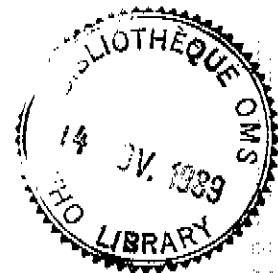




WORLD SURVEY OF RABIES 23
(for years 1986/87)

by

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



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1. INTRODUCTION

The twenty-third World Survey of Rabies for the years 1986/1987 is an analysis of the data returned from 106 countries and territories. Forty-seven countries did not reply to the questionnaire.

A computerized data base in which all replies were entered has been created. However, computerized assisted data processing and editing has been limited to the replies given to the questions related to five major topics, i.e. the number of human and animal rabies cases, number of persons treated against rabies, production/imports of human and animal rabies vaccines. Tables 1 to 5 covering these topics constitute the main body of the report. In addition, computerized sorting of the data has been used for the preparation of the following summary.

Veterinary Public Health
Division of Communicable Diseases

2. SUMMARY OF REPLIES RECEIVED

2.1 Rabies trends

The following Lists A and B name the countries by continent which declared during the period 1986-87 that they were rabies-free or that rabies was present.

LIST A: LIST OF RABIES-FREE COUNTRIES
DURING PERIOD 1986-87

CONTINENT	NAME OF COUNTRY/TERRITORY	CONTINENT	NAME OF COUNTRY/TERRITORY
<u>Africa</u>	Libya Mauritius	<u>Europe</u>	Cyprus Finland Gibraltar Iceland Ireland Italy Malta Norway (mainland only) Portugal Sweden United Kingdom
<u>Americas</u>	Anguilla Antigua Bahamas Barbados Bermuda Cayman Islands Guadeloupe Jamaica Martinique Montserrat St. Kitts & Nevis Uruguay	<u>Oceania</u>	Australia Fiji Kiribati New Caledonia New Zealand Papua-New Guinea Solomon Islands Tahiti Vanuatu Western Samoa
<u>Asia</u>	Bahrain Brunei Japan Korea, Rep. of Malaysia Maldives Singapore		

LIST B: LIST OF COUNTRIES WHERE RABIES WAS REPORTED
DURING PERIOD 1986-87

CONTINENT	NAME OF COUNTRY/TERRITORY	CONTINENT	NAME OF COUNTRY/TERRITORY
<u>Africa</u>	Algeria	<u>Asia</u>	Bangladesh
	Benin		Hong Kong
	Burkina Faso		India
	Cameroun		Indonesia
	Ethiopia		Iran
	Ghana		Iraq
	Kenya		Israel
	Madagascar		Jordan
	Morocco		Kuwait
	Nigeria		Nepal
	Senegal		Pakistan
	South Africa		Philippines
	Tanzania		Saudi Arabia
	Tunisia		Sri Lanka
Zimbabwe	Syria		
	Thailand		
<u>Americas</u>	Brazil	<u>Europe</u>	Austria
	Colombia		Belgium
	Costa Rica		Czechoslovakia
	Dominican Republic		Denmark (bat rabies)
	Ecuador		Federal Republic of Germany
	El Salvador		France
	Guatemala		German Democratic Republic
	Guyana (vampire bat rabies)		Greece
	Haiti		Hungary
	Honduras		Luxemburg
	Mexico		Netherlands (bat rabies)
	Nicaragua		Poland
	Panama		Romania
	Paraguay		Spain (bat rabies in mainland)
	Peru		Turkey
	Surinam		Yugoslavia
USA	USSR		
		<u>Oceania</u>	nil

Of the rabies-infected African countries which replied, the trend in the spread of the disease is increasing in Burkina Faso, Ethiopia, Ghana, South Africa and Tanzania, decreasing in Tunisia and Zimbabwe, stable in all others. All these African countries, except Burkina Faso, where the disease is limited to certain areas, described the disease foci as evenly distributed within their territory.

In the Americas, Brazil, Colombia, Costa Rica, Peru and Surinam reported a decreasing trend, whereas Ecuador, El Salvador, Guatemala, Haiti and Nicaragua considered on the basis of their surveillance data that the trend is increasing. In all other American countries which replied, the trend is characterized as stable. Regarding its geographical distribution, rabies is in most countries only present in limited areas within the country. However, Costa Rica reported rabies in border areas, and El Salvador, Guatemala and Paraguay considered that the disease was occurring countrywide.

In a majority of Asian countries, the trend is stable. However, an increase was reported in Indonesia, Nepal, Saudi Arabia and Syria and a decrease in Iran, Iraq, Sri Lanka and Thailand. In this part of the world, 9 out of 14 countries responded that the disease was evenly distributed. Two countries, i.e., Hong-Kong and Kuwait, reported foci only in border areas.

In Europe, the trend is characterized as decreasing in FRG and Greece, increasing in Czechoslovakia, German Democratic Republic, Hungary, the Netherlands, Poland and Yugoslavia, and stable in all other European countries. The disease is evenly distributed in Czechoslovakia, Hungary and Turkey, present only in border zones in Greece and Spain and occurring in limited areas within all other European countries.

2.2 Vaccine production and imports

Data provided by each individual country are shown in Table 4 (Vaccines for human use) and Table 5 (Vaccines for use in animals) of the main report. These data were processed to make the following Tables A and B, which provide the reader with an indication for each continent of whether rabies vaccines are locally produced (especially vaccines of tissue culture origin - TCO) and/or imported (especially safe and potent, modern vaccines). This information is given by the rabies infected countries within each continent which gave a specific reply to questions 36 and 37 for veterinary vaccines and to questions 40 and 41 for human vaccines.

TABLE A: RABIES VACCINES FOR HUMAN USE

TABLE A¹: PRODUCTION

Continent	Number of infected countries which replied to the questionnaire	Number of rabies-infected countries where	
		Rabies vaccine is locally produced	TCO vaccine is locally produced
AFRICA	15	4	0
AMERICA	16	9	1
ASIA	15	7	0
EUROPE	17	6	3

TABLE A²: IMPORTS

Continent	Number of infected countries which gave specific reply to the related question	Number of rabies-infected countries where	
		Rabies vaccine is imported	Modern* vaccines are imported
AFRICA	15	10	6
AMERICA	16	8	3
ASIA	14	13	11
EUROPE	17	14	14

* Modern vaccines: vaccines produced on cell-cultures or embryonated eggs, the safety and potency of which meet WHO requirements

TABLE B: RABIES VACCINES FOR HUMAN USE

TABLE B¹: PRODUCTION

Continent	Number of infected countries which replied to the questionnaire	Number of rabies-infected countries where	
		Rabies vaccine is locally produced	TCO vaccine is locally produced
AFRICA	15	8	3
AMERICA	16	7	1
ASIA	15	7	1
EUROPE	17	10	5

TABLE B²: IMPORTS

Continent	Number of infected countries which gave specific reply to the related question	Number of rabies-infected countries where	
		Rabies vaccine is imported	Modern* vaccines are imported
AFRICA	15	14	12
AMERICA	15	10	4
ASIA	13	10	9
EUROPE	17	11	7

* Modern vaccines: vaccines produced on cell-cultures or embryonated eggs, the safety and potency of which meet WHO requirements

Twenty-six rabies-infected countries mentioned that they were producing vaccine for human use. The distribution of these countries per continent and substrate is given in Table C:

TABLE C: SUBSTRATES USED FOR THE PRODUCTION OF HUMAN RABIES VACCINES

Continent	Substrate				Total
	Sheep or goat brain	Lamb brain	Suckling mouse brain	Tissue culture	
AFRICA	-	2	2	1	5
AMERICAS	-	-	8	-	8
ASIA	5	-	2	-	7
EUROPE	2	-	2	2	6
TOTAL	7	2	14	3	26
(% of total)	27	8	54	11	

2.3 Rabies postexposure treatment

The data are given in Table 3 of the main report. In addition, it is worth mentioning that:

- In Africa, 6 out of 10 countries which replied specified that their rabies postexposure regimen for neural tissue origin vaccine comprised 14 or 21 daily doses and boosters. However, in 3 of these countries (Benin, Ethiopia and Morocco), modern or more potent Neural Tissue Origin (NTO) vaccines can also be offered to patients.
- In the Americas, long schedules of 14 or 21 doses are still in use in 7 out of 14 countries. Modern vaccines are also available in 3 of them, namely, Guyana, Mexico and Nicaragua.
- In Asia, 5 out of 9 countries provide postexposure treatment regimens of 14 or 21 doses. Modern vaccines are available in 3 (India, Philippines and Saudi Arabia).
- In Europe, Romania offers only Suckling Mouse Brain vaccine for postexposure treatment, with a schedule of 9 daily injections with 2 boosters. Hungary uses a Hempt rabies vaccine with a schedule of 6 daily doses plus one booster. Tissue culture vaccines were also available in Hungary in 1987. In all other European countries, tissue cultured rabies vaccines are used whether they are locally produced or imported.

2.4 Vaccine application in animals

In Africa, in the 18 countries which replied, only Mauritius reported that vaccination of dogs is forbidden. Five countries specify that dog vaccination is optional, (Algeria, Ethiopia, Madagascar, Senegal and South Africa). In the remaining countries, vaccination of dogs is compulsory. In most cases, dog vaccination is made by a veterinary officer or a veterinary auxiliary during mass vaccination campaigns organized by the government. On the contrary, in Benin, Libya, Madagascar, Morocco and Senegal, dogs are vaccinated on the initiative of their owners. Bovines and horses may be vaccinated against rabies in these countries, whereas vaccination of small ruminants

appears to be a fairly rare event. Amongst the "other animal species" to which vaccine can be applied, cats rank highest.

In the Americas, dog vaccination is compulsory in 7 countries, and optional in 16. The latter list includes Anguilla, Antigua, Bahamas and Bermuda, which are rabies-free. Vaccination of dogs is forbidden in Barbados, the Cayman Islands and Saint Kitts and Nevis. Vaccination is performed by private veterinary practitioners in Anguilla, Bahamas, Bermudas, Guadeloupe, Guyana, Mexico and the USA, while the civil services are in charge in all other countries. Mexico is the only country where the private sector plays a major role in the execution of vaccination campaigns organized under governmental auspices. The number of human beings per vaccinated dog is for example 10.6 in Mexico, 10.7 in Brazil and 16 in Ecuador.

In Asia, dog vaccination is optional in Bahrain, Bangladesh, India, Iran, Jordan, Pakistan, the Philippines, Saudi Arabia and Thailand, and forbidden in Brunei and Singapore. In all other countries which responded, vaccination is compulsory. Vaccination of dogs is mainly performed during government organized campaigns in Hong Kong, Indonesia, Japan, Korea, Saudi Arabia, Sri Lanka and Thailand.

In Europe, dog vaccination is forbidden in Iceland, Ireland, Malta, Norway (mainland), Sweden and the United Kingdom. On the contrary, vaccination of dogs is compulsory in 12 countries including Gibraltar, Portugal and Spain and optional in 9, including Greece, Italy and Turkey. Dog vaccination is performed by veterinary officers during mass campaigns in Czechoslovakia, Finland, Greece, Hungary, Poland, Romania, the Svalbard Islands of Norway, USSR and Yugoslavia. In most other countries, vaccines are administered by private practitioners at the dog owner's initiative. Cats are the most common "other animal species" to which rabies vaccine is applied. Vaccination of foxes was reported in 1987 by Austria, Belgium, Federal Republic of Germany and France.

In Oceania, dog vaccination is optional in New Caledonia, Tahiti and Vanuatu, and forbidden in all other countries of the region.

2.5 Changes in rabies regulations

The following countries reported changes in their rabies regulations. A special table containing these changes will be incorporated in the next issue of the World Rabies Survey.

Africa: Libya, Mauritius and Senegal

Americas: Guadeloupe, Jamaica and Nicaragua

Asia: Bangladesh, Israel, Korea, Kuwait and Maldives

Europe: Belgium, Norway and Sweden

Oceania: Fiji, New Caledonia, Solomon Islands and Tahiti

3. TABLES 1-5

The five tables constitute the main body of the report. When processing the data, efforts were made to ensure their consistency, especially for the figures corresponding to the number of cases (human and animal) and diagnostic methods (clinical only or laboratory examination). In general, zeros were entered in the tables when they were specifically indicated in the reply to the questionnaire, otherwise corresponding spaces were left blank. For Table 1, if no laboratory-confirmed human cases were reported by a country, blanks were left for animal species of exposure, regardless of the reply. For Table 2, zeros were only included when, in the reply, indication was given that at least one specimen from the relevant animal species was found negative in the laboratory. When no reply was given, or no specimens were examined, the corresponding space was left blank.

TABLE 1. NUMBER OF HUMAN RABIES CASES BY METHOD OF CONFIRMATION, SOURCE OF ANIMAL EXPOSURE, CONTINENT AND COUNTRY, 1987

Continent: Africa	Method of Diagnosis		Reported Exposure to Domestic Animals			Reported Exposure to Wild Animals						
	Lab- oratory	Clinical only	Total	Dog	Cat	Other	Fox	Skunk	Rac- coon	Mon- goose	Bat	Other
Algeria	0	14	14	14								
Benin												1
Burkina Faso	10	23	23	20	2							
Cameroon	2	0	10	2	2							
Central African Republic	18	29	29	29								
Ethiopia	0	69	87	18								
Ghana	0	24	24	1								
Kenya												
Libya												
Madagascar		1	1	1								
Mauritius												
Morocco		28	28									
Nigeria												
Senegal												
South Africa												
Tanzania	38	33	71									
Tunisia	1		1									
Zimbabwe	11	5	16	11	0		0	0	0	0	0	
Total for Africa	80	226	306	96	2	0	0	0	0	0	0	1

TABLE 1. NUMBER OF HUMAN RABIES CASES BY METHOD OF CONFIRMATION, SOURCE OF ANIMAL EXPOSURE, CONTINENT AND COUNTRY; 1987

Continent: Americas	Method of Diagnosis		Reported Exposure to Domestic Animals			Reported Exposure to Wild Animals						
	Lab- oratory	Clinical only	Total	Dog	Cat	Other	Fox	Skunk	Rac- coon	Mon- goose	Bat	Other
Anguilla	0	0	0									
Antigua	0	0	0									
Bahamas												
Barbados												
Bermuda												
Brazil	34	20	54	42	2	5	1			3		1
Cayman Islands												
Colombia	9	1	10	7	0	0		0	0	0	3	0
Costa Rica	0	0	0									
Dominican Rep.	3	0	3	3								
Ecuador	8		8	8								
El Salvador	12	3	15	15								
Guadeloupe												
Guatemala	12	0	12	12								
Guayana	0	3	3	3								
Haiti	3	1	4	3								
Honduras												
Jamaica												
Martinique	0	0	0									
Mexico	38	23	61	43	3	5				8		2
Montserrat	0	0	0									
Nicaragua	3	1	4	4								
Panama	0	0	0									
Paraguay	5		5	5								
Peru	5	2	7	7								
St. Kitts & Nevis												
Surinam	0	0	0									
United States of America	1*	0	1									
Uruguay	0	0	0									
Total for Americas	133	54	187	152	5	10	1	0	0	14	0	3

TABLE 1. NUMBER OF HUMAN RABIES CASES BY METHOD OF CONFIRMATION, SOURCE OF ANIMAL EXPOSURE, CONTINENT AND COUNTRY, 1987

Continent: Asia	Method of Diagnosis		Reported Exposure to Domestic Animals			Reported Exposure to Wild Animals					
	Lab- oratory	Clinical only	Dog	Cat	Other	Fox	Skunk	Rac- coon	Mon- goose	Bat	Other
Bahrain	0	0									
Bangladesh											
Brunei	0	0									
Cyprus											
Hong Kong											
India**	2	30									
Indonesia	2	5	7								
Iran	1	11	11	1							
Iraq	5	2	7								
Israel	0										
Japan											
Jordan											
Korea, Rep. of											
Kuwait											
Malaysia	0	0									
Maldives											
Nepal		16	14					2			
Pakistan											
Philippines		258	253	5							
Saudi Arabia	0	0									
Singapore											
Sri Lanka		123	120	3							
Syria		8	8								
Thailand	18	195	192	3	17					1	
Total for Asia**	28	648	612	12	17	2	0	0	0	1	0

TABLE 1. NUMBER OF HUMAN RABIES CASES BY METHOD OF CONFIRMATION, SOURCE OF ANIMAL EXPOSURE, CONTINENT AND COUNTRY; 1987

Continent: Europe	Method of Diagnosis		Reported Exposure to Domestic Animals			Reported Exposure to Wild Animals							
	Lab- oratory	Clinical only	Total	Dog	Cat	Other	Fox	Skunk	Rac- coon	Mon- goose	Bat	Other	
Austria													
Belgium	0	0	0										
Czechoslovakia	0	0	0										
Denmark	0	0	0										
Finland	0	0	0										
France	0	0	0										
Germany, Democratic Rep.	0	0	0										
Germany, Federal Rep. of													
Gibraltar													
Greece	0	0	0										
Hungary	0	0	0										
Iceland	0	0	0										
Ireland													
Italy													
Luxembourg													
Malta													
Netherlands	0	0	0										
Norway	0	0	0										
Poland													
Portugal													
Romania	4	0	4	1					3				
Spain	0	0	0										
Sweden	0	0	0										
Turkey	6	6	6	3									
USSR	13	18	31	17	4	3			8				2
United Kingdom	1*	0	1	1	0	0			0	0	0		0
Yugoslavia	0	0	0						0				0
Total for Europe	18	24	42	22	4	3	11	0	0	0	0	0	2

TABLE 1. NUMBER OF HUMAN RABIES CASES BY METHOD OF CONFIRMATION, SOURCE OF ANIMAL EXPOSURE, CONTINENT AND COUNTRY; 1987

Continent: Oceania	Method of Diagnosis		Reported Exposure to Domestic Animals			Reported Exposure to Wild Animals					
	Lab- oratory	Clinical only Total	Dog	Cat	Other	Fox	Skunk	Rac- coon	Mon- goose	Rat	Other
Australia	1*	0	1	0	0	0	0	0	0	0	0
Fiji											
Kiribati											
New Caledonia											
New Zealand											
Papua-New Guinea											
Solomon Islands											
Tahiti											
Vanuatu											
Western Samoa											
Total for Oceania	1	0	1	0	0	0	0	0	0	0	0
Total for the World**	260	952	1212	882	23	30	14	0	0	15	6

* imported cases of human rabies

** partial information

TABLE 2. NUMBER OF ANIMAL RABIES CASES BY METHOD OF CONFIRMATION, SPECIES, CONTINENT AND COUNTRY; 1987

Continent: Africa	Method of Diagnosis		Laboratory Confirmed Cases in Domestic Animals				Laboratory Confirmed Cases in Wild Animals							
	Lab- oratory	Clinical only	Total	Dog	Cat	Rumi- nant	Equine	Other	Fox	Skunk	Raccoon	Mongoose	Bat	Other
Algeria	348	820	1168	232	35	57	2							6
Benin		44	44											
Burkina Faso	36	43	79	33	2									1
Cameroun	126	0	126	124	0	2								0
Central African Republic	41	0	41	38	1	0	2							0
Ethiopia	80	1100	1180	70		7	2							1
Ghana	68	0	68	63	5									
Kenya	271	187	458	197	6	58	5					3		2
Libya			0	0	0									
Madagascar	16	0	16	15		1								
Mauritius														
Morocco	320	112	432	160	42	99	19							
Nigeria	77	0	77											
Senegal	2	0	2	2	0	0								
South Africa	713	0	713	334	21	134	4		5			83		107
Tanzania	16	0	16	15	1									
Tunisia	38	0	38	29	2	4	1	0						1
Zimbabwe	282	87	369	174	4	81	2	1				0	0	20
Total for Africa	2434	2393	4827	1486	119	443	35	3	5	0	0	86	0	138

TABLE 2. NUMBER OF ANIMAL RABIES CASES BY METHOD OF CONFIRMATION, SPECIES, CONTINENT AND COUNTRY; 1987

Continent: Asia	Method of Diagnosis		Laboratory Confirmed Cases in Domestic Animals				Laboratory Confirmed Cases in Wild Animals							
	Lab- oratory	Clinical only	Total	Dog	Cat	Rumi- nant	Equine	Other	Fox	Skunk	Raccoon	Mongoose	Bat	Other
Bahrain			0											
Bangladesh														
Brunei														
Cyprus	4	0	4	0	0	0								0
Hong Kong	289	94	383	241	8	16	1	7	0				0	0
India**	57	44	101	52	4			1			12			3
Indonesia	314	130	444	140	13	115	9						0	28
Iran	24	0	24	16	2		4							
Iraq	28	0	28	8	0	5	2							3
Israel														
Japan	5	194	199	1	0		1							
Jordan														
Korea, Rep. of														
Kuwait	2	0	2	0	2			0						
Malaysia														
Maldives														
Nepal	7	0	7	7		0		0						
Pakistan	22	47	69	18	1	2								
Philippines	188	0	188	187	1	0					1		0	0
Saudi Arabia	35	40	75	5	1	1		7						2
Singapore														
Sri Lanka	415	0	415	408	7									
Syria	9	0	9	7		2								
Thailand	8622	0	8622	8280	283	28	0	11						20
Total for Asia**	9993	549	10542	9366	322	163	15	26	33	0	0	13	0	55

TABLE 2. NUMBER OF ANIMAL RABIES CASES BY METHOD OF CONFIRMATION, SPECIES, CONTINENT AND COUNTRY; 1987

Continent: Europe	Method of Diagnosis		Laboratory Confirmed Cases in Domestic Animals				Laboratory Confirmed Cases in Wild Animals						
	Lab- oratory only	Clinical Total	Dog	Cat	Rumi- nant	Equine	Other	Fox	Skunk	Raccoon	Mongoose	Bat	Other
Austria	2042	0	2042	3	20	63	2	0	1722	0	232	0	0
Belgium	242	1	243	5	18	43	3	19	140	0	14	0	0
Czechoslovakia	1782	0	1782	27	63	20	0	0	1605	48	68	0	0
Denmark	48	0	48	0	0	0	0	0	0	0	0	0	0
Finland	2068	0	2068	37	76	218	16	0	1641	0	80	0	0
France	1696	0	1696	84	95	178	9	0	1191	0	139	0	0
Germany, Democratic Rep.	3792	0	3792	34	98	229	22	0	3013	4	392	0	0
Germany, Federal Rep. of													
Gibraltar	1	0	1	1	0	0	0	0	0	0	0	0	0
Greece	1465	0	1465	47	67	57	1	8	1265	0	20	0	0
Hungary													
Iceland			0										
Ireland													
Italy	23	9	32	0	0	0	0	0	0	0	0	0	0
Luxembourg				0	2	6	0	1	14	0	0	0	0
Malta													
Netherlands	86	0	86	0	0	0	0	0	0	86	0	0	0
Norway	3	0	3	0	0	0	0	0	0	0	3	0	0
Poland	1686	0	1686	52	75	95	1	2	1209	0	252	0	0
Portugal													
Romania	66	0	66	7	5	30	2	0	21	1	0	0	0
Spain	10	0	10	5	3	0	0	0	0	0	2	0	0
Sweden				0	0	0	0	0	0	0	0	0	0
Turkey	32	950	982	677	75	153	12	33	0	0	0	0	0
USSR	366	0	366	190	0	168	3	5	0	0	0	0	0
United Kingdom				0	0	0	0	0	0	0	0	0	0
Yugoslavia	599	0	599	11	16	4	0	0	559	0	9	0	0
Total for Europe	12243	4752	16995	1188	613	1269	73	68	12390	1	140	0	1212

TABLE 2. NUMBER OF ANIMAL RABIES CASES BY METHOD OF CONFIRMATION, SPECIES, CONTINENT AND COUNTRY; 1987

Continent: Oceania	Method of Diagnosis		Laboratory Confirmed Cases in Domestic Animals				Laboratory Confirmed Cases in Wild Animals							
	Lab- oratory only	Clinical Total	Dog	Cat	Rumi- nant	Equine	Other	Fox	Skunk	Raccoon	Mongoose	Bat	Other	
Australia		0	0	0	0								0	
Fiji														
Kiribati														
New Caledonia		0												
New Zealand		0												
Papua-New Guinea		0												
Solomon Islands		0												
Tahiti														
Vanuatu		0												
Western Samoa														
Total for Oceania	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total for the World**	39192	17524	56716	20214	1550	3148	174	418	12948	2034	1311	176	780	1431

** partial information

TABLE 3. NUMBER OF PERSONS TREATED AGAINST RABIES BY SOURCE OF ANIMAL EXPOSURE AND TYPE OF TREATMENT; 1987

Continent: Africa	Persons Treated for Exposure to Domestic Animals			Persons Treated for Exposure to Wild Animals			Persons Receiving			
	Dog	Cat	Other Total	Fox Skunk	Bat	Other Total	Vaccine alone	Vacc. & Serum alone		
Algeria	14880	2421	595	17896	0	0	224	15000	1000	0
Benin										
Burkina Faso	21	3	24					24		
Cameroun	1527	47	1574					1474	123	
Central African Republic	627	1	628					627	13	0
Ethiopia	1330	66	72	1468				1000	500	23
Chana								12000		
Kenya								3440		
Libya	1400	100	1500					1500		
Madagascar	869	25	1	895				916	16	
Mauritius										
Morocco	9000	750	4950	14700	0	0	300	15000	500	0
Nigeria										
Senegal	1145	44	27	1216				1236	9	
South Africa										
Tanzania	2220		247	2467	0	0	0			
Tunisia	18609	1483	547	20639	1		466	18618	2443	
Zimbabwe								1500		
Total for Africa	51628	4940	6439	63007	1	0	1095	72335	4604	23

TABLE 3. NUMBER OF PERSONS TREATED AGAINST RABIES BY SOURCE OF ANIMAL EXPOSURE AND TYPE OF TREATMENT, 1987

Continent: Americas	Persons Treated for Exposure to Domestic Animals			Persons Treated for Exposure to Wild Animals			Persons Receiving Vaccine alone	Persons Receiving Serum alone
	Dog	Cat	Other Total	Fox	Skunk	Bat		
Country								
Anguilla	0	0	0	0	0	0	0	0
Antigua							0	0
Bahamas							0	0
Barbados							0	0
Bermuda							0	0
Brazil	146773	4634	1549	152956	1500	1500	146000	8300
Cayman Islands							0	0
Colombia	6806	310	252	7368	150	0	7000	1000
Costa Rica	18	0	12	30		12	3000	
Dominican Rep.	1054	44	97	1195		49	1244	300
Ecuador	11400	1200	400	13000			13000	
El Salvador	20240	690	210	21140		460	7000	5000
Guadeloupe	2		1	3		280	2	1
Guatemala							5000	
Guyana							10	
Haiti	147	3		150		2	152	
Honduras							1377	
Jamaica								
Martinique								
Mexico	46857	971	3270	51098			52000	2000
Montserrat								
Nicaragua	6992	114	223	7329		285		1645
Panama							14	
Paraguay	3500			3500			3500	
Peru							11000	200
St. Kitts & Nevis							0	0
Surinam						1		1
United States of America	372	32	49	453	0	0	0	18000
Uruguay								
Total for Americas	244161	7998	6063	258222	150	0	250299	36447
						2012	3103	0

TABLE 3. NUMBER OF PERSONS TREATED AGAINST RABIES BY SOURCE OF ANIMAL EXPOSURE AND TYPE OF TREATMENT; 1987

Continent: Asia Country	Persons Treated for Exposure to Domestic Animals			Persons Treated for Exposure to Wild Animals			Persons Receiving		
	Dog	Cat	Other Total	Fox	Skunk	Bat	Other Total	Vaccine alone	Vacc. & Serum alone
Bahrain	2		2					2	0
Bangladesh									
Brunei						2	458	3524	17
Hong Kong	2589	435	34	3058					
India**	1685	62	4	1751					
Indonesia	478	112	59	649				603	45
Iran	7530	2000	3275	12805	900		4600	9999	8300
Iraq	3340	36	1556	4932				1793	709
Israel	69		67	136	28		1	897	155
Japan									32
Jordan	164	7	10	181	1	0	16	119	80
Korea, Rep. of									
Kuwait									
Malaysia									
Maldives									
Nepal								15000	
Pakistan									
Philippines									
Saudi Arabia								73000	152000
Singapore									55000
Sri Lanka	14125	58		14183				14000	
Syria								3227	814
Thailand	80000	4000		84000			1000	75000	10000
Total for Asia**	109913	6710	4938	121561	901	0	6074	196267	171965
							6977		55647

TABLE 3. NUMBER OF PERSONS TREATED AGAINST RABIES BY SOURCE OF ANIMAL EXPOSURE AND TYPE OF TREATMENT; 1987

Continent: Europe	Persons Treated for Exposure to Domestic Animals			Persons Treated for Exposure to Wild Animals				Persons Receiving				
	Dog	Cat	Other	Total	Fox	Skunk	Bat	Other	Total	Vaccine alone	Vacc. & Serum alone	
Austria	537	242	158	937	112			200	312	1129	56	1
Belgium	77	148	361	586	33		1	33	67	601	154	
Cyprus	1461	520	118	2099	204			111	315	1926	469	19
Czechoslovakia		15		15							61	
Denmark	20	10	2	32	0	0	5	10	15	0	0	0
Finland	4105	1795	502	6402	551	0	6	261	818	7306	436	143
France	1578	1643	429	3650	55	0	3	75	133	3000	1000	0
Germany, Democratic Rep. of												
Germany, Federal Rep. of	0	0	0	0	0	0	0	0	0	0	0	0
Gibraltar	10			10						366	59	
Greece	563	289	231	1083	276	0	0	61	337	2585	0	0
Hungary	0	0	0	0	0	0	0	0	0	0	0	0
Iceland												
Ireland												
Italy	62	1	0	63						83		
Luxembourg												
Malta	35	7	0	42	4	0	79	11	94	128	8	0
Netherlands										0	0	0
Norway	1751	500	280	2531	454		2	577	1033	3531	33	
Poland	85									85		
Portugal	598	162	13	773			5	53	58	6800	1800	
Romania										830	37	
Spain										50	5	
Sweden										103000		
Turkey												
USSR	619	177	6	802	2	0	10	72	84	677	231	0
United Kingdom	2277	400	22	2699	270	6	0	119	395	2000	1000	0
Yugoslavia												
Total for Europe	13847	5909	2189	21945	1989	6	111	1584	3690	134994	5504	195

TABLE 3. NUMBER OF PERSONS TREATED AGAINST RABIES BY SOURCE OF ANIMAL EXPOSURE AND TYPE OF TREATMENT; 1987

Continent: Oceania	Persons Treated for Exposure to Domestic Animals			Persons Treated for Exposure to Wild Animals			Persons Receiving			
	Dog	Cat	Other Total	Fox	Skunk	Bat	Other Total	Vaccine alone	Serum alone	
Australia	36	5	1	42			69	50	100	
Fiji										
Kiribati										
New Caledonia	0	0	0	0	0	0	0	0	0	
New Zealand										
Papua-New Guinea								0	0	
Solomon Islands								0	0	
Tahiti								0	0	
Vanuatu	0	0	0	0	0	0	0	0	0	
Western Samoa										
Total for Oceania	36	5	1	42	0	0	69	50	100	
Total for the World**	419585	25562	19630	464777	3041	6	1054	10834	218620	55865

** partial information

TABLE 4. HUMAN RABIES VACCINES PRODUCED AND IMPORTED BY COUNTRY AND CONTINENT, 1987

Continent: Africa		Domestically Produced Human Vaccines			Imported Human Vaccines	
Country	Type***	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Algeria	NTD	SMB/PV	BPL	576000	TCO	60
Benin						1100
Burkina Faso					NTD	28200
Cameroun					NTD	750
Central African Republic					TCO	100
Ethiopia	NTD	Lamb/PV12	Phenol	5000	TCO	
Ghana					TCO	
Kenya					TCO	16000
Libya					NTD	
Madagascar	NTD	-/PV	Phenol	30000		
Mauritius					NTD	75000
Morocco					TCO	45000
Nigeria						
Senegal						
South Africa						
Tanzania					TCO	52500
Tunisia	NTD	Lamb/PV11	BPL	94000	TCO	370
Zimbabwe					TCO	13000
					TCO	20000
Total for Africa				705000		252080

TABLE 4. HUMAN RABIES VACCINES PRODUCED AND IMPORTED BY COUNTRY AND CONTINENT, 1987

Continent: Americas		Domestically Produced Human Vaccines			Imported Human Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Anguilla						
Antigua						
Bahamas					TCO	10
Barbados						
Bermuda						
Brazil	NTO	SMB/Fuenz.	BPL	2500000		
Cayman Islands						
Colombia	NTO					
Costa Rica					NTO	1000
Dominican Rep.					TCO	2000
Ecuador	NTO	SMB/-	BPL	80000		
El Salvador	NTO	SMB/-	UV	176708		
Guadeloupe	NTO	SMB/-	BPL	25000	NTO	120000
Guatemala					TCO	40
Guyana	NTO	SMB/CVS	UV	175000		
Haiti					NTO	2618
Honduras					TCO	1000
Jamaica	NTO	SMB/CVS	BPL	10000		
Martinique						
Mexico	NTO	SMB/CVS	UV	2686000	TCO	2000
Montserrat						
Nicaragua					NTO	21000
Panama					TCO	150
Paraguay					TCO	300
Peru					NTO	25000
St. Kitts & Nevis	NTO	SMB/CVS	UV	102000		
Surinam					TCO	100
United States of America	TCO		BPL		TCO	118000
Uruguay						
Total for Americas				5754708		293218

TABLE 4. HUMAN RABIES VACCINES PRODUCED AND IMPORTED BY COUNTRY AND CONTINENT, 1987

Continent: Asia		Domestically Produced Human Vaccines			Imported Human Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Bahrain	NTD	sheep/FM	Phenol		TCO	18
Bangladesh						
Brunei						
Hong Kong	NTD	sheep/FV	BPL/Phen	15000000	TCO	16000
India**	NTD	SMB/-	BPL	61315	TCO	1000
Indonesia						
Iran						
Iraq						
Israel						
Japan	TCO	CEE/HEP	BPL		TCO	15000
Jordan						
Korea, Rep. of						
Kuwait						
Malaysia						
Maldives						
Nepal	NTD	sheep/FV	BPL	49000	NTD	100000
					TCO	500
Pakistan						
Philippines	NTD	goat/PDF	Phenol	229344	TCO	18000
Saudi Arabia						
Singapore						
Sri Lanka	NTD	sheep/CVS	BPL	4380	TCO	85000
Syria	NTD	sheep/CVS	BPL	970000	TCO	250
Thailand	NTD	SMB/-	BPL	685000	TCO	164000
Total for Asia**				16999039		404188

TABLE 4. HUMAN RABIES VACCINES PRODUCED AND IMPORTED BY COUNTRY AND CONTINENT, 1987

Continent: Europe	Domestically Produced Human Vaccines			Imported Human Vaccines		
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Austria					TCO	8000
Belgium					TCO	4000
Cyprus					TCO	20
Czechoslovakia					TCO	925
Denmark					TCO	1444
Finland						
France	NTO	SMB/-	BPL	425000		
	TCO	FBK/-	BPL	26000		
Germany, Democratic Rep.					TCO	220000
Germany, Federal Rep. of	TCO	HDC-POEC/-	BPL	719000	TCO	10000
Gibraltar					TCO	15
Greece					TCO	2372
Hungary	NTO	sheep/Hogyes	Phenol	22209	TCO	1000
Iceland				0		
Ireland					TCO	
Italy						
Luxembourg					TCO	1200
Malta						
Netherlands	TCO	DKC/-	BPL		TCO	1000
Norway					TCO	30000
Poland					NTO	1000
Portugal					TCO	1000
Romania	NTO	SMB/-	BPL	237000		
(Continued)						

TABLE 4. HUMAN RABIES VACCINES PRODUCED AND IMPORTED BY COUNTRY AND CONTINENT, 1987

Continent: Europe	Domestically Produced Human Vaccines			Imported Human Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Number of doses
(Continued)					
Spain					73480
Sweden					1500
Turkey					62000
USSR	NTO	sheep/- BHK/Vnukovo	Phenol UV	2322000 2750000	
United Kingdom	TCO	sheep/FV	BPL	100000	
Yugoslavia	NTO				24000 13000
Total for Europe				6601209	462266

TABLE 4. HUMAN RABIES VACCINES PRODUCED AND IMPORTED BY COUNTRY AND CONTINENT, 1987

Continent: Oceania	Domestically Produced Human Vaccines		Imported Human Vaccines			
Country	Type	Substrate/ virus strain	Inacti- vation	Number of doses	Type	Number of doses
Australia					TCC	796
Fiji						
Kiribati						
New Caledonia					TCC	12
New Zealand						
Papua-New Guinea						
Solomon Islands						
Tahiti						
Vanuatu						
Western Samoa						
Total for Oceania				0		808
Total for the World**				30059956		1412560

** partial information

*** vaccine type: NTO = neural tissue origin
TCC = tissue culture origin
EEO = embryonated egg origin

TABLE 5. ANIMAL RABIES VACCINES PRODUCED AND IMPORTED BY COUNTRY AND CONTINENT, 1987

Continent: Africa		Domestically Produced Animal Vaccines			Imported Animal Vaccines	
Country	Type**	Substrate/ virus strain	Inacti- vation	Number of Doses	Type	Number of doses
Algeria	TCC	BHK21/ERA	live	153000	TCC	0
Benin					TCC	8300
Burkina Faso					TCC	35000
Cameroon						
Central African Republic	NTC	1amb/PV12	Phenol	14000	TCC	150000
Ethiopia					TCC	110000
Ghana	TCC	CEF/LEP	live	59000	TCC	7000
Kenya					TCC	0
Libya	EEO	-/LEP	live	3400	TCC	176000
Madagascar						
Mauritius						
Morocco	EEO	-/LEP	live	51000		
Nigeria	EEO	-/HEP				
Senegal	EEO	CEF/LEP		800000	TCC	2622
South Africa	TCC	BHK/HEP	live	1811000	TCC	382900
Tanzania						
Tunisia	NTC	1amb/PV11	BPL	2000	TCC	607000
Zimbabwe	TCC	Vero/PV2061	BPL	1000		
Total for Africa				2894400		1478822

TABLE 5. ANIMAL RABIES VACCINES PRODUCED AND IMPORTED BY COUNTRY AND CONTINENT, 1987

Continent: Americas		Domestically Produced Animal Vaccines			Imported Animal Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of Doses	Type	Number of doses
Anguilla				0	TCO	25
Antigua				0	TCO	20
Bahamas				0	TCO	1
Barbados				0		
Bermuda				0	TCO	250
Brazil	NTO	SMB/Fuenz.	BPL	13700000	NTO	250
Cayman Islands				0		0
Colombia	NTO	SMB/CVS	UV	1010000		0
Costa Rica	TCO	BHK/CVS	BPL	1178000		0
Dominican Rep.	NTO	SMB/-	BPL	100000	NTO	10000
Ecuador	TCO	BHK/-	BPL	300000		500000
El Salvador	NTO	SMB/-	BPL	280000	TCO	400000
Guadeloupe					NTO	15000
Guatemala	NTO	SMB/CVS	UV	270000	EEO	1500
Guyana						0
Haiti						
Honduras						
Jamaica	NTO	SMB/CVS	BPL	67900	TCO	30000
Martinique					TCO	50475
(Continued)						

TABLE 5. ANIMAL RABIES VACCINES PRODUCED AND IMPORTED BY COUNTRY AND CONTINENT, 1987

Continent: Americas		Domestically Produced Animal Vaccines			Imported Animal Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of Doses	Type	Number of doses
(Continued)						
Mexico	NTO TOO	SMB/CVS BHK/-	UV BPL	1885000 6810000 0		
Montserrat					NTO	400000
Nicaragua					NTO	37000
Panama					NTO	240000
Paraguay						
Peru	NTO TOO	SMB/- BHK/-	UV BPL	241000 57000 0		
St. Kitts & Nevis					TOO	0
Surinam						
United States of America	TOO	multiple	heat	34477000		
Uruguay	TOO	BHK/-		1880000		
Total for Americas				62255900		1684521

TABLE 5. ANIMAL RABIES VACCINES PRODUCED AND IMPORTED BY COUNTRY AND CONTINENT, 1987

Continent: Asia		Domestically Produced Animal Vaccines			Imported Animal Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of Doses	Type	Number of doses
Bahrain	EEO	-/LEP	live	6000	TCC	2000
Bangladesh	EEO	-/HEP	live	2000		0
Brunei				0		
Hong Kong	NTC	goat/PV	Phenol	1043000	TCC	76000
India**	NTC	SMB/-	BPL	790		
Indonesia	NTC	Lamb/PV	BPL	8000		
Iran				0		
Iraq						
Israel	TCC		BPL	3352000	TCC	207000
Japan						0
Jordan	TCC	PKC/ERA		530	TCC	240
Korea, Rep. of						
Kuwait						
Malaysia					TCC	3000
Maldives					TCC	4950
Nepal	NTC	sheep/PV	BPL/Phenol	4000	TCC	
Pakistan	NTC	-/PV	carbolyzed	5000	EEO	
Philippines	EEO	-/LEP	live	4000	TCC	202280
Saudi Arabia	EEO	-/LEP	Phenol	20796	TCC	4000
Singapore					TCC	900
Sri Lanka					TCC	350000
Syria						
Thailand	TCC	BHK21/-	BEI	230000	TCC	821000
Total for Asiact				4676116		1464370

TABLE 5. ANIMAL RABIES VACCINES PRODUCED AND IMPORTED BY COUNTRY AND CONTINENT, 1987

Continent: Europe		Domestically Produced Animal Vaccines			Imported Animal Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of Doses	Type	Number of doses
Austria					NTO	1000
Belgium					TCO	128000
Cyprus					TCO	175000
					EBO	10
					TCO	200
Czechoslovakia	TCO	-/Vnukovo32				
Denmark					TCO	40000
Finland					TCO	8000
France					NTO	80000
					TCO	80000
Germany, Democratic Rep.					NTO	
Germany, Federal Rep. of	TCO	GEF-BHK/LEP	BPL/ABI	3100000	TCO	1146000
Gibraltar					TCO	2000
Greece	EBO	-/LEP	live	40000	NTO	83000
					TCO	16000
					EBO	2000
Hungary	NTO	sheep/PV		10000		
	TCO	-/Vnukovo32	BPL	1700000		
Iceland						0
Ireland					TCO	2000
Italy						
Luxembourg	TCO	PKC/ERA	BPL	1000000		
Malta					TCO	25000
Netherlands					TCO	1000
Norway					TCO/EBO	165
Poland	NTO	-/PV		3054000	TCO	600
Portugal	NTO	SMB/CVS	BPL	180000	TCO	2737
	NTO	-/PV	heat	688000	TCO	3000
Romania	NTO	sheep/-	live	1900000		
(Continued)						

TABLE 5. ANIMAL RABIES VACCINES PRODUCED AND IMPORTED BY COUNTRY AND CONTINENT, 1987

Continent: Europe		Domestically Produced Animal Vaccines			Imported Animal Vaccines	
Country	Type	Substrate/ virus strain	Inacti- vation	Number of Doses	Type	Number of doses
(Continued)						
Spain	TOO EEO	multiple		353900 65900		
Sweden						400
Turkey	EEO	-/Kelev	live	449000	TOO	122000
USSR	NTO		Phenol	13000		
	NTO	sheep/PV	Phenol	25000000		
United Kingdom	TOO	BHK/PV	BPL	7000000		
Yugoslavia	TOO	BHK/HEP	BPL	2800000	TOO	33000
	TOO	CEF/HEP	live			
	EEO	CE/LEP	live			
Total for Europe				38533800		2158112

TABLE 5. ANIMAL RABIES VACCINES PRODUCED AND IMPORTED BY COUNTRY AND CONTINENT, 1987

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
Fiji						
Kiribati					TCO	100
New Caledonia						
New Zealand						
Papua-New Guinea						
Solomon Islands						
Tahiti					TCO	1000
Vanuatu						
Western Samoa						
Total for Oceania				0		6100
Total for the World**				108360216		6791925

** partial information

*** vaccine type: NTO = neural tissue origin

TCO = tissue culture origin

EEO = embryonated egg origin