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World Survey of Rabies N° 31 for the Year 1995

World Health Organization
Emerging and other Communicable Diseases,
Surveillance and Control

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List of abbreviations

comp.	- compulsory
EEO	- vaccines of embryonating eggs origin
FAT	- fluorescent antibody test
forb.	- forbidden
hist.	- histological technique
MIT	- mouse inoculation test
N/A	- not applicable
NTO	- vaccines of neural tissue origin
opt.	- optional
PCR	- polymerase chain reaction
post-exp.	- post-exposure
TCO	- vaccines of tissue culture origin
TCI	- tissue culture isolation
unkn.	- unknown

1. INTRODUCTION

The Thirty-first World Survey of Rabies (WSR) for the year 1995 is based on data received from 94 countries and territories¹ out of 189 WHO Member States which were sent the questionnaire. In addition, other official sources (Annex 11) were used, expanding its coverage to 160 countries and territories.

The survey reports on five major topics:

1. Rabies situation and trends for 1995
 - Human and animal rabies cases and methods of confirmation (Tables 1 and 2)
 - Presence/absence by country (Annex 1)
 - Elimination/introduction of rabies
 - Main rabies epidemiological patterns (Annex 2)
 - Trends and geographical distribution (Annexes 3, 6 and 7)
2. Rabies post-exposure treatments (Table 3, Annex 4)
3. Rabies vaccine production and imports
 - Human vaccines (Table 4)
 - Animal vaccines (Table 4)
4. Diagnostic techniques in medical and veterinary laboratories, post-exposure treatment rate (Annex 4)
5. Rabies vaccine application to dogs and other animal species, including oral immunization (Annex 5)

This issue of the WSR offers, like the 1994 document, improved access to the original data (e.g. through Annexes 2, 4 and 5) to complement the results usually contained in Tables 1 to 4.

Additional tables were included comprising information on:

- the main rabies epidemiological patterns
- the post-exposure treatment rate per 100 000 inhabitants²

¹Questionnaires from 10 countries or territories were received after finalization of the data bank for this issue.

²Source for population data: International Bank for Reconstruction and Development/the World Bank, Socio-economic Time-series Access and Retrieval System; World Tables 1995, July 1995.

- diagnostic techniques most commonly used for rabies diagnosis
- countries where oral immunization of foxes and other carnivores is carried out (Annex 5).

The references and comments (annex 11) give information about the secondary sources and explanations coming from the replying countries.

The editors would like to thank all those who contributed (mainly diagnostic institutes at national level and Ministries of Health and/or Agriculture) and count on their continued collaboration for the preparation of WSR issues to come.

2. SUMMARY OF REPLIES RECEIVED

2.1 Rabies situation and trends for 1995

2.1.1 Number of human deaths due to rabies by source of animal exposure and method of confirmation (Table 1)

Africa

Most of the reported human cases (69%) were diagnosed on clinical grounds only. The main source of exposure were dogs with 72%. In 19% of all reported cases the source of exposure was not known. As in previous years the involvement of wild animals was negligible.

Americas

The Americas notified a total of 153 cases, which is close to that reported in 1994. Dogs were the main source of exposures (61%).

For about 14% of the total number of reported cases the animal species at the origin of exposure was not indicated or not identified and therefore classified as unknown. The Americas reported the highest number of exposures to bats e.g.: 8 cases in Mexico and 15 in Peru .

Asia

The highest incidence continued to be observed in Asia with about 35 191 reported human deaths due to rabies. Most of them (30 000) occurred in India.

Rabies diagnosis was mainly made on clinical grounds only.

Europe

With 33 deaths Europe notified less than 0.1% of all reported rabies mortality in the world. Most cases (30/33) were reported in Eastern European countries. The main source of rabies exposure in Europe were dogs as in other continents. The 3 cases in France follow exposure outside the country.

The worldwide number of human rabies deaths is estimated to be between 35 000 and 50 000, annually.

2.1.2 Number of animal cases by species and method of confirmation (Table 2)

Africa

The total number of reported animal rabies cases was 4361. In 2793 (64%) of the cases the diagnosis was confirmed by laboratory. The majority of the laboratory confirmed cases occurred in dogs (49%) followed by ruminants (25%).

Americas

With a total number of animal rabies cases of 16 087 the Americas were the continent with the most reported cases in the world.

This is an indication of the level of active surveillance in this region as well as of the under reporting in other parts in the world.

Thirty-one percent of all laboratory confirmed cases were diagnosed in dogs.

As in previous years rabies was mostly reported in wildlife in Canada and the United States of America (USA).

Compared with the other continents the number of cases diagnosed in bats was high. Most cases in bats were diagnosed in the USA with 787 out of 844 cases for the whole of the Americas.

Asia

The majority of all rabies diagnoses in animals were made on clinical grounds only. The dog was the main species involved (86% of the total number of laboratory confirmed animal rabies cases).

Europe

The total number of cases reported in animals was 9618 in 1995. With the exception of 842 (9%) cases, all reported animal cases were confirmed by laboratory techniques.

As during last year the vast majority of the laboratory confirmed cases occurred in foxes (62%). Livestock was affected in 15% of the cases and cats accounted for 6.3% of the total cases reported, followed by dogs (8%).

Poland reported the highest number (1973) of animal rabies cases in Europe.

2.1.3 Presence/absence of rabies by country/territory

Annex 1 gives lists of country and territory names according to the presence or absence of rabies in 1995.

2.1.4 Elimination/introduction of rabies

None of the 94 countries or territories that replied to this questionnaire for 1995 reported elimination or introduction of rabies.

2.1.5 Main epidemiological patterns

Dog rabies accounted for 55%, wildlife 41% and bat rabies 3% in the 58 countries and territories which reported on the epidemiological pattern of the disease.

Dog rabies prevailed in Africa and Asia. Wildlife rabies was the main pattern in Europe. In America, bat rabies play the second role in order of importance.

Detailed information (by country, by continent) is given in Annex 2.

2.1.6 Geographical distribution and trends

Annex 3 and annexes 6 and 7 (maps) provide information on the distribution of the disease in a given country or territory (i.e. rabies present in the entire territory or in limited areas or in border areas) and on the trend of the disease (stable, increasing, decreasing).

According to the questionnaire, increase or decrease means at least a 10% variation against the number of rabies cases reported during the preceding year.

2.2 Human rabies post-exposure treatment

Data on the number of persons treated against rabies and the animal species involved in 1995 are given in Table 3: Number of persons treated against rabies by source of animal exposure and type of treatment.

The column 'Difference' in Table 3 reflects the difference between the reported total number of persons treated following exposure and the reported total number of persons receiving vaccine, vaccine & serum or serum alone.

Dogs were the origin of exposure in 87% of the human post-exposure treatments administered in Africa, 77% in the Americas, 84% in Asia, and 70% in Europe. In the latter continent 18% of the treatments followed exposure to wildlife species.

In all continents where rabies exists rabies post-exposure treatment consisted mainly in the application of vaccine alone (79% in Africa, 91% in the Americas, 99.9% in Asia, 88% in Europe).

Almost 6 million people were treated in the 60 countries and territories reporting on numbers of persons who received rabies post-exposure treatment.

In China alone about 5 million people are estimated to be vaccinated annually. India estimated the annual number of post-exposure treatments at approximately 1 000 000³.

Viet Nam which did not answer the 1995 questionnaire reported at the occasion of the Third International Symposium in Wuhan, China, Sept. 1996 345 000 treated persons in 1995.

Annex 4 provides rates of post-exposure treatments in humans (number per 100 000 inhabitants⁴).

³Report of the Symposium on Rabies Control in Asian Countries, Jakarta, Indonesia, 27 - 30 April 93 (WHO/Rab/Res/93.44) and country reports at the Symposium on Rabies Control in Asian Countries, Jakarta, Indonesia, 27 - 30 April 93; Report of the Third International Symposium on Rabies Control in Asia organized by the Fondation Marcel Mérieux with cosponsorship of the World Health Organization, Wuhan, China, 11-15 September 1996 (WHO/EMC/ZOO/96.8).

⁴Source for population data: International Bank for Reconstruction and Development/the World Bank, Socio-economic Time-series Access and Retrieval System; World Tables 1995, July 1995

2.3 Vaccine production and imports

Data provided by each country are given in Table 4 entitled "Human and animal rabies vaccines produced domestically and imported".

2.3.1 Human vaccines

Sixty countries answered the question on rabies vaccine production and imports. According to these replies, 14 countries or territories produced human rabies vaccine in 1995.

About 86% of all human rabies vaccines manufactured in the 14 countries concerned were produced on neural tissues.

In 1995, India was the largest producer of NTO vaccines with 11 425 000 doses. Brazil was second with 2 520 000 doses.

Nine countries produced only vaccines prepared on neural tissues (for information on the vaccine types and quantities - see Table 4). Three countries produced rabies vaccines on cell culture and only two of them (Tunisia and India) produced both types of vaccines.

All human vaccines produced in Europe are prepared on cell culture.

Forty-nine countries reported importing human vaccines (see Table 4 for type and quantity), 95% were of cell culture origin, and 3% of neural tissue origin. Approximately 2% of the vaccines imported were manufactured on embryonating eggs.

2.3.2 Animal vaccines

Twenty-seven out of 94 countries or territories which returned the questionnaire reported producing animal rabies vaccines.

Nine countries (32%) produced only vaccines prepared on tissue culture, 7 countries (25%) on neural tissues and 14% only on embryonating eggs. Five countries produced more than one type of vaccine.

About 71% of the total quantity of veterinary rabies vaccines were produced on cell culture, whereas almost 29% stemmed from neural tissue and less than 0.1% were produced on embryonating eggs.

Sixty countries or territories reported importing animal rabies vaccines. About 97% of these vaccines were prepared on cell culture.

2.4 Diagnostic techniques used in medical and veterinary laboratories (Annex 4)

Thirty-four countries and territories provided information on the diagnostic techniques used in medical laboratories and sixty-five on those used in veterinary laboratories.

2.4.1. Medical laboratories

As in previous years the Fluorescent Antibody Test (FAT) was the technique most widely used to diagnose rabies in humans (31 out of 34 countries and territories) and in animals (61 out of 65).

In 59% (20 out of 34) of the countries and territories the laboratories responsible for human rabies diagnosis used the Mouse Inoculation Test (MIT), 26% (9 out of 34) histological techniques, and 15% (5 out of 34) other techniques. Many laboratories applied more than one technique to confirm rabies cases.

Only one country (Kazakhstan) used the histological technique alone for confirming rabies in humans.

The Tissue Culture Inoculation Test (TCI) was carried out in 5 countries, in one an ELISA and one used the Polymerase Chain Reaction (PCR) test. Use of techniques such as ELISA and TCI are exclusively reported from European countries.

2.4.2. Veterinary laboratories

FAT is applied in 61 out of 65 countries and territories which provided information on the diagnostic techniques used in veterinary laboratories.

Fifteen countries and territories used FAT only for rabies diagnosis in animals. FAT was applied together with MIT in 19 out of 65 countries and territories, in 11% (7 out of 65) together with histological techniques and about 5% (3 out of 65) together with other techniques.

Eighteen countries and territories used more than two types of diagnostic techniques.

MIT and/or histology for rabies diagnosis were exclusively used in only 9% (6 out of 65) of the veterinary laboratories. Five countries reported using the TCI whereas four other countries utilize ELISA techniques and one country the Agar gel precipitation.

2.5 Vaccine application in animals (Annex 5)

Regarding dog immunization against rabies, vaccination is compulsory in 16 out of 23 (70%) countries from Africa, 7 out of 12 (58%) countries belonging to the Americas, 6 out of 15 (40%) countries located in Asia, 19 out of 28 (68%) European countries and 1 out of 3 countries or territories located in Oceania which are included in this WSR.

In many of the rabies-free countries dog vaccination is generally forbidden and exceptionally allowed for exporting or importing animals.

Estimates of the number of dogs immunized in 1995 and estimates of the vaccination coverage (in %) by country and territory are given in Annex 5.

Dog population size may have been underestimated in many countries.

Table 1: Number of human deaths due to rabies by source of animal exposure and method of confirmation

AFRICA	Method of diagnosis			Reported exposure to domestic animals			Reported exposure to wild animals						Unknown* exposure
	Laboratory	Clinical	Total	Dog	Cat	Other	Fox	Skunk	Raccoon	Mongoose	Bat	Other	
Algeria	0	40	40	27	3	0	0					10	
Botswana	0	0	0										
Central African Rep. ³⁹⁾	0	0	0										
Eritrea ⁶⁾	2		2										2
Ethiopia		22	22	22									
Ghana	11		11	11									
Madagascar	0	3	3	1	1	0			0	0	0		1
Morocco	13	16	29	26	3								
Mozambique			0										
Namibia		17	17										17
Senegal		7	7	6								1	
South Africa	26	1	27	27									
Sudan ⁶⁾		2	2										2
Swaziland ¹⁰⁾	unkn.	unkn.	unkn.										
Tanzania, United Rep.of	4	6	10	10	0	0	0	0	0				
Tunisia	5		5	4								1	
Uganda	0	14	14	14		0	0		0			0	
Zimbabwe	3	14	17										17
Africa total	64	142	206	148	7	0	0	0	0	0	0	12	39

AMERICAS	Method of diagnosis			Reported exposure to domestic animals			Reported exposure to wild animals						Unknown* exposure
	Laboratory	Clinical	Total	Dog	Cat	Other	Fox	Skunk	Raccoon	Mongoose	Bat	Other	
Argentina ⁴⁾	0	0	0										
Bahamas	0	0	0										
Barbados ⁴⁾	0	0	0										
Belize ⁴⁾	0	0	0										
Bolivia ⁴⁾	2	6	8	4									4
Brazil	23	8	31	26		2					2	1	
Chile ⁴⁾	0	0	0										
Colombia ⁴⁾	9	0	9	8								1	
Costa Rica ⁴⁾	0	0	0										
Cuba	2	0	2			1					1		
Dominican Republic	1	0	1	1									
Ecuador ⁴⁾	17	3	20	12	1								7
El Salvador ⁴⁾	4	3	7	3	1								3
Guatemala ⁴⁾	7	1	8	6									2
Honduras ⁴⁾	1	1	2										2
Mexico	23	8	31	22				1			8		
Nicaragua ⁴⁾	0	0	0										
Panama ⁴⁾	0	0	0										
Paraguay ⁴⁾	0	4	4	3									1
Peru ⁴⁾	6	15	21	4	1						15		1
Trinidad-Tobago ⁴⁾	0	0	0										1
United States of America	4		4	0	0	0	0	0	0	0	4	0	
Uruguay ⁴⁾	0	0	0										
Venezuela	4	1	5	4									1
Americas total	103	50	153	93	3	3	0	1	0	0	30	2	21

* Difference between the total number of human deaths and the total number of known exposures

Table 1: Number of human deaths due to rabies by source of animal exposure and method of confirmation (cont.)

ASIA	Method of diagnosis			Reported exposure to domestic animals			Reported exposure to wild animals						Unknown* exposure
	Laboratory	Clinical	Total	Dog	Cat	Other	Fox	Skunk	Raccoon	Mongoose	Bat	Other	
Bangladesh ^{3,40)}		2000	2000										2000
Brunei Darussalam	0	0	0										
China ³⁾	200		200										200
India ¹³⁾	4	31	35	35									
India ⁴⁰⁾		30.000	30.000										30.000
Iraq ⁷⁾		34	34										34
Japan	0	0	0										
Korea, Rep. of	0	0	0	0	0	0	0	0	0	0	0	0	
Kuwait ²⁹⁾		1	1	1									
Lao P.'s Dem. Rep. ³⁾		8	8										8
Malaysia ⁴⁶⁾	0	0	0										
Myanmar ³⁾		29	29										29
Nepal ²²⁾		34	34	34									
Pakistan ⁴⁰⁾		2000	2000										
Philippines ²³⁾	unkn.	230	230										230
Singapore	0	0	0	0	0	0	0	0	0	0	0	0	
Sri Lanka	17	134	151	150		1							
Thailand ³⁾		74	74										74
Viet Nam ³⁾		395	395										395
Asia total	221	34.970	35.191	220	0	1	0	0	0	0	0	0	32970

EUROPE	Method of diagnosis			Reported exposure to domestic animals			Reported exposure to wild animals						Unknown* exposure
	Laboratory	Clinical	Total	Dog	Cat	Other	Fox	Skunk	Raccoon	Mongoose	Bat	Other	
Austria	0	0	0	0	0	0	0	0	0	0	0	0	
Belgium	0	0	0										
Bulgaria ¹⁶⁾	0	0	0										
France ²⁹⁾	3		3	3									
Georgia ¹⁷⁾		9	9										9
Germany	0	0	0										
Gibraltar ¹⁸⁾	0	0	0										
Greece ¹⁹⁾	0	0	0										
Hungary	0	0	0										
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	
Isle of Man	0	0	0										
Italy	0	0	0										
Kazakstan		11	11	10								1	
Luxembourg	0	0	0										
Russian Federation ⁵⁾	10		10										10
Spain	0	0	0										
Sweden	0	0	0										
United Kingdom	0	0	0										
Yugoslavia	0	0	0										
Europe total	13	20	33	13	0	0	0	0	0	0	0	1	19

OCEANIA	Method of diagnosis			Reported exposure to domestic animals			Reported exposure to wild animals						Unknown* exposure
	Laboratory	Clinical	Total	Dog	Cat	Other	Fox	Skunk	Raccoon	Mongoose	Bat	Other	
Cook Island	0	0	0										
Fiji	0	0	0										
New Caledonia	0	0	0										
Papua New Guinea ⁸⁾	0	0	0										
Oceania total	0	0	0										

World total	401	35.182	35.583	474	10	4	0	1	0	0	30	15	33.049
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* Difference between the total number of human deaths and the total number of known exposures

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

AFRICA	Method of diagnosis			Laboratory confirmed cases in domestic animals					Laboratory confirmed cases in wild animals					Unknown species*	
	Laboratory	Clinical	Total	Dog	Cat	Ruminant	Equine	Other	Fox	Skunk	Raccoon	Mongoose	Bat		Other
Angola		191	191												
Botswana	311	55	366	46	2	210	9	44	1	0	0	3	0	40	-44
Cameroon	25	0	25	25											
Central African Rep. ³⁹⁾	12		12	12											
Egypt	3	0	3			3									
Eritrea ⁶⁾			0												
Ethiopia	161	0	161	152	3	4	1							1	
Ghana	88	30	118	84	1	2		1							
Kenya	122		122	77	6	26	7						0	5	1
Lesotho	0	1	1												
Libyan Arab Jamahiriya	0	0	0												
Madagascar	34		34	32	1	1	0	0							
Morocco	211	88	299	118	15	50	26	2	1					1	-2
Mozambique	9		9												9
Namibia	174	48	222	25	3	96	2		2			1		43	2
Senegal	1		1			1									
South Africa	793	0	793	470	19	139	5		15	1		105		54	-15
Swaziland	58	0	58	45	0	11	2	0							
Tanzania, United Rep. of	0	10	10												
Tunisia	95		95	64	3	19	6		0					3	
Uganda	5	1145	1150	2	1							2			
Zimbabwe	691		691	221	17	144	9	1					0	299	
Africa total	2.793	1.568	4.361	1.373	71	706	67	48	19	1	0	111	0	446	

AMERICAS	Method of diagnosis			Laboratory confirmed cases in domestic animals					Laboratory confirmed cases in wild animals					Unknown species*	
	Laboratory	Clinical	Total	Dog	Cat	Ruminant	Equine	Other	Fox	Skunk	Raccoon	Mongoose	Bat		Other
Argentina ⁴⁾	53	7	60	12	0	36	3		1					1	
Bahamas	0	0	0	0	0	0		0							
Barbados ⁴⁾	0	0	0	0	0	0		0							
Belize ⁴⁾	6	0	6	4	2	0		0							
Bolivia ⁴⁾	289	116	405	247	4	35						1		2	
Brazil	2435	84	2519	1.014	73	1153		179							16
Canada	444	25	469	16	14	68	6	0	144	143	1			19	30
Chile ⁴⁾	18	0	18	0	0	0		0						18	
Colombia ⁴⁾	106	0	106	83	5	17								1	
Costa Rica ⁴⁾	4	0	4	0	0	4		0							
Cuba	113	2	115	28	11	10	1	3				58	1	1	
Dominican Republic	47	4	51	14	6	5	1					20	0		1
Ecuador ⁴⁾	823	0	823	736	43	25	1	16				1		1	
El Salvador ⁴⁾	158	0	158	124	6	25	3								
Guatemala ⁴⁾	110	0	110	92	7	9		0						2	
Guyana ⁴⁾	0	0	0												
Honduras ⁴⁾	16	120	136	14	2	0		0							
Jamaica ⁸⁾	0	0	0												
Mexico	1798		1798	1.387	67			336						8	
Nicaragua ⁴⁾	28	0	28	22	2	3		0							1
Panama ⁴⁾	19	0	19	0	0	15	2						2	0	
Paraguay ⁴⁾	490	0	490	383	6	90	5	3				2		1	
Peru ⁴⁾	464	0	464	404	21	14	9	4						6	6
Suriname ²⁴⁾²⁵⁾	0	23	23												
Trinidad-Tobago ⁴⁾	0	0	0	0	0	0		0							
United States of America	7887		7887	146	288	148	43	5	513	1774	3964	23	787	186	10
Uruguay ⁴⁾	0	0	0	0	0	0		0							
Venezuela	398		398	171	9	211	5	2	1				1		-2
Americas total	15.706	381	16.087	4.897	566	1.868	79	548	659	1.917	3.965	105	844	203	

* Difference between total number of laboratory confirmed cases (column 2) and the specified cases (columns 3 and 4)

Table 2: Number of animal rabies cases by species and method of confirmation (cont.)

ASIA	Method of diagnosis			Laboratory confirmed cases in domestic animals					Laboratory confirmed cases in wild animals					Unknown species*	
	Laboratory	Clinical	Total	Dog	Cat	Ruminant	Equine	Other	Fox	Skunk	Raccoon	Mongoose	Bat		Other
Bangladesh ³⁴⁰⁾		25000	25000												
Cyprus ⁸⁾	0	0	0	0											
Hong Kong	0	0	0	0	0										
India ¹³⁾	188		188	133	7	16	1				5			2	24
Japan	0	0	0												
Jordan	15	4	19	4	1	7	1	0	2						
Korea, Rep. of ¹⁵⁾	7		7	0	0	6					1				
Kuwait	1		1												1
Malaysia ¹¹⁾	0	0	0												
Myanmar	4	22	26	3	1										
Nepal	15		15	14		1									
Oman	7	14	21	0	0	3	0		4						
Pakistan ¹⁴⁾			0	0		1									-1
Singapore	0	0	0												
Sri Lanka	809		809	746	42	10			1			4		6	
United Arab Emirates	1	0	1			1								0	
Asia total	1.047	25.040	26.087	900	51	45	2	0	7		1	9		8	

EUROPE	Method of diagnosis			Laboratory confirmed cases in domestic animals					Laboratory confirmed cases in wild animals					Unknown species*	
	Laboratory	Clinical	Total	Dog	Cat	Ruminant	Equine	Other	Fox	Skunk	Raccoon	Mongoose	Bat		Other
Austria	95		95	1	0	1	0	0	80					13	
Belarus ⁵⁾	34		34	8	9	4	3		10						
Belgium	213	0	213	0	4	67	5		135					2	
Bulgaria ¹⁶⁾	10		10											10	
Croatia ⁵⁾	419		419	9	8	4			390					8	
Czech Republic ⁵⁾	178		178	2	5	1			157					13	
Denmark ⁵⁾	1		1										1		
Estonia ⁵⁾	74		74	12	7	6			30					19	
Finland	0	0	0	0	0	0	0		0				0	0	
France	40		40	1	0	11	0	0	26				1	1	
Georgia ¹⁷⁾		80	80												
Germany	857	0	857	2	21	127	4	1	636	0	0	0	1	65	
Gibraltar ¹⁸⁾	0	0	0	0											
Greece ¹⁹⁾			0	0	0	0		0	0				0	0	
Hungary	1134		1134	62	122	33	0	1	904	0	0		0	12	
Iceland			0												
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Isle of Man	0	0	0												
Israel	52	0	52	11	2	5	2	0	30			0	0	2	
Italy	11	0	11	1	0	0		0	8				0	2	
Jersey, Channel Islands ⁸⁾	0	0	0												
Kazakstan	554	762	1316	143	16	326	27		18					24	
Latvia	224		224	22	19	14	0	1	123					45	
Lithuania	80		80	11	15	21			22					11	
Luxembourg	15		15	0	0	6	0		9					0	
Moldova, Rep. of	6		6	1	0	3	0		2					0	
Netherlands	4	0	4	0	0				1 ²⁶⁾				3	0	
Norway ²⁰⁾	0	0	0	0					0					0	
Poland	1973		1973	120	185	133	2	5	1280					248	
Romania ⁵⁾	30		30	5	6	4			12					2	1
Russian Federation ⁵⁾	1107		1107	151	128	561	18	7	195					37	10
Slovakia	266		266	32	24	6	0	0	197					7	
Slovenia ⁵⁾	1084		1084	12	24	5	1		996					46	
Spain (only Mellila)	6		6	5	1	0	0	0	0				0	0	
Sweden	0	0	0		0										
Switzerland ⁵⁾	23		23			3			11					9	
Turkey ⁵⁾	168		168	143	4	20								1	
United Kingdom	0	0	0	0	0			0	0				0		
Yugoslavia	118	0	118	5	10	3			95					5	
Europe total	8.776	842	9.618	759	610	1.364	62	15	5.367	0	0	0	6	582	

* Difference between total number of laboratory confirmed cases (column 2) and the specified cases (columns 3 and 4)

Table 2: Number of animal rabies cases by species and method of confirmation (cont.)

OCEANIA	Method of diagnosis			Laboratory confirmed cases in domestic animals					Laboratory confirmed cases in wild animals					Unknown species*
	Laboratory	Clinical	Total	Dog	Cat	Ruminant	Equine	Other	Fox	Skunk	Raccoon	Mongoose	Bat	
Cook Islands	0	0	0											
Fiji	0	0	0											
French Polynesia	0	0	0											
New Caledonia	0	0	0											
Papua New Guinea ⁸⁾	0	0	0											
Oceania total	0	0	0											
World total	28.322	27.831	56.153	7.929	1.298	3.983	210	611	6.052	1.918	3.966	225	850	1.239

* Difference between total number of laboratory confirmed cases (column 2) and the specified cases (columns 3 and 4)

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

AFRICA	Persons treated for exposure to domestic animals				Persons treated for exposure to wild animals					Difference*	Persons receiving			
	Dog	Cat	Other	Total	Fox	Bat	Rodent	Other	Total		Vaccine alone	Vaccine & serum	Serum alone	
Botswana											1.001	1.001		
Cameroon	700	29	18	747								715	32	0
Central African Rep.	393			393								393		
Ethiopia	1.743	3	15	1.761							-9	1.752		
Ghana												unkn.	unkn.	unkn.
Madagascar	1.913	80	46	2.039			29	0	29		-12	2.001	55	0
Mauritius												0	0	0
Morocco											14.700		14.700	
Senegal	1.089	56	11	1.156			3	20	23			1.174	5	0
Sudan ⁶⁾											8.771	8.771		
Swaziland												unkn.	unkn.	unkn.
Tanzania, United Rep. of												unkn.	unkn.	unkn.
Tunisia ²⁷⁾	26.551	3.053	567	30.171	3		205	688	896		4.267	35.334		
Uganda	2.713	106	5	2.824	30		4	369	403		-5	3.222		
Africa total	35.102	3.327	662	39.091	33	0	241	1.077	1.351		28.713	54.363	14.792	0

AMERICAS	Persons treated for exposure to domestic animals				Persons treated for exposure to wild animals					Difference*	Persons receiving			
	Dog	Cat	Other	Total	Fox	Bat	Rodent	Other	Total		Vaccine alone	Vaccine & serum	Serum alone	
Brazil											205.998	187.475	18.523	0
Cuba	581	125	142	848		41		130	171				1.019	
Dominican Republic	1.698	572	0	2.270							21	2.291		
Jamaica ⁸⁾²⁸⁾														
Mexico	23.978	1.143	5778	30.899		400			400			28.927	2.372	
Venezuela											5.933	5.051	660	222
Americas total	26.257	1.840	5.920	34.017	0	441	0	130	571		211.952	223.744	22.574	222

ASIA	Persons treated for exposure to domestic animals				Persons treated for exposure to wild animals					Difference*	Persons receiving			
	Dog	Cat	Other	Total	Fox	Bat	Rodent	Other	Total		Vaccine alone	Vaccine & serum	Serum alone	
Bangladesh ³⁾⁴⁰⁾											60.000	60.000		
China ³⁾⁴⁰⁾											5.000.000	5.000.000		
Hong Kong	3.343	295	1	3.639			75	72	147			3.724	62	0
India ¹³⁾	996	28	105	1.129			6	37	43			432	740	0
India ⁴⁰⁾											1.000.000	1.000.000		
Iraq ⁷⁾											30.000	30.000		
Jordan	502	25	57	584	5				5		102	435	256	
Korea, Rep. of ¹⁵⁾	5			5							1	6		
Kuwait	585	348	13	946	7			28	35			441	540	
Malaysia ¹²⁾											7	7		
Myanmar ³⁾											429	429		
Nepal	16.118	86	196	16.400			105	1441	1546			17.929	17	
Oman	391	301	66	758	12		103	16	131		-889			
Pakistan ⁴⁰⁾											81.800	81.800		
Philippines											5.365	4.612	753	0
Qatar	176	132	22	330			19	7	26				194	162
Singapore	10	0	0	0	0	0	0	0	0			8	2	0
Viet Nam ³⁾											493.355	493.355		
Asia total	22.126	1.215	460	23.791	24	0	308	1.601	1.933		6.670.170	6.693.178	2.564	162

* Numeric difference between reported total number of persons receiving vaccine, vaccine&serum or serum alone (column 5) and reported total number of persons treated for exposure (column 2 and 3)

Table 3: Number of persons treated against rabies by source of animal exposure and type of treatment (cont.)

EUROPE	Persons treated for exposure to domestic animals				Persons treated for exposure to wild animals					Difference*	Persons receiving		
	Dog	Cat	Other	Total	Fox	Bat	Rodent	Other	Total		Vaccine alone	Vaccine & serum	Serum alone
Austria	667	298	13	978	11	5	109	32	157	2	1.006	129	2
Belgium	46	49	161	256	56		1	21	78		284	50	0
Bulgaria ¹⁶⁾										11.186	11.186		
France	4.087	1.509	115	5.711	126	14	150	4	294	204	5.968	233	8
Gibraltar ¹⁸⁾											0	0	0
Greece ¹⁹⁾	511	29	4	544	4			17	21		565		
Hungary ⁴⁵⁾	2.678	1.488	702	4.868	406	6	107	4163	4682		9.550	0	0
Ireland	9	0	0	9	0	0	0	3	3		12	0	0
Isle of Man											0	0	0
Israel	1.346	181	82	1.609		6	3	151	160	3	610	1.162	
Italy ³⁰⁾										2.417	2.417		
Kazakstan	12.235	180	0	12.415	39			155	194	-1.617	6.681	2.325	1.986
Latvia	4.176	710	107	4.993	230		118	167	515		4.781	709	18
Lithuania	6.803	664	92	7.559	29		94	37	160	-3.859	3.752	106	2
Luxembourg	23	15	8	46	5		5	0	10		54	2	0
Malta										5	5	0	0
Moldova, Rep. of	1.323	232	0	1.555	32		80	882	994		2.549		
Netherlands		1		1	8	10		0	18			19	
Norway ²⁰⁾ ³¹⁾ ³²⁾											n.a.		n.a.
Poland	4.349	1.115	418	5.882	529	11	289	297	1126		6.970	38	
Portugal	25	4	0	29	1			3	4		33		
Slovakia	740	208	44	992	134	1	123	34	292	170	1.384	53	17
Spain	330	55	13	398	7	10	15	28	60	66	432	92	0
Sweden ³³⁾										80	50	30	0
United Kingdom	312	46	40	398	2	8	5	25	40	-5	166	267	0
Yugoslavia	657	133	3	793	49	0	16	8	73	4	307	479	84
Europe total	40.317	6.917	1.802	49.036	1.668	71	1.115	6.027	8.881	8.656	58.762	5.694	2.117

OCEANIA	Persons treated for exposure to domestic animals				Persons treated for exposure to wild animals					Difference*	Persons receiving		
	Dog	Cat	Other	Total	Fox	Bat	Rodent	Other	Total		Vaccine alone	Vaccine & serum	Serum alone
Cook Islands											0	0	0
Fiji											0	0	0
New Caledonia											0	0	0
Papua New Guinea ⁸⁾											0	0	0
Oceania total											0	0	0

World total	123.802	13.299	8.844	145.935	1.725	512	1.664	8.835	12.736	6.919.491	7.030.047	45.624	2.501
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* Numeric difference between reported total number of persons receiving vaccine, vaccine&serum or serum alone (column 5) and reported total number of persons treated for exposure (column 2 and 3)

Table 4: Human and animal rabies vaccines produced domestically and imported

AFRICA	Animal rabies vaccines (doses)						Human rabies vaccines (doses)					
	produced			imported			produced			imported		
	NTO	TCO	EEO	NTO	TCO	EEO	NTO	TCO	EEO	NTO	TCO	EEO
Angola					60.000							
Botswana					200.000						21.000	
Cameroon	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.					3.500	
Central African Rep.	unkn.	unkn.	unkn.	unkn.	unkn.	unkn.					1.100	
Egypt			15.000		4.600		800.000				4.000	
Ethiopia	2.224						8.470					
Ghana					200.000						unkn.	unkn.
Kenya	0	9.000	0	0	100.000	0					unkn.	unkn.
Lesotho				0	70.000	0					0	0
Libyan Arab Jamahiriya					5.000						0	0
Madagascar			5.150				0	0	0	17.220	750	0
Mauritius	0	0	0	0	0	0	0	0	0	0	0	0
Namibia					unkn.						0	0
Senegal		0	5.000		2.350	0					5.000	
South Africa					1.776.418							
Swaziland	0	0	0		80.000							
Tanzania, United Rep.of					2.000.000						unkn.	unkn.
Tunisia	500.000						231.280	19.000	0	0	2.150	0
Uganda	0	0	0	0	490.000	0	0	0	0	0	10.600	0
Zimbabwe	0	0	0	0	400.000	0	0	0	0	0	27.950	0
Africa total	502.224	9.000	25.150	0	5.388.368	0	1.039.750	19.000	0	17.220	76.050	0

AMERICAS	Animal rabies vaccines (doses)						Human rabies vaccines (doses)					
	produced			imported			produced			imported		
	NTO	TCO	EEO	NTO	TCO	EEO	NTO	TCO	EEO	NTO	TCO	EEO
Antigua and Barbuda ⁸⁾ ³⁴⁾					24							
Bahamas				unkn.	unkn.	unkn.						
Brazil	23.100.000						2.520.000	0	0	0	5.000	0
Canada	0	1.837.774	0	0		unkn.						
Cuba	691.785			0	0	0	64.544			0	0	0
Dominican Republic	20.000	271.551					116.400					
Haiti					95.000						987	
Mexico	300.000	11.000.000					360.000				76.000	
United States of America		45.663.193 ³⁵⁾						13.318 ³⁶⁾			249.500	
Venezuela		203.790			79.700		57.038					
Americas total	24.111.785	58.976.308	0	0	174.724	0	3.117.982	13.318	0	0	331.487	0

ASIA	Animal rabies vaccines (doses)						Human rabies vaccines (doses)					
	produced			imported			produced			imported		
	NTO	TCO	EEO	NTO	TCO	EEO	NTO	TCO	EEO	NTO	TCO	EEO
Brunei Darussalam					100							
Cyprus ⁸⁾				0	800	0						
Hong Kong					54.000							
India	1.800.000	100.000		0	unkn.	0	11.425.000	1.700.000		0	1.000.000	
Japan	3.881.670											
Jordan					2.100						12.198	
Korea, Rep. of ¹⁵⁾		1.577.613			2.962		0	0	0	0	0	0
Kuwait					6.000						5.500	
Malaysia ¹¹⁾	0	0	0	0	0	0	0	0	0	0	0	0
Malaysia ¹³⁾					4.000							
Myanmar			420		2.500	9000						
Nepal	33.997				3.000		60.090			50.000	9.000	19.000
Oman	0	0	0	0	unkn.	0					2.500	
Pakistan	63.910		460									
Philippines							6.834			0	13.010	unkn.
Qatar					1.000							
Singapore	0	0	0	0	1.500	0	0	0	0	0	38	0
Sri Lanka					200.000						200.000	
Asia total	5.779.577	1.677.613	880	0	277.962	9.000	11.491.924	1.700.000	0	50.000	1.242.246	19.000

Table 4: Human and animal rabies vaccines produced domestically and imported (cont.)

EUROPE	Animal rabies vaccines (doses)						Human rabies vaccines (doses)					
	produced			imported			produced			imported		
	NTO	TCO	EEO	NTO	TCO	EEO	NTO	TCO	EEO	NTO	TCO	EEO
Albania	0	0	0	0	400	0						
Austria	0	0	0	0	unkn.	0					9.598	
Belarus ⁵⁾												
Belgium	0	0	0	0	165.550	0	0	0	0	0	2.000	0
Bulgaria ¹⁶⁾								8.000			55.000	
Finland					140.500							
Germany		12.910.455		0	2.499.936	0		887.975			91.495	
Gibraltar ¹⁸⁾	0	0	0	0	2.000	0	0	0	0	0	12	0
Greece ¹⁹⁾	0	0	0	0	unkn.	0	0	0	0	0	unkn.	0
Hungary	0	0	0	0	unkn.	0	0	0	0	0	60.000	0
Ireland	0	0	0	0	550	0	0	0	0	0	40	0
Isle of Man	0	0	0	0	12	0	0	0	0	0	0	0
Israel	0	0	0	0	225.000	0	0	0	0	0	6.000	0
Italy	unkn.	unkn.	unkn.	unkn.	unkn.	unkn.	0	0	0	0	43.000	28.200
Latvia					118.000						25.771	
Lithuania					176.450						16.000	
Luxembourg					20.000						502	
Malta	0	0	0	200	0	0	0	0	0	0	150	0
Moldova, Rep. of	0	0	0	341650							30.000	
Netherlands		unkn.			unkn.			0			unkn.	
Norway ²⁰⁾	0	0	0	0	4.000	0	0	0	0	0	1.000	0
Poland		1.448.482			0						40.000	
Portugal	103.996				1.298.900						200	
Slovakia		155.380			156.918		0	0	0	unkn.	unkn.	unkn.
Spain											7.791	
Sweden	0	0	0		10.050		0	0	0	0	2.675	
United Kingdom	0	0	0	0	16.875	0	0	0	0	0	90.850	0
Yugoslavia		700.000									3.000	
Europa total	103.996	15.214.317	0	341.850	4.835.141	0	0	895.975	0	0	485.084	28.200

OCEANIA	Animal rabies vaccines (doses)						Human rabies vaccines (doses)					
	produced			imported			produced			imported		
	NTO	TCO	EEO	NTO	TCO	EEO	NTO	TCO	EEO	NTO	TCO	EEO
Cook Islands					50							
Fiji	0	0	0	0	0	0	0	0	0	0	0	0
French Polynesia	0	0	0	0	400 ²⁴⁾	0	0	0	0	0	10 ³⁷⁾	0
New Caledonia	0	0	0	0	500	0	0	0	0	0	10	0
Papua New Guinea ³⁾	0	0	0	0	0	0	0	0	0	0	0	0
Oceania total	0	0	0	0	950	0	0	0	0	0	20	0

World total	30.497.582	75.877.238	26.030	341.850	10.677.145	9.000	15.649.656	2.628.293	0	67.220	2.134.887	47.200
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Annex 1: Presence/absence of rabies by country or territory**1. Countries and territories where rabies was reported in 1995**

Africa	Togo ²⁾	Asia	Belgium
Algeria	Tunisia	Bangladesh ³⁾	Bulgaria
Angola	Uganda	Bhutan ⁹⁾	Croatia ⁵⁾
Botswana	Zambia ⁶⁾	Cambodia ³⁾	Czech Republic ⁵⁾
Burkina Faso ²⁾	Zimbabwe	China ³⁾	Denmark ⁵⁾
Cameroon	Americas	India	Estonia ⁵⁾
Central African Republic	Argentina ⁴⁾	Indonesia ³⁾	France
Chad ²⁾	Belize ⁴⁾	Iran, Islamic Republic of ²⁾	Georgia ¹⁷⁾
Côte d'Ivoire ²⁾	Bolivia ⁴⁾	Iraq ⁷⁾	Germany
Egypt	Brazil	Jordan	Hungary
Eritrea ⁶⁾	Canada	Korea, Rep. of ¹⁵⁾	Israel
Ethiopia	Chile ⁴⁾	Kuwait	Italy
Ghana	Colombia ⁴⁾	Lao P.'s Dem. Rep. ³⁾	Kazakstan
Guinea ²⁾	Costa Rica ⁴⁾	Mongolia ⁹⁾	Latvia
Kenya	Cuba	Myanmar	Lithuania
Lesotho	Dominican Republic	Nepal	Luxembourg
Madagascar	Ecuador ⁴⁾	Oman	Moldova, Rep. of
Malawi ⁶⁾	El Salvador ⁴⁾	Pakistan	Norway (only Svalbard Isl.)
Mali ²⁾	Greenland ²⁾	Philippines	Netherlands
Mauritania ²⁾	Guatemala ⁴⁾	Sri Lanka	Poland
Morocco	Haiti	Syrian Arab Republic ²⁾	Romania ⁵⁾
Mozambique	Honduras ⁴⁾	Thailand	Russian Federation ⁵⁾
Namibia	Mexico	Turkmenistan ²⁾	Slovakia
Niger ²⁾	Nicaragua ⁴⁾	United Arab Emirates	Slovenia ⁵⁾
Nigéria ²⁾	Panama ⁴⁾	Uzbekistan ²⁾	Spain (only Melilla)
Rwanda ⁶⁾	Paraguay ⁴⁾	Viet Nam ³⁾	Switzerland ⁵⁾
Senegal	Peru ⁴⁾	Europe	Turkey ⁵⁾
South Africa	Suriname	Austria	Yugoslavia
Sudan ⁶⁾	United States of America	Belarus ⁵⁾	
Swaziland	Venezuela		
Tanzania, United Rep. of			

2. Countries and territories where no rabies was reported in 1995

Africa	Asia	Ireland	Guam ⁹⁾
Cape Verde	Bahrain ²⁾	Isle of Man	Kiribati ⁹⁾
Libyan Arab Jamahiriya	Brunei Darussalam	Jersey, Channel Islands ⁸⁾	Marshall Islands ⁹⁾
Mauritius	Cyprus ⁸⁾	Malta	New Caledonia
Seychelles ²⁾	Hong Kong	Norway (except Svalbard Isl.)	New Zealand ⁸⁾
Americas	Japan	Portugal	Palau ²⁾
Antigua and Barbuda ⁸⁾	Malaysia ⁴⁶⁾	Spain (except Melilla)	Papua New Guinea ⁸⁾
Bahamas	Qatar	Sweden	Solomon Islands ⁹⁾
Barbados ⁴⁾	Singapore	United Kingdom	Vanuatu ⁸⁾
Guyana ⁴⁾	Europe	Oceania	Western Samoa ⁹⁾
Jamaica	Albania	Australia ⁹⁾	
Saint Lucia ⁸⁾	Finland	Cook Islands	
Trinidad and Tobago ⁴⁾	Gibraltar ¹⁸⁾	Fiji	
Uruguay ⁴⁾	Greece ¹⁹⁾	French Polynesia	
	Iceland		

Annex 2: Main rabies epidemiological patterns

AFRICA	Order of importance		
	FIRST	SECOND	THIRD
Algeria	dog	wild	bat
Angola	dog		
Botswana	dog	wild	bat
Cameroon	dog	wild	
Central African Rep.	dog		
Egypt	wild	dog	
Ethiopia	dog	wild	bat
Ghana	dog	wild	bat
Kenya	dog	wild	bat
Madagascar	dog		
Morocco	dog		
Mozambique	dog	wild	
Namibia	wild	dog	bat
Senegal	dog	wild	bat
South Africa	dog	wild	bat
Swaziland	dog	wild	bat
Tanzania, United Rep. of	dog		
Tunisia	dog	wild	
Uganda	dog	wild	
Zimbabwe	wild	dog	
Africa Total 20			
dog total	17(=85%)	3	0
wildlife total	3(=15%)	12	0
bat total	0	0	9

AMERICAS	Order of importance		
	FIRST	SECOND	THIRD
Brazil	dog	bat	wild
Canada	wild	bat	dog
Cuba	wild	bat	dog
Dominican Republic	wild	dog	
Haiti	dog		
Mexico	dog	bat	wild
Suriname ²⁴⁾	bat		
United States of America	wild	bat	dog
Venezuela	dog	bat	wild
Americas Total 9			
dog total	4(=44%)	1	3
wildlife total	4(=44%)	0	3
bat total	1(=11%)	6	0

World Total 58	FIRST	SECOND	THIRD
dog total	32(=55%)	9	4
wildlife total	24(=41%)	21	4
bat total	2(=3%)	8	13

ASIA	Order of importance		
	FIRST	SECOND	THIRD
India	dog	wild	
Jordan	dog	wild	
Korea, Rep. of ¹⁵⁾	wild	dog	bat
Kuwait	wild		
Myanmar	dog		
Nepal	dog	wild	
Oman	wild		
Pakistan	dog	wild	bat
Philippines	dog	wild	bat
Sri Lanka	dog	wild	
United Arab Emirates	wild		
Asia Total 11			
dog total	7(=64%)	1	0
wildlife total	4(=36%)	6	0
bat total	0	0	3

EUROPE	Order of importance		
	FIRST	SECOND	THIRD
Austria	wild		
Belgium	wild		
Bulgaria	dog	wild	
France	wild		
Germany	wild	bat	
Hungary	wild	dog	bat
Israel	wild	dog	
Italy	wild		
Kazakstan	dog	wild	
Latvia	wild		dog
Lithuania	wild	dog	
Luxembourg	wild		
Moldova, Rep. of	dog	wild	
Netherlands	bat		
Poland	wild		
Slovakia	wild		
Spain (only Melilla)	dog	bat	wild
Yugoslavia	wild	dog	
Europe Total 18			
dog total	4(=22%)	4	1
wildlife total	13(=72%)	3	1
bat total	1(=6%)	2	1

Annex 3: Rabies trends and geographical distribution by country and continent

AFRICA	Geographical distribution	Trend
Algeria	most parts	increase
Angola	most parts	stable
Botswana	most parts	increase
Cameroon	most parts	stable
Central African Rep. ³⁹⁾	most parts	stable
Egypt	most parts	
Ethiopia	most parts	increase
Ghana	most parts	increase
Kenya	most parts	stable
Lesotho	border areas	
Madagascar	most parts	stable
Morocco	most parts	increase
Mozambique	most parts	decrease
Namibia	most parts	increase
Senegal	most parts	stable
South Africa	most parts	increase
Swaziland	most parts	stable
Tanzania, United Rep.of	most parts	stable
Tunisia	most parts	decrease
Uganda	most parts	stable
Zimbabwe	most parts	increase

ASIA	Geographical distribution	Trend
India	most parts	stable
Jordan	most parts	stable
Korea, Rep. of ¹⁵⁾	limited areas	decrease
Kuwait	limited areas	stable
Lao P.'s Dem. Rep. ³⁾	most parts	
Myanmar	limited areas	stable
Nepal	most parts	stable
Oman	limited areas	stable
Pakistan	most parts	stable
Philippines	most parts	stable
Sri Lanka	most parts	increase
United Arab Emirates	border areas	decrease

AMERICAS	Geographical distribution	Trend
Brazil	limited areas	increase
Canada	most parts	decrease
Cuba	limited areas	stable
Dominican Republic	most parts	decrease
Haiti	most parts	
Mexico	limited areas	stable
Suriname	limited areas	stable
United States of America	most parts	stable
Venezuela	border areas	stable

EUROPE	Geographical distribution	Trend
Austria	border areas	decrease
Belgium	limited areas	increase
Bulgaria	limited areas	
France	limited areas	decrease
Germany	limited areas	decrease
Hungary	most parts	increase
Israel	most parts	stable
Italy	border areas	decrease
Kazakstan	limited areas	increase
Latvia	most parts	decrease
Lithuania	most parts	increase
Luxembourg	limited areas	increase
Moldova, Rep. of	most parts	increase
Netherlands	limited areas	stable
Poland	most parts	decrease
Slovakia	most parts	decrease
Spain (only Melilla)	limited areas	stable
Yugoslavia	most parts	increase

Annex 4/1: Laboratory techniques for rabies diagnosis and post-exposure treatment rate

AFRICA	Laboratory technique for rabies diagnosis								Rate post-exp. treatment*
	in humans				in animals				
	FAT	MIT	HIST	Other	FAT	MIT	HIST	Other	
Botswana	x	x			x	x			
Cameroon	x	x			x	x			
Central African Rep.	x	x			x	x			12
Eritrea ⁶⁾					x				
Ethiopia					x	x			3
Ghana	x		x		x		x		
Kenya					x				
Lesotho					x				
Libyan Arab Jamahiriya					x		x		
Madagascar	x				x				15
Morocco					x		x		
Mozambique					x	x	x		
Namibia					x				
Senegal	x	x				x	x		15
South Africa	x				x	x		TCI	
Sudan ⁶⁾					x		x		
Swaziland	x				x				
Tunisia	x		x		x	x			359
Uganda							x		18
Zimbabwe	x				x				
Africa total	10	4	2		18	8	7	1	

AMERICAS	Laboratory technique for rabies diagnosis								Rate post-exp. treatment*
	in humans				in animals				
	FAT	MIT	HIST	Other	FAT	MIT	HIST	Other	
Brazil	x	x			x	x			
Canada					x				
Cuba	x	x	x		x	x	x		9
Dominican Republic	x	x			x	x			3197
Mexico	x	x			x	x			35
United States of America	x				x				
Venezuela	x	x			x	x			
Americas total	6	5	1		7	5	1		

ASIA	Laboratory technique for rabies diagnosis								Rate post-exp. treatment*
	in humans				in animals				
	FAT	MIT	HIST	Other	FAT	MIT	HIST	Other	
China ³⁾					x			ELISA	424
Cyprus ⁸⁾					x	x	x		
Hong Kong	x	x	x		x	x	x		65
India ¹³⁾	x	x			x	x			
Jordan	x				x				14
Lao P.'s Dem. Rep. ³⁾						x	x		

* per 100 000 inhabitants

Annex 4/2: Laboratory techniques for rabies diagnosis and post-exposure treatment rate

ASIA	Laboratory technique for rabies diagnosis								Rate post-exp. treatment*
	in humans				in animals				
	FAT	MIT	HIST	Other	FAT	MIT	HIST	Other	
Malaysia	x	x	x		x	x	x		
Nepal		x	x			x	x		86
Oman					x				45
Pakistan						x			
Rep. of Korea	x	x			x	x	x		
Sri Lanka	x				x		x		
Singapore ⁴¹⁾	x							ELISA	
United Arab Emirates					x		x	ELISA	
Asia total	7	5	3	0	10	8	8	3	

EUROPE	Laboratory technique for rabies diagnosis								Rate post-exp. treatment*
	in humans				in animals				
	FAT	MIT	HIST	Other	FAT	MIT	HIST	Other	
Albania						x	x		
Austria					x			TCI	14
Belgium					x			TCI	3
Finland					x				
France	x			TCI, ELISA	x				10
Georgia ¹⁷⁾					x	x			
Germany	x				x				
Gibraltar					x		x		
Greece	x	x			x	x		ELISA	5
Hungary	x	x	x		x	x	x		94
Ireland					x	x	x		
Israel					x				34
Italy	x	x			x	x			
Kazakstan		x			x	x	x	Agargel-precipitation	74
Latvia					x	x	x		211
Lithuania					x	x	x		208
Luxembourg					x	x			14
Moldova, Rep. of					x	x			58
Netherlands					x	x			
Norway					x				
Poland	x	x	x	TCI	x	x	x		18
Portugal					x	x			
Slovakia	x	x		TCI	x	x		TCI	24
Spain					x	x	x		1
Sweden				TCI	x	x			
United Kingdom	x			TCI, PCR	x	x	x	TCI	1
Yugoslavia					x				8
Europe total	8	6	2	5	26	18	10	6	

World total	31	20	8	5	61	39	26	10	
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* per 100 000 inhabitants

Annex 5/1: Vaccine application to dogs and other animal species

AFRICA	Status	Number of dogs immunized	Coverage (in %)	Remarks	Oral immunization: target animal
Angola	comp.	21.405			
Botswana	comp.	85.162	70		
Burkina Faso ²⁾		1.277			
Cameroon	opt.	70.000 ²⁾	<10		
Central African Rep.	opt.	unkn.			
Chad ²⁾		107			
Egypt	opt.	6.910			
Ethiopia	opt.				
Ghana	comp.	131.989	54		
Kenya	comp.	59.764	unkn.		
Lesotho	comp.	26.212	40		
Libyan Arab Jamahiriya	comp.	4.000			
Madagascar	opt.	unkn.	unkn.		
Mali ²⁾		1.098			
Mauritius	forb.	0			
Morocco	comp.	250.000			
Mozambique	comp.	23.913	40		
Namibia	comp.	29.479	116	38)	
Nigeria ²⁾		18.451			
Senegal	comp.	804	<1		
South Africa	comp.		20		
Swaziland	comp.	72.545	92		
Tanzania, United Rep. of	opt.	20.000	20		
Tunisia	comp.	388.265	70		
Uganda	comp.	116.039			
Zambia ⁶⁾	comp.				
Zimbabwe	comp.	406.000	30		
Africa total		1.733.420	55		

AMERICAS	Status	Number of dogs immunized	Coverage (in %)	Remarks	Oral immunization: target animal
Antigua and Barbuda ⁸⁾	opt.				
Bahamas	opt.	unkn.			
Brazil	opt.	1.230.000	83	Regular campaigns organized by the government.	
Canada	comp./opt.			Some municipalities require rabies vaccination as a condition for a dog license.	foxes
Cuba	comp.	624.834	71		
Dominican Republic	comp./opt.	78.081	8	Only in rabies foci regular campaigns.	
Greenland ²⁾		10.490			
Haiti	comp.	59.316			
Jamaica ⁸⁾	forb.			Forbidden for all animals.	
Mexico	comp.	10.611.396	81		
Suriname	opt.				
United States of America	comp./opt.			Varies by state and country.	racoons, coyotes
Venezuela	comp.	286.546			
Americas total		12.900.663	61		

Annex 5/2: Vaccine application to dogs and other animal species

ASIA	Status	Number of dogs immunized	Coverage (in %)	Remarks	Oral immunization: target animal
Brunei Darussalam	opt.			Compulsory for imported dogs. Canines and felines from rabies controlled countries have to undergo 6 months quarantine period. Concerns buffer zone (State bordering Thailand). Only for dogs and cats in quarantine. Import of dogs and cats from infected countries is forbidden; animals from rabies free countries are being kept in quarantine.	
Cyprus ⁸⁾	comp./opt.	680	78		
Hong Kong	comp.	45.117			
India	opt.	unkn.	2		
Iran, Islamic Republic of ²⁾		44.000			
Jordan	comp.	1.419	65		
Korea, Rep. of ¹⁵⁾	comp.	1.500.000			
Lao P.'s Dem. Rep. ³⁾		14.100	30		
Malaysia ¹¹⁾	forb.				
Malaysia ¹³⁾	comp.	3.623			
Myanmar	opt.	11.920			
Nepal		24.780			
Oman	opt.	1.193			
Pakistan ¹⁴⁾	opt.	unkn.			
Qatar	opt.	379			
Singapore	forb.	500			
Sri Lanka	opt.	512.828			
Thailand ³⁾		4.000.000			
United Arab Emirates	comp.	1.350			
Uzbekistan ²⁾		534.528			
Asia total		6.696.417	29		

EUROPE	Status	Number of dogs immunized	Coverage (in %)	Remarks	Oral immunization: target animal
Albania	opt.	400	unkn.	Compulsory in the South of Sillon, Sambre et Meuse and in camping areas. For hunting dogs/recommended for all dogs. ⁴³⁾ Rabies vaccination is forbidden except for imported dogs and cats in quarantine and exports to certain countries. Except for dogs being exported. Compulsory only in border areas. Only for export on request. Svalbard Islands only/Animals to be exported or reimported. ⁴⁴⁾	foxes foxes raccoon dogs, foxes foxes foxes foxes foxes foxes foxes foxes foxes foxes foxes foxes foxes
Austria	opt.	113.696			
Belgium	comp./opt.	495.000	33		
Finland	comp./opt.		45		
France	comp./opt.	4.500.000	46		
Germany	opt.		70		
Gibraltar ¹⁸⁾	comp.	1.800	99		
Greece ¹⁹⁾	opt.	100.000	60		
Hungary	comp.	1.610.644	98		
Ireland	comp./forb.		<0,1		
Isle of Man	forb.	12	0		
Israel	comp.	124.226	60		
Italy	comp./opt.	48.710			
Jersey,Channel Islands ⁸⁾	forb.	0			
Kazakstan	comp.	149.240	62		
Latvia	comp.	104.100	70		
Lithuania	comp.	158.200	80		
Luxembourg	comp.	20.000	80		
Malta	opt.	0			
Moldova, Rep. of	comp.	340.029	85		
Norway ²⁰⁾	comp./opt.	2.000	1		

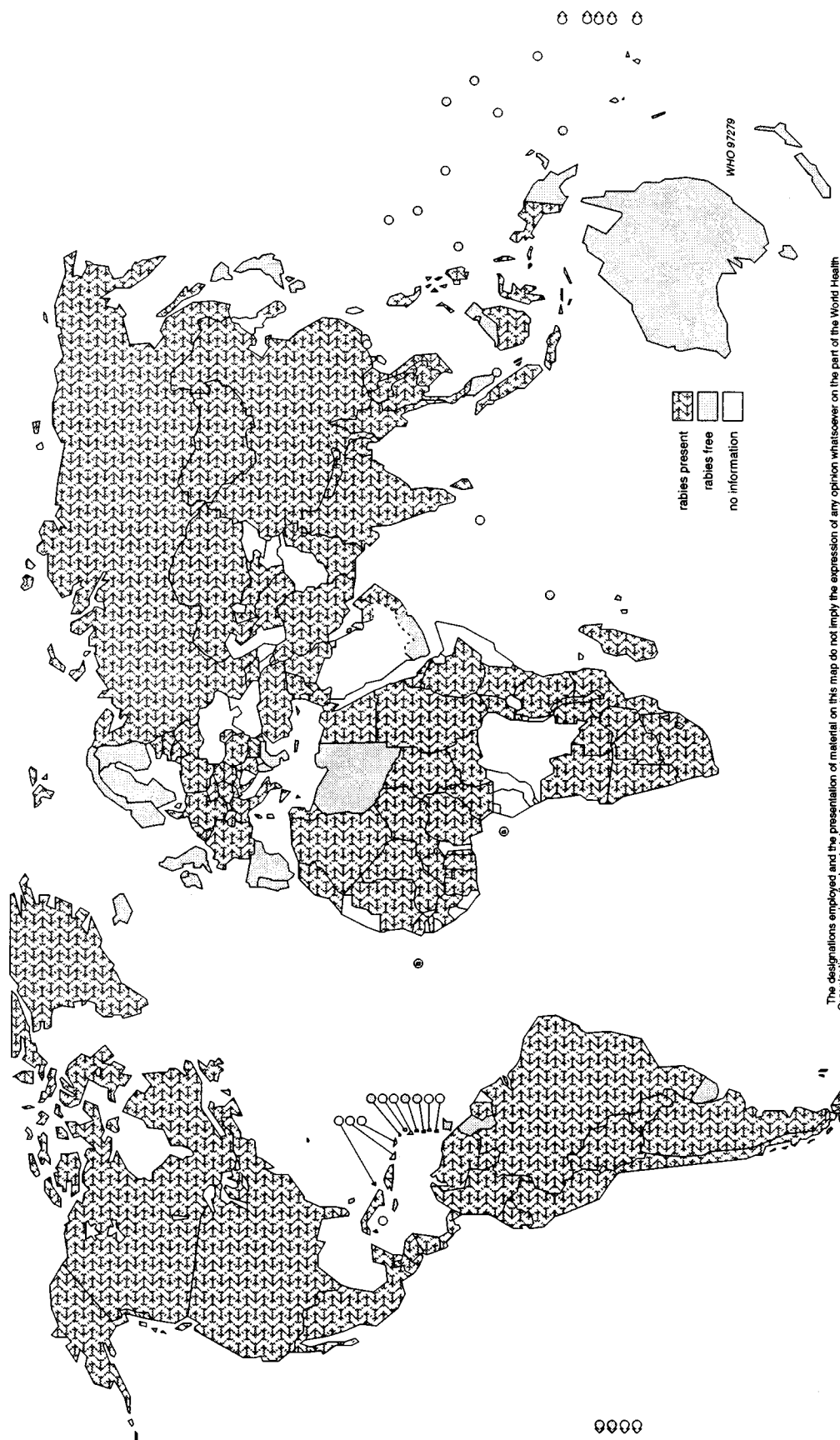
Annex 5/3: Vaccine application to dogs and other animal species

EUROPE	Status	Number of dogs immunized	Coverage (in %)	Remarks	Oral immunization: target animal
Poland	comp./opt.	2.617.118	50		foxes
Portugal	comp.	547.489	75		
Slovakia	comp.	312.298	70		foxes
Spain	comp./opt.	1.289.506	70		
Sweden	forb.			Except animals going for export.	
United Kingdom	forb.	unkn.		Except animals going for export.	
Yugoslavia	comp.	507.194	50		
Europe total		13.041.662	60		

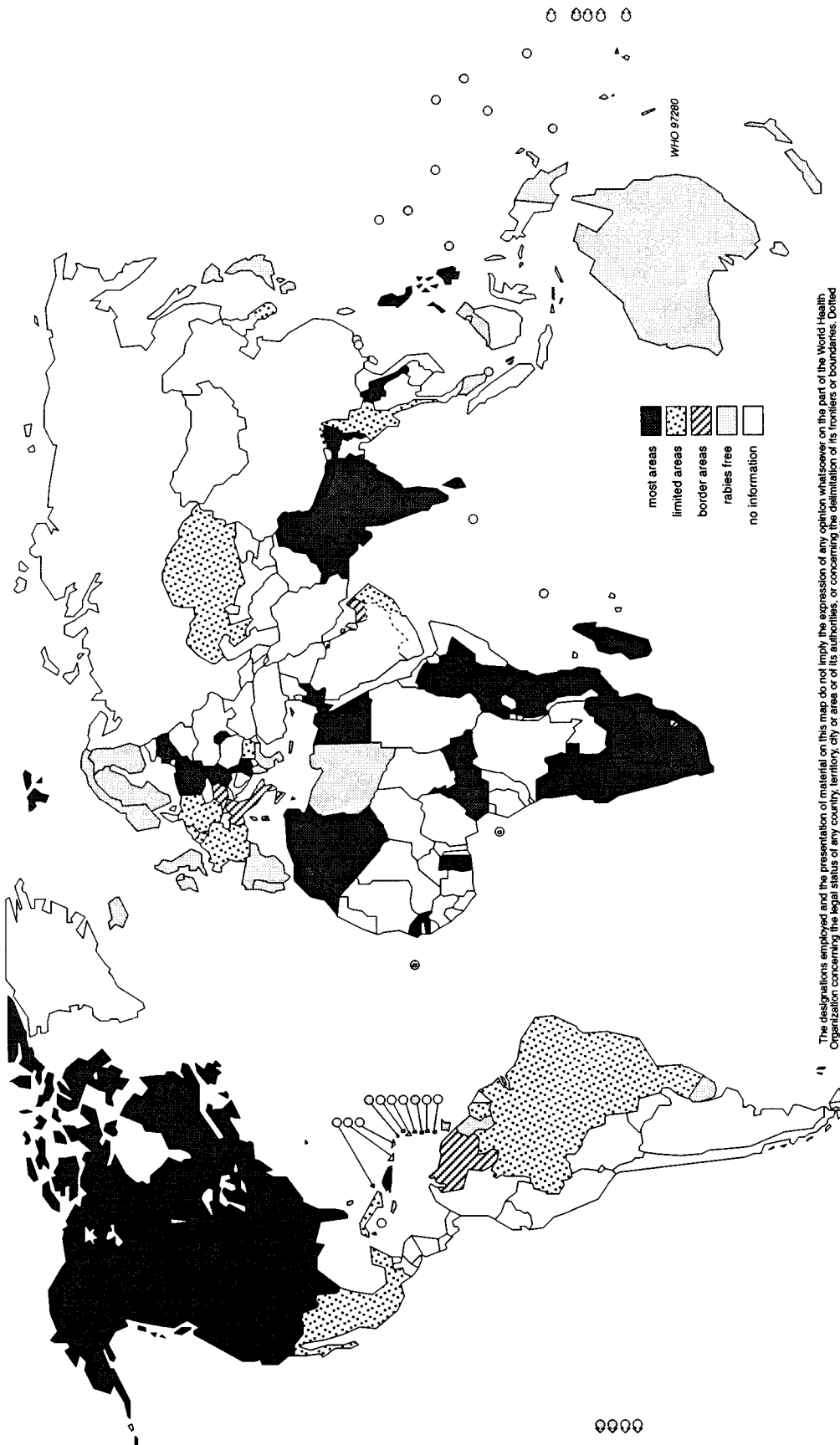
OCEANIA	Status	Number of dogs immunized	Coverage (in %)	Remarks	Oral Immunization: target animal
Cook Islands	opt.	4	1		
French Polynesia	opt.	unkn.			
New Caledonia	comp./opt.	200	0	42)	
Oceania total		204	0.50		

World total		34.372.366	41		
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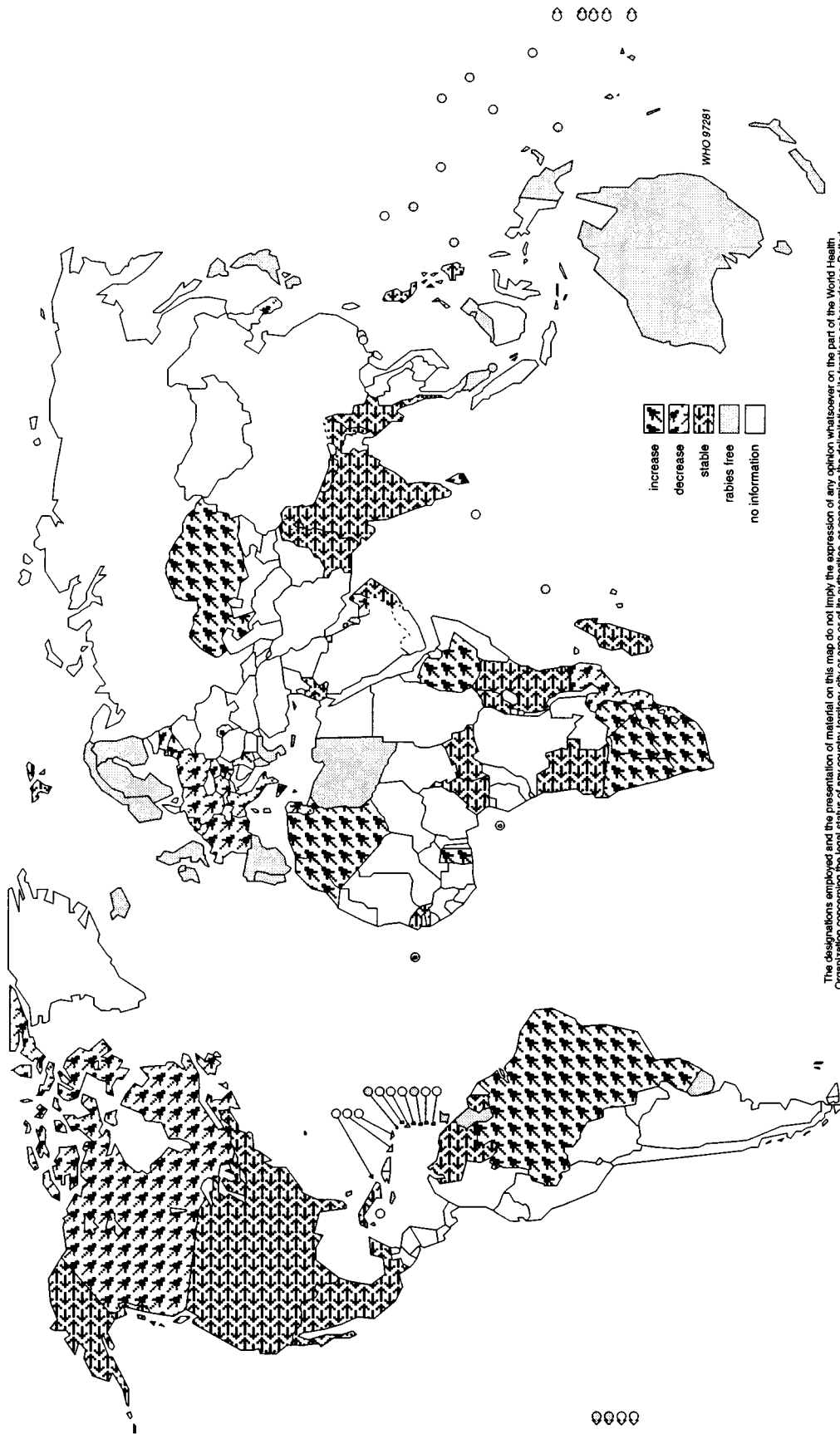
Annex 6: Presence and absence of rabies by country and territory (map)



Annex 7: Geographical distribution of rabies (map)

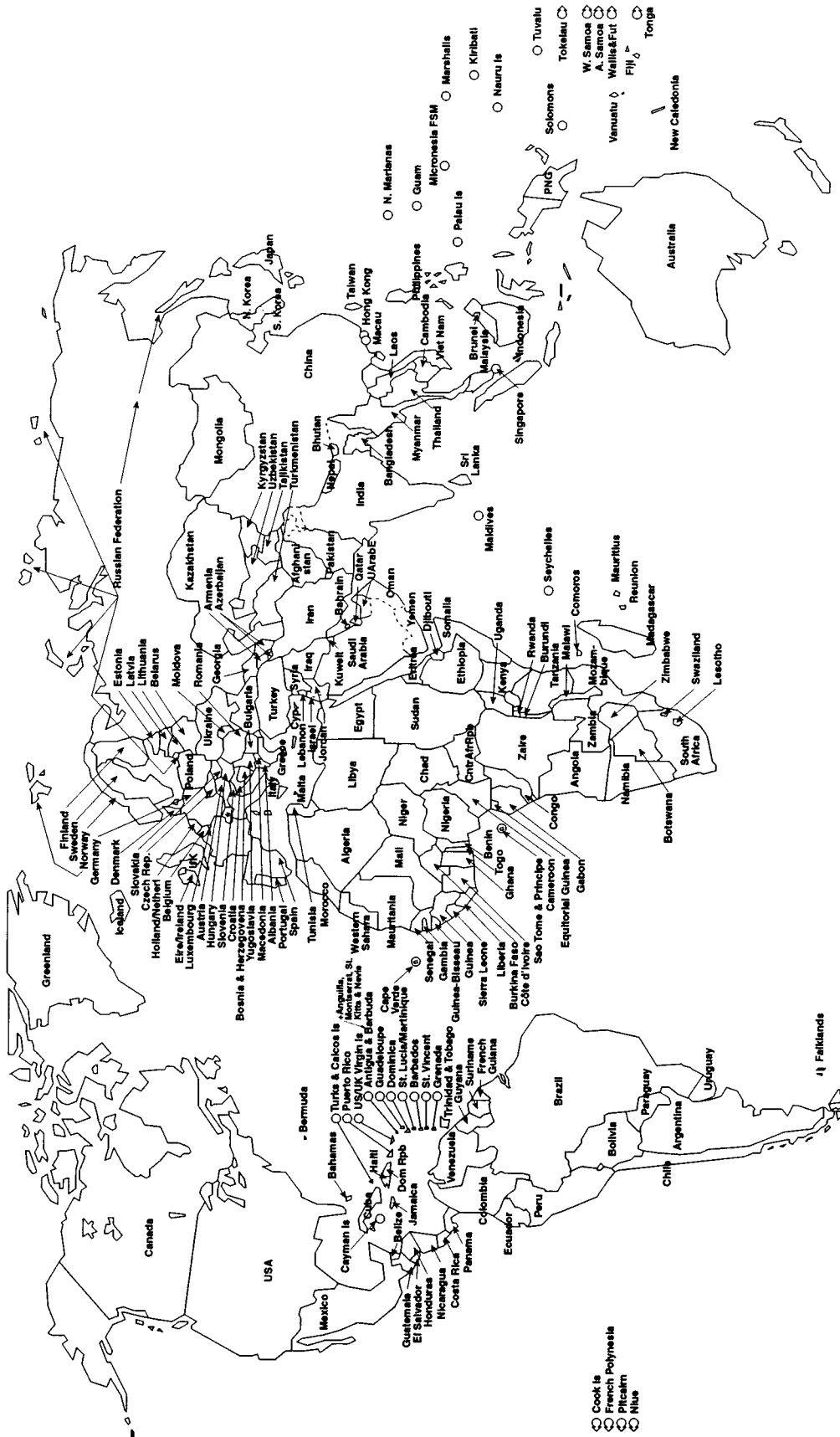


Annex 8: Rabies trends by country and territory (map)



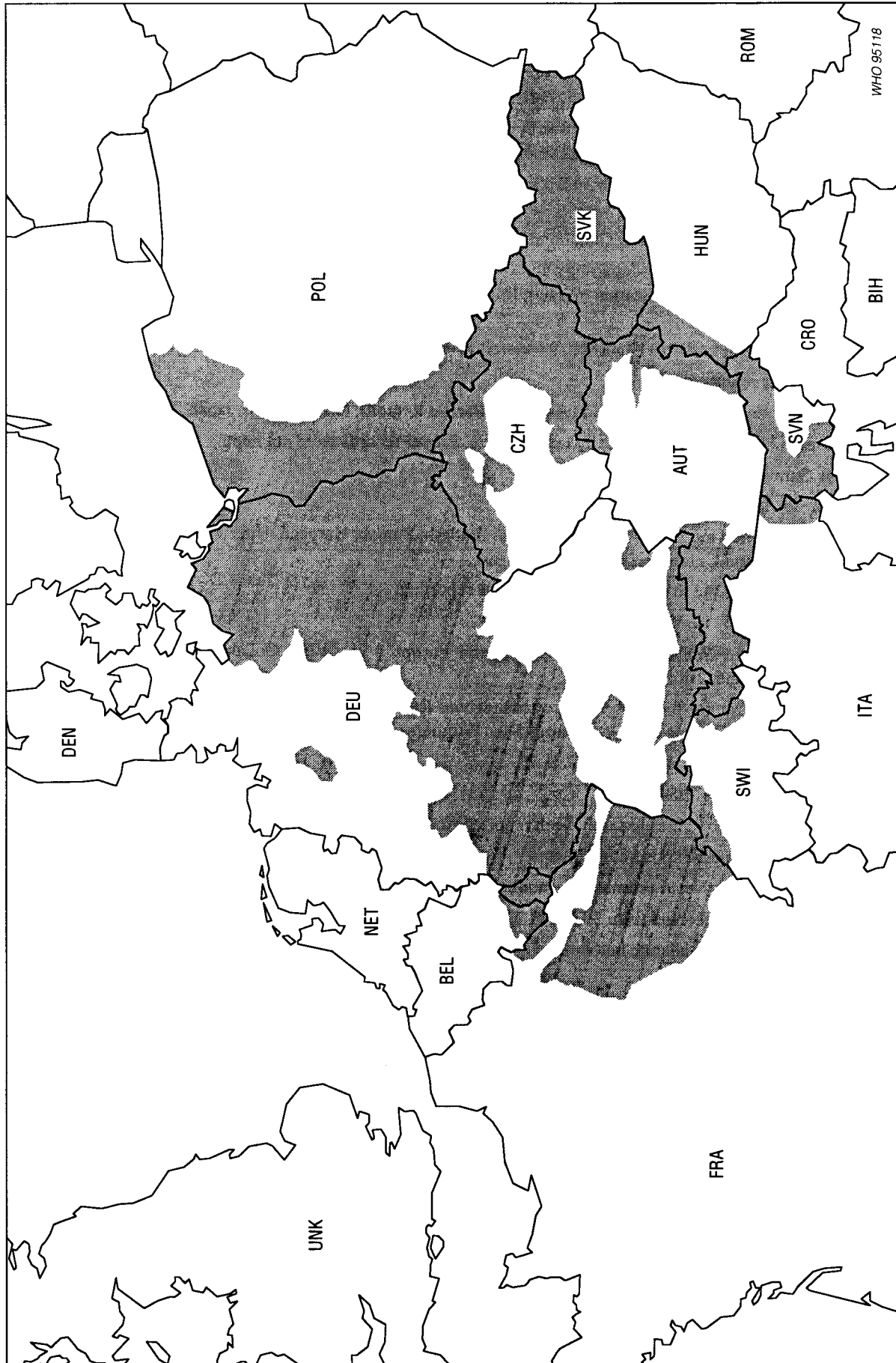
The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory or sea area in relation to its frontiers or boundaries. Dotted lines represent approximate border lines for which there may not yet be full agreement.

Annex 9: World map (country reference map)



The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory or its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines represent approximate border lines for which there may not yet be full agreement.

Annex 10: Oral immunization against rabies in Europe (map)



Annex 11: References and comments*

- 1) Animal Health Yearbook, FAO-OIE-WHO, 1995, Nr. 34, Food and Agriculture Organization of the United Nation (FAO), Rome, 1996.
- 2) Santé Animale Mondiale en 1995, Tome 2, Tableaux sur la situation zoo-sanitaire et les méthodes de prophylaxie des maladies animales, O.I.E, Paris, 1996.
- 3) Third International Symposium on Rabies Control in Asia; organized by the Fondation Marcel Mérieux with the cosponsorship of the World Health Organization, Wuhan, China, 11-15 September 1996.
- 4) Epidemiological Surveillance of Rabies in the Americas, 1995, Vol. 27, INPPAZ, Buenos Aires, Argentina, No. 1-12, 1996.
- 5) Rabies Bulletin Europe 4/95, WHO Collaborating Centre for Rabies Surveillance in Europe, Tübingen, 1996.
- 6) International Meeting on the Epidemiology and Control of Rabies, Southern and Eastern Africa Rabies Group (SEARG)/ World Health Organization (WHO), International Livestock Research Institute (ILRI), Nairobi, Kenya, 4 - 6 March 1997.
- 7) EMRO-Memorandum to WHO/HQ/EMC, 28 March 1996.
- 8) Rabies was never reported.
- 9) Regional Epidemiology Yearbook 1995 (Asian and Pacific Region), O.I.E, Tokyo, Japan, 1996.
- 10) Information on human cases is generally not available. Proper records were not kept.
- 11) Data from Sarawak and Saba only.
- 12) Questionnaires came from Peninsular Malaysia.
- 13) Covers only the following Indian States: Himachal Pradesh, Punjab, Haryana, Utter Pradesh, Rajasthan, Delhi, Jammu&Kashmir and Union Territory of Chandigarh.
- 14) Only incomplete data due to shortcomings in disease reporting.
- 15) Rabies is reported only from the demilitarized zone.
- 16) Questionnaire for the WSR 95 and Rabies Bulletin Europe 4/95, WHO Collaborating Centre for Rabies Surveillance in Europe, Tübingen 1996.
- 17) Rabies Control Programme for Georgia; Recommendations for National rabies control ; Tbilisi rabies control pilot project; Republic of Georgia and Vétérinaires Sans Frontières Switzerland, November 1996.
- 18) Rabies free since 1971.
- 19) No rabies reported since 1984.
- 20) Mainland is rabies free. Rabies has only been reported from Svalbard islands. Last diagnosis 1992.
- 21) Includes all types of post-exposure treatments.
- 22) The Ministry of Health Nepal estimates the annual death toll from rabies to exceed by far 100.
- 23) Based on information received from 59 out of 77 reporting provinces.
- 24) Bat transmitted rabies is endemic in a limited area ~ 100 km to the South of Paramaribo in district of Brokopondo.
- 25) Bovines only.
- 26) Imported american Grey Fox.
- 27) Treatment scheme unknown.
- 28) Human vaccination is forbidden.
- 29) Exposure outside the country.
- 30) Data from 10 regions only (out of 21 regions).
- 31) 964 doses used for pre-and post-exposure treatment.
- 32) 20 doses of 2 ml and 37 doses of 10 ml immunoglobulin used for post-exposure treatment. All persons outside the mainland of Norway.
- 33) All persons receiving treatment were exposed in foreign countries.

* Source of comments: questionnaires for the WSR 1995

- 34) Only for dog export.
- 35) NTO and TCO production.
- 36) Domestic distribution (not production!) of Rabies Vaccine Adsorbed (RVA).
- 37) Only for persons exposed in foreign countries.
- 38) We estimate the vaccination coverage in the dog population by multiplying the number vaccinated by 3 (since each dog has to be vaccinated once every 3 years) and dividing by the dog population ($\times 100$). Therefore it is possible to get a figure over 100%.
- 39) The small number of samples examined does not allow a correct assessment of the rabies situation in the Central African Republic.
- 40) Estimated annual average. Report of the 3rd International Symposium on Rabies in Asia; organized by the Fondation Marcel Mérieux with the cosponsorship of the World Health Organization, Wuhan, China, 11-15 September 1996; Division of Emerging and other Communicable Diseases Surveillance and Control; WHO/EMC/ZOO/96.8.
- 41) Human cases are sent for examination to the Institute of Medical Research in Kuala Lumpur, Malaysia.
- 42) Compulsory for imported dogs and cats under quarantine coming from rabies infected countries. Optional for all animals being exported in rabies infected countries.
- 43) Compulsory in rabies infected departments, on camping areas, exhibitions and other rallies and meetings and for dogs in bordering areas to infected countries.
- 44) For dogs and cats imported from EU/EFTA countries one may choose between rabies vaccination and antibody testing or quarantine.
- 45) Number of persons to whom vaccines have been ordered.
- 46) No cases reported on Peninsular, Malaysia in 1995. Rabies was never reported in Sarawak. Sabah has been rabies free since 1881.