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WORLD SURVEY OF RABIES 24
(for year 1988)

by

Veterinary Public Health Unit
Division of Communicable Diseases
World Health Organization
Geneva, Switzerland

The WORLD SURVEY OF RABIES 24 - 1988 (WHO/RABIES/91.202) is being distributed to Central Public Health Administrators in Ministries of Health and to Directors of Veterinary Services who are asked to ensure that appropriate departments under their administration are informed of its availability.

CONTENTS

1. INTRODUCTION

The Twenty-fourth World Survey of Rabies for the year 1988 is an analysis of data returned from 112 countries and territories. Thirty-eight countries did not reply to the questionnaire.

Computerized data processing and editing has been used to prepare Tables 1-5 reporting on five major topics: number of human/animal rabies cases; number of persons treated against rabies; production/import of human and animal rabies vaccines. Computerized data sorting has also been used for preparation of the following summary, including Lists A and B, as well as for the tables in Annexes 1-3.

Veterinary Public Health
Division of Communicable Diseases

2. SUMMARY OF REPLIES RECEIVED

2.1 1988 Rabies trends

2.1.1 Presence/absence of rabies (by country)

Lists A and B name the countries by continent which declared during 1988 that no rabies cases were reported, or that rabies was present.

LIST A: COUNTRIES WHERE NO RABIES CASES WERE REPORTED IN 1988

CONTINENT	COUNTRY
Africa	Cap Verde
	Comores
	Djibouti
	Mauritius
	Sao Tome
	Somalia
Americas	Antigua
	Barbados
	Brit. Virgin Islands
	Costa Rica
	St Kitts & Nevis
	Suriname
	Uruguay
Asia	Bahrein
	Japan
	Korea, Republic of
	Malaysia
	Oman
	Qatar
	Sabah (Malaysia)
	Singapore
	United Arab Emirates
Europe	Cyprus
	Gibralter
	Greece
	Iceland
	Ireland
	Malta
	Portugal
	Sweden
	United Kingdom
Oceania	Australia
	Cook Island
	Fiji
	French Polynesia
	New Zealand
	Niue Island
	Samoa
	Solomon Islands
	Vanuatu

LIST B: COUNTRIES WHERE RABIES WAS REPORTED IN 1988

CONTINENT	COUNTRY
Africa	Algeria
	Angola
	Benin
	Botswana
	Burkina Faso
	Cameroun
	Central African Rep.
	Egypt
	Ethiopia
	Ghana
	Guinee
	Ivory Coast
	Lesotho
	Madagascar
	Malawi
	Mali
	Morocco
	Nigeria
	Rwanda
	Senegal
	Sierra Leone
	South Africa
	Togo
	Tunisia
	Zaire
	Zimbabwe
Americas	Belize
	Canada
	Chile
	Colombia
	Dominican Republic
	Ecuador
	El Salvador
	French Guiana
	Guatemala
	Honduras
	Mexico
	Panama
	Paraguay
	Peru
	Trinidad/Tobago
	USA
Asia	Bangladesh
	Hong Kong
	India
	Indonesia
	Iran
	Iraq
	Israel
	Jordan
	Pakistan
	Philippines
	Saudi Arabia
	Sri Lanka
	Thailand
	Yemen
Europe	Belgium
	German Democratic Republic
	Federal Republic of Germany
	Finland
	France
	Hungary
	Italy
	Luxembourg
	Netherlands
	Norway
	Poland
	Romania
	Spain
	Switzerland
	Turkey
	Yugoslavia
Oceania	None

2.1.2 Elimination/introduction of rabies

Three countries (Sierra Leone, Belize and Finland) reported the introduction of rabies since 1987. In Finland the outbreak which occurred in 1988 in the south-eastern part of the country mainly involved Raccoon dogs. Four countries reported elimination of the disease in 1987 with no cases diagnosed in 1988: Costa Rica, Suriname and Uruguay in the Americas and Bahrein in Asia.

2.1.3 Main rabies epidemiological patterns

Africa In Africa 85% of countries indicated that canine rabies was the main pattern of the disease. Wildlife rabies was the major problem in Botswana and South Africa. Bat rabies (bat lyssaviruses) was third in order of importance in five countries, although this was not substantiated by laboratory findings in all cases.

Americas Wildlife rabies is of first importance in Canada and USA. In 50% of countries in the Americas canine rabies is considered the major pattern of the disease. In Guatemala, Mexico and Peru canine rabies is the third pattern after (vampire) bat and wildlife rabies. Bat rabies was the only pattern reported in French Guiana, Panama and Trinidad and Tobago.

Asia In all countries, except Bangladesh and Israel, canine rabies was reported as being the major pattern of the disease. Wildlife rabies was second in order of importance in Iran, Iraq, Jordan, Pakistan, Saudi-Arabia, Sri Lanka, Thailand and Yemen. In Thailand bat rabies was reported as the last epidemiological pattern.

Europe Most countries reported wildlife rabies as the major pattern. European bats Lyssavirus was the major problem in the Netherlands, followed by wildlife rabies. Canine rabies came first in order of importance in non-continental Spain and in Turkey and was second in Hungary and Romania. European bats rabies was reported as second to wildlife in the German Democratic Republic, the Federal Republic of Germany and Spain.

2.1.4 Geographical distribution and trends in individual countries

Annex 1 provides information on the distribution of the disease in a given country (present in the entire country/in limited areas/in border areas). According to the questionnaire increase/decrease meant a variation of at least 10% against the number of rabies cases reported during the preceding year.

Africa All but three countries reported that rabies was present in the entire territory. In most cases the trend is reported to be stable.

Americas More than 60% of the countries reported that the disease was present only in limited areas. With regard to trend, replies were almost equally distributed among the various choices: stable, decrease and increase.

Asia 70% of the countries declared rabies present in the entire territory. About 50% reported that the trend was stable and three countries that the number of cases increased in comparison to 1987.

Europe In most countries the disease was only reported in limited or border areas. The trend was reported as stable in 30% of countries and increasing in 35% of countries, and decreasing in 35% of countries.

2.2 Vaccine production and imports

Data provided by each country are given in Table 4 - Human rabies vaccines produced domestically and imported: 1988, and Table 5 - Animal rabies vaccines produced domestically and imported: 1988. These data were processed to prepare Annex 2: Human vaccine application and Annex 3: Veterinary vaccine application.

Countries which did not respond or indicated that they did not produce or import rabies vaccine (human or veterinary) are omitted in Annexes 2 and 3.

2.2.1 Human rabies vaccines production and imports

In response to the questionnaire, 31 out of 112 countries or territories reported production of human rabies vaccines in 1988. Twenty countries produced only vaccines prepared on brain tissue (for information on the vaccine types, substrates and quantities, - see Table 4). Seven countries (Canada, USA, Japan and four European countries) are only producing rabies vaccines on cell culture. In four countries both types of vaccine are produced. If north American and European countries are not taken into consideration, 90% of the human vaccines produced are prepared on brain tissue (100% in Africa and Asia, 80% in the Central and Latin America and 37% in Europe). No country reported preparing vaccines on embryonated eggs.

Sixty-two countries reported importing human vaccines (see Table 4 for type and for quantity), out of which 76% essentially imported vaccines prepared in cell culture, about 8% imported vaccines prepared on embryonated eggs, 16% imported vaccines prepared on brain tissue. About half of the countries in Africa, 80% in the Americas, 79% in Asia and more than 90% in European countries imported human vaccines prepared on cell cultures.

2.2.2 Veterinary vaccine production and imports

Forty-four out of 112 countries or territories reported producing animal rabies vaccines. Less than 30% produced only vaccines prepared on brain tissue and 15% only prepared on embryonated eggs. About 40% prepared vaccines on cell culture either as the only type or together with a second vaccine type (in most cases a brain tissue vaccine).

Sixty-nine countries or territories reported importation of animal rabies vaccines. More than 78% imported vaccines prepared on cell culture (see Table 5 for type and quantity). In Africa, 85% of the countries imported cell culture vaccines for veterinary use, whereas this percentage was 50% in the Americas, 83% in Asia, more than 80% in Europe (where three countries did not mention the type of vaccine imported) and 100% in Oceania.

2.3 Rabies post-exposure treatment

Data on the number of persons treated and the animal species involved are given in Table 3. Annex 2 gives additional information on the post exposure treatment schedule according to the type of vaccine administered, the dose and route of administration (for characteristics of vaccines - refer to Table 4). In most cases the schedules applied are in line with WHO recommendations for each type of vaccine.

The intradermal route with a reduced dose is used in two African countries (Ivory Coast, Madagascar) using SMBV and sheep brain vaccines respectively; in Honduras (SMBV) for the Americas, India, (schedule 0,14,90, with TCO vaccine), Korea (NTO vaccine) and Thailand (TCO vaccines) for Asia.

2.4 Vaccine application in animals

Ninety-seven countries or territories answered the questionnaire. Regarding the status of dog immunization against rabies, vaccination is compulsory in 60% of the African countries, in 37% of those belonging to the Americas, 26% in Asia, 68% in Europe and none of the Oceania countries. In countries where rabies is only present on islands (e.g. Svalbard Islands of Norway), dog vaccination is forbidden on the mainland and compulsory in infected areas. Rabies-free countries sharing borders with rabies infected countries may enforce a policy of compulsory vaccination in border areas and optional vaccination in the rest of the country (e.g. Greece).

An indication of the number of dogs immunized in 1988 and an estimate of the vaccination coverage (by %) is given in Annex 3. Coverage was rarely above 50% for developing countries of Africa and Asia where it seems likely that the total dog population was underestimated in most cases. Higher dog vaccination coverage was reported for the Americas and Europe.

Africa — Dog vaccination is usually performed by veterinary officers/auxiliaries at the initiative of dog owners. In Morocco private veterinarians were involved in mass dog vaccination campaigns launched by the government. In Benin, Ivory Coast, South Africa and Zaire, dog rabies vaccination is carried out entirely by the private sector.

Americas — Dog vaccination is usually performed by veterinary officers/auxiliaries during mass campaigns organized by the central-local governments. In Chile, Guatemala and Paraguay, private practitioners are involved in rabies vaccination campaigns initiated by the public sector. In Canada and French Guiana, dog immunization is carried out entirely by the private sector.

Asia — Dog vaccination is usually enforced by national veterinary services either at the initiative of the dog owner or of the national/local governments. It is worth noting that in India, Jordan, Philippines and United Arab Emirates this activity remains in the private sector.

Europe — Government veterinary services played a predominant role in dog vaccination either by being totally in charge (Hungary, Poland, Portugal, Romania, Spain, Yugoslavia); or by organizing campaigns in which the private sector ensured vaccination. These activities are mostly vested in the private sector in Belgium, Cyprus, France, Greece, Italy, Luxembourg, Netherlands, and Switzerland.

3. TABLES 1-5

TABLE 1 Number of human cases by source of animal exposure and method of confirmation: 1988

Africa — Most of the human cases (70%) were diagnosed clinically without any further laboratory examination. Dogs were responsible for 96% of the deaths for which information on exposure was provided. Wild animal species were very rarely involved (3%).

Americas About 81% of the human cases diagnosed in the Americas were confirmed by laboratory examination. Dogs remain responsible for the majority of these cases (88%) and 8% of the deaths were associated with exposure to wildlife (mainly bats).

Asia Rabies diagnosis was mainly made on clinical grounds alone (85%). Regarding offending animals, the dog takes priority (93%), followed by wild animal species (particularly foxes).

Europe All autochthonous cases in human beings were reported in Romania and Turkey. Rabies cases acquired abroad were reported in Belgium and United Kingdom.

TABLE 2 Number of animal rabies cases by species and method of confirmation: 1988

Africa Half the total of reported cases (more than 4 000) was confirmed in the laboratory in the following main species or group of species: dogs (66%), livestock (21%), other domestic animals (5%) and wildlife (8%).

Americas A total of about 24 500 animal cases were diagnosed (62% in the laboratory). Half the cases were diagnosed in dogs. Rabies cases in wildlife species reported in Canada and USA accounted for 99% of the total cases in wildlife in the Americas.

Asia Most animal rabies cases were confirmed in the laboratory (84%). Dog is the main species involved (93%). Cases in livestock accounted for 3% of the total. Only a few cases were reported in wildlife.

Europe Almost all domestic animal cases (294 out of 297) were confirmed by laboratory techniques. About 9 000 cases were diagnosed in foxes (68%). Livestock were victims of the disease in 11% of the cases and dogs accounted for less than 8% of the total, followed by cats (6.3%). Other domestic species in which the disease was reported were mainly rabbit, sheep and goat. Major rabid wildlife species reported were badgers, raccoon dogs, deer (roe deer) stone marten and wolves.

TABLE 3 Number of persons treated against rabies by source of animal exposure and type of treatment: 1988

Dogs were the origin of exposure in 88% of the treatments administered in Africa, 93% in the Americas and in Asia, and 50% in Europe. In Europe exposure to wildlife species accounted for 14% of the treatments.

Rodents (mainly rats) were the major wildlife species at the origin of exposure in Africa and in Asia. Bats and rodents accounted for most of the treatments applied following exposure to wildlife species in the Americas. In Europe the number of treatments following exposure to rodents came next to those with foxes.

Vaccine alone was applied in most cases in African, Central and South American, Asian and European countries. In Canada, USA and Australia, serum and vaccine were systematically administered in association.

Table 4 and 5 are self-explanatory. Additional information on human and animal vaccine production and imports, as well as on vaccine application, is given in paragraphs 2.2 to 2.4. A glossary of acronyms used in these two tables is attached in Annex 4.

TABLE 1. NUMBER OF HUMAN RABIES CASES BY SOURCE OF ANIMAL EXPOSURE AND METHOD OF CONFIRMATION: 1988

Continent: AFRICA	Method of Diagnosis			Reported Exposure to Domestic Animals			Reported Exposure to Wild Animals					
Country	Lab-oratory	Clinical only	Total	Dog	Cat	Other	Fox	Skunk	Rac-coon	Mon-goose	Bat	Other
Algeria	1	12	13	12								
Angola												
Benin												
Botswana	1	0	1									
Burkina Faso												
Cameroun												
Cap Verde	0	0	0									
Central African Rep.												
Comores												
Djibouti	0	0	0									
Egypt												
Ethiopia	28		28	25			3					
Ghana	13	59	72	13								
Guinee		1	1									
Ivory Coast		3	3	3								
Lesotho		31	31	31								
Madagascar	0	1	1	1								
Malawi	0											
Mali				8	1							
Mauritius												
Morocco												
Nigeria												
Rwanda	0	8	8									
Sao Tome												
Senegal	1		1*									
Sierra Leone												
Somalia	0	0	0									
South Africa												
Togo	1		1									
Tunisia		1	1	1								
Zaire												
Zimbabwe	5	1	6	5								
Total for AFRICA	50	117	167	99	1	0	3	0	0	0	0	0

* acquired abroad

TABLE 1. NUMBER OF HUMAN RABIES CASES BY SOURCE OF ANIMAL EXPOSURE AND METHOD OF CONFIRMATION: 1988

Continent: AMERICAS	Method of Diagnosis			Reported Exposure to Domestic Animals			Reported Exposure to Wild Animals					
Country	Laboratory	Clinical only	Total	Dog	Cat	Other	Fox	Skunk	Raccoon	Mongoose	Bat	Other
Antigua												
Barbados												
Belize	2	0	2	2	0							
Brit. Virgin Islands												
Canada	0	0	0									
Chile	0	0	0									
Colombia	14		14	5	3		0				3	
Costa Rica	0	0	0									
Dominican Republic	3		3	1						2		
Ecuador	13	2	15	13								
El Salvador	25	1	26	19							2	
French Guiana												
Guatemala	11		11	10	1							
Honduras	1		1	1								
Mexico	50	22	72	66	1			1			4	
Panama	0	0	0									
Paraguay	3	0	3	3	0						0	
Peru	14	6	20	19	1		0	0			0	
St Kitts & Nevis												
Trinidad/Tobago	0	0	0									
Uruguay												
USA	0	0	0									
Total for AMERICAS	136	31	167	139	6	0	0	1	0	2	9	0

TABLE 1. NUMBER OF HUMAN RABIES CASES BY SOURCE OF ANIMAL EXPOSURE AND METHOD OF CONFIRMATION: 1988

Continent: ASIA	Method of Diagnosis			Reported Exposure to Domestic Animals			Reported Exposure to Wild Animals					
Country	Lab-oratory	Clinical only	Total	Dog	Cat	Other	Fox	Skunk	Rac-coon	Mon-goose	Bat	Other
Bahrein	0	0	0									
Bangladesh												
Hong Kong	1	0	1*	1								
India	1	15	16	14			1			1		
Indonesia	3	0	3	3								
Iran		9	9	2			4					
Iraq	11	5	16	7			2		2			
Israel												
Japan	0	0	0									
Jordan		2	2				1					
Korea, Republic of	0	0	0									
Malaysia	0	0	0									
Oman		0	0									
Pakistan												
Philippines												
Qatar												
Sabah (Malaysia)												
Saudi Arabia		5	5				5					
Singapore												
Sri Lanka	3	85	88	85								
Thailand	35	178	213	186	8							
United Arab Emirates												
Yemen	0	9	9*	10	0		0					
Total for ASIA	54	308	362	308	8	0	13	0	2	1	0	0

* 1 case acquired abroad for both countries

TABLE 1. NUMBER OF HUMAN RABIES CASES BY SOURCE OF ANIMAL EXPOSURE AND METHOD OF CONFIRMATION: 1988

Continent: EUROPE	Method of Diagnosis			Reported Exposure to Domestic Animals			Reported Exposure to Wild Animals					
Country	Lab-oratory	Clinical only	Total	Dog	Cat	Other	Fox	Skunk	Rac-coon	Mon-goose	Bat	Other
Belgium	1	0	1*	1								
Cyprus	0	0	0									
Finland	0	0	0									
France	0											
German Democratic Republic	0	0	0									
Germany, Federal Republic of	0	0	0									
Gibralter	0	0	0									
Greece	0	0	0									
Hungary	0	0	0									
Iceland	0											
Ireland	0	0	0									
Israel												
Italy												
Luxembourg	0	0	0									
Malta	0	0	0									
Netherlands	0	0	0									
Norway												
Poland	0											
Portugal	0											
Romania	3		3	1			1					
Spain	0											
Sweden	0	0	0									
Switzerland	0	0	0									
Turkey	2	6	8	4								
United Kingdom		2	2*	2								
Yugoslavia	0	0	0									
Total for EUROPE	6	8	14	8	0	0	1	0	0	0	0	0

* acquired abroad.

TABLE 1. NUMBER OF HUMAN RABIES CASES BY SOURCE OF ANIMAL EXPOSURE AND METHOD OF CONFIRMATION: 1988

Continent: OCEANIA	Method of Diagnosis			Reported Exposure to Domestic Animals			Reported Exposure to Wild Animals					
Country	Lab-oratory	Clinical only	Total	Dog	Cat	Other	Fox	Skunk	Rac-coon	Mon-goose	Bat	Other
Australia	0	0	0									
Cook Island	0											
Fiji												
French Polynesia	0	0	0									
New Zealand												
Niue Island												
Samoa	0	0	0	0	0		0	0	0	0	0	
Solomon Islands												
Vanuatu	0	0	0									
Total for OCEANIA	0	0	0	0	0	0	0	0	0	0	0	0
Total for the World	246	464	710	554	15	0	17	1	2	3	9	6

TABLE 2. NUMBER OF ANIMAL RABIES CASES BY SPECIES AND METHOD OF CONFIRMATION: 1988

Continent: AFRICA	Method of Diagnosis			Laboratory Confirmed Cases in Domestic Animals					Laboratory Confirmed Cases in Wild Animals					
Country	Lab-oratory	Clinical only	Total	Dog	Cat	Rumi-nant	Equine	Other	Fox	Skunk	Rac-coon	Mon-goose	bat	Other
Algeria	411	826	1237	303	30	59	10							9
Angola	1		1	1										
Benin			0											
Botswana	56	9	65	10	1	36	0		3			1		5
Burkina Faso	28		28	24	2	0	1	1						
Cameroun	11		11	11	0	0								
Cap Verde	0	0	0											
Central African Rep.	35	0	35	33	0			2						
Comores			0											
Djibouti	0	0	0											
Egypt		3	3											
Ethiopia	90		90	80	4	5	1							
Ghana	70		70	69	1	0								
Guinee		74	74											
Ivory Coast	88	358	446	83		5	0					0		
Lesotho	3		3	2			1							
Madagascar	10	4	14	9	0	1								
Malawi	128		128	112	0	8								8
Mali	24	39	63	22	0	2								
Mauritius			0											
Morocco	337	598	935	191	27	99	18							1
Nigeria	42		42	41	1	0								
Rwanda	23	4	27	10	2	5		2	1					3
Sao Tome			0					0						
Senegal	1		1	1	0									
Sierra Leone	15	62	77	12		3								
Somalia	0	0	0											
South Africa	419	38	457	199	16	90	1	1	28	6		72	0	6
Togo			0											
Tunisia	48		48	35	0	7	4	0						2
Zaire	34	70	104	33		0	1							
Zimbabwe	207	0	207	100	7	80	4	2				0	0	14
Total for Africa	2081	2085	4166	1381	91	400	41	8	32	6	0	73	0	48

TABLE 2. NUMBER OF ANIMAL RABIES CASES BY SPECIES AND METHOD OF CONFIRMATION: 1988

Continent: AMERICAS	Method of Diagnosis			Laboratory Confirmed Cases in Domestic Animals					Laboratory Confirmed Cases in Wild Animals					
Country	Laboratory	Clinical only	Total	Dog	Cat	Ruminant	Equine	Other	Fox	Skunk	Raccoon	Mongoose	bat	Other
Antigua			0											
Barbados			0											
Belize	12		12	11	1									
Brit. Virgin Islands			0											
Canada	2284	129	2413	71	100	243	20	14	1079	669	14		53	21
Chile	4	0	4	1	0				0				3	
Colombia	548		548	410	21	87	5	5	4				16	
Costa Rica	0	0	0	0	0	0	0				0			
Dominican Republic	106		106	72	12	3						19		
Ecuador	1093		1093	930	60	88	3	12	0				0	0
El Salvador	171		171	118	4	49			0		0		0	
French Guiana			0											
Guatemala	531		531	456	7	48	1	5						3
Honduras	100	581	681	89	2	8		1						
Mexico	4834	8468	13302	4520	159			153					2	
Panama	13		13	0		13	0							
Paraguay	297		297	266	6	18	0	4					0	1
Peru	663	0	663	581	24	23	10	8	2				1	2
St Kitts & Nevis			0											
Suriname			0											
Trinidad/Tobago	0	0	0			0	0					0	0	
Uruguay			0											
USA	4723	0	4723	128	192	180	43	7	183	1791	1463	52	638	46
Total for AMERICAS	17460	9178	24557	7653	588	760	82	209	1268	2460	1477	71	713	87

TABLE 2. NUMBER OF ANIMAL RABIES CASES BY SPECIES AND METHOD OF CONFIRMATION: 1988

Continent: ASIA	Method of Diagnosis			Laboratory Confirmed Cases in Domestic Animals					Laboratory Confirmed Cases in Wild Animals					
Country	Lab-oratory	Clinical only	Total	Dog	Cat	Rumi-nant	Equine	Other	Fox	Skunk	Rac-coon	Mon-goose	bat	Other
Bahrein	0	0	0											
Bangladesh	17	1092	1109	12	1	4								
Hong Kong	0	0	0	0	0									0
India	257	562	819	219	8	21	4					5		0
Indonesia	14	53	67	14	0									
Iran	388	132	520	113	6	190	17	2	15			0	0	28
Iraq	22		22	18	0				2		2			
Israel	22	0	22	4	0	4	0		10				0	2
Japan	0	0	0											
Jordan	5	244	249	2	0	1			2					
Korea, Republic of	0	0	0	0										
Malaysia	0	0	0											
Oman			0											
Pakistan	37		37	34		2						1		
Philippines	586		586	575	11	0		0						
Qatar			0											
Sabah (Malaysia)			0											
Saudi Arabia	37		37											
Singapore	0	0	0	0	0									
Sri Lanka	367		367	235	16	2		1				6		0
Thailand	8488		8488	8105	306	53		9				1	1	3
United Arab Emirates			0											
Yemen	357		357	343	2	7	2		2					1
Total for ASIA	10597	2083	12680	9670	350	280	23	12	21	0	2	13	1	58

TABLE 2. NUMBER OF ANIMAL RABIES CASES BY SPECIES AND METHOD OF CONFIRMATION: 1988

Continent: EUROPE	Method of Diagnosis			Laboratory Confirmed Cases in Domestic Animals					Laboratory Confirmed Cases in Wild Animals					
Country	Lab-oratory	Clinical only	Total	Dog	Cat	Rumi-nant	Equine	Other	Fox	Skunk	Rac-coon	Mon-goose	bat	Other
Belgium	511	3	514	5	14	138	1	1	336				0	5
Cyprus	0	0	0	0	0									
Finland	60	0	60	1	2	1	0		10				0	44
France	2225		2225	16	89	248	16	1	1788					22
German Democratic Republic	2395		2395	89	146	402	9	3	1531		0		1	212
Germany, Federal Republic of	2628	0	2628	19	74	193	19	3	2035		3		9	156
Gibralter	0	0	0											
Greece			0	0	0	0			0				0	0
Hungary	1204		1204	43	91	50	1	4	1000					15
Iceland	0		0											
Ireland	0		0											
Italy	22	0	22	0	0	0			22				0	0
Luxembourg	4		4	0	0	0	1		1					1
Malta	0	0	0											
Netherlands	52		52	0	1	1	0	0	6				43	
Norway	0	0	0	0	0				0					
Poland	1517		1517	58	87	121			988					64
Portugal	0		0	0	0								0	
Romania	39		39	4	6	9	1		16					2
Spain			0											
Sweden	0	0	0											
Switzerland	95		95	1	2	9	0		77				0	6
Turkey	1272		1272	744	295	205	20	6		0				2
United Kingdom			0											
Yugoslavia	1273		1273	30	28	18	2		1145	2				21
Total for EUROPE	13297	3	13300	1010	835	1395	70	18	8955	2	3	0	53	550

TABLE 2. NUMBER OF ANIMAL RABIES CASES BY SPECIES AND METHOD OF CONFIRMATION: 1988

Continent: OCEANIA	Method of Diagnosis			Laboratory Confirmed Cases in Domestic Animals					Laboratory Confirmed Cases in Wild Animals					
Country	Laboratory	Clinical only	Total	Dog	Cat	Ruminant	Equine	Other	Fox	Skunk	Raccoon	Mongoose	bat	Other
Australia	0	0	0	0	0									
Cook Island	0	0	0											
Fiji	0	0	0											
French Polynesia	0	0	0											
New Zealand	0	0	0											
Niue Island			0											
Samoa	0	0	0											
Solomon Islands	0	0	0											
Vanuatu	0	0	0											
Total for OCEANIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total for the World				19718	1864	2839	216	247	10286	2468	1482	157	767	986

TABLE 3. NUMBER OF PERSONS TREATED AGAINST RABIES BY SOURCE OF ANIMAL EXPOSURE AND TYPE OF TREATMENT: 1988

Continent: AFRICA	Persons Treated for Exposure to Domestic Animals				Persons treated for Exposure to Wild Animals					Persons Receiving		
Country	Dog	Cat	Other	Total	Fox	Rodent	Bat	Other	Total	Vaccine alone	Vacc.& serum	Serum alone
Algeria	6246	1277	64	7587		1189		15	1204	3818	1214	600
Angola												
Benin												
Botswana												
Burkina Faso	400	50		450		4			4			
Cameroun	1253	42		1295						1195	143	0
Cap Verde												
Central African Rep.	266			266						359	45	0
Comores												
Djibouti												
Egypt												
Ethiopia	1228	37	44	1309	18	3			21	975	354	11
Ghana												
Guinee												
Ivory Coast												
Lesotho	31			31						31	0	0
Madagascar	930	40		970		54			54	1026	7	
Malawi												
Mali	1698	78	13	1799						1702	87	
Mauritius												
Morocco												
Nigeria												
Rwanda										240		
Sao Tome												
Senegal	1477	61		1538						1579	8	
Sierra Leone												
Somalia												
South Africa												
Togo	100	3		103								
Tunisia	20014	1207	310	21531		112	1		113			
Zaire												
Zimbabwe										1874		
Total for AFRICA	33643	2795	431	36879	18	1362	1	15	1396	12799	1858	611

TABLE 3. NUMBER OF PERSONS TREATED AGAINST RABIES BY SOURCE OF ANIMAL EXPOSURE AND TYPE OF TREATMENT: 1988

Continent: AMERICAS	Persons Treated for Exposure to Domestic Animals				Persons treated for Exposure to Wild Animals					Persons Receiving		
Country	Dog	Cat	Other	Total	Fox	Rodent	Bat	Other	Total	Vaccine alone	Vacc.& serum	Serum alone
Antigua												
Barbados												
Belize	142	3	0	143						155	1	
Brit. Virgin Islands												
Canada	675	550	450	1675	300	2	125		427		2500	
Chile							0			9595		
Colombia	6770	287	458	7515	24	614	98		736	7830	507	
Costa Rica	10	0	0	10	0	0	20		20	30	0	0
Dominican Republic										994		
Ecuador	18338	30	10	18378						18378		
El Salvador	9133	305		9438		264	405		669		6144	
French Guiana							1		1	1		
Guatemala												
Honduras	1050	5		1055						1059		
Mexico	42572	1120	0	43692			955		955	43480	2213	
Panama										20	0	0
Paraguay										2857		
Peru	13613	739	345	14797	5	30	0		35	14631	145	0
St Kitts & Nevis												
Suriname												
Trinidad/Tobago												
Uruguay										2062		
USA											18000	
Total for AMERICAS	92303	3039	1263	96705	329	910	1604	0	2843	101092	29510	0

TABLE 3. NUMBER OF PERSONS TREATED AGAINST RABIES BY SOURCE OF ANIMAL EXPOSURE AND TYPE OF TREATMENT: 1988

Continent: ASIA	Persons Treated for Exposure to Domestic Animals				Persons treated for Exposure to Wild Animals					Persons Receiving		
Country	Dog	Cat	Other	Total	Fox	Rodent	Bat	Other	Total	Vaccine alone	Vacc.& serum	Serum alone
Bahrein	2			2						2		
Bangladesh												
Hong Kong	2370	444		2814		447			447	3265	42	
India	2210	68	22	2300	2				2	3037	272	
Indonesia	451	70		521						429	127	4
Iran	13807	1229		15036	153				153	9499	9780	
Iraq	505	350		855	105				105	1046	454	541
Israel										811	230	44
Japan										0	0	0
Jordan	245	10		255		24			24	301		
Korea, Republic of										0	0	0
Malaysia												
Oman										100		
Pakistan												
Philippines	27135	367		27502						3374	3679	77
Qatar	146	72		218		83			83	322		
Sabah (Malaysia)												
Saudi Arabia												
Singapore												
Sri Lanka										16260		
Thailand										98579		
United Arab Emirates												
Yemen	1977	13	26	2016	4				4	830	630	0
Total for ASIA	48848	2623	48	51519	264	554	0	0	818	137855	15214	622

TABLE 3. NUMBER OF PERSONS TREATED AGAINST RABIES BY SOURCE OF ANIMAL EXPOSURE AND TYPE OF TREATMENT: 1988

Continent: EUROPE	Persons Treated for Exposure to Domestic Animals				Persons treated for Exposure to Wild Animals					Persons Receiving		
Country	Dog	Cat	Other	Total	Fox	Rodent	Bat	Other	Total	Vaccine alone	Vacc.& serum	Serum alone
Belgium	116	112	382	610	62	18		27	107	587	191	0
Cyprus												
German Democratic Republic	1693	1956	786	4435	104	507	15	90	716	3627	1756	
Germany, Federal Republic of												
Finland										850	61	0
France	4000	1994	778	6772	391	6	0	55	801	7093	538	190
Gibralter										0	0	0
Greece										7000	1600	
Hungary					231	26	1	32	290	2349	0	0
Iceland												
Ireland												
Italy										1074	169	
Luxembourg	35	26	12	73		4		5	9	73	11	
Malta										0	0	0
Netherlands	10	11		21	1	4	17	3	25	36	20	
Norway	4			4	2			1	3	5	2	
Poland	1780	468	298	2546	534	181	0	343	1058	3574	30	
Portugal	24	6		30				1	1	31	0	0
Romania										6535	1725	
Spain	74	13		87		6			6	379	13	
Sweden										200	10	
Switzerland	20	45	17	82	4	3		5	12	19	75	0
Turkey										89685		
United Kingdom	505	154	9	668	1	9	5	85	100	598	211	
Yugoslavia	2255	604	54	2913	358	117	1	36	512	2676	676	103
Total for EUROPE	10516	5389	2336	18241	1688	781	39	683	3640	126391	7088	293

TABLE 3. NUMBER OF PERSONS TREATED AGAINST RABIES BY SOURCE OF ANIMAL EXPOSURE AND TYPE OF TREATMENT: 1988

Continent: OCEANIA	Persons Treated for Exposure to Domestic Animals				Persons treated for Exposure to Wild Animals					Persons Receiving		
Country	Dog	Cat	Other	Total	Fox	Rodent	Bat	Other	Total	Vaccine alone	Vacc.& serum	Serum alone
Australia											105	
Cook Island												
Fiji												
French Polynesia										0	0	0
New Zealand												
Niue Island												
Samoa										0	0	0
Solomon Islands					0	0	0					
Vanuatu										0	0	0
Total for OCEANIA	0	0	0	0	0	0	0	0	0	0	105	0
Total for the World	185310	13846	4078	203244	2299	3607	1644	698	7914	378137	55528	1570

TABLE 4. HUMAN RABIES VACCINES PRODUCED DOMESTICALLY AND IMPORTED: 1988

Continent: AFRICA	Domestically Produced Human Vaccines				Imported Human Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Algeria	NTO	SMB/PV	BPL	695400	TCO	625
Angola						
Benin					TCO	
Botswana					TCO	
Burkina Faso					NTO	4200
Cameroun					TCO	8000
Cap Verde						
Central African Rep.					NTO	13000
					TCO	1000
Comores					TCO	100
Djibouti						
Egypt						
Ethiopia	NTO	lamb/PV-12	phenol	5362	TCO	100
Ghana					EEO	39265
Guinee					EEO	5334
Ivory Coast					NTO	60000
					TCO	
Lesotho						
Madagascar	NTO	sheep/PV	phenic acid	30000	NTO	2000
Malawi						
Mali					TCO	
Mauritius						
Morocco						
Nigeria						
Rwanda					EEO	20642
					TCO	250
					TCO	100
Sao Tome						
Senegal	NTO	SMB/PV	BPL	82000	TCO	
Sierra Leone						
Somalia						
South Africa						
Togo						
Tunisia	NTO	Lamb/PV11	BPL	142590		

TABLE 4. HUMAN RABIES VACCINES PRODUCED DOMESTICALLY AND IMPORTED: 1988

Continent: AFRICA (Con'd)	Domestically Produced Human Vaccines				Imported Human Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Zaire					TCO	20700
Zimbabwe					TCO	500
Total for AFRICA				955352		2175816

TABLE 4. HUMAN RABIES VACCINES PRODUCED DOMESTICALLY AND IMPORTED: 1988

Continent: AMERICAS	Domestically Produced Human Vaccines				Imported Human Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Antigua						
Barbados						
Belize					TCO	960
Brit. Virgin Islands						
Canada	TCO				TCO	
Chile	NTO	SMB/CVS 51-91	UV	123000		
Colombia	NTO	SMB/CVS 51-91	UV	52101		
Costa Rica					TCO	300
Dominican Republic	NTO	SMB/PV	BPL	30000		
Ecuador	NTO	SMB/CVS 51-91	UV	280066		
El Salvador					NTO	150000
					TCO	2000
French Guiana					TCO	200
Guatemala	NTO	SMB/CVS	UV	309000		
Honduras	NTO	SMB/CVS 51-91	BPL	17000	TCO	1000
Mexico	NTO	SMB/CVS 51-91	UV	1500000	TCO	2000
Panama					TCO	200
Paraguay					NTO	25000
Peru	NTO	SMB/CVS 51-91	UV	157619		
St Kitts & Nevis						
Suriname						
Trinidad/Tobago					TCO	60
Uruguay						
USA	TCO	HDC/PM	BPL	118604		
	TCO	RDC/CVS	BPL	3043		
Total for AMERICAS				2590433		181720

TABLE 4. HUMAN RABIES VACCINES PRODUCED DOMESTICALLY AND IMPORTED: 1988

Continent: ASIA	Domestically Produced Human Vaccines				Imported Human Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Bahrein					TCO	18
Bangladesh						
Hong Kong					TCO	18481
India	NTO	Sheep/PV	BPL/Ph		TCO	
					TCO	
Indonesia	NTO	SMB/CVS	BPL	158462	TCO	1104
Iran					TCO	75000
					TCO	33540
Iraq					TCO	6000
Israel					TCO	10000
Japan	TCO	CEF/HEP	BPL	9032		
Jordan						
Korea, Republic of	NTO	Rabbit/CVS	Phenol	100		
Malaysia					TCO	15
Oman						
Pakistan						
Philippines	NTO	Goat/PV	Phenol	256000	TCO	18750
					EEO	
Qatar					TCO	340
Sabah (Malaysia)						
Saudi Arabia					TCO	43000
Singapore						
Sri Lanka	NTO	Goat/-			TCO	81302
Thailand	NTO	Sheep/-	BEI	972000	TCO	134397
	NTO	SMB/-	BEI	876020		
United Arab Emirates						
Yemen					NTO	200000
					TCO	
Total for ASIA				2271614		621947

TABLE 4. HUMAN RABIES VACCINES PRODUCED DOMESTICALLY AND IMPORTED: 1988

Continent: EUROPE	Domestically Produced Human Vaccines				Imported Human Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Belgium					TCO	5000
Cyprus					EEO	30
German Democratic Republic					TCO	120000
Germany, Federal Republic of	TCO	CEF/LEP	BPL	455305	TCO	31180
	TCO	HDC/PV	BPL	34819		
Finland					TCO	8072
France	TCO	VERO/PM	BPL	246413		
	TCO	FBK/-	BPL	37835		
	NTO	SMB/-	BPL	151781		
Gibralter					TCO	15
Greece					TCO	8400
Hungary	NTO	sheep/Högyes	phenol	25601	TCO	6000
Iceland						
Ireland						
Italy	TCO	HDC/PM	BPL	47458		
Luxembourg						
Malta					TCO	20
Netherlands	TCO	DKC/PM	BPL	12000		
Norway					TCO	600
Poland					TCO	15000
					TCO	12000
Portugal					TCO	100
Romania	NTO	SMB/Babes	BPL	220000		
Spain						
Sweden					TCO	2000
Switzerland	EEO	DE/PM	BPL	1719	TCO	2100
Turkey	NTO			717900	TCO	39193
United Kingdom					HDC	23907
Yugoslavia					TCO	21000
Total for EUROPE				1950831		294617

TABLE 4. HUMAN RABIES VACCINES PRODUCED DOMESTICALLY AND IMPORTED: 1988

Continent: OCEANIA	Domestically Produced Human Vaccines				Imported Human Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Australia					TCO	1409
Cook Island						
Fiji						
French Polynesia						
New Zealand					TCO	
					TCO	
Niue Island						
Samoa						
Solomon Islands						
Vanuatu						
Total for OCEANIA				0		1409

Total for the World	7768230	1274100

TABLE 5. ANIMAL RABIES VACCINES PRODUCED DOMESTICALLY AND IMPORTED: 1988

Continent: AFRICA	Domestically Produced Animal Vaccines				Imported Animal Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Algeria	TCO	BHK/ERA		207000		
Angola						
Benin					TCO	
Botswana					TCO	120000
Burkina Faso					TCO	3850
Cameroun						
Cap Verde						
Central African Rep.						
Comores						
Djibouti					TCO	365
Egypt	EEO	CE/-		20000		
Ethiopia	NTO	lamb/PV-12	phenol		TCO	
	NTO	lamb/PV-12	phenol			
Ghana					TCO	291000
Guinee					TCO	5600
Ivory Coast					TCO	12000
Lesotho					TCO	200000
Madagascar	EEO	-/LEP		4000		
Malawi					TCO	48522
Mali					TCO	
					TCO	
Mauritius						
Morocco					TCO	500000
						30000
						25000
Nigeria	EEO	-/HEP	BPL	681		
	EEO	-/LEP	BPL	31559		
Rwanda					TCO	32320
Sao Tome						
Senegal	TCO	SMB/PV	BPL	4000		
Sierra Leone					TCO	2700
Somalia						
South Africa	TCO	BHK/HEP		1273610	TCO	17500
					TCO	125000
					TCO	90000
Togo						

TABLE 5. ANIMAL RABIES VACCINES PRODUCED DOMESTICALLY AND IMPORTED: 1988

Continent: AFRICA (Con'd)	Domestically Produced Animal Vaccines				Imported Animal Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Tunisia	NTO	Lamb/PV11	BPL			
	NTO	Lamb/CVS	BPL			
Zaire	EEO	CEF/HEP	Phenol	1214	TCO	669
	EEO	CEF/HEP		4303000	TCO	548
Zimbabwe					TCO	800000
Total for AFRICA				5845064		2305074

TABLE 5. ANIMAL RABIES VACCINES PRODUCED DOMESTICALLY AND IMPORTED: 1988

Continent: AMERICAS	Domestically Produced Animal Vaccines				Imported Animal Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Antigua						36
Barbados						
Belize						22000
Brit. Virgin Islands						
Canada	TCO				TCO	
					NTO	
Chile	NTO	SMB/CVS 51-91	UV	165000		
Colombia	NTO	SMB/-	VV	325200		
	TCO	BHK/-	BPL	1988500		
Costa Rica					NTO	20000
Dominican Republic	NTO	SMB/PV	BPL	150000		
	TCO	BHK/-	BPL	250000		
Ecuador	NTO	SMB/-	BPL	273175	NTO	199975
					TCO	531200
El Salvador	EEO	-/LEP		9000	TCO	500000
					TCO	9300
						1375
French Guiana					TCO	400000
Guatemala	NTO	SMB/CVS	UV	390000		
Honduras	NTO	SMB/CVS 51-91	BPL	270000	TCO	200000
Mexico	NTO	SMB/CVS 51-91	UV	1500000		
	TCO	BHK/SAD	BPL	378300		
	TCO	BHK/ACATLAN	Atenua	125000		
Panama					NTO	50000
Paraguay					NTO	200000
					NTO	25000
Peru	NTO	SMB/CVS-51-91	UV	157870		
	TCO	BHK-21/PV	BPL			
St Kitts & Nevis						
Suriname					TCO	

TABLE 5. ANIMAL RABIES VACCINES PRODUCED DOMESTICALLY AND IMPORTED: 1988

Continent: AMERICAS (Con'd)	Domestically Produced Animal Vaccines				Imported Animal Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Trinidad/Tobago					TCO	12000
Uruguay	TCO	BHK/PV4	Th.			
USA	UC**			5941402		
	TCO	Various		21167675		
	NTO	SMB/-		6103190		
Total for AMERICAS				39194312		2170886

** Unclassified

TABLE 5. ANIMAL RABIES VACCINES PRODUCED DOMESTICALLY AND IMPORTED: 1988

Continent: ASIA	Domestically Produced Animal Vaccines				Imported Animal Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Bahrein					TCO	600
Bangladesh	EEO	-/LEP		3465		
		-/HEP		475		
Hong Kong					TCO	22000
India	NTO	Sheep/Goat/PV	BPL/Ph	3000000		
Indonesia	NTO	Monkey/PM	Phenol	731		
Iran	NTO	Lamb/PV	BPL	17300		
Iraq						
Israel					TCO	220000
Japan	TCO	HmLu/RoHl	BPL	3117000		
Jordan						
Korea, Republic of	TCO	PKC/ERA		483285		
Malaysia					TCO	5100
Oman						
Pakistan	EEO	-/LEP	live	4272		
	EE	-/HEP	live	270		
	NTO	Sheep/-	phenol	48384		
Philippines					TCO	397000
Qatar						
Sabah (Malaysia)						
Saudi Arabia					TCO	70000
Singapore					TCO	850
Sri Lanka					TCO	350000
Thailand	TCO	BHK21/PV	BEI	300	TCO	784500
United Arab Emirates					TCO	
Yemen					TCO	200
Total for ASIA				6675482		1850250

TABLE 5. ANIMAL RABIES VACCINES PRODUCED DOMESTICALLY AND IMPORTED: 1988

Continent: EUROPE	Domestically Produced Animal Vaccines				Imported Animal Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Belgium					TCO	150000
Cyprus					TCO	200
German Democratic Republic					NTO	150000
Germany, Federal Republic of	TCO	CEF/LEP	BPL	1046352	TCO	982771
	TCO	BHK/PV	BPL	2200000		
	TCO	CEF/LEP	BPL	49945		
Finland					TCO	391600
					TCO	50000
France					NTO	200000
					TCO	
Gibralter					TCO	2000
Greece	EEO	CE/LEP		15200	TCO	90000
Hungary	TCO	BHK/Vnukovo	BTL	1700000		
Iceland						
Ireland					TCO	
Italy	TCO	PKC/ERA	BPL	1000000	TCO	90000
Luxembourg					TCO	
Malta						
Netherlands	TCO	BHK/PV			TCO	
Norway					TCO	500
Poland	NTO	sheep/PV	phenol	2930000	TCO	5000
					TCO	500
Portugal	NTO	SMB/CVS	BPL	167100	TCO	2000
	NTO	lamb/PV11	heat	908972	TCO	7880
Romania	NTO	Sheep/Babes	Phenol	1800000		
Spain	TCO	MULTIPLE		1641679		
Sweden					TCO	500
Switzerland					TCO	
Turkey	NTO	Goat/PV	Phenol	10357		4000
	EEO	CE/Kelev	Phenol	350102		
United Kingdom	TCO	BHK21/HEP	BPL	37000	TCO	2069
					TCO	10000
					TCO	4500
Yugoslavia	TCO	CEF/HEP				
	TCO	BHK/LEP				
	EEO	CE/LEP				

TABLE 5. ANIMAL RABIES VACCINES PRODUCED DOMESTICALLY AND IMPORTED: 1988

Continent: EUROPE	Domestically Produced Animal Vaccines				Imported Animal Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Total for EUROPE				13856707		2143530

TABLE 5. ANIMAL RABIES VACCINES PRODUCED DOMESTICALLY AND IMPORTED: 1988

Continent: OCEANIA	Domestically Produced Animal Vaccines				Imported Animal Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Australia					TCO	5000
Cook Island						
Fiji						
French Polynesia					TCO	1700
New Zealand					TCO	10
Niue Island						
Samoa						
Solomon Islands						
Vanuatu					TCO	2
Total for OCEANIA				0		6712
Total for the World				65571565		8476442

ANNEX 1

RABIES TRENDS BY COUNTRY AND CONTINENT

Continent	Country	Geographical distribution	Trend
Africa	Algeria	Entire country	stable
	Angola	Entire country	stable
	Benin	Entire country	stable
	Botswana	Entire country	decrease
	Burkina Faso	Entire country	stable
	Cameroun	Entire country	stable
	Central African Rep.	Entire country	stable
	Egypt	Partial	stable
	Ethiopia	Entire country	stable
	Ghana	Entire country	increase
	Guinee	Entire country	stable
	Ivory Coast	Entire country	stable
	Lesotho	Entire country	decrease
	Madagascar	Entire country	stable
	Malawi	Entire country	stable
	Mali	Entire country	stable
	Morocco	Entire country	stable
	Nigeria	Entire country	decrease
	Rwanda	Entire country	stable
	Senegal	Entire country	stable
	Sierra Leone	Entire country	increase
	South Africa	Limited areas	decrease
	Tunisia	Limited areas	stable
	Zaire	Entire country	increase
	Zimbabwe	Entire country	decrease
Americas	Belize	Limited areas	increase
	Canada	Limited areas	decrease
	Chile	Limited areas	decrease
	Colombia	Entire country	decrease
	Dominican Republic	Limited areas	decrease
	Ecuador	Entire country	increase
	El Salvador	Entire country	increase
	French Guiana	Limited areas	stable
	Guatemala	Entire country	increase
	Honduras	Limited areas	decrease
	Mexico	Limited areas	increase
	Panama	Limited areas	stable
	Paraguay	Entire country	stable
	Peru	Limited areas	increase
	Trinidad/Tobago	Limited areas	stable
	USA	Entire country	stable

ANNEX 1

RABIES TRENDS BY COUNTRY AND CONTINENT (Continued)

Continent	Country	Geographical distribution	Trend
Asia	Bangladesh	Entire country	decrease
	Hong Kong	Border areas	decrease
	India	Entire country	stable
	Indonesia	Entire country	increase
	Iran	Entire country	increase
	Iraq	Limited areas	increase
	Israel	Entire country	increase
	Jordan	Entire country	stable
	Pakistan	Entire country	stable
	Philippines	Entire country	stable
	Saudi Arabia	Limited areas	decrease
	Sri Lanka	Entire country	decrease
	Thailand	Entire country	stable
	Yemen	Limited areas	stable
Europe	Belgium	Limited areas	increase
	German Democratic Republic	Entire country	increase
	Federal Republic Germany	Limited areas	decrease
	Finland	Limited areas	increase
	France	Limited areas	stable
	Hungary	Entire country	decrease
	Italy	Border areas	increase
	Luxembourg	Limited areas	decrease
	Netherlands	Limited areas	decrease
	Norway	Limited areas	
	Poland	Entire country	decrease
	Romania	Limited areas	stable
	Spain	Border areas	decrease
	Switzerland	Border areas	stable
	Turkey	Entire country	stable
	Yugoslavia	Entire country	increase

ANNEX 2

HUMAN VACCINE APPLICATION

Continent	Country	Type	Treatment schedule*	(in ml)	Route
Africa	Algeria	TCO	0-7 (11,15,30,90)	0.25-2	sc
	Benin	TCO	0,3,7,14 (30,90)	1	sc
		EEO	0-14	1	sc
	Botswana	TCO	0,3,7,14 (30,90)	1	sc/im
	Burkina Faso	NTO	0,3,7,14 (30,90)	1-2	sc
	Cameroun	TCO	0,3,7,14 (30,90)	0.5	sc
	Central Afr. Rep.	NTO	0-6 (10,15,25,35,90)	0.2-2	sc
		TCO	0,3,7,14 (30,90)	0.5	sc
	Ethiopia	NTO	0-14 + 3 boosters	5	sc
	Guinee	EEO	0-7	1	sc
	Ivory Coast	NTO	1-7 (10-20,30,90)	0.2-2	sc/id
		TCO	0,3,7,14 (30)	1	sc
	Lesotho	TCO	0,3,7,14 (30,90)	1	sc
	Madagascar	NTO	0-15 (30,90)	5	sc/id
		NTO	0-7 (11,15,30,90)	0.25-2	sc/id
	Mali	NTO	0-7 (11,15,25,90)	1	sc/id**
		TCO	0,3,7,14 (30)	1	sc/im
	Rwanda	EEO	1-14 (24,34,104)	1	sc
		TCO	0,3,7,14 (30,90)	1	sc/im
	Senegal	NTO	0-7 (11,15,25,35,90)	2	
		TCO	0,3,7,14 (30,90)	1	
	Tunisia	NTO	0-14 + 3 boosters	1	sc
	Zimbabwe	TCO	0,3,7,14 (30)	0.5	sc/im
Americas	Belize	TCO	0,3,7,14 (30,90)	1	sc/im
	Canada	TCO	0,3,7,14 (28)	1	im
	Chile	NTO	0-5 (21,90)	2	sc
	Colombia	NTO	0-4 (30,90)	1	sc
	Dominican Rep.	NTO	0-10	1	sc
	Ecuador	NTO	0-14 (30-90)	1	sc
	El Salvador	NTO	0-14 + 3 boosters	2	sc
		TCO	5 doses	1	im
	French Guiana	TCO	0,3,7,14 (30,90)	0.5	im
	Guatemala	NTO	0-7 (10,20,90)	2	sc
	Honduras	NTO	0-7 (17,28)	2	id
	Mexico	NTO	0-14	1	sc
	Panama	TCO	1,3,7,14 (30)	1	im
	Paraguay	NTO	0-6 (16,26,36)	1	sc
	Peru	NTO	0-7 (10,20,90)	2	sc
	Uruguay	NTO	0-14 (10,20)	2	im
	USA	TCO	0,3,7,14 (28)	1	im
Asia	Bahrein	TCO	0,3,7,14 (30,90)	1	im
	Hong Kong	TCO	0,3,7,14 (28,90)	1	im
	India	NTO	0-7/0-14 + boosters	2-10	sc
		TCO	0,14 (90)	1-3	id
	Indonesia	NTO	0-6 (11,15,30,90)	0.25-2	sc
	Iran	TCO	0,3,7,14 (30,90)	1	im
	Iraq	TCO	0x2,7,28 (60,90)	1	sc/im
	Israel	TCO	0,3,7,14 (30,90)	1	im
	Japan	TCO	0,3,7,14 (30,90)	1	sc

* Please note that, for example, 10.7 means 7 daily injections starting on day 0.

** id - only for boosters

ANNEX 2

HUMAN VACCINE APPLICATION (Continued)

Continent	Country	Type	Treatment schedule	(in ml)	Route
	Jordan	TCO	0,3,7,14 (30,90)	1	sc
	Korea, Rep. of	NTO	0-7	0.1	id
	Malaysia	TCO	0,3,7,14 (30)	1	sc
	Philippines	NTO	0-14 (24,34)	1	sc
		TCO	0,3,7,14 (28)	0.5-1	im
	Qatar	TCO	0,3,7,14 (28,90)		im
	Saudi Arabia	TCO	0,3,7,14 (30,90)	1	sc/im
	Sri Lanka	TCO	0,3,7,14 (30,90)	0.5	sc
	Thailand	NTO	0-14 + 3 boosters	1	sc
		TCO	0,3,7,14 (30,90)	0.5-1	im
		TCO	multisite	0.1	id
	Yemen	NTO	7 daily doses	2	im
Europe	Belgium	TCO	0,3,7,14, (30, 90)	1	sc/im
	DDR	TCO	0-14 (23,33,103)	3-4.5	sc
	Finland	TCO	0,3,7,14(30)	1	im
	France	TCO	0,3,7,14 (28)	1	sc/im
		TCO	0 x 2,7,21	1	im
	FRG	TCO	0,3,7,14 (30,90)	1	sc/im
	Gibralter	TCO	0,3,7,14 (30,90)	1	sc/im
	Hungary	NTO	0-5 (35)	5	sc
		TCO	0,3,7,14 (30,90)	1	im
	Italy	TCO	0,3,7,14 (30,90)	1	im
	Luxembourg	TCO	0,3,7,14 (30,90)	1	im
	Malta	TCO	0,3,7,14 (28,90)	1	im
	Netherlands	TCO	0,3,7,14 (30,90)	1	im
	Norway	TCO	0,3,7,14 (30,(90)	1	sc
	Poland	TCO	0,3,7,14 (30,90)	1	sc/im
	Portugal	TCO	0,3,7,14 (30)	0.5	sc/im
	Romania	NTO	0-6 (10,14,30,90)	1-2	sc/(id)
	Spain	TCO	0,3,7,14 (30,90)	1	sc/im
	Sweden	TCO	0,3,7,14 (30,90)	1	im
	Switzerland	TCO	0,3,7,14 (30,90)		sc/im
	Turkey	NTO	0-14 + boosters	1-2	sc
	United Kingdom	TCO	0,3,7,14 (30,90)	1	sc/im
	Yugoslavia	TCO	0,3,7,14 (30)	1	im.
Oceania	Australia	TCO	0,3,7,14 (30,90)	1	im
	New Zealand	TCO	0,3,7,14 (30,90)	0.5-1	im

ANNEX 3

VETERINARY VACCINE APPLICATION

Continent	Country	Status[1]	Number of dogs immunized	Coverage (in %)	Sector in charge	Public/ private initiatve
Africa	Algeria	comp.	93091	18	pub.	gov.
	Benin	opt.			priv.	own
	Botswana	comp.	66366		pub.	gov.
	Burkina Faso	opt.	4500	66	pub.	own
	Cameroun	comp.			pub.	own
	Central Afr. Rep.	comp.		10	pub.	own
	Comores	opt.				
	Djibouti	opt.			pub.	own
	Egypt	opt.	8095	30	pub.	own
	Ethiopia	opt.	10700	10	pub.	own
	Ghana	comp.	120007	43	pub.	own
	Guinee	comp.	3369	50	pub.	own
	Ivory Coast	opt.	9188	2	priv.	own
	Lesotho	comp.	62000	60	pub.	gov.
	Madagascar	comp.			pub.	
	Malawi	comp.	40000	20	pub.	gov.
	Mali	comp.	1762	3	pub.	own
	Mauritius	forbid.				
	Morocco	comp.	400000	50	priv.	gov.
	Nigeria	comp.		25	pub.	own
	Rwanda	comp.	6008	12	pub.	gov.
	Sao Tome	forbid.				
	Senegal	opt.			pub.	own
	Sierra Leone	opt.	27000	9	pub.	own
	South Africa	comp.	591974	40	priv.	own
	Tunisia	comp.	59387		pub.	gov.
	Zaire	comp.	5580	10	priv.	own
	Zimbabwe	comp.	500000	40	pub.	gov.
Americas	Antigua	forbid.				
	Belize	opt.	20127	85	pub.	gov.
	Canada	opt.			priv.	own
	Chile	comp.	138049	12	priv.	gov.
	Colombia	opt.	1469200		pub.	gov.
	Costa Rica	comp.	18000	68	pub.	gov.
	Dominican Rep.	opt.	242917	72	pub.	gov.
	Ecuador	comp.	589418	45	pub.	gov.

[1] Status - comp. = compulsory, opt. = optional, and forb. = forbidden

ANNEX 3

VETERINARY VACCINE APPLICATION (Continued)

Continent	Country	status[1]	number of dogs immunized	coverage (in %)	sector in charge	public/ private initiatve
	El Salvador	opt.	450000	79	pub.	gov.
	French Guiana	opt.			priv.	own
	Guatemala	comp.	314401	32	priv.	gov.
	Honduras	opt.	249108	42	priv.	gov.
	Mexico	opt.	5095104	51	gov.	
	Panama	comp.	35000		pub.	
	Paraguay	comp.	130000	60	priv.	gov.
	Peru	comp.			gov.	
	St Kitts & Nevis	forbid.				
	Suriname	opt.			pub.	own
	Uruguay	opt.	42140		pub.	gov.
Asia	Bahrein	comp.	590	30	pub.	own
	Bangladesh	opt.	3361	40	priv.	own
	Hong Kong	comp.	33295	60	pub.	gov.
	India	opt.			priv.	own
	Indonesia	comp.			pub.	gov.
	Iran	opt.			pub.	own
	Israel	comp.	89262	70	pub.	gov.
	Japan	comp.	3598046	99	priv.	gov.
	Jordan	opt.	505		priv.	own
	Korea, Rep. of	comp.	255148	10	pub.	gov.
	Malaysia	opt.	4232		pub.	gov.
	Oman	opt.	1109		pub.	
	Pakistan	opt.			pub.	own
	Philippines	opt.	414340	7	priv.	own
	Saudi Arabia	opt.	50000	20	pub.	own
	Singapore	forbid.				
	Sri Lanka	opt.	268717	17	pub.	gov.
	Thailand	opt.	638505	10	pub.	gov.
	United Arab Emirates	opt.			priv.	own
	Yemen, Republic of	opt.	200		pub.	own
Europe	Belgium	comp.	150000		priv.	own
	Cyprus	opt.	120		priv.	own
	DDR	comp.	145502		pub.	
	Finland	comp.	182000	50	priv.	gov.

[1] Status - comp. = compulsory, opt. = optimal and forb. = forbidden

ANNEX 3

VETERINARY VACCINE APPLICATION (Continued)

Continent	Country	status[1]	number of dogs immunized	coverage (in %)	sector in charge	public/ private initiatve
	France	comp.			priv.	
	FRG	opt.		70	priv.	
	Gibralter	comp.	1500	95	pub.	own
	Greece	comp.[2]	100000	20	priv.	own
	Hungary	comp.	1430433	95	pub.	gov.
	Ireland	forbid.				
	Italy	comp.	1000000		priv.	own
	Luxembourg	comp.			priv.	own
	Malta	opt.		52	pub.	own
	Netherlands	opt.			priv.	own
	Norway	comp.[3]	481			
	Poland	comp.	2923985	85	pub.	gov.
	Portugal	comp.	670030	67	pub.	gov.
	Romania	comp.			pub.	gov.
	Spain	comp.	161679	60	pub.	gov.
	Sweden	forbid.				
	Switzerland	comp.	400000	95	priv.	own
	Turkey	comp.	209756	2	priv.	gov.
	United Kingdom	forbid.				
	Yugoslavia	comp.	1153921		pub.	gov.
Oceania	Australia	opt.	500		pub.	own
	French Polynesia	opt.	400	1	priv.	own
	New Zealand	forbid.				
	Samoa	opt.			pub.	
	Solomon Islands	forbid.	0			
	Vanuatu	forbid.		0		

[1] Status - comp. = compulsory, opt. = optional, and forb. = forbidden

[2] compulsory in border areas

[3] compulsory in Svalbard Islands

ANNEX 4

GLOSSARY OF ACRONYMS

(a) Vaccine type

TCO = Tissue culture origin
NTO = Neural tissue origin
EEO = Embryonated egg origin

(b) Substrate

SMB = Suckling mouse brain
HDC = Humain diploid cells
RDC = Rhesus (monkey) diploid cells
CEF = Chick embryo fibroblasts
FBK = Foetal bovine kidney (cells)
DKC = Dog kidney cells
DE = Duck embryo
BHK or BHK21 = Baby hamster kidney (continuous cell line)
PKC = Pig kidney cells
CE = Chick embryo

(c) Virus strains

Common denominations have been used for the strains which are widely used (e.g. PV, PM, CVS, LEP, HEP, ERA, SAD etc. ....). Other denominations/names are given as indicated in the replies to the questionnaire.

A:RABSUR
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