

INTEGRATED LEPROSY CONTROL IN GUYANA¹

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Guyana instituted a "find and treat" leprosy program in 1971 that made use of existing out-patient facilities and staff. The program, based on an integrated domiciliary approach to diagnosis, treatment, and examination of contacts, has proved successful. This article describes development of the program and discusses the prospects for control and eventual eradication of leprosy in Guyana.

Introduction

Leprosy control in Guyana began with the foundation of the Mahaica Leprosarium in 1858, and until 1971 this facility handled the vast majority of all leprosy patients at some stage of their illness. Dr. F. G. Rose, M.D., M.R.C.P., father of the late Governor-General of Guyana, was Medical Superintendent from 1926 until his death in 1943. Since then there have been more than a dozen doctors in charge at various times, the most recent being Dr. Kim Do Il from Korea. His detailed report, submitted to the Statistics Office of the Ministry of Health in 1974, concluded that because of rising costs and falling admissions, Mahaica's existence as a leprosarium was no longer justified.

In 1971 a "find and treat" program was inaugurated. Operating as an integrated part of Guyana's health services, the program's object was to use a domiciliary approach from the outset in finding and treating new cases and examining their contacts, thus demonstrating the humanitarian, medical, and economic advantages of out-patient control. The present article

describes the program's development and progress over five years in a community where both the general public and the victims of the disease had been accustomed to the concept of segregation for over a century.

Background Information on Guyana

The 1970 census estimated Guyana's population at 714,233. Between then and 1976 the total is estimated to have risen to about 785,000. Some 90 per cent of these inhabitants live in a strip of land 10 to 40 miles wide along the 270-mile coast. The country contains 83,000 square miles in all, and is divided by large rivers into three counties.

Essequibo, the largest county, borders on Venezuela and Brazil; it contains only 14 per cent of the population. Demerara County, in the center, has 60 per cent of the people. Berbice County, to the east (bordering Surinam), contains the remaining 26 per cent. Forty-five per cent of the inhabitants are under age 15, 41 per cent are between 15 and 44, and the remainder are over 44. The crude birth rate is 40 per 1,000, and the crude death rate is seven per 1,000.

The 1975 gross domestic product was 1,093 million Guyana dollars⁴ and the

¹Also appearing in Spanish in the *Boletín de la Oficina Sanitaria Panamericana*, 1978.

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⁴G\$1.00 = US\$0.39 = 22 new pence Sterling.

health budget was 29 million dollars. This latter figure appears small in comparison with those of several neighboring Caribbean countries (see Annex); but the impression is misleading, because many non-Government agencies—including city and town councils, mining companies, and sugar estates—have contributed significantly to running the health services.

Prevalence, Incidence, and Classification of Leprosy Cases

No information dating back before 1905 is available, but from that year on accurate registers were kept. A detailed analysis of them in 1971 revealed that 1,022 patients were "not under surveillance"; this category included patients who were "not accounted for" and "no longer in the area," as well as those who had emigrated and those discharged from treatment.

Of 112 patients who were successfully traced but not contacted during 1971-1975, 41 had died and 71 had emigrated; 24 of the emigrants had gone to the United States, 20 had gone to the United Kingdom, and 16 had gone to Canada. Persistent inquiry and follow-up reduced the number of patients "not under surveillance" from 1,022 in 1971 to 673 in 1975 (Table 1).

The total number of leprosy patients registered in Guyana on 31 December 1975

was 865. Routine skin smears (often augmented by biopsy of selected skin sites) and clinical examinations indicated that 561 of these patients had active disease and the remaining 304 had inactive disease. Of the inactive cases, 154 are merely kept under surveillance and receive no treatment. The other 150, many of which are lepromatous cases, continue receiving Dapsone.

Prevalence information is provided in Table 1. Considering the difficult terrain and the problems involved in surveying or even sampling a significant share of Guyana's population—and applying the principles outlined by Leprosy Advisory Teams for WHO (Bechelli and Martínez Domínguez, 1966)—it seems reasonable to estimate that there could be twice as many cases as are currently under surveillance.

The numbers of new cases registered each year since 1960 are shown in Table 2, along with the sex and racial origins of the patients. Classification of cases under treatment for long periods before 1971 has proved difficult, but the 250 cases registered in 1971-1975 have been classified as follows: lepromatous cases—70 (28 per cent); dimorphous cases—154 (62 per cent); and tuberculoid cases—26 (10 per cent). The proportions of tuberculoid and dimorphous cases have risen progressively; and this increase has been mirrored by an increasing percentage of diagnoses confirmed by biopsy,

Table 1. Yearly case prevalence and clinical status of leprosy patients in Guyana, 1971-1975.

Year	Population figure used	Registered patients	Active cases	Inactive cases	Not under surveillance ^a
1975	785,000 ^b	865	561	304	673
1974	785,000 ^b	781	524	257	760
1973	714,000 ^c	746	497	249	830
1972	714,000 ^c	701	459	242	878
1971	714,000 ^c	563	298	265	1,022

^aIncludes patients discharged before 1971 who were not reexamined.

^bEstimated.

^c1970 census.

Table 2. Leprosy patients registered in 1961-1975, listed by year of registration, sex, and racial origin.

Year	No. of new patients	Sex		Race				
		M	F	African	Indian	Mixed	Amerindian	Other ^a
1975	54	24	30	34	15	4	0	1
1974	34	17	17	20	11	3	0	0
1973	38	17	21	18	13	6	1	0
1972	70	32	38	25	36	7	0	2
1971	54	32	22	29	22	2	0	1
1970	2	1	1	1	1	0	0	0
1969	14	7	7	2	7	3	0	2
1968	13	7	6	10	0	1	0	2
1967	17	11	6	5	10	2	0	0
1966	33	19	14	18	11	4	0	0
1965	38	20	18	18	16	3	0	1
1964	14	5	9	8	4	1	0	1
1963	26	9	17	11	11	3	0	1
1962	61	37	24	20	31	8	0	2
1961	39	23	16	20	13	3	0	3

^aIncludes Orientals and Caucasians (mostly of Chinese, Brazilian, English, French, or Portuguese extraction).

together with a drop in the number and percentage of patients with positive smears. No pure neural cases have been encountered. Although a few cases have been classed as indeterminate during limited periods of clinical observation, this classification has ultimately been avoided by means of skin biopsies in all doubtful cases.

Development of Out-Patient Clinics since 1971

Working out of Georgetown Hospital's Public Health Clinic, a domiciliary program was started in 1971. This program's aim was to find and treat patients and to examine their contacts on a strictly domiciliary basis.

Fourteen clinics now participate in this program along the coast, where the population is densest. These extend from Parika, 21 miles west of Georgetown, to Skeldon on the Corentyne River, only a few miles from the Surinam border. In addition, there is one clinic situated inland at Linden

Hospital, 70 miles to the south in a bauxite mining area. All these clinics are visited regularly by the Government leprologist and a mobile staff consisting of a driver, a nurse, and a laboratory technician.

Emphasis is being given to integration of leprosy control activities into the normal working pattern of each clinic; they are run as "skin clinics," and simple remedies are offered to all who come. Attendance rates for leprosy patients—over 85 per cent during the program's five years—are remarkably high.

Diagnosis and registration of leprosy cases are based on clinical examinations supported by data from skin scrapings. The latter (together with skin biopsies in selected cases) are taken on the spot and interpreted the next day at the clinic in Georgetown.

Leprosy is a notifiable disease in Guyana. Full details are recorded and are reported monthly to the Ministry of Health. Since the start of the program in 1971, 920 patients have been registered for domiciliary control. Of these, 250 are new cases.

The estimated cost of running this out-patient "find and treat" service is approximately \$0.34 (34 Guyana cents) per patient per day, as compared to \$9.16 per day for in-patient leprosarium care.

The Mahaica Leprosarium Today

At the end of 1975 there were 76 in-patients at Mahaica, almost all advanced in age or disabled. They had remained there largely for sociological reasons. Another 187 patients were living in the environs of Mahaica and were receiving treatment or supervision from the leprosarium, together with subsidized employment. Medical, paramedical, and administrative staff members at Mahaica have to some extent been "stranded" by the marked reduction of in-patients. Furthermore, the high running costs of this institution have led inevitably to the conclusion that it should be closed as a leprosarium and converted into a general hospital. Plans for doing so are now under discussion.

Discussion and Conclusions

The critical conversion of attitudes required for the shift from a leprosarium approach to an out-patient approach was achieved only through persistent and clear delineation of the benefits that would accrue to the patients, their families, and the health services. Facilities have become more readily and willingly available during the five years of the program, and the whole area covered now harbors virtually no opposition to the presence of leprosy patients in what are essentially general clinics. It appears that the practical demonstration of leprosy diagnosis and treatment on an out-patient basis has made its mark.

In 1975, for the first time in the history of leprosy in Guyana, there were no admissions to the leprosarium. It is still to be regretted, however, that the "most powerful tool available for public health education

in leprosy" (Hasselblad, 1975), namely the definitive closure of the Mahaica Leprosarium or its conversion to a general hospital, has yet to be achieved. This institution is expensive and outmoded; if its operation were continued, this could be interpreted as showing lingering reservations by the authorities about the policy of integrated out-patient leprosy control.

The number of leprosy patients in Guyana is small compared to the 212,456 cases registered in the 33 countries and territories of the PAHO Region in 1974, and at first one is inclined to think that Guyana could eradicate the disease or reduce it to very low levels. Yet a nagging yearly incidence of new cases in purely Guyanese subjects from various parts of the country suggests that undiscovered foci of infection may exist. In this respect the situation is reminiscent of that prevailing in Spain and various other European countries, where the yearly incidence shows little sign of dropping despite the provision of all necessary facilities for treatment.

An even closer parallel exists in French Guiana, where the number of new notifications remains more or less constant from year to year, despite good coverage of the population and vaccination of all children with BCG since 1961 (Série, et al., 1973). The male-female ratio, the age distribution of new patients, and the proportions of the various types of leprosy have also remained unchanged; the authors consider that factors other than the mere presence of leprosy bacilli may have an important bearing on this situation.

We have considered the possibility that new patients in Guyana may have originated in Brazil, Surinam, or Venezuela, or may have contracted the disease in these countries, but there is no evidence to support this theory. Nor is there any evidence that inaccessible foci exist in such places, for instance, as the Amerindian interior of Guyana. Although the proportion of lepromatous cases (28 per cent) in Guyana is sub-

stantially below the proportion (54 per cent) in the Hemisphere as a whole (PAHO, 1974), it nevertheless represents a considerable number of people who are now fully believed to be potent disseminators of bacilli from the nose before diagnosis and treatment (*Lancet*, 1976). In view of leprosy's long incubation period, it is more than likely that some of the new patients arriving in recent years have been infected by these lepromatous patients, or by other people with lepromatous cases who are now nasal excretors but whose cases are not clinically recognizable. A few high-incidence foci have been revealed and others are suspected, but (as in other parts of the world) a significant number of all patients interviewed give no history of any family or other close association with an index case.

In looking toward more effective control and the eventual eradication of leprosy in Guyana, it is our belief that "accumulated" prevalence figures have little more to contribute; incidence figures, on the other

hand, are likely to be highly significant (Kyaw Lwin and Zuiderhoek, 1975). If the incidence does not drop with continuing regular treatment of lepromatous cases, intensive health education, and examination of schoolchildren and household contacts, there may be cause for a detailed epidemiologic study of all new patients diagnosed, certainly in recent years, and perhaps retrospectively to the beginning of the out-patient program in 1971. A study of this kind could be expected to reveal new cases, some of them possibly lepromatous but with no obvious symptoms and few clinical signs. Moreover, if such a study were undertaken by a research council or an international organization working with the existing staff, this might reveal valuable information contributing toward the eradication of leprosy, not only in Guyana, but also in other countries where the disease smoulders inexplicably, despite the existence of adequate facilities for diagnosis and treatment.

ACKNOWLEDGMENTS

The author's work was supported by grants from the United Kingdom Medical Research Council and the British Leprosy Relief Association (LEPRA). His visit to

Guyana in April 1975 was sponsored by the Medical Branch of the Guyana National Science Research Council.

SUMMARY

Guyana's leprosy problem is small compared to that of some South American countries. On the other hand, there is a nagging incidence of new cases, despite adequate treatment and diagnostic facilities, which is similar to the situation found in portions of the neighboring Caribbean and in some other parts of the world.

After more than a century of leprosarium-based treatment, a "find and treat" program using existing out-patient facilities was initiated in 1971. This has proved successful and has been well-accepted by patients, medical staff members, and the general public.

Particular attention is now being paid to the yearly incidence of new cases in assessing the continuing effectiveness of this program. It is possible that reduced incidence and further impetus toward eradication may be achieved through improved health education (including the definitive closure of the existing leprosarium), prolonged periods of regular treatment (particularly for bacilli-positive patients), and intensive examination of schoolchildren and household contacts. On the other hand, it may be helpful to consider a more detailed analysis of the situation if the incidence does not fall. In

fact, there may be a case for conducting a detailed epidemiologic study of all new cases diagnosed since 1971. Such a study might contribute toward the eradication of leprosy not

only in Guyana, but also in other countries with a small yearly incidence, where the disease is potentially—but not actually—under control.

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ANNEX

Caribbean government expenditures (total expenditures and health expenditures) in 1973.^a

Country	Total government expenditures, expressed in national currency (thousands of units)	Expenditures on health (thousands of units)	Health expenditures as % of total expenditures	Per capita expenditures (in US dollars)
Barbados	128,009	19,945	15.6	40.7
Antigua	32,494	4,478	13.8	30.1
Trinidad	465,114	56,088	12.1	26.4
Jamaica	362,567	36,583	10.1	22.3
Guyana	173,629	13,618	7.8	8.3

^aBased on information kindly supplied by Dr. Mervyn U. Henry, PAHO/WHO Country Representative, Ministry of Health, Georgetown, Guyana.