Leprosy in the World Today

In a recent publication of major importance, entitled "The Leprosy Problem of the World,"[1] the World Health Organization has presented figures for registered and estimated cases of leprosy for most parts of the earth. The authors, L. M. Bechelli and V. Martinez Dominguez, respectively Chief Medical Officer and Medical Officer for Leprosy, Division of Communicable Diseases, WHO, have recorded figures, with reservations necessary in the light of the fragmentary and frequently inaccurate data on which the report is based,

[1] BECHELLI, L. M. and MARTINEZ DOMINGUEZ, V. The Leprosy Problem of the World. Bull. WHO **34** (1966) 811-826.

for some 180 countries and regions in Africa, the Americas, Asia, Europe and Oceania.

Such a compilation, in spite of inevitable current deficiencies in accuracy and completeness of coverage, has been greatly needed. The limitations are set forth clearly and frankly by the authors, and it may be anticipated that the report itself will lead to improved reporting in regions finding themselves not accurately represented, and at the same time stimulate health officers in all countries where leprosy is endemic to reduce the present gap between registered cases, and the all too vague number of "estimated" cases.

The authors' procedure for estimating cases is itself illuminating in this respect. Basic figures used were those of the WHO Leprosy Advisory Team (LAT) which conducted random sampling surveys in Africa (Northern Nigeria, North, Central and South Cameroon) and Asia (the Philippines, Khon Kaen, Thailand, and Myingyan and Shwebo, Burma). These showed that in regions with fairly good case-finding programs, new cases amounting to 75 per cent of the currently registered cases could be found. It was reasonable to believe that in regions with poor case-finding programs the proportion of detectable new cases would be much higher. For this reason arbitrary allowances were made for case-reporting in different types of region, with addition of 75, 150 or 300 per cent respectively of the number of registered cases as estimations of the currently undetected cases in countries with satisfactory, fair or poor case-finding programs. In a few countries in Europe where leprosy is still endemic it was felt that only 25 per cent needed to be added. In some countries, on the other hand, virtually no basic data were available; in these cases the only estimations that could be made were based on the prevalence rates reported in neighboring countries.

Rates of prevalence obviously are based on population figures, which are themselves rather gross estimates, rather than accurate census compilations in many countries. With all of these defects and pitfalls it is easy to see that statements on prevalence and rates could be made only with caution and clear indication of reservations necessary. The present compilation is a brave step in opening up a tremendous task.

The data brought out in the study of prevalence in the five continental areas are set forth in a lengthy table giving the date of figures used (generally 1962-1965), the estimated population, the source of information employed (usually health department or WHO Regional Office reports), and the number of leprosy patients, figures for which were broken down into registered, treated and estimated cases. Four summarizing tables follow, of which one is reprinted below. Finally a highly informative map of the world is included, with shading and cross-hatching for the varying calculated prevalence rates for leprosy in different parts of the world.

The authors' own concise summary can be used to present the results of their analysis most succinctly:

"There is at present a lack of accurate data on the prevalence of leprosy in the different countries of the world, primarily because case-finding has not reached the desired level in many of them. The authors have attempted to provide more realistic figures, using information obtained from several sources and various criteria for calculating estimated prevalence rates. In all there are 2,831,755 registered patients and 10,786,000 estimated cases; the latter figure may well be an under-estimate. The number of treated patients is about 1,928,000, some 68 per cent of the registered cases and 18 per cent of the estimated. About 2,097 million people live in areas with prevalence rates of 0.5 per 1,000 or higher; in these areas nearly one million new cases of leprosy can be expected within the next five years. The estimated number of disabled patients is 3,872,000, of whom 1,961,000 are in disability grades 2-5 (excluding anesthesia to pain). The data represent an attempt, made with many reservations, to give an indication of the magnitude of the leprosy problem throughout the world."

It is worth noting that in a number of countries, with populations totalling something over 150 million persons, the prevalence rate is recorded as higher than 10 per thousand. Among some five million people in areas with the most serious prob-

lem the prevalence rate is more than 50 per thousand or one person in twenty. The authors' Table 2 (our Table 1 below)[2] gives an overall view of registered, estimated and treated cases in the five continental areas. It will be noted that Asia and Africa account for more than 90 per cent of all cases, and that the percentage of treated registered cases in Asia is relatively high.

A number of items call for special comment. Ideally some breakdown into types of leprosy (lepromatous, tuberculoid, borderline, indeterminate, or comparable classification) would be desirable. This would indeed be too much to expect in data collected from the sources used, which varied greatly in reporting procedures. An indication of the infectiousness or noninfectiousness of the cases recorded would be equally desirable, and likewise, for the present, would be an unattainable goal. Actually the authors touch on the problem at issue in noting the relatively high lepromatous rate in Asia, as compared with the rate in Africa, while pointing out that high prevalence rates are maintained in hyperendemic areas where tuberculoid leprosy constitutes as much as 90 per cent of the total cases. As the authors suggest, such figures presumably mean that a proportion of the more resistant forms are open and infectious part of the time.

In this connection may be noted the authors record of the WHO estimates of the number of new leprosy cases to be expected in the next five years in countries with a prevalence rate of 0.5 per 1,000 population or higher. This estimate is approximately a million cases, distributed as follows: Africa, 312,000; Americas 26,000; Asia, 650,000; Europe, 3,000; and Oceania, 4,000.

In the absence of figures on infectiousness and type of disease the authors are able to supply data with regard to recognizable disabilities due to leprosy, graded according to a system previously published.[3] These figures give a picture of the severity of the problem in different regions as reflected in the social as well as medical aspects of the disease.

The reader's attention will inevitably be drawn to certain extraordinarily high fig-

[2]This is authors' Table 2. The references refer to authors' Table 1.

[3]Martinez Dominguez, V., Bechelli, L. M. and Patwary, K. M. WHO surveys of disabilities in leprosy in Northern Nigeria (Katsina), Cameroon and Thailand (Khon Kaen). Internat. J. Leprosy **34** (1966) 244-254.

Table 1. *Geographic distribution of registered, estimated and treated patients.*[2]

Continent	Leprosy patients				
			Treated		
	No. registered	No. estimated	Number	% of registered	% of estimated
Africa	1,712,132[a]	3,868,000	1,062,527[b]	62.0	27.5
America	177,813	358,000	95,804[c]	53.9	26.8
Asia	915,525[d]	6,475,000[e]	755,334[f]	82.5	11.7
Europe	16,624[g]	52,000	9,973[h]	60.0	19.2
Oceania	9,681	33,000	4,291[i]	44.3	13.0
Total	2,831,775	10,786,000	1,927,929	68.1	17.9

[a]No information about 12 countries (see Table 1).
[b]No information about 26 countries (see Table 1).
[c]Information about 16 countries only (see Table 1).
[d]Information about 26 countries only (see Table 1).
[e]No information about Mongolia.
[f]Information about 22 countries only (see Table 1).
[g]No information about Romania.
[h]No information about Romania and USSR.
[i]No information about New Guinea.

ures, especially those for central and equatorial Africa, parts of southeast Asia, particularly Burma, French Guiana in South America, and a few places in the south Pacific. The significance of high recorded prevalence is relatively clear; a faithful record of an actual fact is generally represented, based on careful epidemiologic study. The significance of low rates, on the other hand, is often doubtful. A low figure could mean a genuinely low prevalence; it could mean, however, simply a failure of the health services to find cases that actually exist. Indifference in reporting cases of chronic disease commonly results in low recorded rates. Experience in such areas regularly shows that when intensified surveys are introduced recorded prevalence rates rise. In this connection the authors cite the case of French West Africa. In 1938 the number of cases of leprosy was estimated as 30,000. Twenty-five years later the number of cases in the region previously forming French West Africa was recorded as 550,384, i.e., nearly 20 times the previous figure. Some of the rise was presumably due to increase in population, but it may be assumed that improved case finding was responsible for most of it.

The case of mainland China certainly calls for special note. Bechelli and Martinez do not accord specific attention to it, simply recording an estimate of 2,279,000 cases for a population of about two-thirds of a billion persons. No figures for registered or treated cases are recorded. The case of India is in marked contrast, with an estimate of 2,500,000 cases, broken down in registered, estimated, and treated categories, in nearly half a billion population. The recorded sources of information are different, and it would seem, in the light of the free communications concerned, that the figures for India are the more reliable. Certainly if we are to have a comprehensive picture of leprosy as a world problem, trustworthy figures for China are necessary. The world cannot afford to do no more than guess at the prevalence of leprosy in a single segment believed to represent a third of the world's population.

Finally, before long, a "case" of leprosy will have to be more accurately defined than is at present possible. Doubtless the problem will be quite as difficult as the vexed one of classification. A ready analogy is apparent in the other world-wide mycobacterial disease, tuberculosis. At one time it was enough to delineate progress in terms of recorded deaths from the disease. When the mortality rates declined to low levels, case rates were substituted in the records and in the knowledge of the informed public. But tuberculosis case-rates are dependent on arbitrary definitions of a "case," which vary from region to region, with no rigidly sharp lines all the way from a mere positive tuberculin reaction to a patient with ulcerative pulmonary disease. Yet basic records are now good enough so that it is possible to calculate case rates on any one of several arbitrarily chosen definitions of a "case," and figures are valuable when such rates are calculated serially over a period of years.

It would seem that comparable progress in leprosy reporting should be possible. In each of the quinquennial international congresses of leprology much attention is devoted to the classification of leprosy. In the forthcoming 1968 congress it would appear wise to set up standards for more definitive case reporting than are presently in effect, as well as to stimulate in every possible way the recording and discovery of cases of leprosy throughout the world.[4]

—E. R. Long

[4] In this connection see: Heiser, V. G. World-wide leprosy survey for progress in leprosy control. Internat. J. Leprosy **34** (1966) 321-322 (*Correspondence*).