered for 1976.

TABLE I

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

BREAKDOWN OF THE BUDGET IN ACCORDANCE WITH THE PROGRAM OF DIRECT SERVICES TO GOVERNMENTS

1974 - 1975 - 1976

Year	Laboratory Services (a)		Field Services for prevention and control programs (b)		Training (c)		Research (d)		Administration (e)		Total Budget	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
1974	449,060	24.0	518,290	27.7	308,729	16.5	529,517	28.3	65,488	3.5	1,871,084	100.0
1975	493,045	24.0	569,057	27.7	338,969	16.5	581,383	28.3	71,902	3.5	2,054,356	100.0
1976	541,079	24.0	612,865	27.5	381,445	17.0	640,485	28.0	80,912	3.5	2,256,786	100.0

a) Includes the item for diagnostic and reference laboratories and costs of laboratory consultants providing direct services to Governments and the cost of supplies sent to the countries.

b) In addition to the budget for field advisory services, includes costs of personnel and administrative staff of field studies on vaccines, epidemiology of the disease, carriers, etc., carried out jointly by the field advisory and laboratory departments. Also includes cost of meetings.

c) These funds include the budget of the Training Department (personnel, fellowships, national and international courses, short-term consultants, supplies and equipment, and publications) and the costs of personnel, supplies, and other administrative costs for other departments involved in training.

d) Includes the costs of research undertaken by headquarters laboratories in coordination with the institutes or laboratories of some countries. Includes costs of personnel, supplies and equipment, and administrative costs.

e) Funds intended for the general administration costs of the Center - finances, personnel, supplies and general services.

ORGANIZATIONAL CHART OF THE PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

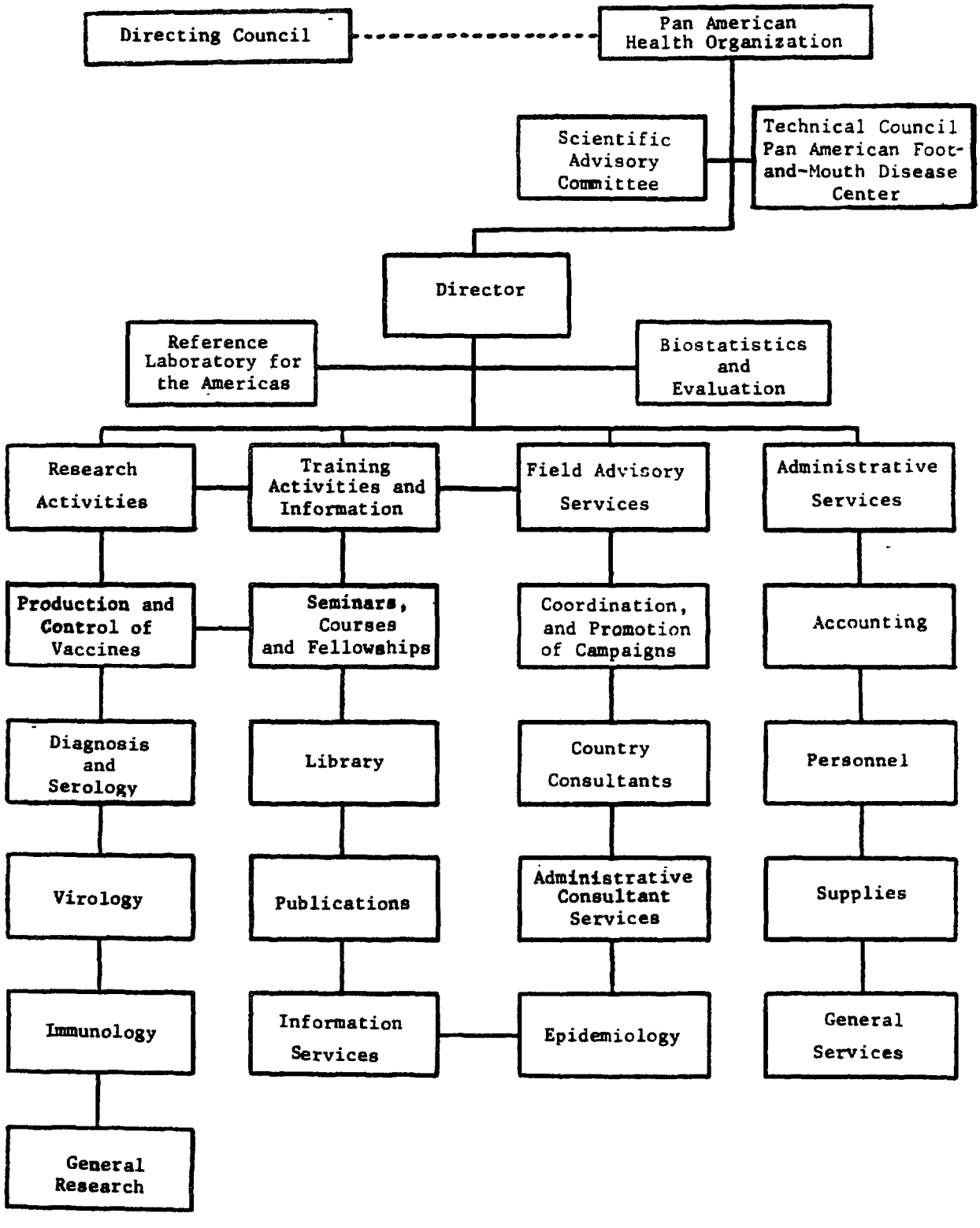


Table II

SAMPLES DIAGNOSED BY THE PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER ACCORDING TO COUNTRIES AND YEARS. SOUTH AMERICA 1952-1972

Country	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	Total
Argentina	-	-	-	-	4	-	-	18	24	71	149	375	281	112	126	126	59	116	19	81	44	1605
Bolivia	-	4	1	-	3	2	-	-	-	-	8	-	-	15	9	-	22	12	6	1	17	100
Brazil	52	85	168	251	365	489	406	490	323	775	159	234	160	154	382	42	290	116	236	279	441	5897
Chile	-	-	-	-	-	-	2	-	-	-	-	3	-	-	-	12	-	10	9	50	5	91
Colombia	-	2	-	-	-	15	10	9	34	16	-	62	48	2	7	23	4	16	9	11	5	273
Ecuador	20	1	-	-	12	3	-	9	28	9	128	175	10	8	2	9	13	46	-	14	4	491
Guyana	-	-	-	-	-	-	-	-	-	16	-	-	-	-	-	-	-	17	3	-	-	36
Paraguay	32	-	10	10	-	1	-	7	3	-	-	1	1	-	1	-	84	232	70	10	-	462
Perú	-	5	-	-	-	-	2	3	-	6	3	3	19	5	11	11	14	20	12	31	10	155
Uruguay	-	-	-	2	-	4	16	6	5	-	-	53	19	26	54	21	6	11	2	5	7	237
Venezuela	-	6	11	-	-	-	12	2	12	4	3	18	1	-	5	7	2	15	9	36	2	145
T o t a l	104	103	190	263	384	514	448	544	429	897	450	924	539	322	597	351	494	611	375	518	535	9492

Table III

CLASSIFICATION OF FOOT-AND-MOUTH DISEASE VIRUS IN SOUTH AMERICA IN THE PERIOD 1958-1973 a/

Virus		Period of Study c/	Observations
Strain b/	Subtype		
A-Santos Brazil/58	A_{13}	1958 - 62	These 4 viruses were isolated in slaughterhouses, from cattle used to produce antigen for preparing vaccine by the Waldmann method. Production was stopped in good time.
O-Bahia Brazil/60	O_8	1960 - 62	
A-Belem Brazil/59	A_{16}	1960 - 64	
A-Guarulhos Brazil/59	A_{17}	1960 - 64	
A-Zulia Venezuela/62	A_{18}	1962 - 64	Isolated in 1962 and 1963 in Venezuela during an epidemic of foot-and-mouth disease in the state of Zulia, but not identified again since then.
A-Suipacha Argentina/62	A_{19}	1963 - 64	Slightly spread over the Argentina campo in 1963.
O-Campos Brazil/58	O_1	1966 - 67	Subtype representative of South America since 1958, when it was first diagnosed.
A-Argentina/61	A_{10}	1965 - 67	Subtype exotic in South America, only isolated in Argentina in 1961; suspected connection with use of vaccine prepared with imported antigens.
A-Cruzeiro Brazil/55	A_{24}	1966 - 67	Subtype representative of South America, except Colombia and Venezuela.
A-Argentina/59	A_{25}	1965 - 67	Diagnosed sporadically in Argentina, Bolivia, Brazil and Uruguay from 1959 through 1963.

cont....

Table III. Cont.

Virus		Period of Study[a]	Observations
Strain[b]	Subtype		
A-Argentina/66	A_{26}	1966 - 67	Of epidemiological importance from 1963 through 1967 in Argentina. Since then only isolated sporadically in that country, Chile and Uruguay.
C-Resende Brazil/55	C_3	1967 - 69	Subtype representative of the affected countries of South America since 1955, Argentina excepted.
C-Tierra del Fuego Argentina/66	C_4	1967 - 69	Virus isolated only in one outbreak that occurred in Tierra del Fuego, Argentina, in December 1966, and was stamped out by slaughter.
A-Colombia/67	A_{27}	1967	Subtype similar to the A_5 of Europe. Prevailing in Colombia since 1967.
A-Perú/69	A_{29}	1969 - 70	Only identified in the south of Perú during 1969.
A-Uruguay/68[d]	A_{30}	1969 - 70	Isolated in Uruguay in 1945. Its presence has not been recorded, at least since 1960.
A-Colombia/69	A_{31}	1969 - 70	Diagnosed only in the Bogotá savanna, in 1969 and 1970.
C-Argentina/69	C_5	1969 - 70	Subtype representative of Argentina from 1969 on.
C-Pando Uruguay/45	C_2	1969	Isolated since 1945 in Uruguay. Classified by the Center in 1969 with sera and viruses supplied by the WRL. Subsequently identified in Chile and Paraguay.
A-Venezuela/70	A_{32}	1970	Subtype representative of Venezuela since 1969.

a/ Work performed in cooperation with the Pan American Foot-and-Mouth Disease Center and the World Reference Laboratory, in Pirbright, United Kingdom.

b/ The strains are named according to the type of virus to which they belong and the place, country and year they were first isolated.

c/ The first date corresponds to the year the virus was studied in the Center and the second to the year it was classified by the World Reference Laboratory.

d/ Year it was received by the Center.

Table IV

CLASSIFICATION OF VESICULAR STOMATITIS VIRUS
JOINT STUDY BY THE PAN AMERICAN FOOT AND MOUTH DISEASE CENTER
AND THE WORLD REFERENCE LABORATORY (WRL)

P.A.F.M.D.C.		W.R.L.		Comments
Strain	Date sent to WRL	Subtype	Date when classified	
Indiana-Salto (Argentina 63)	Jan. 11, 1965	Indiana$_2$	Aug. 5, 1965	Diagnosed in the Province of Buenos Aires (Argentina) in 1963 and in the state of São Paulo (Brazil) in 1965/66.
Indiana-Alagoas (Brazil 64)	Jan. 11, 1965	Indiana$_3$	Aug. 5, 1965	Diagnosed in the states of Alagoas and Minas Gerais (Brazil) in the years 1964 and 1972 respectively.

These subtypes are the only ones diagnosed up to date within the range of the Indiana type and also of vesicular stomatitis virus. Both were characterized by affecting horses exclusively.

Table V

RESULT OF THE EXAMINATION OF FIELD SAMPLES (EPITHELIUM), FORWARDED IN 1973

BY COUNTRIES AFFECTED WITH FOOT-AND-MOUTH DISEASE

Country	O		A			C		Negative	Total
	O Vallée	O_1	A Vallée	A_{24}	A_{27}	C Waldmann	C_3		
Argentina	-	34	-	14	-	-	-	-	48
Brazil	3	12	6	22	-	2	7	25	77
Colombia	-	1	-	-	2	-	-	-	3
Chile	-	-	-	2(+)	-	-	-	1	3
Paraguay	-	-	-	2	-	-	-	-	2
Guyana	-	-	-	4	-	-	-	3	7
Total	3	47	6	44	2	2	7	29	140

(+) Correspond to imported cattle under quarantine.

Table VI

RESULT OF THE EXAMINATION OF ANTIBODIES ANTI-VIA IN FIELD SAMPLES (SERUM), FORWARDED IN 1973 BY COUNTRIES AFFECTED WITH FOOT-AND-MOUTH DISEASE

Country	Antibodies Anti-VIA		T o t a l
	Positive	Negative	
Brazil	8	42	50
Colombia	20	149	169
Guyana	1	12	13
Paraguay	646	1706	2352
T o t a l	675	1909	2584

Table VII

RESULT OF THE EXAMINATION OF FIELD SAMPLES (EPITHELIUM AND SERUM), FORWARDED IN 1973 BY COUNTRIES AFFECTED WITH FOOT-AND-MOUTH DISEASE

P a í s	New Jersey		Indiana		Negative		T o t a l
	Epith.	Serum	Epith.	Serum	Epith.	Serum	
Aruba	1	-	-	-	-	-	1
Belize	2	1	-	-	2	1	6
Costa Rica	16	-	-	-	7	-	23
Curaçao(+)	3	-	3(++)	-	7	-	13
El Salvador	17	34	-	-	5	3	59
Guatemala	22	-	-	-	5	5(+++)	32
Honduras	13	-	3	-	4	-	20
Nicaragua	17	-	-	-	18	-	33
Panama	1	-	-	-	-	-	1
T o t a l	92	35	6	-	48	9	190

(+) Correspond to import cattle.

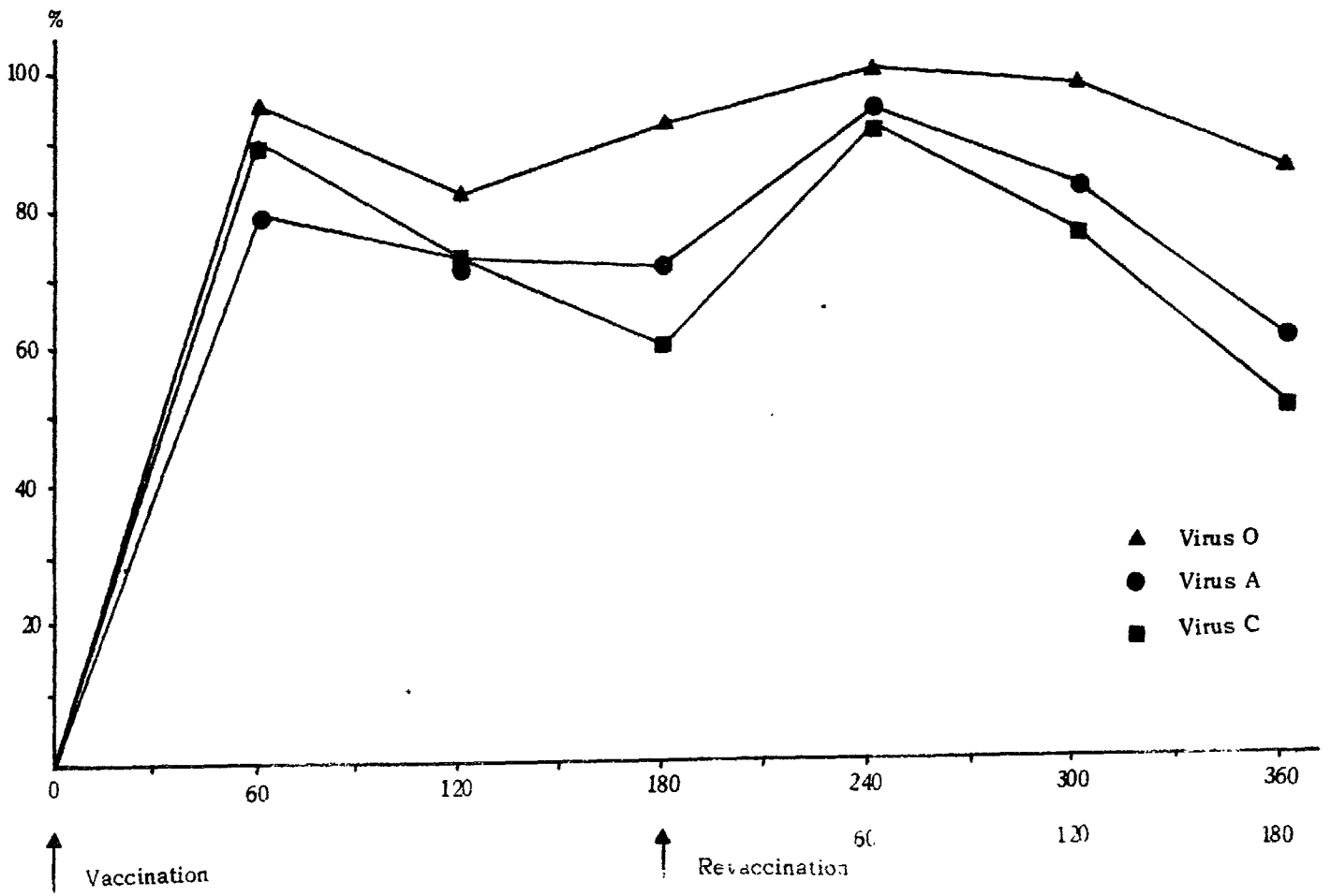
(++) One sample also reacted with New Jersey serum.

(+++) Correspond to elephants.

Graph 1

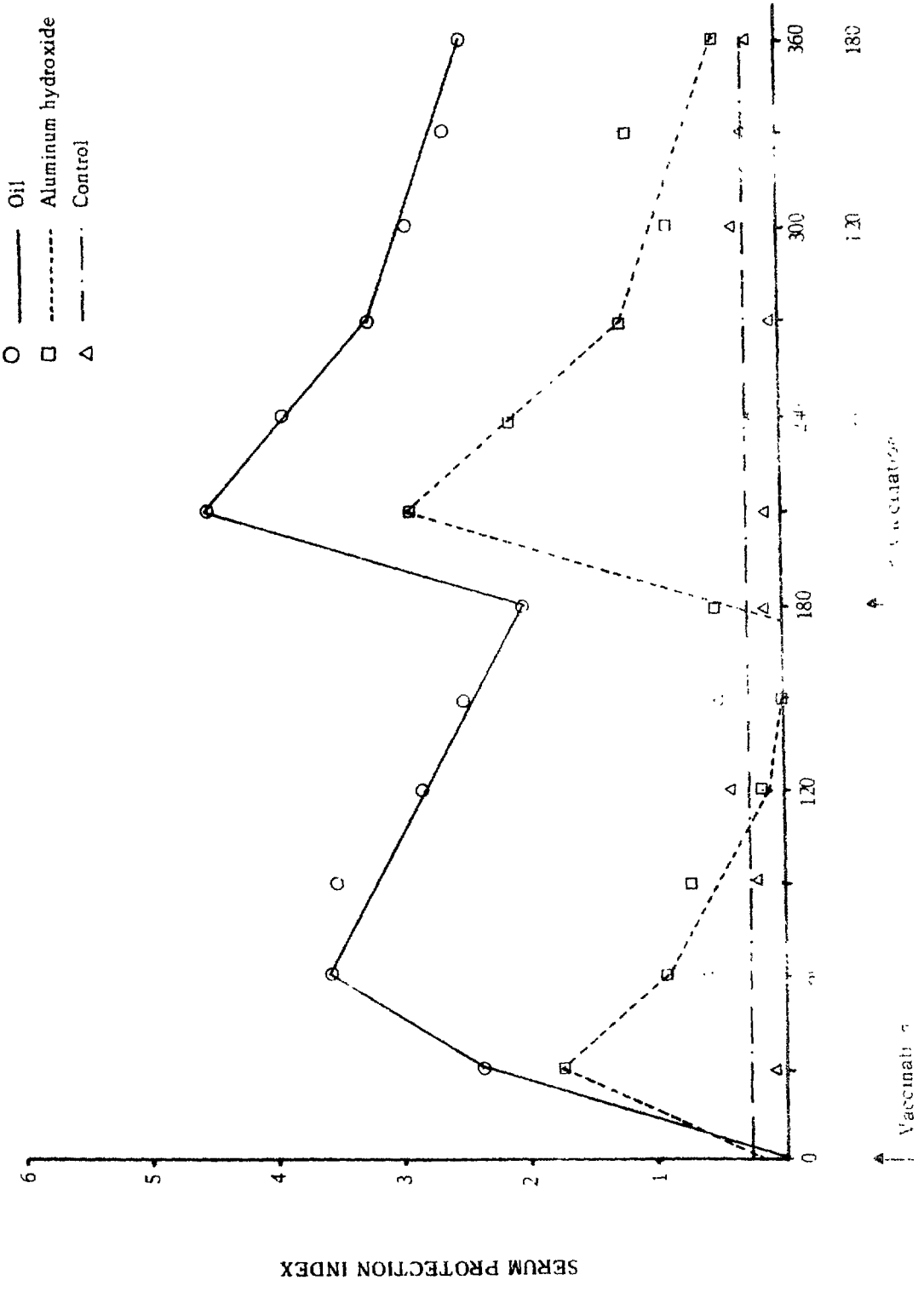
TEMPORAL VARIATION OF PERCENTAGE OF CATTLE WITH SPI ≥ 2,

VACCINATED AGAINST FOOT-AND-MOUTH DISEASE WITH OIL VACCINE, ACCORDING TO VIRUS TYPE



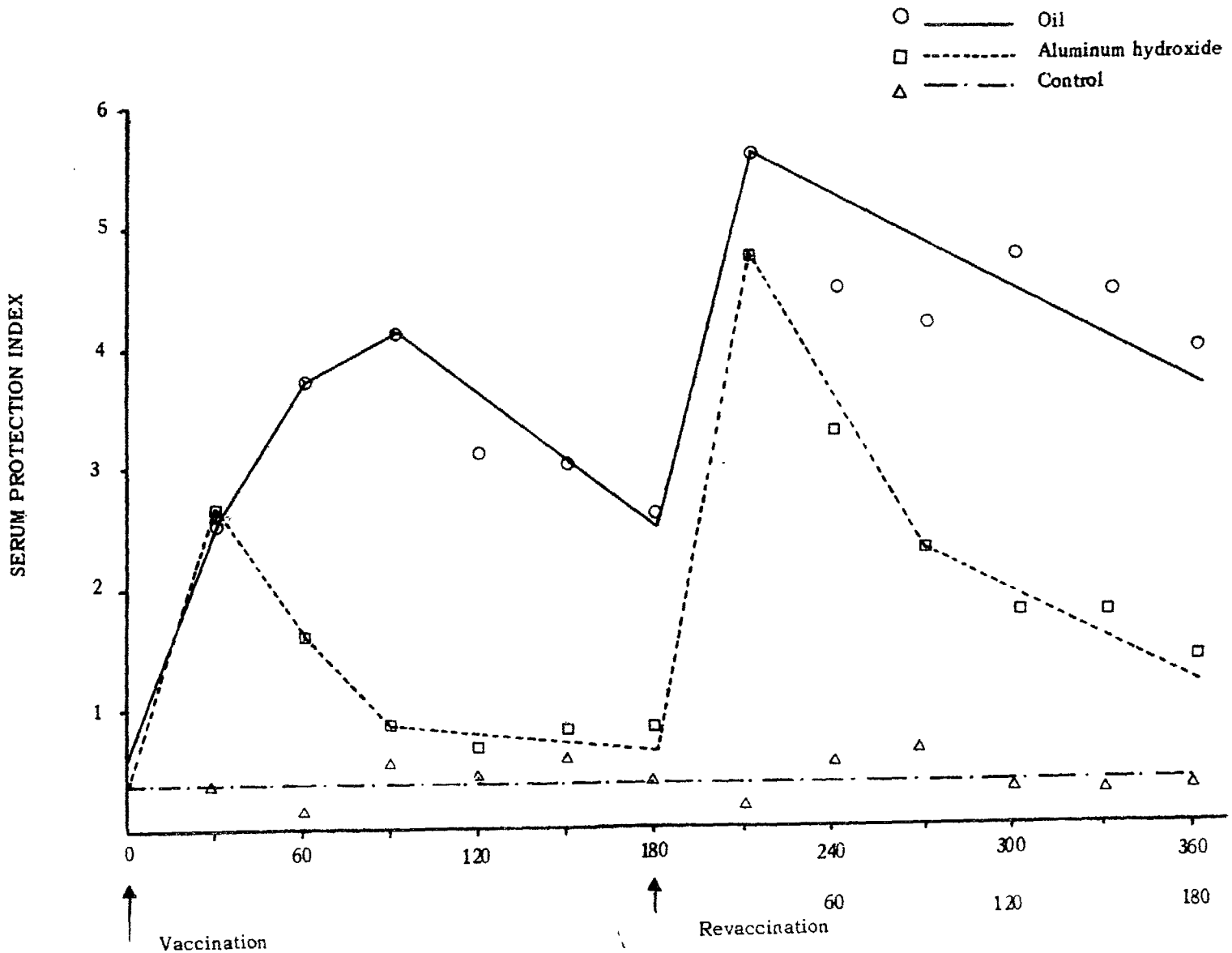
Graph 2

TEMPORAL VARIATION OF SPI FOR VIRUS O IN CATTLE VACCINATED AGAINST FOOT-AND-MOUTH DISEASE, ACCORDING TO ADJUVANT TYPE



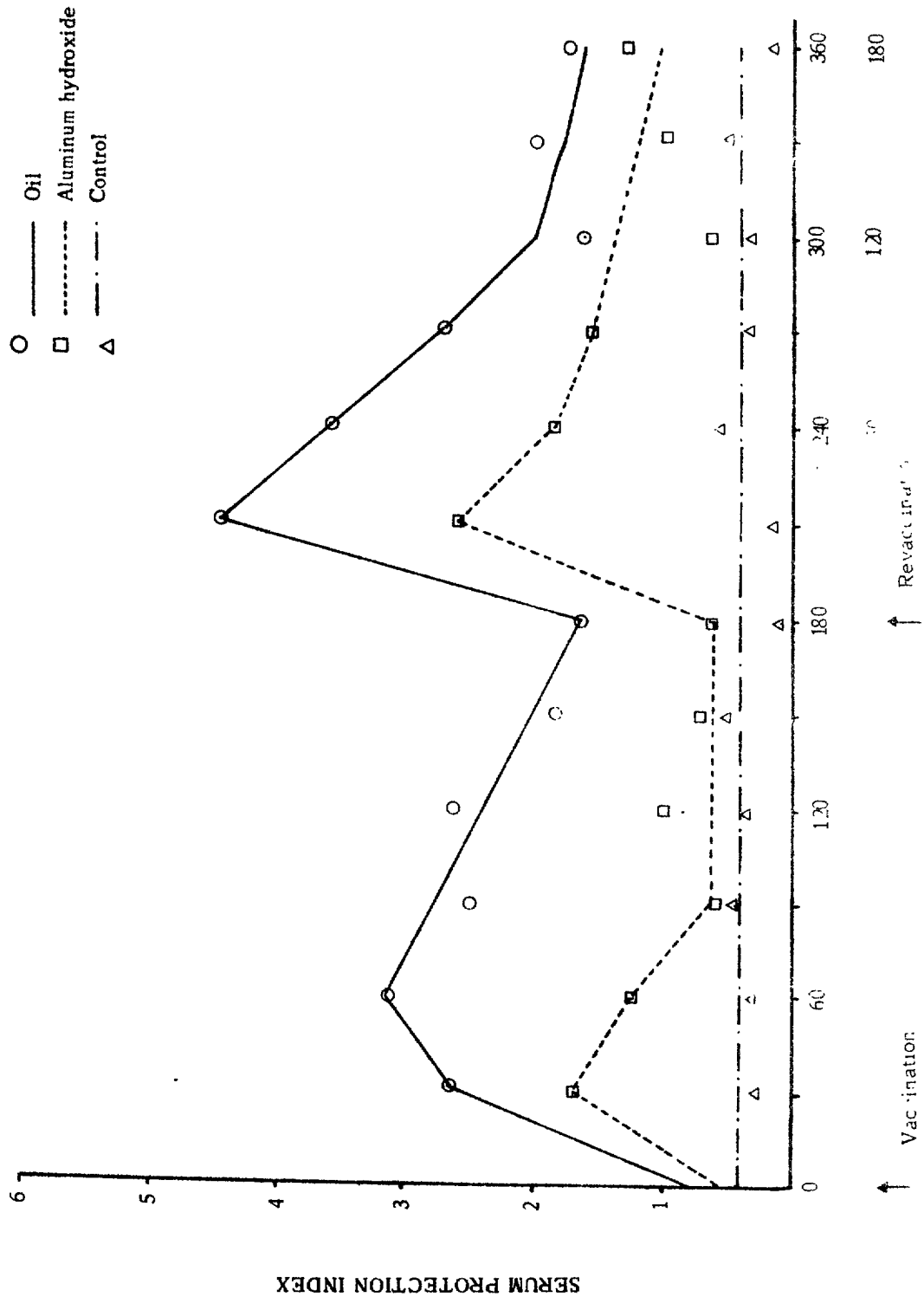
Graph 1

TEMPORAL VARIATION OF SPI FOR VIRUS A IN CATTLE VACCINATED AGAINST FOOT-AND-MOUTH DISEASE, ACCORDING TO ADJUVANT TYPE



Graph 4

TEMPORAL VARIATION OF SPI FOR VIRUS C IN CATTLE VACCINATED AGAINST FOOT-AND-MOUTH DISEASE, ACCORDING TO ADJUVANT TYPE



TIME-SCHEDULE FOR THE OIL VACCINE RESEARCH PROGRAM

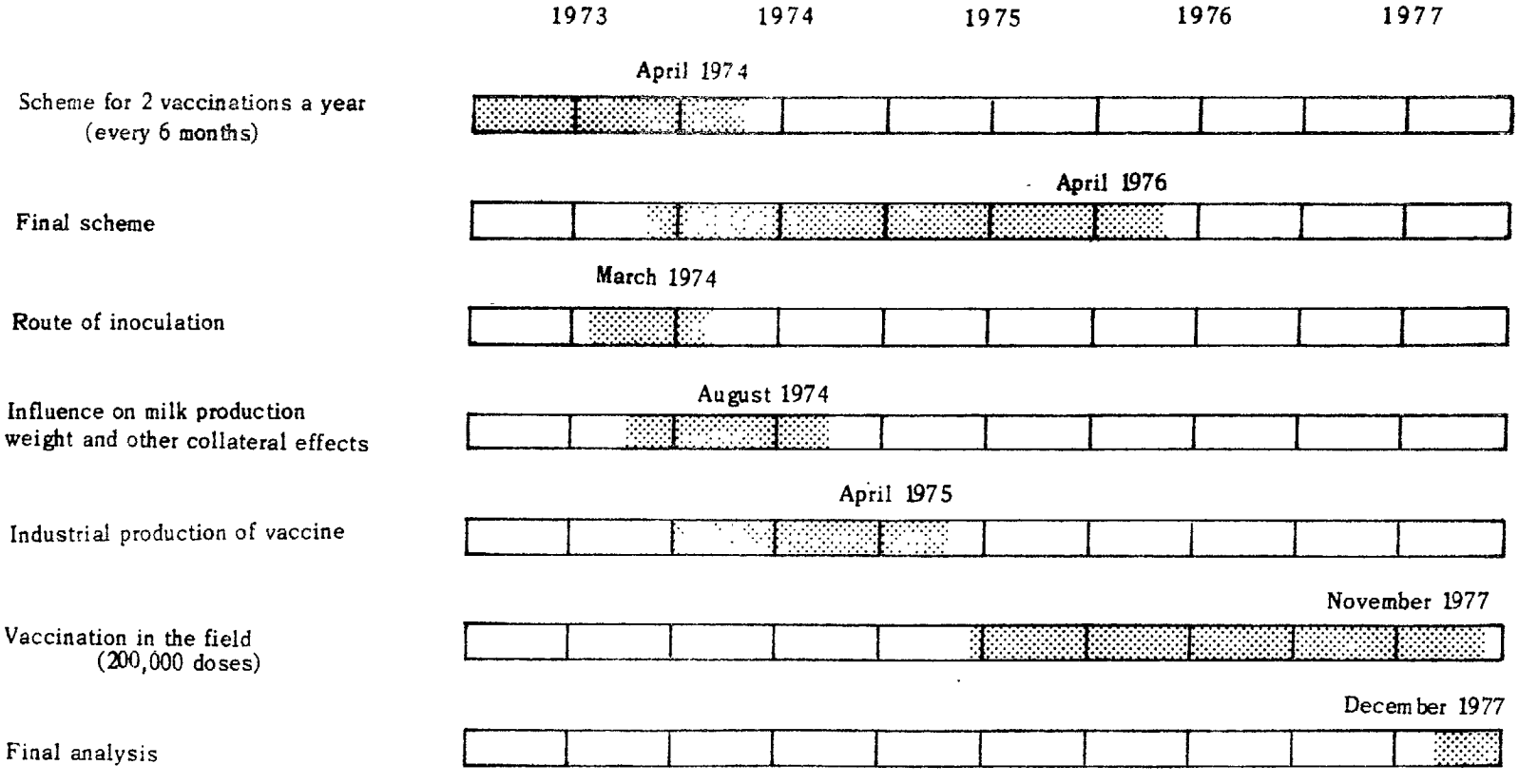


Table VIII

SUBTYPES OF FOOT-AND-MOUTH DISEASE VIRUS IDENTIFIED BY NATIONAL DIAGNOSIS LABORATORIES AND BY THE PAN-AMERICAN FOOT-AND-MOUTH DISEASE CENTER, IN SOUTH AMERICA DURING 1973

	Subtypes							
Country	O_1	A_{24}	A_{26}	A_{27}	A_{32}	C_2	C_3	C_5
Argentina	x	x	x	-	-	-	-	x
Bolivia	x	x	-	-	-	-	-	-
Brazil	x	x	-	-	-	-	x	-
Colombia	x	-	-	x	x	-	-	-
Chile	x	x	x[a]	-	-	-	-	-
Ecuador	x	x	-	-	-	-	-	-
Paraguay	x	x	-	-	-	x	x	-
Peru	x	x	-	-	-	-	-	-
Uruguay	x	x	-	-	-	x	x	-
Venezuela	x	-	-	x	x	-	-	-

[a] Diagnosed in samples of imported cattle under quarantine.

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

BREAKDOWN OF THE BUDGET FOR 1974

	Office of Director	Research Activities	Training Activities	Field Advisory Services	Administr. Services	Common Services	Organiz. Meetings	Total	% of Total
Personal Services and Allowances	91,126	841,142	113,238	379,953	84,805	-	-	1,510,264	80.7
Duty Travel	6,817	20,244	3,847	41,919	-	-	23,000	95,827	5.1
Fellowships	-	-	31,042	-	-	-	-	31,042	1.7
Short-term Consultant	-	-	3,440	-	-	-	2,000	5,440	0.3
Supplies and Equipment	-	91,961	11,480	4,350	2,200	36,000	-	145,991	7.8
Contractual Services	-	6,850	9,670	-	1,650	51,500	9,000	78,670	4.2
Publications	-	-	3,850	-	-	-	-	3,850	0.2
Total	97,943	960,197	176,567	426,222	88,655	87,500	34,000	1,871,084	
% of Total	5.2	51.3	9.4	22.8	4.8	4.7	1.8		100.0

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

BUDGET

1 January - 31 December 1974

Office of the Director		97,943
Salaries and allowances		91,126
Professional staff (2)		
Director, P.6 Administrative officer, P.4		
Local staff (3)		
Duty travel		6,817
Research activities		960,197
Salaries and allowances		841,142
Professional staff (11)		
Chief of Laboratory, P.5 Virologist, P.4 Serologist, P.4 Research Officer, P.4 Biochemist, P.4 Immunologist, P.4 Research Officer, P.4 Research Officer, P.4 Serologist, P.4 Technical Officer, P.1 Technical Officer, P.1		
Local staff (114)		
Duty travel		20,244
Supplies and equipment		91,961
Supplies	74,461	
Equipment	17,500	
Contractual services		6,850

1974 BUDGET (continued)

Training activities				176,567
Salaries and allowances				113,238
Professional staff (3)				
Chief of training activities, P.4 Technical translator, P.2 Technical publications officer, P.2				
Local staff (8)				
Duty travel				3,847
Short-term consultants				3,440
Fellowships				31,042
		Period	Stipends	Travel
Residents		72 months	14,640	11,086
24 fellows from: Argentina (1), Bolivia (2), Brazil (2), Chile (1), Colombia (2), Cuba (1), Dominican Republic (1), Ecuador (2), Guatemala (1), Haiti (1), Jamaica (1), Panama (1), Paraguay (2), Peru (2), Uruguay (1), Venezuela (2), United States of America (1)				
Seminar in Rio de Janeiro, Brazil		21 days	1,760	3,556
11 fellows from: Argentina (1), Bolivia (1), Brazil (2), Chile (1), Colombia (1), Ecuador (1), Paraguay (1), Peru (1), Uruguay (1), Venezuela (1)				

1974 BUDGET (continued)

Publications		3,850
Supplies and equipment		11,480
Supplies	9,680	
Equipment	1,800	
Contractual services		9,670
Advisory services		**426,222**
Salaries and allowances		379,953
Professional staff (13)		
Chief of field services, P.5		
Veterinarian, P.4		
6 country consultants, P.4		
Administrative consultant, P.4		
Biostatistician, P.4		
Vaccine consultant, P.4		
Statistician, P.4		
State consultant, P.2		
Local staff (5)		
Duty travel		41,919
Supplies and equipment		4,350
Supplies	1,650	
Equipment	2,700	
Administrative services		**88,655**
Salaries and allowances		84,805
Local staff (11)		
Supplies and equipment		2,200
Contractual services		1,650

1974 BUDGET (continued)

Common services		87,500
Supplies and equipment		36,000
Supplies	26,000	
Equipment	10,000	
Contractual services		51,500
Meetings		34,000
Technical Council Meeting		34,000
Duty travel	13,000	
Per diem	10,000	
Short-term consultants	2,000	
Interpreters	6,000	
Local transportation, printing and general services	1,500	
Secretariat personnel	1,500	
Total		1,871,084

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

1974 - BUDGET

RESEARCH ACTIVITIES

	Diagnosis and Reference	Inactivated Vaccine	Modified live virus vaccine	Virus Survival	General Investigat.	Total	% of Total
Personal Services and Allowances							
International Staff	63,100	63,127	72,821	29,813	32,426	261,287	27.2
Local Staff	101,475	173,319	124,030	92,893	88,138	579,855	60.4
Duty Travel	3,118	4,662	6,984	3,030	2,450	20.244	2.1
Supplies and Equipment	10,824	50,137	14,539	6,253	10,208	91,961	9.6
Contractual Services	1,370	1,370	1,370	1,370	1,370	6,850	0.7
Total	179,887	292,615	219,744	133,359	134,592	960,197	
% of Total	18.7	30.5	22.9	13.9	14.0		100.0

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

1974 - BUDGET

FIELD ADVISORY SERVICES

	Regional Advisers	Advisers at headquarters	Total	% of Total
Personal Services and Allowances				
International Staff	208,665	140,200	348,865	81.9
Local Staff	-	31,088	31,088	7.3
Duty travel	23,695	18,224	41,919	9.8
Supplies and Equipment	-	4,350	4,350	1.0
Total	232,360	193,862	426,222	
% of Total	54.5	45.5		100.0

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

BREAKDOWN OF THE BUDGET FOR 1975

REGULAR BUDGET	Office of Director	Research Activities	Training Activities	Field Advisory Services	Administrat. Services	Common Services	Organizat. Meetings	Total	% of Total
Personal Services and Allowances	98,495	944,196	118,143	394,174	102,888	-	-	1,657,896	80.7
Duty Travel	6,817	20,244	3,847	41,919	-	-	39,000	111,827	5.4
Fellowships	-	-	51,682	-	-	-	-	51,682	2.6
Short-Term Consultant	-	-	3,440	-	-	-	2,000	5,440	0.3
Supplies and Equipment	-	85,261	9,680	1,650	2,200	46,000	-	144,791	7.0
Contractual Services	-	7,050	9,670	-	1,650	51,500	9,000	78,870	3.8
Publications	-	-	3,850	-	-	-	-	3,850	0.2
Total	105,312	1,056,751	200,312	437,743	106,738	97,500	50,000	2,054,356	
% of Total	5.1	51.5	9.8	21.3	5.2	4.7	2.4		100.0

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

BUDGET

1 January - 31 December 1975

Office of the Director		105,312
Salaries and allowances		98,495
Professional staff (2)		
Director, P.6 Administrative officer, P.4		
Local staff (3)		
Duty travel		6,817
Research Activities		1,056,751
Salaries and allowances		944,196
Professional staff (11)		
Chief of Laboratory, P.5 Virologist, P.4 Serologist, P.4 Research officer, P.4 Biochemist, P.4 Immunologist, P.4 Serologist, P.4 Research officer, P.4 Research officer, P.4 Technical officer, P.1 Technical officer, P.1		
Local staff (118)		
Duty travel		20,244
Supplies and equipment		85,261
Supplies	75,261	
Equipment	10,000	
Contractual services		7,050

1975 BUDGET (continued)

Training activities				200,312
Salaries and allowances				118,143
Professional staff (3)				
Chief of training activities, P.4 Technical publications officer, P.2 Translator, P.2				
Local staff (9)				
Duty travel				3,847
Short-term consultants				3,440
Fellowships				51,682
		Period	Stipends	Travel
Residents		72 months	18,300	11,215
24 fellows from: Argentina (1), Bolivia (2), Brazil (2), Chile (1), Colombia (2), Cuba (1), Dominician Republic (1), Ecuador (2), Guatemala(1), Haiti (1), Jamaica (1), Panama (1), Paraguay (2), Peru (2), Uruguay (1), Venezuela (2), United States of America(1)				
Seminars				
Seminar in Rio de Janeiro, Brazil		21 days	4,620	3,551
11 fellows from: Argentina Bolivia, Brazil (2), Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela				

1975 BUDGET (continued)

	Period	Stipends	Travel	
Seminar in Argentina	21 days	4,620	2,330	
11 fellows from: Argentina (2), Bolivia, Brazil; Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela				
Seminar in Nicaragua	21 days	4,536	2,510	
12 fellows from:Costa Rica, Cuba, Dominican Republic, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama, Surinam				
Publications				3,850
Supplies and equipment				9,680
Supplies			9,680	
Contractual services				9,670
Advisory services				437,743
Salaries and allowances				394,174
Professional staff (13)				
Chief of field services, P.5 Veterinarian, P.4 6 country consultants, P.4 Biostatistician, P.4 Vaccine consultant, P.4 Statistician, P.4 Administrative consultant, P.4 State consultant, P.2				
Local staff (6)				

1975 BUDGET (continued)

Duty travel		41,919
Supplies and equipment		1,650
Supplies	1,650	
Administrative services		106,738
Salaries and allowances		102,888
Local staff (11)		
Supplies and equipment		2,200
Contractual services		1,650
Common services		97,500
Supplies and equipment		46,000
Supplies	26,000	
Equipment	20,000	
Contractual services		51,500
Meetings		50,000
Technical Council Meeting		34,000
Duty travel	13,000	
Per diem	10,000	
Short-term consultants	2,000	
Interpreters	6,000	
Local transportation, printing and general services	1,500	
Secretariat personnel	1,500	
Scientific Advisory Committee		16,000
Duty travel	10,000	
Per diem	6,000	
Total		2,054,356

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

1975 - BUDGET

RESEARCH ACTIVITIES

	Diagnosis and Reference	Inactivated Vaccine	Modified Live Virus Vaccine	Virus Survival	General Investigat.	Total	% of Total
Personal Services and Allowances							
International Staff	65,996	66,023	76,161	31,181	33,913	273,274	25.9
Local Staff	117,411	200,539	143,510	107,482	101,980	670,922	63.5
Duty Travel	3,118	4,662	6,984	3,030	2,450	20,244	2.0
Supplies and Equipment	10,035	46,484	13,480	5,798	9,464	85,261	8.0
Contractual Services	1,410	1,410	1,410	1,410	1,410	7,050	0.6
Total	197,970	319,118	241,545	148,901	149,217	1,056,751	
% of Total	18.7	30.2	23.0	14.0	14.1		100.0

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

1975 - BUDGET

FIELD ADVISORY SERVICES

	Regional Advisers	Advisers at Headquarters	Total	% of Total
Personal Services and Allowances				
International Staff	210,133	146,207	356,340	81.4
Local Staff	-	37,834	37,834	8.6
Duty Travel	23,695	18,224	41,919	9.6
Supplies and Equipment	-	1,650	1.650	0.4
Total	233,828	203,915	437,743	
% of Total	53.4	46.6		100.0

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

BREAKDOWN OF THE BUDGET FOR 1976

REGULAR BUDGET	Office of Director	Research Activities	Training Activities	Field Advisory Services	Administrat. Services	Common Services	Organizat. Meetings	Total	% of Total
Personal Services and Allowances	103,186	1,053,778	137,426	392,397	114,070	-	-	1,800,857	79.7
Duty Travel	7,477	27,498	4,327	61,491	-	-	23,000	123,793	5.5
Fellowships	-	-	64,716	-	-	-	-	64,716	2.9
Short-Term Consultant	-	-	4,000	-	-	-	2,000	6,000	0.3
Supplies and Equipment	-	98,050	13,130	1,900	4,530	50,000	-	167,610	7.4
Contractual Services	-	8,110	11,140	-	1,900	59,230	9,000	89,380	4.0
Publications	-	-	4,430	-	-	-	-	4,430	0.2
Total	110,663	1,187,436	239,169	455,788	120,500	109,230	34,000	2,256,786	
% of Total	4.9	52.7	10.6	20.2	5.3	4.8	1.5		100.0

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

BUDGET

1 January - 31 December 1976

Office of the Director		110,663
Salaries and allowances		103,186
Professional staff (2)		
Director, P.6 Administrative officer, P.4		
Local staff (3)		
Duty travel		7,477
Research activities		1,187,436
Salaries and allowances		1,053,778
Professional staff (11)		
Chief of Laboratory, P.5 Virologist, P.4 Serologist, P.4 Research officer, P.4 Biochemist, P.4 Immunologist, P.4 Research officer, P.4 Research officer, P.4 Serologist, P.4 Technical officer, P.1 Technical officer, P.1		
Local staff (118)		
Duty travel		27,498
Supplies and equipment		98,050
Supplies	86,550	
Equipment	11,500	
Contractual services		8,110

1976 BUDGET (continued)

Training activities				239,169
Salaries and allowances				137,426
Professional staff (3)				
Chief of training activities, P.4 Technical translator, P.2 Technical publications officer, P.2				
Local staff (9)				
Duty travel				4,327
Short-term consultans				4,000
Fellowships				64,716
		Period	Stipends	Travel
Residents	72	months	21,600	12,000
24 fellows from: Argentina (1), Bolivia (2), Brazil (2), Chile (1), Colombia (2), Cuba (1), Dominican Republic (1), Ecuador (2), Guatemala(1), Haiti (1), Jamaica (1), Panama (1), Paraguay (2), Peru (2), Uruguay (1), Venezuela (2), United States of America(1)				
Seminars				
In Rio de Janeiro, Brazil	21	days	6,930	3,600
11 fellows from: Argentina(1), Brazil (2), Paraguay (1), Bolivia (1), Ecuador (1), Colombia (1), Venezuela (1), Peru (1), Chile (1), Uruguay (1)				

1976 BUDGET (continued)

	Period	Stipends	Travel	
Seminar in Panama	21 days	7,056	3,000	
12 fellows from:Nicaragua, Guatemala, Panama, El Salvador, Honduras, Costa Rica, Cuba, Haiti, Dominican Republic, Jamaica, Guyana, Surinam				
Seminar in Rio de Janeiro, Brazil	21 days	6,930	3,600	
11 fellows from:Argentina (1), Brazil (2), Paraguay (1), Bolivia (1), Ecuador (1), Colombia (1), Venezuela (1), Peru (1), Chile (1), Uruguay (1)				
Publications				4,430
Supplies and equipment				13,130
Supplies		11,130		
Equipment		2,000		
Contractual services				11,140
Advisory services				455,788
Salaries and allowances				392,397
Professional staff (13)				
Chief of field services, P.5				
Veterinarian, P.4				
6 country consultants, P.4				
Administrative consultant P.4				
Biostatistician, P.4				
Vaccine consultant, P.4				
Statistician, P.4				
State consultant, P.2				
Local staff (6)				

1976 BUDGET (continued)

Duty travel		61,491
Supplies and equipment		1,900
Supplies	1,900	
Administrative services		120,500
Salaries and allowances		114,070
Local staff (11)		
Supplies and equipment		4,530
Supplies	2,530	
Equipment	2,000	
Contractual services		1,900
Common services		109,230
Supplies and equipment		50,000
Supplies	30,000	
Equipment	20,000	
Contractual services		59,230
Meetings		34,000
Technical Council Meeting		34,000
Duty travel	13,000	
Per diem	10,000	
Short-term consultants	2,000	
Interpreters	6,000	
Local transportation, printing and general services	1,500	
Secretariat personnel	1,500	
Total		2,256,786

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

1976 - BUDGET

RESEARCH ACTIVITIES

	Diagnosis and Reference	Inactivated Vaccine	Modified Live Virus Vaccine	Virus Survival	General Investigat.	Total	% of Total
Personal Services and Allowances							
International Staff	66,261	66,292	77,335	32,231	34,775	276,894	23.3
Local Staff	135,955	232,211	166,175	124,457	118,086	776,884	65.4
Duty Travel	4,235	6,333	9,487	4,116	3,327	27,498	2.3
Supplies and Equipment	11,540	53,457	15,502	6,667	10,884	98,050	8.3
Contractual Services	1,622	1,622	1,622	1,622	1,622	8,110	0.7
Total	219,613	359,915	270,121	169,093	168,694	1,187,436	
% of Total	18.5	30.3	22.8	14.2	14.2		100.0

PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER

1976 - BUDGET

FIELD ADVISORY SERVICES

	Regional Advisers	Advisers at Headquarters	Total	% of Total
Personal Services and Allowances				
International Staff	203,559	139,629	343,188	75.3
Local Staff	-	49,209	49,209	10.8
Duty Travel	31,424	30,067	61,491	13.5
Supplies and Equipment	-	1,900	1,900	0.4
Total	234,983	220,805	455,788	
% of Total	51.6	48.4		100.0