

Leprosy in the Cape Verde Islands

A LORETTI* & D GARBELLINI†

**Departamento de Controle de Lepra, Ministério da Saúde e dos Assuntos Sociais, Cabo Verde; †Secção de Hanseniase, Comissariado de Estado da Saúde e dos Assuntos Sociais, Guiné Bissau*

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Summary After a general profile of the country, information is given concerning the history of leprosy in the Cape Verde Islands, with data related to the control activities of the years 1950–77. Finally the authors present the data collected during the first 2 years of activities under the new National Leprosy Control Project.

General information

The Cape Verde Islands are located in the Atlantic Ocean, 445 km off the coast of Senegal. Ten islands and 5 islets, between 17°12'5 & 14°18' N. and 22°44' & 25°22' W., they are divided into 2 groups: Barlavento, North, 6 islands, and Sotavento, South, 4 islands. Total area is 4.033 km².

Three of the islands, closer to the African continent, are sandy and flat. The others, of volcanic origin, are characterized by very high cliffs and ridges and deep, narrow valleys. The highest peak of the archipelago is that of the volcano of Fogo (active, last eruption 1952), reaching 2.829 m above the sea.

Climate is hot and dry. Temperature oscillates between 17°C and 34°C. Average rainfall is 300 mm/year, concentrated in 1–13 days, between August and October.

Drought is a permanent problem in the islands; still, albeit poor, rainfall contributes heavily to soil erosion.

Total population, according to June 1980 National Census,¹ is 296,093. The majority of the population is of mulatto stock, of mixed West African and European (Portuguese) descent.

The population lives in 2 major towns (about 40,000 inhabitants each), in several smaller centres and in isolated homesteads. Nine of the islands

are inhabited; population density varies, from 5.47 hab/km² (Boa Vista) to 184.10 (S. Vicente).

Eighty per cent of the people live by agriculture. This fact, coupled with the climatic conditions, easily explains the strong and persistent trend to emigrate.

There are strong Capoverdean communities abroad: in the USA 200,000; Portugal, 40,000; Angola, 35,000; Senegal, 25,000; S. Tomé & Príncipe, 8,000; Italy, 8,000; France, 7,000; Holland, 7,000; Brasil, 3,000; Luxemburg, 3,500; Argentina, 2,000. There are other communities in Sweden, Norway, Switzerland, Mozambique, Gabon and Ivory Coast. From 1900 to 1973 the total number of official emigrants was 267,363.² One of the many results of this phenomenon is an M/F ratio of 0.86.

There is no great difference in housing and living conditions from island to island. The majority of the families (average 6 members), live in stonebuilt houses, 1–2 rooms, 15–30 m². Hygiene standards are naturally low, due to lack of water, while nutrition is a top priority problem in the country.

Discovered by the Portuguese in 1460, the Cape Verde Islands were populated by European settlers but, mostly, by West African slaves. The islands remained for some time a breeding station on the slave trade route.

The population has been periodically ravaged by epidemics and famines: in 1773, 50% of the population died of starvation; in 1831, 20%; in 1863, 40%; in 1900–4, 25%; in 1922, 20%; in 1942, 13%; in 1947–9, 16%, in 1952, 10%; in 1959, 5%.²

A Portuguese colony for 500 years, Cape Verde obtained independence on 5 July 1975.

Leprosy in Cape Verde

Leprosy seems to have arrived in the Cape Verde Islands with the first inhabitants.³ The first official reference to the disease appears in a letter by the King of Portugal, appointing 'Francisco de Araujo, accountant. . . caretaker of orphans, hospitals, chapels, monasteries and leprosaria ('gafarias' in the text) of the Islands of Cabo Verde' on 31 January 1531.⁴ Fifty years later, in 1587, another similar appointment was issued. There are eighteenth-century references, and still possible ruins, of a leprosarium then standing on an islet in the Harbour of Praia.

In 1913 a special law established a leprosarium in the island of S. Antão, and ordered a census of the leprosy patients living in the islands.⁵ Famines, in 1941–9, seemingly claimed many victims among the leprosy patients.

Promin was introduced into Cape Verde in 1950; prior to that date treatment was based on hydnocarpus oil. Free, government supplied treatment (DDS, by fortnightly injections) was established in 1952.

In 1954 Teixeira de Sousa published data collected the previous year in Fogo: 131 patients (prevalence 7.27‰): of these, 49 L, 5 T, 77 I ('Indiferenciada ou Indeterminada'). Fourteen cases were less than 12 years old, 21 between 13 and 20 years, 96 were older. Male/female ratio was 59/72.⁶

In 1957 the local health services⁷ announced 356 registered patients in the islands: 8 in S. Vicente, 176 in Fogo, 163 in S. Antão, 2 in Brava. In 1959 two new leprosaria were opened, in S. Antão and in Fogo. In that same year the WHO Bureau in Brazzaville had a figure of 13 leprosy cases in Cape Verde.⁸

In 1961 Pinto examined, mostly by mass survey, a fair share of the whole population (25% in Fogo, 10% in Santiago, 23% in S. Nicolau, 38% in Sal, 46% in Maio, 1,502 people in Brava, 5,823 in S. Antão; in S. Vicente only contact survey) 247 patients were observed (92 in Fogo, 14 in Brava, 80 in S. Antão, 30 in S. Vicente, 21 in Santiago); among the findings, the high proportion of L form (35% in Fogo, 40% in S. Antão). Prevalences were estimated for Fogo, Brava and S. Antão: 18, 1.99 and 7.04‰ respectively. The report stressed the inexistence of treatment records, while suggesting measures for the control of the disease.⁹

The following year official dispositions for a 'Campaign of Eradication (of leprosy) in Cape Verde' were issued (1962). The total number of patients was then estimated at about 800–850. Rules were set for the definition of clinical inactivity and for the length of treatment. Chemoprophylaxis – DDS 5 mg/kg/Wk – was advised for the patients' household contacts, and standard doses were fixed for DDS treatment, with gradually increasing induction of therapy.⁵

In 1964 in S. Antão there were 160 patients treated 'irregularly',¹⁰ of these 27.5% L, 77.06% I, 3.66% T. In the same year the 2 leprosaria were closed, and the local health services reported 27 cases in Santiago, 8 in S. Vicente, 403 in Fogo, 13 in Brava and 340 in S. Antão.⁷

In 1965 the same source⁷ reported 27 patients in Santiago, 403 in Fogo, 20 in S. Vicente, 140 in S. Antão: total 590. Data concerning the same year, published in 1966 in *Int J Lepr* and quoted by Bechelli and Dominguez,¹¹ give a total of 625 cases.

The situation in 1968 was: 556 cases, distributed in Boa Vista (2), S. Nicolau (1), S. Vicente (42), Brava (20), Santiago (70), S. Antão (132), Fogo (289).⁷

In 1970 the local missionaries unofficially re-opened the leprosarium in Fogo. In 1971 Pina¹² reported 293 patients registered and treated in Fogo.

In 1972 and 1973, Leite and Sobral³ in two visits to the islands, observed 303 patients, suspending treatment ('Alta Provisoria') for 194 of them. They found the following proportions: L, 115 cases; I, 154 cases; T, 24 cases. 'Incidence', calculated out of 250,000 inhabitants – but the authors probably meant prevalence – was 1.21‰. In the same year Cambournac reports¹³ 626 leprosy cases in the Cape Verde Islands.

In 1975 WHO gave a figure of 303 cases.¹⁴

In 1977 the Ministry of Health and Social Affairs of the new Republic of Cape Verde, estimated 600 cases of leprosy, distributed among Fogo, Brava, S. Vicente and S. Antão.¹⁵

In the same year Silva Picoto¹⁶ examined 159 patients among those registered. Findings: 19% T, 49.3% L, 24.7% I, 3.2% D, 3.8% NC. Invalidation Rate 61.9%; patients regularly treated 66.9% (Lepromatous regularly treated 61.7%).

In February 1978, on a fact-finding visit prior to the start of the present National Leprosy Control Programme, 355 of the registered patients were examined, together with 1.090 contacts, among whom 27 new cases were found. Of the patients observed, L form accounts for 57.7%; 50% of the patients were found to be clinically active, Invalidation Rate was calculated around 60%.¹⁴

The new Leprosy Control Programme

The new Leprosy Control Programme is fully integrated within the National Health Services. It is oriented by a leprologist and staffed with 3 PMWs: 1 with laboratory practice and 2 charged with the running of the small specific centre in Fogo (32 beds).

Materials and methods

In order to assess the prevalence of leprosy in the islands and thus set conditions for control, case-finding activities were conducted during 1978 and 1979: contact survey, selected survey and, in a few areas, mass examination of the population. These activities were accompanied by health education and updating courses for health professionals. Few *vestigia* were found of the old local registers, and none of the central one. So a central and local register were established anew of all cases: these registers now keep records of cases detected between 1951 and 1979, and are periodically updated by medical examination. For the Central Register the OMSLEP recording system was adopted.¹⁸ The ages shown in the tables are those of the last examination.

Total number of cases. Coverage rates

The total number of registered cases on 31 December 1979 was 781. Of these, 547 had been detected and treated before 1978 (average age 47.94); 136 have been detected in 1978, and 98 in 1979 (average age of the new cases 29.39).

Of the 781 registered cases, 695 are under treatment.

Field activities developed in four campaigns, covering 7 of the 9 inhabited

islands. In the islands of Maio and S. Nicolau no case has been notified so far; the case registered in S. Nicolau in 1968 having left the island in 1970.

Between February 1978 and December 1979, 69.8% of the contacts of the registered patients have been examined at least once.

School surveys covered 22,395 students, that is 41.46% of the national school population (7–16 years); other selected survey – barracks, prisons etc. – included roughly 1,000 people; mass surveys covered about 2,800.

Altogether during these 2 years 29,151 people have been examined, once or more: 10.47% of the population of the 7 islands submitted to the control.

Types of leprosy

The distribution of cases according to types appears in Tables 1 and 2. Lepromatous form accounts for 36.1% of cases, I for 11.26%, T for 25.99% and Dimorphous for 25.48%. The proportion of L cases is much higher than found along the neighbouring African coast, and rather brings to mind European or Latin American figures. Lepromatous rate in the total population is 0.97‰.

The absence of active case finding prior to 1978 can explain the low proportion of indeterminate forms: of the 88 I cases, 75 have been detected during the last 2 years.

Table 1. Distribution of registered cases at 31 December 1979 according to type and sex

Type	Male	%	Female	%	Total	%
I	49	11.06	39	11.53	88	11.26
T	108	24.37	95	28.10	203	25.99
D	116	26.18	83	24.55	199	25.48
L	164	37.02	118	34.91	282	36.10
Not classified	6	1.35	3	0.88	9	1.15
Total	443	100%	338	100%	781	100%

Table 2. Distribution of registered cases at 31 December 1979 according to type and age

Type	0–14 years				15 years or more			
	Male	Female	Total	%	Male	Female	Total	%
I	23	21	44	50.00	26	18	44	50.00
T	12	11	23	11.33	96	84	180	88.66
D	1	4	5	2.51	115	79	194	97.48
L	4	2	6	2.12	160	116	276	97.87
Not classified	—	—	—	—	6	3	9	100.0
Total	40	38	78	9.98%	403	300	703	90.01%

Leprosy and sex

Looking at the total of the registered patients, leprosy seems to affect more males than females (443 M, 338 F); the ratio though is inverted among new cases (111 M *v.* 123 F).

Distribution of forms does not vary greatly with sex: there is a slight prevalence of T forms among females and of D and L forms among males.

Leprosy and age

90.01% of the registered cases belong to the over-14 group. There is though an even distribution, 1/1, of I form between the under 14 and the over 14 group.

The analysis of the new cases (Table 3) which have been divided into groups of age roughly according to different periods of social life, shows an important concentration of cases in the first group (0–14: 38.46% of the new cases), while the other groups hold respectively 25.64% (15–29), 15.81% (30–49), 20.08% (50 and beyond) of the total 234 new cases. In the 1st, 2nd and 3rd group the M/F ratio keeps approximately 1/1, while it shifts clearly in the 4th group (18 M *v.* 29 F).

Prevalence and geographical distribution (see Figure 1 and Table 4)

The general prevalence of leprosy in the Cape Verde Islands is 2.63‰. As seen elsewhere in analogous geographical situations,¹⁹ the distribution of the diseases varies greatly from one island to another: 2 islands appear to be untouched, while others present severe prevalence rates. Fogo, for instance, has a prevalence of 10.76‰. In the affected islands leprosy is not evenly distributed, and some areas can present very high rates: Relva, in Fogo, counts 42 patients among its 700 inhabitants; Tarrafal and Monte Trigo, in S. Antão, have a prevalence of 12.33‰.

Within a given area, leprosy presents a clear intrafamilial character. For 71.05% of the new cases it has been possible to recognize at least another patient, known or unknown, within the household.

Case finding activities

Contact survey have given 59.4% of the new cases detected in 1978–9: 64% of the first age group, 40% of the second, 14% of the third and 21% of the fourth.

Selected survey have given 7.6% of the new cases: 18 cases total, 17 in the first group and 1 in the second.

Notifications have given 13.67% of the new cases: 32 cases, 2 in the first group, 8 in the second, 9 in the third, and 13 in the fourth.

Table 3. New cases, 1978 and 1979. Distribution according to type, sex and age group

	0-14		15-29		30-49		50 or more		Total		Combined total
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
1978											
I	16	19	5	5	—	1	—	—	21	25	46
T	6	6	10	10	5	7	3	10	24	33	57
D	1	—	3	2	—	2	2	2	6	6	12
L	1	1	4	3	3	1	1	6	9	11	20
NC	—	—	—	—	—	—	1	—	1	—	1
Total	24	26	22	20	8	11	7	18	61	75	
Combined Total	50		42		19		25		136		
1979											
I	11	11	4	1	—	—	2	—	17	12	29
T	8	6	3	8	4	2	4	4	19	20	39
D	1	1	—	1	3	4	2	4	6	10	16
L	1	1	1	—	3	2	3	2	8	5	13
NC	—	—	—	—	—	—	—	1	—	1	1
Total	21	19	8	10	10	8	11	11	50	48	
Combined Total	40		18		18		22		98		

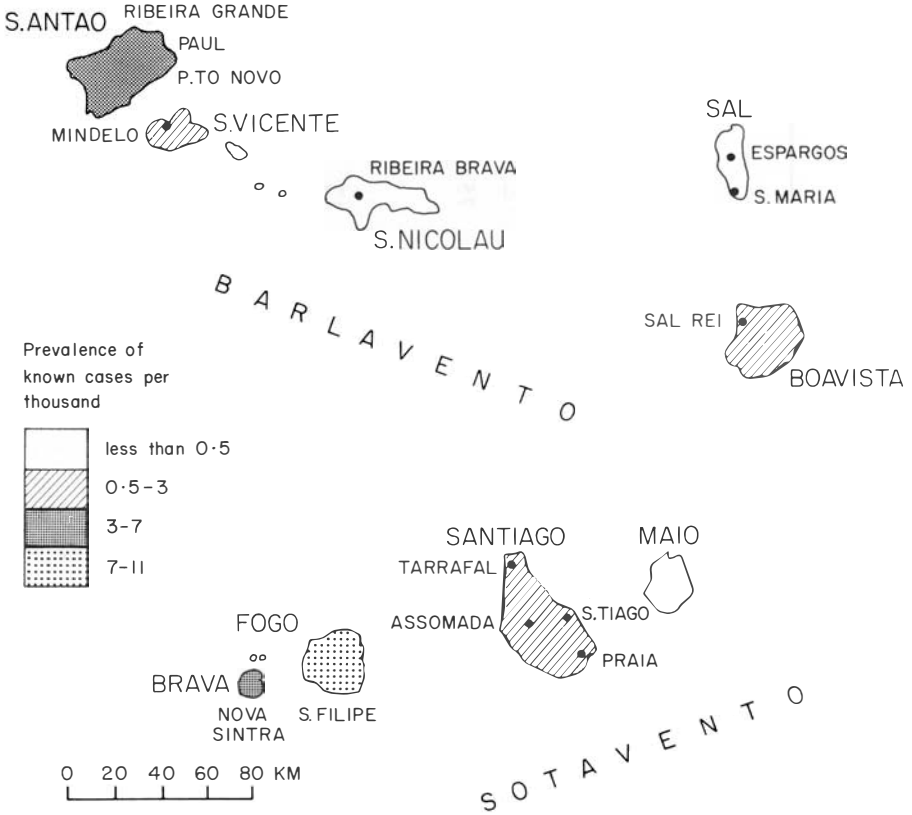


Figure 1. Distribution of leprosy in the Republic of Cape Verde.

Voluntary presentations account for 15.81% of the new cases: 37 cases, 6 in the first group, 9 in the second, 10 in the third, 12 in the fourth.

Mass survey have given 3.4% of the new cases: 1 case in the first group, 2 in the second, 4 in the third, 1 in the fourth.

Remarkably, notifications and volunteers together account for only 3 of the new indeterminate cases. In our opinion, with lack of staff and moderate prevalence rates, the only case-finding activity of objective value is confirmed to be the contact survey, integrated by health education and training and information of general health, to increase the voluntary presentation and the notification quotas.

Clinical status

Table 5 shows the distribution of patients by type, age and clinical status. For the definition of Active, Inactive under treatment, Inactive under observation,

Table 4. Geographical distribution. Registered leprosy cases on 31 December 1979

Island	Population (1980)	Registered cases					Total	Prevalence/1000
		I	T	D	L	NC		
Santiago	145,923	11	19	21	28	4	79	0.54
Fogo	31,115	39	110	76	107	3	335	10.76
Brava	6,984	2	5	11	16	—	34	4.86
Maio	4,103	—	—	—	—	—	—	—
(Sotavento	188,125	52	134	108	150	7	452	2.40)
S. Vicente	41,792	15	14	15	40	—	84	2.01
S. Antão	43,198	25	54	71	87	2	239	5.53
S. Nicolau	13,575	—	—	—	—	—	—	—
Sal	6,006	—	—	2	—	—	2	0.33
Boa Vista	3,397	—	1	—	3	—	4	1.17
(Barlavento	107,968	40	69	88	130	2	329	3.04)
Cape Verde	296,093	92	203	196	280	9	781	2.63

we referred to the standards expressed by the WHO Expert Committee on Leprosy in 1970. 'Unknown' means a patient, whose clinical conditions have not been assessed during the last 12 months.

The follow-up of the new cases 1978–9 shows that 13 indeterminate patients, 6 T, and 1 D got inactive. In the same period 13 I passed to T, 1 to D and 1 to L. Eight tuberculoid downgraded to D and 1 D upgraded to T. It needs to be stressed here that classification was done on clinical and only partially bacteriological basis.

Deformity rate (Table 6) is quite high compared to that currently found in literature. Understandably, in the order, D, L, and T forms appear to be affected differently. Out of 431 cases affected by deformities, only 1 is under 14. Deformity rate among the new cases is 20.94%.

Among possible causes of the phenomenon are distortion due to emigration, the geophysical character of the islands and general working conditions. It can be assumed that there are a number of patients not yet affected by deformities and at present undetected.

Treatment

At present 695 patients are under treatment (mostly monotherapy, DDS 50 or 100 mg/die). Treatment is distributed fortnightly by general health staff, at health posts or by mobile units (in Fogo only).

Supervised, combined treatment is available only for patients admitted to the specific center of Fogo.

Treatment attendance rates are far from satisfactory: 65.61% of patients are regularly treated. Practical measures are being studied to improve the situation (see Table 7).

Table 5. Registered cases. Clinical status on 31 December 1979

	0-14				15 or more			
	Active	Inactive under treatment	Unknown	Inactive under observation	Active	Inactive under treatment	Unknown	Inactive under observation
I	35	8	1	—	22	13	2	7
T	16	6	1	—	59	68	7	46
D	5	—	—	—	84	84	8	18
L	5	1	—	—	150	109	5	12
NC	—	—	—	—	—	4	2	3
Total	61	15	2	—	315	278	24	86

Table 6. Distribution of disabilities according to type, age group, sex (Grade 2 and 3 WHO)

Total cases	0-14		15 or more		Total disabilities	Type (%)
	Male	Female	Male	Female		
I	88	—	—	—	—	—
T	203	—	1	54	45	100
D	199	—	—	91	73	164
L	282	—	—	101	63	164
NC	9	—	—	2	1	3
Total	781	—	1	248	152	431

Table 7. Patients under treatment at 31 December 1979. Attendance rates

	0-14				15 or more			
	Treated	Reg.	Irr.	Reg. (%)	Treated	Reg.	Irr.	Reg. (%)
I	44	33	9	75.00	37	20	14	54.06
T	23	16	7	69.56	134	68	56	50.7
D	5	3	2	60.00	176	129	40	73.2
L	6	6	—	100.00	264	180	71	68.1
Not classified	—	—	—	—	6	1	2	16.6
Total	78	58	18	74.35%	617	398	183	64.5

There are cases suspected of DDS-resistance: 4 at least have been confirmed by BI and MI under supervised treatment with DDS 100 mg/die.

Discussion

Leprosy seems to have been present in the Cape Verde Islands since the beginning of their colonization, 520 years ago. Leprosy can be considered a major health problem in 3 of the islands. It is still seen to be a health hazard, although it has lower prevalence rates, in 2 major urban centres, where internal migration concentrates.

The situation is made worse by the high lepromatous rate and by the generally deficient conditions of treatment. The latter has been lasting now for about 30 years, and sets a good background for DDS-resistance.

Deficient standards of control undoubtedly contribute to the high invalidity rate. In our opinion, emigration is equally important in shaping the profile of leprosy in Cape Verde, probably setting a filter only for the patients affected by the most obvious signs of disease. We lack information concerning leprosy among the numerous and considerable Capoverdian communities abroad.

The geographical setting of the country may help in limiting the spread of the disease, but raises serious operational problems for leprosy control.

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