

Distribution of Animal Rabies in Zambia and Its Potential Danger to the Human Population

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SUMMARY

The incidence and distribution of animal rabies in Zambia during the period 1914–1975 has been outlined.

At present rabies is present in all provinces of Zambia and most prevalent in the Central, Southern, Copperbelt and Eastern Provinces.

The dog is the main carrier of the infection and is responsible for 82.7% of all positive cases.

Rabies is widespread all over the world except Australia, New Zealand and a few isolated islands and constitutes a danger both to animals and man.

It is believed that rabies in Southern and Central Africa had been existing in these territories a long time before the advent of Europeans and several reports of early travellers and hunters indicate the presence of this disease in 18th and 19th century. Edmonds (1922) considered that there was little doubt that the disease was introduced into Southern Rhodesia from some place north of the Zambesi river, as at that time there was a considerable amount of traffic between Southern and North Western Rhodesia and that travellers had reported that the disease was widespread in the latter territory. It was also reported that Lewanika, Chief of the Barotse, had, before his departure for England to attend the coronation of King Edward VII, given instructions for the destruction of all the dogs belonging to his people because of the presence of rabies in his country.

It is difficult to trace the early history of rabies in Zambia but the study of departmental records (Zambia 1914–1972) revealed that in 1914 the disease was constantly making its appearance in the farming districts. Before the end of the second decade the disease was recognised around the farming centres and in the townships of Livingstone, Kafue, Lusaka, Kabwe and Chipata. The disease was of a sporadic nature and was confined chiefly to native owned dogs.

During the period 1921 to 1930 the situation remained mostly unchanged, the outbreaks being reported from districts in the Southern Province

along the railway line and also from Luangwa. The dog was the main carrier of rabies and it was assumed that the reservoir of the disease was amongst the packs of wild dogs, jackals and hyenas and that outbreaks which had, at times, occurred in the settled areas had been the result of local dogs infected from wild carnivores coming or being brought in from less settled areas.

In the first half of the thirties there was a noticeable increase of rabies outbreaks and the disease had spread all over the country and the foci of infection had been distributed from Kalabo in the west to Chipata in the east and from Livingstone in the south to Mufulira in the north. In the areas adjoining the railway line the main focus of infection moved gradually northwards from Mazabuka to Kabwe. The incidence of the disease among dogs was on an increase and in addition to dog the infection has been proved in cats, jackals, monkeys, cattle and pigs.

From 1937 on the number of outbreaks decreased and a low incidence of rabies had continued during the war years up to 1947 when the disease occurred to a greater extent, namely in the Southern and Central Provinces. In the following year the disease reached the Copperbelt townships which had been free from it for many previous years. In 1949 a vaccine was prepared at the Central Research Station, Mazabuka and was used to control the disease on the Copperbelt.

In 1952 supplies of avianised (Flury) vaccine were obtained from abroad and brought into use. The following year the policy of compulsory vaccination of dogs came into effect in the large urban centres of the Copperbelt and in Kabwe, Lusaka and Chipata.

In the middle of the fifties rabies was common in the Southern and Eastern Provinces and in 1956 there was a steep increase of rabies on the Copperbelt. Next year outbreaks were recorded in the Mbala and Isoka districts, which for many years had been free. In 1958 the incidence was not significantly different from the previous year's figure but the distribution was radically altered. On the Copperbelt, as a result of intensive measures, the incidence was lower satis-

factorily. Next year it was paralleled by Lusaka and a decreased incidence was reported from the rural areas of Choma and Mazabuka which had been the black spots during the previous year.

At the end of the decade vaccination of dogs had spread from the townships to peri-urban and rural areas and good co-operation from the public was experienced. Due to this the incidence of rabies decreased remarkably with an exception of the Eastern Province where the position deteriorated.

In the early sixties the wave of infection which came from Malawi and continued for several years in the Eastern Province before the determined vaccination and dog destruction brought the situation under control.

In the first half of 1962 the anti-rabies control broke down in Lusaka resulting in the worst outbreak since 1956. Due to stringent measures the outbreak was completely suppressed in the same year.

In the first half of the sixties, with the exception of the Eastern Province where an epizootological wave had been continuing, sporadic cases continued to occur but the degree of the vaccination cover achieved was such that an "outbreak" generally consisted of one or possibly two cases and there was no explosive build up of infection.

In 1966 there was a marked increase of incidence of rabies, major increases being recorded in the Western, Central and Southern Provinces. The Copperbelt experienced its first outbreak after being completely free from rabies for the previous four years. Next year there was a very marked increase of the disease in the Central and Southern Provinces and the growing wave of infection attained its maximum during the first half of 1968 and thereafter showed a marked decline.

TABLE I
Provincial distribution of Rabies cases during the period 1970 – 1975.

Province	1970	1971	1972	1973	1974	1975	Total
Central	12	30	49	45	65	83	284
Southern	39	79	27	19	39	38	241
Copperbelt	6	25	23	18	28	21	121
Eastern	13	31	13	8	10	33	108
Northern	6	15	6	8	10	13	58
Luapula	1	20	9	4	14	18	66
N. Western	2	3	2	2	1	3	13
Western	1	12	5	1	1	2	22
Total	80	215	134	105	168	211	913

TABLE II
Species distribution of rabies cases during the period 1970–1975.

Species	No. of positive	Percentage
Dogs	755	82.7
Cattle	82	9.0
Cats	19	2.1
Horses	3	1.4
Goats	5	
Sheep	4	
Pigs	1	
Jackals	12	1.3
Honey badger	1	0.7
Vervet monkey	1	
Mongoose	1	
Ant bear	2	
Bush Baby	1	
*Humans	26	2.8
Total	913	100.00

*Cases confirmed at the Central Veterinary Laboratory.

Although there was a decline in the incidence of rabies at the end of the sixties, the disease had been established in all provinces, the main problem mostly related to the urban and peri-urban areas. The major problem lies in the peri-urban areas harbouring thousands of dogs most of which are apparently ownerless, uncared for, unlicensed and unvaccinated. Rabid dogs pose a very serious threat to the large human population in these areas and also the population in the adjacent urban areas.

In the seventies the disease follows up the epizootological pattern as known from the previous decade. Rabies is now present in all provinces of Zambia and the most prevalent is in the Central and Southern, followed by the Copperbelt and Eastern Provinces. The infection is showing a steady increase in the Central Province, most of the cases occurring in and around Lusaka and a rising trend is also being recorded in the Luapula Province.

Although the large proportion of outbreaks is reported from urban centres along the railway line, rabies outbreaks which occur in the rural areas are equally important. It is believed that a good number of human casualties, sometimes not officially recorded, comes from these areas.

Geographical distribution of rabies in Zambia on provincial bases and species distribution of infec-

tion from 1970 to 1975 as recorded at the Central Research Station, Mazabuka (Hayles, 1976) is shown in Table 1 and 2.

As can be seen from Table 2, the dog is involved in 82.7% of all positive cases and is primarily responsible for the dissemination and maintenance of the disease. The role played by the Viverridae (meercat, etc.) in the propagation of rabies as known in South Africa (Henning, 1957; Mare, 1962) is not applicable to the epizootological pattern of rabies in Zambia.

The position as regards wildlife is far from clear, although the jackal is more frequently encountered. Shoene (1962) shows that in Rhodesia by far the greatest number of cases in wild animals occurred amongst jackals but the two epizootics in that country were successfully eradicated by aiming the control measures at the disease in dogs and virtually no action being taken to control the number of wild animals.

Rabies in Zambia can be regarded as being essentially "dog rabies" and it is believed that the game acts as a reservoir of the infection. The rabies control measures should be aimed at the dog, namely in the peri-urban areas where a vast dog population roams loose in order to forage for food and constitutes an immediate danger of transmission of the infection to the human population.

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