

MEASLES EPIDEMIC NEAR SALO, CENTRAL AFRICAN REPUBLIC

B. Durand¹

Introduction

A measles epidemic with an unusual age distribution, unlike that which has occurred in other African countries, occurred in October 1967 in a group of seven small villages (the "groupement Kouapouli") in the extreme southwest tip of the Central African Republic near the borders of Cameroon and the Republic of Congo.

The village of Salo (population 1,000) located on the Sangha River is 10 kilometres from the closest of the Kouapouli villages and a coffee plantation is located equally distant between the two. The Kouapouli villagers generally have little contact with the Salo inhabitants or with the nearby Sangha River traffic. Many of the villagers sell food to workers on the coffee plantation, where they sometimes take temporary jobs during the harvest season. On occasion, they trade with some Pygmy villagers from the nearby forest. Otherwise, they maintain a traditional livelihood through food gathering and hunting.

The Epidemic

Information that a major measles epidemic was in progress in Kouapouli was first received by the C.A.R. Service des Grandes Endemies on October 17, 1967. On October 18, an investigation in Salo revealed many sick children. The next day in Adibori, 50 children from the Kouapouli area were diagnosed as having measles. It was learned that the first measles case in the area occurred in late August in the village of M'Boli. During September, the number of measles cases increased slowly throughout the seven villages before reaching epidemic proportions in October.

Vaccinations and Epidemic Control Activities

Plans for organizing a special measles vaccination programme for the sous prefecture of Nola were initiated immediately. Epidemic control vaccinations began on October 24. By October 29, a total of 2,248 vaccinations had been given throughout the Nola sous prefecture. In Salo, the target population included all possible susceptibles between the ages of six months and ten years. Of the 442 children from the Kouapouli area 307 of them had already contracted measles. Of the 135 remaining susceptibles, 105 were vaccinated.

Epidemiological Investigation

On November 11, a house-by-house investigation was made of 150 families with children in the Kouapouli area. Practically all children up to age 15 years were seen. Age was determined by birth certificates and other information provided by the villagers and by an African nurse. One measles case, a 25-year old female, is excluded from all tables.

A total of 510 children were seen (table 1). Among these, 318 children (62.4%) had contracted measles including two children from the Pygmy village (population 32) who became infected after measles appeared among the Kouapouli children. Of the 318 measles cases, 58 (18.2%) occurred in children between 7 and 15 years of age. Of 20 children under six months of age, two children were infected. Similar attack rates were observed for males and females.

A total of 21 deaths occurred among the infected children; all were younger than six years of age. Among those less than 6 months of age, two children were infected, one of whom died. The overall case fatality ratio was 6.6%.

¹Directeur de Service des Grandes Endemies, Central African Republic

Table 2 presents measles case rates for the seven villages. All rates are high although there is wide variation from village to village. These rates vary from 44 cases per 100 children in M'Boli, to 93 cases per 100 children in Mekanda. By sex they vary from 51 cases per 100 males in M'Boli to 100 per 100 males in Mekanda.

Among the 150 families investigated, 81 had two children or more who contracted measles during the epidemic. In 56 of these families (69%) the oldest child was first to be infected.

Discussion

The source of infection for the Kouapouli epidemic was probably the families of the coffee plantation workers, who constitute the most frequent "outside" contact for the villagers. These workers come from as far away as the Chad border. They work for a few weeks or months before returning home or leaving for diamond prospecting in regions to the north. They are constantly replaced by other workers and their families. Plantation workers have been recruited steadily into the area over the past 40 years and provide a continuing potential source for the importation of measles.

In view of this constant possibility for exposure to measles, it is surprising that measles in Kouapouli had not occurred with greater frequency and consequent lesser intensity. The coffee plantation manager had observed no such outbreaks for the ten years he had been in the area and a missionary who had been working in the Nola sous prefecture for several years had witnessed no such outbreaks.

Conclusion

In Kouapouli, the reservoir of susceptibles that had built up over the years was unusually large. The fact that attack rates of over 80% were observed in children up to six years of age showed that measles had been absent or virtually absent from the area at least 6 years. In West Africa as a whole, measles epidemics are characteristically spaced no more than three years apart, and the cases are concentrated in the younger age groups, because most of the older children are immune as a result of infection.

Three-fourths of the measles deaths occurred in children under the age of three years. The highest case fatality ratios were reported in children aged two years or younger. This is consistent with findings throughout the other West African countries.

Table 1. Kouapouli Measles Epidemic

<u>Age</u>	<u>Number of children seen</u>	<u>Number of Measles cases</u>	<u>Percent of cases by age</u>	<u>Cum. %</u>	<u>Attack rates %</u>
6 months	20	2	0.6	0.6	10.0
6 months-1 year	14	9	2.8	3.5	64.3
1 year	32	28	9.8	12.3	87.5
2 years	57	51	16.0	28.3	89.5
3 years	53	45	14.2	42.5	84.9
4 years	62	53	16.7	59.1	85.6
5 years	43	56	11.3	70.4	80.0
6 years	44	36	11.3	81.8	81.8
7 years	40	22	8.9	88.7	55.0
8 years	28	6	1.9	90.6	26.1
9 years	27	12	3.8	94.4	44.4
10 years	25	7	2.2	96.5	28.0
11-15 years	<u>68</u>	<u>11</u>	<u>3.5</u>	<u>100.0</u>	<u>16.2</u>
<u>Total</u>	<u>510</u>	<u>318</u>			<u>62.4</u>

Table 2. Measles Attack rates by Village

<u>Village</u>	<u>Children Seen*</u>			<u>Measles Cases</u>			<u>Attack Rate (%)</u>
	<u>M</u>	<u>F</u>	<u>T</u>	<u>M</u>	<u>F</u>	<u>T</u>	
Adebori	63	55	120	44	31	35	62.5
Pygmy village	3	3	6	2	0	2	33.3
Bandoka	56	66	122	31	37	68	55.7
Satouba	19	17	36	13	12	25	69.6
Lobi	31	30	61	18	19	37	60.7
M'Boli	33	28	61	17	10	27	44.3
Mekanda	19	22	41	19	19	38	92.7
Motao	29	34	63	19	27	46	73.0
<u>Total</u>	<u>255</u>	<u>255</u>	<u>510</u>	<u>163</u>	<u>155</u>	<u>318</u>	<u>62.4</u>

*Virtually all children from 0-15 years were seen.