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REPORT ON THE VIII MEETING OF DIRECTORS OF NATIONAL RABIES CONTROL PROGRAMS IN LATIN AMERICA (REDIPRA)

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Annex

1. Background

One of the priorities of the Program on Veterinary Public Health of the Pan American Health Organization (PAHO) is to provide technical cooperation to the countries for the elimination of human rabies transmitted by dogs. Initially, the countries made a commitment to eliminate urban rabies from the principal cities of the Region at the III Inter-American Meeting, at the Ministerial Level, on Animal Health (RIMSA). This commitment was ratified at the XXXI Meeting of the Directing Council of PAHO held in 1983. That same year the I Meeting of Directors of National Programs for Prevention and Control of Rabies (REDIPRA) was convened in Guayaquil, Ecuador. At this meeting strategies were approved and an “action plan for the elimination of urban rabies from the principal cities of Latin America by the end of the 1980s” was defined.

Implementation of this “action plan” was evaluated in II and III REDIPRA, held in Brasilia, Brazil, in 1988, and in Porto Alegre, Brazil, in 1989, respectively. At IV REDIPRA, held in Mexico City in October 1992, the countries were informed about the expansion of the plan to eliminate human rabies transmitted by dogs to small settlements and rural areas, and the timetable for reaching the goal of elimination was extended to the year 2000. Also emphasized was the need to improve epidemiological surveillance of sylvatic rabies, in particular rabies transmitted by vampire bats.

In V REDIPRA, held in Santo Domingo, Dominican Republic, in 1995, it was recommended that the countries develop strategies for prevention and control of rabies in border areas at risk, establish regional commissions for the elimination of rabies, and prepare a guide for the development and evaluation of educational programs about rabies, among other recommendations.

Two years later, in April 1997, VI REDIPRA was held in Quito, Ecuador. The meeting sought to analyze the achievements of the program to eliminate rabies transmitted by dogs and to adjust the action plan for consolidation of the final attack phase. In addition, there was discussion of strategies for reference diagnosis and for assuring the quality of rabies biologicals.

VII REDIPRA, held in Puerto Vallarta, Mexico, in October 1998, analyzed the progress of the strategic plan for the elimination of human rabies transmitted by dogs, and analyzed and adjusted activities for plan’s consolidation phase projected for the biennium 2000–2001. Strategies and activities for the protection and maintenance of rabies-free areas were defined, as well as for surveillance, prevention, and control of sylvatic rabies.

As convened by the Director of PAHO, Dr. George Alleyne, VIII REDIPRA was held in the city of Lima, Peru, from 16 to 18 October, 2000.

2. Objectives

The objectives of VIII REDIPRA were to:

- Analyze the progress of the regional strategic plan for the elimination of human rabies transmitted by dogs in Latin America;
- Analyze the current situation (advances and limitations) of the different components of the regional plan of action; and
- Define technical cooperation strategies and activities for formulation of the operational plan for the biennium 2002–2003.

3. Participants

Seventy-nine professionals from various countries and institutions participated in the meeting. They included 15 staff members and technicians from PAHO; 40 observers; the national directors of the programs for control and elimination of rabies in 20 countries of Latin America (Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela); and representatives of WHO Collaborating Centers (Centers for Disease Control and Prevention of the United States, Institute Pasteur of Paris, France, and Animal Diseases Research Institute of Ontario, Canada).

4. Opening Ceremony and Election of Officers

The Minister of Public Health of Peru, Dr. Alejandro Aquinaga Recuenco, presided over the opening ceremony. He was accompanied by Dr. Ana María Navarro Vela, Director of the Zoonosis Program of the Ministry of Health of Peru, Dr. Primo Arámbulo III, Coordinator of PAHO's Program on Veterinary Public Health, Dr. Marie Andréé Diouf, PAHO/WHO Representative in Peru, and Dr. Hugo Tamayo, representing Dr. Eduardo Correa Melo, Director of the Pan American Foot-and-Mouth Disease Center (PANAFTOSA).

The officers elected Dr. Ana María Navarro Vela, of the Ministry of Health of Peru, President, Dr. Mirna Moreno de Lobo, of the Ministry of Health of Honduras, Vice President, and Dr. Carlos Pavletic, of the Ministry of Health of Chile, as chief rapporteur.

5. Methodology and Program of Activities

The meeting was divided into three parts:

1. The information session. This was conducted by PAHO staff members and technical experts and by the representatives of the WHO Collaborating Centers. The PAHO representatives made presentations on compliance with the resolutions of VII REDIPRA, analysis of the progress of the Regional Program for the Elimination of Rabies, the situation of the Regional Information System for Epidemiological Surveillance of Rabies, the report on the Regional System of Reference Laboratories for Rabies Diagnosis, and quality control and availability of rabies vaccines in Latin America. The representatives of the WHO Collaborating Centers spoke on surveillance of rabies in wild animals and on vaccines and vaccination against rabies.
2. The rabies situation in the countries of Latin America. The reports were presented by the official delegates of the countries. Each country reported on the progress of the program for the elimination of rabies transmitted by dogs during the period 1995-1999, and on the achievements and limitations of the national programs.
3. Working groups. Here, participants discussed and analyzed strategies for continuing implementation of the plan to eliminate rabies transmitted by dogs. Those countries that have already eliminated canine rabies analyzed strategies for remaining free of the disease. The delegates also set forth their needs for technical cooperation, among countries and through PAHO, for the biennium 2002–2003, as well as strategies for its application. The working groups also produced a list of general recommendations at the close of the event.

6. General Recommendations

1. Promote subregional meetings in the second half of 2001 on epidemiological surveillance of rabies, following an agenda previously agreed upon between the countries and PAHO, focused on information systems, diagnostic reference, risk analysis, and canine vaccination with community participation.
2. Request PAHO to coordinate the harmonization and exchange of standards and guidelines for prevention and control of rabies and other zoonoses of interest to the countries of the subregion.
3. Carry out joint activities, involving PAHO and countries requesting them, to evaluate the national rabies programs based on the epidemiological situation and risk factors that favor persistence of the problem. To this end a guide should be prepared and submitted for consideration by the countries.

4. Recommend to the ministers of health of the countries that steps be taken to add immunoglobulin and human rabies vaccine to the list of biologicals of the Expanded Program on Immunization (EPI), so that they can be purchased through the Revolving Fund; this will make it possible to procure high-quality products at a lower price.
5. Request PAHO to carry out a review of the quality and availability of rabies vaccines, as well as revision and standardization of treatment regimens using suckling-mouse brain (SMB) vaccines.
6. Ensure PAHO collaboration with the countries in the implementation of a quality control program for laboratory diagnosis of rabies.
7. Have PAHO identify the laboratories in the Region that can collaborate with the countries in the characterization of the strains of rabies virus circulating in the Region and in the transfer of technologies, and ensure the Organization's support for these activities.
8. Strengthen cooperation among countries and intersectoral collaboration and encourage surveillance activities on the borders, providing continuity for the technical cooperation among countries under way and promoting new efforts, based on the results observed in subregional meetings.
9. Request PAHO to send a communication to the highest political decision-making levels of the countries, asking them to provide the necessary resources to sustain the rabies programs and meet the goals that have been set, in order to maintain the progress achieved by the Regional Program for the Elimination of Urban Rabies.
10. Identify strategies and methodologies for rabies control and characterization in wild species.
11. Encourage the search for mechanisms and instruments that can enhance community participation.

7. Summary of the Situation of the Rabies Programs

The information on the rabies situation forwarded to the Pan American Foot-and-Mouth Disease Center of PAHO/WHO by the rabies control programs of the countries of the Hemisphere for the VIII REPIDRA can be found in the tables annexed to this document. These tables reflect the situation of the national programs, chiefly in the following areas:

7.1 *Epidemiological Situation and Trends in Human and Animal Rabies During the Period 1995-1999*

During the period 1995-1999, human and animal rabies cases in Latin America fell considerably (Table 1). Human cases decreased by 51.3% and canine cases, by 44.1%. A slightly sharper reduction can be observed in the rates of human and canine rabies per 100,000 individuals, which decreased by 53.1% and 50.6%, respectively.

Rabies in Humans

In the subregions, the greatest percentage reduction in the number of cases occurred in Central America, which experienced an 82.4% decline. Mexico ranked second, with 71%, followed by the Andean Area, with 54%; the Latin Caribbean, with 25%; and Brazil with 19.4%. In the Southern Cone, Argentina, Chile, and Uruguay did not have human cases of dog-transmitted rabies. In Paraguay the number of cases rose steadily until 1998, falling in 1999 to their 1995 levels (Table 1). The rabies rates per 100,000 persons exhibited the same trend. Central America experienced the greatest reduction, 83.3%. It was followed by Mexico, with 73.5%; the Andean Area, with 57.4%; the Latin Caribbean, with 26.7%; and Brazil, with 25%. In the Southern Cone, the rabies rate in 1999 was similar to its 1995 levels.

Rabies in Dogs

The subregions responsible for the decline in the number of cases in Latin America were Mexico, the Andean Area, and Central America, with reductions of 74.9%, 70.4% and 55.4%, respectively (Table 1). In the Latin Caribbean and Brazil, in contrast, the number of cases grew by 123.3% and 51.3%, respectively. In the Southern Cone there was no variation in the number of cases, with Paraguay representing the largest source of cases.

The same trend can be observed in the rates per 100,000 dogs. Reductions were observed in Mexico (77.1%), the Andean Area (73.2%), Central America (64.6%), and the Southern Cone (16.2%). In contrast, the Latin Caribbean and Brazil showed increases of 58.3% and 43.9%, respectively.

Rabies in Cattle

The number of bovine rabies cases in Latin America grew by 10.6%. The only subregion that experienced a marked reduction (93%) was Mexico. Central America and the Andean Area, in contrast, had increases of 273.2% and 68.7%, respectively. In Brazil, the Southern Cone, and the Latin Caribbean, case numbers held steady during the period (Table 1).

Rabies in Bats and Other Wild Species

Reported cases of rabies in bats grew by 31.9% during the period (Table 1). Significant increases in case numbers can be observed in the Latin Caribbean (800%), the Southern Cone (147%), and Central America (100%). These increases probably reflect an improvement in epidemiological surveillance in some countries, rather than a real increase in the number of cases. Significant changes have not been observed in reported cases in other wild species during the five-year period.

Rabies in Major Cities

Human cases fell by 51.5% in Latin America's major cities. The sharpest decline was 80% and occurred in Central America, followed by Mexico, with 68.2%, and the Andean Area, with 51.9%. In the Southern Cone, only cities in Paraguay experienced cases. Brazil and the Latin Caribbean showed no significant changes. Canine cases in the major cities of the Region fell by 61.3%. Mexico led the subregions with a 73.8% reduction in its major urban areas, followed by the Andean Area, with 72.6%. The Latin Caribbean and Central America exhibited increases of 90.5% and 14.4%, respectively. Brazil did not report on the canine rabies situation in its major cities.

7.2 *Post-exposure Rabies Prophylaxis and Availability of Biologicals for Human Use*

The number of people exposed in the Region grew steadily during the five-year period, for a total increase of 17.5% (Table 2). Similarly, the number of people who received complete post-exposure rabies prophylaxis (PEP) increased by 6.3%. The rates of human exposure per 100,000 persons increased by 10.1%. However, the rate of people treated held steady, probably because the proportion of exposed individuals who received PEP decreased by 9.5%.

Each and every subregion recorded an increase in the number of people exposed. The proportion of people who received complete PEP grew by 99%, 42.6%, and 23.9%, respectively, in Central America, the Southern Cone, and the Latin Caribbean. In the

Andean Area, Mexico, and Brazil, in contrast, this proportion fell by 55.5%, 13.3%, and 7.7%, respectively.

Exposure rates increased in Central America, the Andean Area, Mexico, and Brazil by 31.2%, 25.9%, 9.5%, and 8.4%, respectively, falling by 3.4% in the Southern Cone and 0.6% in the Latin Caribbean.

PEP rates increased in the majority of the subregions, with the exception of the Andean Area and Mexico, where they decreased by 43.9% and 5.2%, respectively. Central America led the subregions with a 161% increase, followed by the Andean Area, the Southern Cone, the Latin Caribbean, and Brazil, with increases of 56.1%, 37.8%, 12.3% and 1.5%, respectively.

The overall availability of locally produced and imported rabies vaccines for human use rose by 3.3% during the biennium, from 4,545,554 doses to 4,696,796 (Table 3). The average availability of rabies vaccine in the Region was 4,621,175 doses per year. Of these, 96.9% were brain tissue vaccines (Fuenzalida-type). Only a small proportion of the countries reported having hyperimmune rabies serum (Table 4). Only 33.387ML of homologous serum was available in the Region per year on average. The availability of heterologous serum was 12.075ML per year on average. Latin America produces no hyperimmune, homologous, or heterologous serum.

7.3 *Vaccine Availability, Vaccination Coverage, and Measures to Control Canine Rabies*

During the 1998-1999 biennium, the availability of rabies vaccines for dogs and cats in Latin America grew by 10.7%. In addition, the total doses of canine and feline vaccine administered rose by 3.1%. Vaccination of small animals increased in the Southern Cone, Mexico, and Brazil by 57.6%, 6.2%, and 4.7%, respectively during the biennium. The remaining subregions recorded a reduction in the number of doses administered (Table 5).

Canine vaccination coverage in Latin America was 70% in both years. Among the subregions, coverage grew by 36.7% in the Southern Cone, 11.7% in the Latin Caribbean, 5.3% in Mexico, and 2.2% in Brazil. It declined, in contrast, by 16.3% in the Andean Area and 6.8% in Central America (Table 6).

7.4 *Diagnostic Laboratories and Quality Control of Rabies Vaccine*

With the exception of Belize and Uruguay, all the countries of the Region indicated that they had laboratories for rabies diagnosis. The countries reported 94 laboratories capable of performing diagnostic tests using the direct technique of immunofluorescence. They also reported that 40 laboratories perform diagnostic confirmation tests through isolation of the virus in mice and 7 that utilize isolation in cell culture. The percentage of positive samples compared with the total of samples sent to the laboratory was quite variable (Table 7).

In addition, the countries indicated that 18 laboratories have the capacity to perform titration tests for rabies antibodies in mice and that 8 can conduct these tests in cell culture. Ten laboratories have the capacity to perform antigenic characterization of the rabies virus and 9 can perform the characterization using genetic methods. In addition, 19 laboratories have the capacity to test the potency of rabies vaccines.

7.5 *Training Needs*

The countries indicated the need to train 3,607 individuals in program management, the planning of vaccination campaigns, mass communication, laboratory diagnosis, vaccine production, and quality control of vaccines.

The majority of the countries (54.2%) noted the need for training in the planning of vaccination campaigns. Program management ranked second, accounting for 22.5% of the training needs, followed by mass communication (17.1%), laboratory diagnosis (4.5%), quality control of vaccines (1.2%), and vaccine production (0.4%).

Annex

ANNEX

Tables 1 to 7 attached are only available in Spanish

Table 1. Rabies Cases in Humans, Canines and Other Selected Animal Species, by Subregion and Country
Latin America, 1995-1999

Subregión / País	Rabia Humana					Rabia en Perros					Rabia en Bovinos					Otros Domésticos					Murciélagos					Otros Silvestres					
	1995	1996	1997	1998	1999	1995	1996	1997	1998	1999	1995	1996	1997	1998	1999	1995	1996	1997	1998	1999	1995	1996	1997	1998	1999	1995	1996	1997	1998	1999	
AMÉRICA LATINA	150	179	114	87	73	4470	5074	3918	3600	2499	2916	5241	3125	3298	3225	663	603	596	575	593	72	92	64	37	95	256	135	158	149	150	
Área Andina	63	94	42	21	29	1756	1962	1217	690	519	83	134	179	96	140	122	112	95	61	48	7	7	4	4	6	12	3	6	5	5	
Bolivia	8	3	11	5	10	362	230	347	195	135	35	0	47	27	41	5	0	22	11	14	0	0	0	0	0	3	0	2	3	3	
Colombia	9	3	5	0	3	83	64	144	106	110	15	77	39	2	0	7	10	4	3	0	1	0	0	0	0	0	0	0	0	0	
Ecuador	20	65	9	7	5	736	1199	323	149	103	22	23	23	32	20	63	71	38	29	15	0	0	1	0	0	2	0	1	1	1	
Perú	21	19	12	9	9	404	309	295	150	76	11	31	26	20	49	37	22	17	15	12	6	6	3	4	6	6	2	3	0	1	
Venezuela	5	4	5	0	2	171	160	108	90	95	...	3	44	15	30	10	9	14	3	7	0	1	0	0	0	1	1	0	1	0	
Cono Sur	4	7	6	9	4	398	549	589	395	401	129	167	195	134	126	18	31	39	22	22	19	66	39	13	47	4	7	8	1	4	
Argentina	0	0	1	0	0	15	8	6	4	15	40	61	82	35	31	3	9	9	3	5	1	7	9	3	9	1	2	6	1	2	
Chile	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	18	59	30	9	38	0	0	0	0	0	
Paraguay	4	6	5	9	4	383	540	582	391	386	89	106	113	99	95	15	22	29	19	17	0	0	0	1	0	3	5	2	0	2	
Uruguay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Brasil	31	25	25	28	25	641	1058	945	1746	970	2634	3276	2570	2556	2628	411	398	363	388	424	13	15	11	6	10	30	31	25	30	27	
América Central	17	21	17	8	3	354	577	538	268	158	56	118	130	108	209	24	33	28	20	12	7	4	3	0	14	20	4	1	23	7	
Belice	0	0	0	...	0	4	7	22	...	0	0	0	1	...	6	2	0	0	...	0	0	0	0	...	0	0	0	0	...	3	
Costa Rica	0	0	0	0	0	0	0	0	0	0	4	0	3	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
El Salvador	7	12	10	3	0	124	217	217	125	9	25	77	25	8	5	9	20	10	9	2	0	2	0	0	0	0	0	0	1	0	0
Guatemala	8	8	6	3	2	92	248	225	109	142	9	16	18	9	3	7	7	14	8	2	0	0	0	0	0	2	2	1	0	2	
Honduras	2	0	1	1	0	112	68	46	30	4	0	0	3	0	6	2	1	1	0	0	5	0	3	0	0	17	2	0	22	0	
Nicaragua	0	1	0	1	1	22	37	28	4	3	3	2	5	8	3	2	3	1	0	0	0	1	0	0	0	1	0	0	0	2	
Panamá	0	0	0	0	0	0	0	0	0	0	15	23	75	78	184	2	2	2	3	8	2	1	0	0	14	0	0	0	0	0	
México	31	22	23	15	9	1261	852	521	394	317	0	1535	39	395	108	63	0	29	59	40	25	0	5	12	9	98	0	7	20	12	
Caribe Latino	4	10	1	6	3	60	76	108	107	134	14	11	12	9	14	25	29	42	25	47	1	0	2	2	9	92	90	111	70	95	
Cuba	1	0	0	1	0	25	39	34	32	40	8	9	9	8	7	16	25	29	17	39	1	0	2	2	8	54	63	63	54	75	
Haití	2	7	0	5	3	21	17	38	47	58	0	0	1	0	1	2	1	2	3	2	0	0	0	0	1	0	0	0	0	0	
República Dominicana	1	3	1	0	0	14	20	36	28	36	6	2	2	1	6	7	3	11	5	6	0	0	0	0	0	38	27	48	16	20	

... Sin información.

Fuente :

- Boletín de Vigilancia Epidemiológica de la Rabia en las Américas, XXVII - XXX, 1995 - 1998
- Boletín de Vigilancia Epidemiológica de la Rabia en las Américas, XXXI, 1999 (en prensa).

**Table 2. Number of Exposed Persons and persons Receiving Post-Exposure Anti-rabies Treatment (PAPE), by Subregion and Country.
Latin American, 1995-1999**

Subregión / País	Personas Expuestas					Número y Proporción de Personas que Recibieron PAPE Completa									
	1995	1996	1997	1998	1999	1995 (%)	1996 (%)	1997 (%)	1998 (%)	1999 (%)	1995 (%)	1996 (%)	1997 (%)	1998 (%)	1999 (%)
AMÉRICA LATINA	794,356	878,424	883,870	884,705	933,260	292,233	36.8	317,049	36.1	316,153	35.8	297,439	33.6	310,734	33.3
Área Andina	138,736	174,576	150,335	163,075	189,221	35,561	25.6	37,571	21.5	25,103	16.7	21,745	13.3	21,585	11.4
Bolivia	4,364	6,070	8,282	7,989	9,147	1,419	32.5	2,003	33.0	2,623	31.7	2,712	33.9	3,526	38.5
Colombia	18,887	17,310	15,435	20,206	26,895	2,880	15.2	1,836	10.6	1,568	10.2	1,468	7.3	1,236	4.6
Ecuador	21,245	38,819	16,058	14,303	12,554	15,199	71.5	18,268	47.1	8,475	52.8	5,782	40.4	5,053	40.3
Perú	56,631	69,256	75,520	75,711	86,684	10,352	18.3	10,156	14.7	8,205	10.9	7,167	9.5	6,588	7.6
Venezuela	37,609	43,121	35,040	44,866	53,941	5,711	15.2	5,308	12.3	4,232	12.1	4,616	10.3	5,182	9.6
Cono Sur	121,632	114,679	126,910	131,071	124,839	27,989	23.0	27,793	24.2	27,523	21.7	38,440	29.3	40,966	32.8
Argentina	58,160	60,290	62,900	68,173	58,550	7,139	12.3	7,717	12.8	9,614	15.3	16,867	24.7	15,857	27.1
Chile	30,546	38,820	40,492	38,272	45,048	12,033	39.4	14,720	37.9	14,677	36.2	18,240	47.7	20,914	46.4
Paraguay	31,853	14,509	22,335	23,500	20,129	8,775	27.5	5,327	36.7	3,191	14.3	3,300	14.0	4,158	20.7
Uruguay	1,073	1,060	1,203	1,126	1,112	42	3.9	29	2.7	41	3.4	33	2.9	37	3.3
Brasil	362,814	392,586	404,383	394,941	413,874	203,937	56.2	229,754	58.5	240,678	59.5	210,003	53.2	214,869	51.9
América Central	37,905	52,403	57,035	53,393	55,220	3,893	10.3	1,878	3.6	2,206	3.9	7,085	13.3	11,305	20.5
Belice	351	360	164	134	105	72	20.5	98	27.2	55	33.5	42	31.3	34	32.4
Costa Rica	1,421	1,350	1,367	1,290	1,275	35	2.5	11	0.8	24	1.8	10	0.8	4	0.3
El Salvador	22,084	29,915	30,584	24,497	24,878	0	0.0	0	0.0	0	0.0	5,836	23.8	4,848	19.5
Guatemala	0	5,012	8,795	11,940	13,290	0	0.0	0	0.0	815	9.3	0	0.0	5,000	37.6
Honduras	3,706	4,224	3,685	3,913	3,450	396	10.7	333	7.9	247	6.7	195	5.0	343	9.9
Nicaragua	10,251	11,479	12,351	11,524	11,489	3,305	32.2	1,374	12.0	979	7.9	922	8.0	984	8.6
Panamá	92	63	89	95	733	85	92.4	62	98.4	86	96.6	80	84.2	92	12.6
México	87,951	96,698	96,954	97,851	102,718	17,825	20.3	17,124	17.7	17,678	18.2	16,957	17.3	18,077	17.6
Caribe Latino	45,318	47,482	48,233	44,374	47,388	3,028	6.7	2,929	6.2	2,965	6.1	3,209	7.2	3,932	8.3
Cuba	29,819	32,302	31,039	30,525	31,760	1,161	3.9	1,019	3.2	1,172	3.8	1,230	4.0	1,244	3.9
Haití	166	138	144	264	168	164	98.8	131	94.9	141	97.9	259	98.1	165	98.2
República Dominicana	15,333	15,042	17,050	13,585	15,460	1,703	11.1	1,779	11.8	1,652	9.7	1,720	12.7	2,523	16.3

Fuente: Informes de los países a la VIII REDIPRA, 2000.

Table 3. Available Anti-rabies Vaccines and Applied for Human Use by Origin and Type of Vaccine, Subregion and Country.
Latin America, 1998-1999

Subregión / País	Dosis Disponibles									
	Tipo Fuenzalida					Tipo Cultivo Celular				
	Importada 1998	1999	Producción Local 1998	1999	Total	Importada 1998	1999	Producción Local 1998	1999	Total
AMERICA LATINA	149,300	229,820	4,257,581	4,320,484	8,957,185	138,673	146,492	0	0	285,165
Área Andina	0	0	550,350	564,090	1,114,440	905	500	0	0	1,405
Bolivia	0	0	37,250	45,650	82,900	0	0	0	0	0
Colombia	0	...	17,000	51,920	68,920	0	...	0	0	0
Ecuador	0	0	150,000	120,000	270,000	0	0	0	0	0
Perú	...	...	226,100	226,520	452,620	905	500	...	...	1,405
Venezuela	...	...	120,000	120,000	240,000	...	...	...	...	0
Cono Sur	100,000	100,000	436,530	433,640	1,070,170	848	892	0	0	1,740
Argentina	0	0	120,000	120,000	240,000	0	0	0	0	0
Chile	0	0	316,530	313,640	630,170	0	0	0	0	0
Paraguay	100,000	100,000	...	...	200,000	48	92	...	...	140
Uruguay	...	...	...	...	0	800	800	...	...	1,600
Brasil	0	0	2,738,425	2,712,100	5,450,525	5,220	7,000	0	0	12,220
América Central	29,300	99,820	473,750	563,200	1,166,070	700	100	0	0	800
Belize	1,300	0	0	0	1,300	0	0	0	0	0
Costa Rica	0	0	0	0	0	200	100	0	0	300
El Salvador	0	20,000	73,750	63,200	156,950	0	0	0	0	0
Guatemala	N.D.	59,320	...	...	59,320	...	...	...	...	0
Honduras	0	0	400,000	500,000	900,000	...	...	...	...	0
Nicaragua	28,000	20,000	0	0	48,000	500	0	0	0	500
Panamá	0	500	0	0	500	...	...	...	...	0
México	0	0	0	0	0	131,000	138,000	0	0	269,000
Caribe Latino	20,000	30,000	58,526	47,454	155,980	0	0	0	0	0
Cuba	0	0	58,526	47,454	105,980	0	0	0	0	0
Haití	...	...	...	...	0	...	...	...	...	0
República Dominicana	20,000	30,000	0	0	50,000	0	0	0	0	0
Dosis Aplicadas	1998	1999								
	2,739,819	3,267,724								
	306,734	369,704								
	33,261	42,838								
	10,276	8,652								
	120,000	110,000								
	99,404	101,847								
	43,793	106,367								
	116,810	244,417								
	100,287	95,883								
	16,250	148,210								
	48	82								
	225	242								
	2,106,154	2,389,338								
	59,698	114,164								
	336	272								
	50	20								
	39,319	33,815								
	0	59,320								
	2,575	2,664								
	17,070	17,893								
	348	180								
	126,871	124,422								
	23,552	25,679								
	21,925	22,393								
	496	763								
	1,131	2,523								

... Sin información.

N.D. No disponible.

Fuente: Informes de los países a la VIII REDIPRA, 2000.

Table 4. Available Hyperimmune Anti-rabies Serum and Applied by Origin, Type, by Subregion and Country
Latin America, 1998-1999

Subregión / País	Cantidad Disponible (en ml.)										Cantidad Aplicada (en ml.)		
	Suero Heterólogo					Suero Homólogo							
	Importada		Producción Local		Total	Importada		Producción Local		Total	1998	1999	Total
	1998	1999	1998	1999		1998	1999	1998	1999				
AMERICA LATINA	14,690	9,460	0	0	24,150	28,579	38,195	0	0	66,774	109,899	223,323	333,222
Área Andina	11,830	9,460	0	0	21,290	0	0	0	0	0	8,266	101,373	109,639
Bolivia	1500	2920	0	0	4,420	...	...	...	...	0	530	2,480	3,010
Colombia	...	...	...	...	0	...	...	...	...	0	1,380	1,540	2,920
Ecuador	...	...	...	...	0	...	...	...	...	0	0	90,000	90,000
Perú	7330	3540	0	0	10,870	0	0	0	0	0	2,408	3,248	5,656
Venezuela	3000	3000	...	...	6,000	...	...	...	...	0	3,948	4,105	8,053
Cono Sur	0	0	0	0	0	429	345	0	0	774	413	341	754
Argentina	...	...	...	...	0	100	100	0	0	200	84	96	180
Chile	0	0	0	0	0	0	0	0	0	0	0	0	0
Paraguay	...	...	...	...	0	329	245	...	...	574	329	245	574
Uruguay	0	0	0	0	0	0	0	0	0	0	0	0	0
Brasil	0	0	0	0	0	0	0	0	0	0	78,365	87,888	166,253
América Central	2,860	0	0	0	2,860	7,250	11,890	0	0	19,140	4,460	13,965	18,425
Belice	...	...	...	...	0	...	...	...	...	0	0	0	0
Costa Rica	...	...	...	...	0	...	...	...	...	0	0	0	0
El Salvador	860	...	0	...	860	7250	11890	0	0	19,140	2,610	3,820	6,430
Guatemala	...	...	...	...	0	...	...	...	...	0	1,600	9,750	11,350
Honduras	0	0	0	0	0	0	0	0	0	0	0	0	0
Nicaragua	2000	0	0	0	2,000	...	...	...	...	0	250	395	645
Panamá	...	...	...	...	0	...	...	...	...	0	0	0	0
México	0	0	0	0	0	19,000	24,000	0	0	43,000	16,495	17,696	34,191
Caribe Latino	0	0	0	0	0	1,900	1,960	0	0	3,860	1,900	2,060	3,960
Cuba	...	...	...	...	0	1900	1960	0	0	3,860	1,900	1,960	3,860
Haití	...	...	...	...	0	...	...	...	...	0	0	100	100
República Dominicana	...	...	...	...	0	...	...	...	...	0	0	0	0

... Sin información.

Fuente: Informes de los países a la VIII REDIPRA, 2000.

Table 5. Available Anti-rabies Vaccines and Applied for Canine Use by Origen and Type, by Subregion and Country.
Latin America, 1998-1999

Subregión / País	Dosis Disponibles										Dosis Aplicadas		
	Vacuna No Celular					Cultivo Celular							
	Importada		Local		Total	Importada		Local		Total	1998	1999	Total
	1998	1999	1998	1999		1998	1999	1998	1999				
AMERICA LATINA	1,600,000	2,000,000	29,179,905	30,328,464	63,108,369	15,877,520	16,550,000	2,163,140	5,170,086	39,760,746	46,690,728	48,117,667	94,808,395
Área Andina	0	0	1,979,100	1,438,064	3,417,164	2,634,000	1,850,000	2,143,100	4,693,736	11,320,836	7,075,879	6,354,098	13,429,977
Bolivia	0	0	1,085,000	607,000	1,692,000	0	0	0	0	0	691,983	500,821	1,192,804
Colombia	...	...	...	...	...	0	0	2,000,000	2,500,000	4,500,000	2,453,471	1,347,230	3,800,701
Ecuador	...	...	0	100,000	100,000	1,134,000	1,400,000	0	0	2,534,000	1,134,000	1,400,000	2,534,000
Perú	0	0	564,100	431,064	995,164	0	0	121,100	1,963,736	2,084,836	2,290,585	2,464,897	4,755,482
Venezuela	...	...	330,000	300,000	630,000	1,500,000	450,000	22,000	230,000	2,202,000	505,840	641,150	1,146,990
Cono Sur	300,000	500,000	1,133,210	1,275,340	3,208,550	0	200,000	20,000	20,000	240,000	1,037,356	1,634,480	2,671,836
Argentina	0	0	850,000	900,000	1,750,000	0	0	0	0	0	754,665	843,222	1,597,887
Chile	0	0	283,210	375,340	658,550	0	0	0	0	0	164,110	163,996	328,106
Paraguay	300,000	500,000	-	-	800,000	-	200,000	-	-	200,000	101,581	608,762	710,343
Uruguay	...	...	...	...	0	...	...	20,000	20,000	40,000	17,000	18,500	35,500
Brasil	0	0	24,103,850	25,559,260	49,663,110	0	0	0	0	0	22,597,600	23,660,425	46,258,025
América Central	1,300,000	1,500,000	1,121,425	1,330,100	5,251,525	843,520	500,000	0	0	1,343,520	2,136,432	1,968,111	4,104,543
Belice	0	0	0	0	0	20,000	0	0	0	20,000	8,610	10,160	18,770
Costa Rica	0	0	0	0	0	10,000	0	0	0	10,000	11,035	4,092	15,127
El Salvador	0	0	421,425	630,100	1,051,525	500,000	200,000	0	0	700,000	488,094	485,150	973,244
Guatemala	1,300,000	1,500,000	...	...	2,800,000	...	...	...	...	0	899,136	835,998	1,735,134
Honduras	0	0	700,000	700,000	1,400,000	0	0	0	0	0	424,430	381,018	805,448
Nicaragua	0	0	0	0	0	298,520	300,000	0	0	598,520	305,127	249,921	555,048
Panamá	...	...	...	...	0	15,000	...	...	...	15,000	0	1,772	1,772
México	0	0	0	0	0	12,400,000	14,000,000	0	0	26,400,000	12,644,213	13,434,215	26,078,428
Caribe Latino	0	0	842,320	725,700	1,568,020	0	0	40	456,350	456,390	1,199,248	1,066,338	2,265,586
Cuba	0	0	842,320	725,700	1,568,020	0	0	0	0	0	887,708	848,664	1,736,372
Haiti	...	...	...	...	0	0	0	0	0	0	213,000	37,600	250,600
República Dominicana	0	0	0	0	0	0	0	40	456,350	456,390	98,540	180,074	278,614

... Sin información.

... Sin información.

Fuente: Informes de los países a la VIII REDIPRA, 2000.

Table 6. Estimated Canine Population, Number and Coverage of Vaccinated Dogs, both Observed and Eliminated, by Subregion and Country.
Latin America, 1998-1999

Subregión / País	Población Canina Estimada		Observados				Eliminados				Vacunados			
	1998	1999	1998	%	1999	%	1998	%	1999	%	1998	%	1999	%
	Número y Proporción de Perros													
AMERICA LATINA	55,269,845	56,068,748	420,441	0.8	495,359	0.9	772,560	1.4	680,576	1.2	37,209,324	67.3	37,897,209	67.6
Área Andina	10,990,311	11,232,637	115,669	1.1	122,591	1.1	219,178	2.0	192,336	1.7	7,159,165	65.1	6,122,871	54.5
Bolivia	...	...	...	0.0	...	0.0	...	0.0	...	0.0	691,983	0.0	500,821	0.0
Colombia	4,082,682	4,158,902	13,037	0.3	14,619	0.4	13,939	0.3	24,634	0.6	2,453,471	60.1	1,347,230	32.4
Ecuador	1,739,233	1,806,585	8,206	0.5	6,566	0.4	43,306	2.5	30,608	1.7	1,082,497	62.2	1,168,838	64.7
Perú	2,480,076	2,523,223	62,846	2.5	68,707	2.7	81,949	3.3	53,017	2.1	2,425,377	97.8	2,464,897	97.7
Venezuela	2,688,320	2,743,927	31,580	1.2	32,699	1.2	79,984	3.0	84,077	3.1	505,837	18.8	641,085	23.4
Cono Sur	6,943,146	7,037,009	26,408	0.4	29,641	0.4	97,300	1.4	85,783	1.2	1,020,356	14.7	1,416,080	20.1
Argentina	3,600,000	3,650,000	0	0.0	0	0.0	0	0.0	0	0.0	754,665	21.0	843,322	23.1
Chile	2,280,263	2,310,425	25,234	1.1	28,362	1.2	96,722	4.2	83,295	3.6	164,110	7.2	163,996	7.1
Paraguay	521,883	535,584	629	0.1	707	0.1	578	0.1	2,488	0.5	101,581	19.5	408,762	76.3
Uruguay	541,000	541,000	545	0.1	572	0.1	0	0.0	0	0.0	...	0.0	...	0.0
Brasil	16,179,031	16,394,755	0	0.0	0	0.0	126,799	0.8	95,156	0.6	13,764,925	85.1	14,262,772	87.0
América Central	4,405,669	4,487,565	12,315	0.3	12,738	0.3	7,639	0.2	3,347	0.1	1,675,732	38.0	1,587,278	35.4
Belize	23,850	24,339	23	0.1	105	0.4	160	0.7	423	1.7	8,610	36.1	10,345	42.5
Costa Rica	502,512	514,158	198	0.0	145	0.0	66	0.0	63	0.0	11,135	2.2	4,092	0.8
El Salvador	1,001,071	1,019,998	0	0.0	0	0.0	0	0.0	0	0.0	488,080	48.8	485,150	47.6
Guatemala	1,606,194	1,635,854	0	0.0	0	0.0	286	0.0	272	0.0	899,136	56.0	835,998	51.1
Honduras	668,924	670,658	3,270	0.5	2,736	0.4	932	0.1	1,315	0.2	...	0.0	...	0.0
Nicaragua	603,118	622,558	8,823	1.5	9,750	1.6	6,195	1.0	1,274	0.2	268,771	44.6	249,921	40.1
Panamá	...	...	1	0.0	2	0.0	0	0.0	0	0.0	0	0.0	1,772	0.0
México	14,439,932	14,564,863	232,229	1.6	291,926	2.0	243,829	1.7	293,436	2.0	12,644,213	87.6	13,434,215	92.2
Caribe Latino	2,311,756	2,351,919	33,820	1.5	38,463	1.6	77,815	3.4	10,518	0.4	944,933	40.9	1,073,993	45.7
Cuba	1,112,231	1,114,269	27,815	2.5	28,807	2.6	75,315	6.8	10,174	0.9	887,708	79.8	848,664	76.2
Haití	382,374	390,161	110	0.0	116	0.0	912	0.2	159	0.0	...	0.0	...	0.0
República Dominicana	817,151	847,489	5,895	0.7	9,540	1.1	1,588	0.2	185	0.0	57,225	7.0	225,329	26.6

... Sin información.

**Table 7. Samples Sent to Laboratories, by Subregion and Country, Number and Percentage of Positives.
Latin America 1998-1999**

Subregión / País	Número de Muestras					
	1998			1999		
	Enviadas al Laboratorio	Positivas	%	Enviadas al Laboratorio	Positivas	%
AMÉRICA LATINA	47,661	3,649	7.7	65,083	2,977	4.6
Área Andina	5,826	668	11.5	5,881	485	8.2
Bolivia	...	...	...	...	...	...
Colombia	804	183	22.8	369	115	31.2
Ecuador	400	189	47.3	420	129	30.7
Perú	3,894	203	5.2	4,052	139	3.4
Venezuela	728	93	12.8	1,040	102	9.8
Cono Sur	3,931	415	10.6	5,655	435	7.7
Argentina	12	4	33.3	34	19	55.9
Chile	2,800	9	0.3	4,446	38	0.9
Paraguay	1,077	402	37.3	1,158	378	32.6
Uruguay	42	0	0.0	17	0	0.0
Brasil	20,427	1,746	8.5	34,049	1,223	3.6
América Central	1,156	178	15.4	947	96	10.1
Belice	30	8	26.7	45	10	22.2
Costa Rica	15	0	0.0	16	0	0.0
El Salvador	405	150	37.0	270	69	25.6
Guatemala	148	...	...	141	...	...
Honduras	93	7	7.5	86	8	9.3
Nicaragua	464	13	2.8	387	9	2.3
Panamá	1	0	0.0	2	0	0.0
México	12,851	463	3.6	13,815	486	3.5
Caribe Latino	3,470	179	5.2	4,736	252	5.3
Cuba	3,270	116	3.5	4,532	170	3.8
Haití	25	22	88.0	19	16	84.2
República Dominicana	175	41	23.4	185	66	35.7

... Sin información.