

Leprosy Control in Tanzania*

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INTRODUCTION

The United Republic of Tanzania in East Africa comprises Mainland Tanzania (formerly known as Tanganyika) and the Islands of Zanzibar and Pemba. This article is concerned with leprosy in Mainland Tanzania, 362,000 sq. miles (940,000 sq. km) in area with a population, according to the 1967 census, of 12,231,000.

As is to be expected in any country of this size, geographical and climatic features vary widely—from the Indian Ocean coastal climate to the peaks of Mount Kilimanjaro, from dense bush to open savannah, from lush fertile country to near desert. Similarly, the inhabitants vary both as to tribal origin and way of life, though these differences are becoming less obvious (and certainly less important from the epidemiological standpoint) as standards of living slowly improve. Accordingly, leprosy prevalence varies widely.

HISTORICAL

The first scientific article on leprosy in this country was written in 1912 by Dr. Otto Peiper, a German army medical officer stationed in what was then German East Africa (Peiper, 1913).

Dr. Peiper describes the first organized leprosy work to be established in this country—the leprosy village built by the bequest of the Indian trader Sewa Haji near the Catholic Mission in Bagamoyo in 1897, and also the work done, mainly by Christian Missions, from 1902 when the Evangelical Mission collected 30,000 DM for the building of a leprosarium in the Tanga District. It is clear from Peiper's paper that leprosy was recognized even at this early time as a major endemic disease and a quite remarkable uniformity of policy was achieved

by the widespread establishment of "Lepra-heime" (segregation villages) generally near mission stations and supervised by mission staff, with advice from the military medical officers. Some of these segregation villages still exist—2 have become modern leprosy treatment centres—but there was little change in the general approach to the problems of leprosy until the sulphones became available.

With the advent of the sulphones there came to East Africa a man on whose work all that has happened since has been founded. Dr. James Ross Innes carried out extensive leprosy surveys in Tanganyika—as well as elsewhere in East Africa—and on the basis of his findings was able to advise the Governments of that time on practical leprosy control measures. Of at least equal value were his regular visits to the leprosy treatment centres, the majority run by devoted mission staff with few amenities in either staff or money. Wherever he went he spread enthusiasm and encouragement and inspired many doctors to spare time from their general duties to deal with the local leprosy problem—and these included Government district medical officers as well as mission doctors. So it became the established practice in this country that leprosy should be treated by general practitioners and not only by leprologists. In 1955 there were 8800 attending as out-patients, at special clinics, the majority in 2 regions under the direction of government doctors.

LEPROSY PREVALENCE

Innes (1949, 1950) carried out extensive surveys in many different areas and found, as expected, a wide range of leprosy prevalence rates which taken together gave an average rate of 18.1 per 1000. His conservative estimate of the total case load was 100,000.

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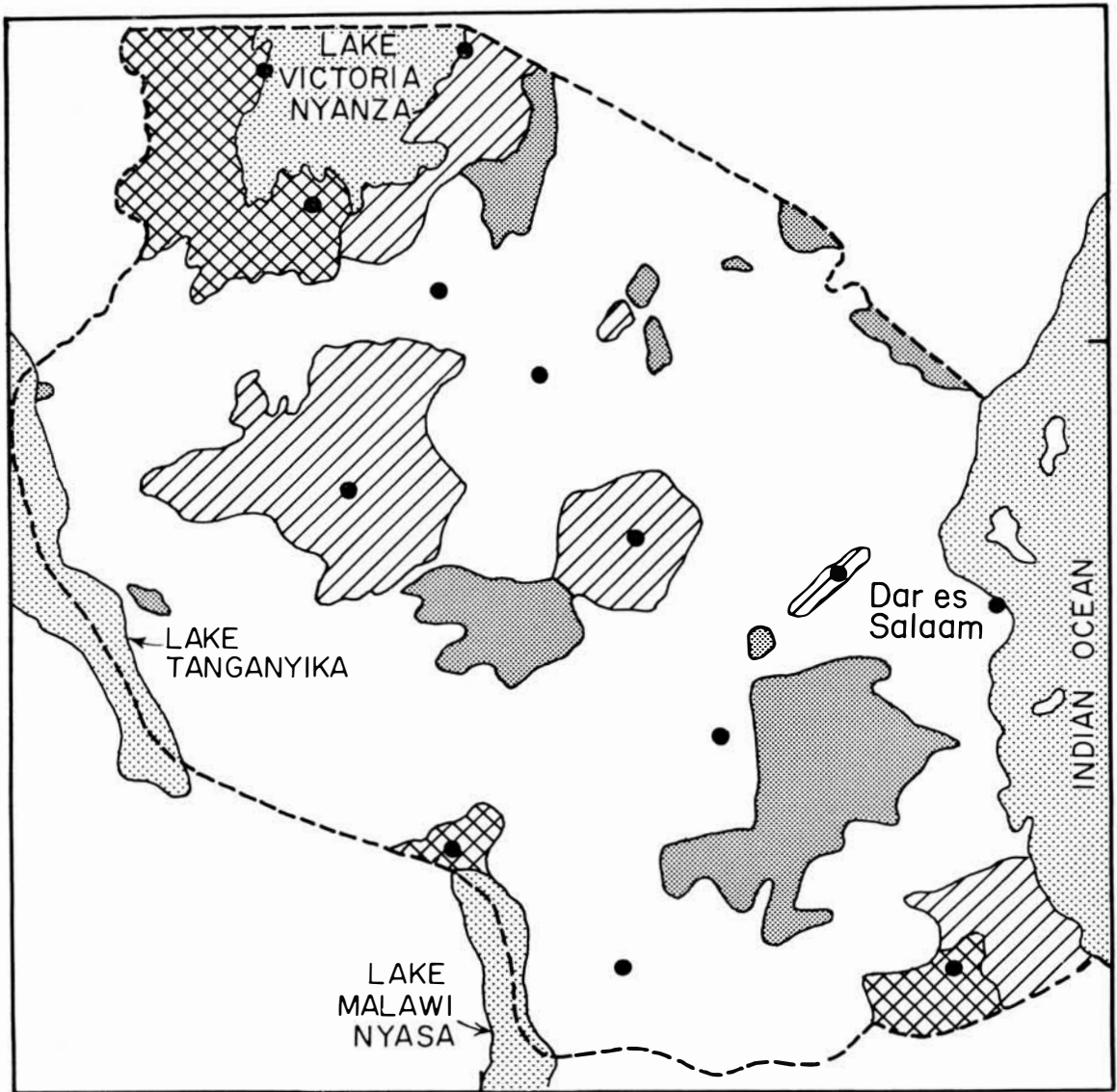


FIG 1

Sketch map of Tanzania mainland. - - - - - , National boundary; dark stipple, game parks and reserves (with no settled population); double hatching, established leprosy control areas as of December, 1968; single hatching, developing leprosy control areas as of December, 1968; ●, main leprosy treatment centres.

Whole population surveys have been carried out in 2 islands in Lake Victoria Nyanza. The first, by Innes (1949) in Ukara Island, giving a prevalence rate of 15.2 per 1000 in a population examined of 15,506; and the second, by Anten in 1967 in Kome Island, giving a prevalence rate of 27.2 per 1000 in a population examined of 8241 (90% of the census population=9134). These results, in very similar island communities, appear to indicate that leprosy has increased between 1949 and 1967, and other surveys carried out by Anten on the mainland tend to confirm this conclusion. In 1968 about 50% of the population of 6 villages were examined, a total of 3225 persons, of whom 75 were found to have leprosy, a prevalence rate of 23.3 per 1000. Innes had found an average prevalence of 15.8 per 1000 in this area in 1949.

Larsen, in 1968, carried out sample surveys in 6 villages in each of the districts served by his leprosarium. The results were as follows:

(a) *District A* (which had the better out-patient treatment campaign):

Total population of the 6 villages	4467
Examined	3989 (89.3%)
Total leprosy cases	85
Prevalence rate	21.3 per 1000
Active cases	32 (37.6%)
Disability rate	21.1%

(b) *District B*:

Total population of the 6 villages	4751
Examined	4023 (84.7%)
Total leprosy cases	51
Prevalence rate	12.7 per 1000
Active cases	29 (56.7%)
Disability rate	33.1%

(The epidemiology of leprosy in this area is of great interest and it is probable that in district A the prevalence of leprosy is past its peak, whereas in district B it is still rising.)

The most important areas of high leprosy prevalence are: (a) the densely populated country on the southern shore of Lake Victoria Nyanza, comprising the West Lake, Mwanza and Mara Regions and extending south to the Shinyanga and Tabora Regions, and (b) the Mtwara and Ruvuma Regions in the south.

THE LEPROSY TREATMENT CAMPAIGN

Since 1955 there has been a steadily growing campaign, with "prevention by cure" as the slogan and the objective of getting as many patients as possible under treatment at as early a stage in their disease as possible in order to limit both infectivity and the risk of disability. Clearly, one could not achieve this by requiring patients to segregate themselves or travel up to 200 miles to a special centre. Treatment must therefore be made available at every medical centre of whatever grade. Unfortunately, at this time there were only 2 medical officers engaged full time on leprosy duties, so only small scale, localized campaigns were practicable (Wheate, 1959). There were therefore 2 urgent requirements: (1) to get as many doctors as possible aware of the fact that leprosy was a comparatively simple public-health problem and its control was eminently practicable; (2) to give all paramedical workers, both those in training and those already in charge of rural dispensaries, a rudimentary knowledge of the disease and its treatment so as to enable them to run out-patient clinics with a reasonable degree of safety and efficiency.

To meet the first requirement, leprosy was included in several departmental conferences attended by all medical officers, and uncomplicated directives on the clinical and public health aspects of the disease were issued by the Ministry of Health. Increasing liaison with the Christian Missions resulted in their providing many full-time doctors to take charge of their leprosy institutions and to begin to look beyond their walls to the rural areas around.

The second requirement has been a more difficult problem, and our main effort has been concentrated on short courses of indoctrination and orientation for rural health staff. These courses have been held in various leprosy institutions in order to serve the needs of the local area. The principle has been to teach, specifically and didactically, only enough to enable the staff of rural dispensaries to diagnose leprosy, to recognize the more important complications which should be referred to hospital,

and to treat the remainder according to a simple routine drug regimen. This limitation of the objective made it possible to condense the course to a length of 2 weeks, a period for which the staff of rural dispensaries could be spared from their general duties. Perhaps it should be emphasized that the intention was not to provide full scale intensive training in leprosy control methods—we hope to start next year providing for this need—but to give priority to elementary training on as wide a scale as possible.

The leprosy treatment campaign has naturally, like every other aspect of development, gained momentum since Tanzania became independent in 1961. In 1958 there were 28,727 cases of leprosy under treatment at 344 centres and there was little change in these numbers up to 1961; thereafter successive annual statistics are summarized in Table 1.

TABLE 1

Annual statistics for the occurrence of leprosy in Tanzania

<i>Year</i>	<i>No. of clinics</i>	<i>Total cases</i>	<i>New cases</i>
1962	475	28,289	8896
1963	466	45,122	9341
1964	542	55,699	12967
1965	500	45,643	9570
1966	573	60,046	10,941
1967	829	63,808	9463
1968	838	64,170	9728

The progress to date has been achieved by health education of the public, and the great majority of new patients have been "self-reporting", only a minority having been found by special case-finding activity, i.e., village examination, school surveys, etc. But the end-result is that only approximately 50% of the estimated number of patients are under treatment, and in order to co-ordinate both case-finding and treatment, regional leprosy officers have been appointed in all the 17 administrative regions. These include both government and voluntary agencies' medical officers.

The limitations of the mass-treatment campaign based on the general rural dispensary can be summarized as follows:

(1) The doctor supervising the general dispensary is seldom able to give more than perfunctory supervision to its general work and is even less able to undertake special care for a leprosy clinic.

(2) Case-finding activities are *nil*, virtually all new patients being self-reporting and, therefore, discovered relatively late.

(3) Case holding is extremely difficult. The rural medical aid in charge of a busy general dispensary cannot possibly have time to carry out home visits to defaulters.

(4) The standard of treatment of any complication, in particular plantar ulceration, is of necessity, under these conditions, inadequate.

Local leprosy-control schemes were therefore planned in order to set a higher standard, towards which ultimately all the work throughout the country could aspire. The main principles were:

- (a) Special medical staff to be engaged in leprosy control duties.
- (b) Treatment to be freely available at all medical centres and to be widely advertised accordingly.
- (c) Regular supervision by the specialist doctor or doctors to be carried out, particular attention being paid to practical clinical instruction of the resident dispensary staff.
- (d) Close harmonious relations with all local government officials at all levels to be fostered in order to ensure their co-operation in case-finding and case-holding.
- (e) Particular emphasis to be placed on school surveys, with the object of controlling leprosy in the children who attend school (estimated to be 50% of the total of those of school age).
- (f) Special leprosy staff to be trained on an "in service" basis, preferably after attending one of the 2-week courses of indoctrination mentioned above.
- (g) While due priority will be given to the public health aspects of leprosy control, the human need as well as the economic

burden represented by chronic plantar ulceration and other disabilities due to neglected leprosy must be recognized and an effort made to do at least something in this field. This recognition is important also from the point of view of health education; the public attitude in the belief that "leprosy is incurable" is only strengthened by neglect to tackle the problem of "the incurable ulcer".

THE SWEDISH-NORWEGIAN SAVE THE CHILDREN CAMPAIGN AGAINST LEPROSY IN THE WEST LAKE REGION

This scheme began operations in 1962, covering 96 out-patient clinics in 4 districts and a population of about 658,000. (In 2 districts, Karagwe and Ngara, leprosy prevalence is low.) The scheme has registered a total of 5316 patients since its inception and of these, 1350 have been discharged clinically cured, 267 have died, and 1570 were under treatment as at 31 December, 1968—a net decrease on last year's figure. The defaulter rate has been of the order of 10% per annum but 86% of the patients attending do attend regularly.

An important investigation has been contained in the survey of disability among 5083 patients, using the WHO Classification of Disability:

Type A	569
Type B	199
Type C	48
Types A+B	518
Types A+C	17
Types B+C	7
Types A+B+C	28
Miscellaneous	24

1410 or 27% of the total.

However, among 351 new patients registered in 1968 the disability rate was only 17%, a very marked reduction.

Regular case-finding examinations are carried out both in sample villages and in schools: In 1968, 47 villages with a population of 14,442

were examined; 48 new cases of leprosy were discovered (a rate of 3.3 per 1000). Examination of 10,700 schoolchildren in 73 schools revealed 12 new cases of leprosy (1.1 per 1000).

The new case-rate per annum appears to be levelling off and there is a steady decline in both the lepromatous and disability rates. Nevertheless, even in this very well organized and well-staffed scheme, after 6 years, complete control of leprosy has not been achieved.

THE GEITA LEPROSY SCHEME

Geita district is one of the 3 districts comprising Mwanza Region and is situated on the southern shore of Lake Victoria Nyanza. It comprises 3500 sq. miles (9100 sq. km) of land. The total population, which is expanding steadily as the result of immigration in order to cultivate cotton, is of the order of 400,000 (average density 115 per sq. mile, 45 per sq. km). It borders on the West Lake region. The Geita Leprosy Scheme was started in March, 1966. At this time 679 patients were registered as under treatment, the majority attending irregularly. The case-records showed a lepromatous rate of 15% and a deformity rate of 30%.

The staff comprised one physician, one rural medical aid, one clerk/leprosy scout and one driver. This team, travelling by landrover on average 22,000 miles (35,000 km) per annum visiting 32 medical units and stopping at 10 "mango tree stations" en route, had treated up to December, 1968, a total of 3367 patients.

The emphasis has been on regular supervisory visits to the rural dispensaries and on the constant teaching and encouragement of the staff in charge. The headquarters unit comprises wards, administrative offices, and out-patient treatment facilities and is specifically the "department for skin diseases" of the parent voluntary agency hospital (the Catholic hospital at Sengerema). The wards have provided hospital treatment for 100 cases per annum.

An important activity has been the complete survey of all registered schools in the district, an exercise which took 2 years to complete. Among the 13,195 pupils who were examined, the

leprosy prevalence was 26 per 1000. Of the 343 cases only one was lepromatous and 4 borderline. The headmasters were provided with a special register and a supply of dapsone tablets so that they could themselves personally ensure that the children took their treatment. Of equal importance, however, has been the experience gained in the field of case-finding by village surveys. After the total population survey carried out on Kome Island (*vide supra*) only 22% of the cases diagnosed presented themselves for treatment. After village surveys, 4 out of 58 patients diagnosed refused to accept the diagnosis, while 41 others allowed themselves to be registered but never returned to continue treatment. It is obvious therefore that, at least in this community, the social stigma associated with leprosy is considerable and few patients are willing to admit to having the disease at a stage when its complete cure is comparatively easy.

Clearly both more time and more special staff will be needed to bring about a change in the attitude of the public in this matter. As it is, the fact that after only 33 months of operation about 38% of the total estimated patients have been registered and 27% are under regular treatment can be considered a reasonable achievement.

In the ensuing phase of this campaign the emphasis will therefore be first on health education, with the development of health home visitors, whose duties will be to trace defaulters from both the tuberculosis and the leprosy clinics; and, second, on the extension of the present coverage to provide treatment for the entire population within a distance of 4 miles (6.4 km) from their homes.

FUTURE PLANS

It will be seen from the sketch map that a number of areas are marked as "developing leprosy-control areas". The most important of these areas is that to the south-east of Lake

Victoria Nyanza which is densely populated and has an estimated leprosy prevalence of at least 20 per 1000. Second in importance is the large area in the south where there are already 12,000 patients under treatment, 3000 of these being in a special control scheme.

SUMMARY AND CONCLUSIONS

The gradual development of a mass-treatment campaign in Tanzania is described and the manner in which this is being evolved as an instrument of leprosy control is discussed. Experience seems to indicate that it is comparatively simple to get 50% of the estimated case-load of an area under treatment, but there are considerable practical difficulties involving the health education of the public, the deployment of special staff, and considerable transport expenses if any impact is to be made to encourage the other 50% to come forward.

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