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# Proposed method for estimating leprosy prevalence based on rates in children

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*Abstract*

*The authors suggest that, where leprosy prevalence data for the entire population are lacking, the prevalence in schoolchildren may be a valuable index for estimating the magnitude of the problem in areas where leprosy is endemic.*

For planning a leprosy control programme, an estimate of existing cases in the area constitutes one of the fundamental requirements. Methods of estimating undetected leprosy cases have been proposed (Bechelli & Martínez Domínguez, 1966) based on the findings of the WHO Leprosy Advisory Team. According to whether these operational methods are assessed as satisfactory, fair, or poor,[10] 75%, 150%, or 300% are added to the number of known or registered cases in order to obtain a total prevalence estimate. In a few European countries where leprosy is still endemic 25% may be added to account for undetected cases.

Surveys of the entire population or by random sampling provide the most reliable data, but are expensive. The examination of schoolchildren before such surveys are undertaken is generally thought to be a good method of obtaining preliminary information on the total leprosy prevalence, and to provide a basis for further decision making.

Table 1. Correlation between prevalence rates in children and in the total population

| Survey | Prevalence rate per 1000 | | TP/CP [a] |
|---|---|---|---|
| | children | total population | |
| Burma [b] | | | |
| Myingyian | 40.2 | 44.4 | 1.1 |
| Shwebo | 33.6 | 32.6 | 1.0 |
| N. Nigeria (Katsina) [b] | 32.6 | 28.6 | 0.9 |
| Burma (BCG trial area) [c] | 24.7 | 31.6 | 1.3 |
| Philippines (Cordova & Talisay resurvey) [d] | 24.4 | 18.5 | 0.8 |
| Cameroon [b] | 7.5 | 25.8 | 3.4 |
| Brazil (Candeias) [e] | 7.5 | 10.6 | 1.4 |
| Philippines (Cordova & Talisay 1st survey) [d] | 6.3 | 19.3 | 3.1 |
| Thailand (Khon Kaen) [b] | 3.2 | 12.4 | 3.9 |
| Philippines (Ilocos Sur) [b] | 2.8 | 6.7 | 2.8 |
| Argentina (Chaco) [f] | 1.4 | 5.6 | 4.0 |
| Thailand (Khon Kaen resurvey) [g] | 0.8 | 3.7 | 4.6 |
| Argentina (Entre Rios) [f] | 0.4 | 1.1 | 2.7 |

[a] TP = prevalence rate in the total population; CP = prevalence rate in children.
[b] Bechelli et al. (1966).
[c] Unpubished data on WHO BCG trial in Burma, 1973.
[d] Guinto et al. (1954)
[e] Del Favero (1948).
[f] WHO Leprosy Advisory Team (1965) Report of a survey in Argentina, April to December 1964 (unpublished data).
[g] Seal & Charoenpakdi (paper to be presented at the 10th International Leprosy Congress, Bergen, 1973).

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[10] Satisfactory = case-finding with an adequate coverage of the population; fair = case-finding with partial coverage of the population; and poor = case-finding inadequate, with very limited coverage of the population, or nonexistent.

In this note an attempt has been made to determine whether there is a correlation between the prevalence rates in children 5–14 years old and in the total population of a surveyed area. Data collected in WHO surveys, in Brazil (Candeias, 1948) and in the Philippines (Cordova & Talisay, 1954) are presented in Table 1, which shows the ratio between the two prevalence rates.

It appears from these surveys that the rate found among children 5–14 years old usually reflects the degree of endemicity. If that rate is low, a low general prevalence rate may be expected; if high, the latter will also be high. The factors (load of infectiousness, exposure, and others) that are responsible for a low or high prevalence in the general population also act on the child population. It is easier and less costly to examine schoolchildren than other groups of the population. Thus, the results of screening schoolchildren may be taken as an indicator in areas where the degree of leprosy endemicity has to be estimated or determined for planning purposes.

In correlating the prevalence in children and in the total population, three main aspects may be considered: (*a*) the prevalence in children was very high in some areas, even surpassing the total prevalence in Shwebo (Burma), Katsina (Nigeria), and Cordova (Philippines). In surveys revealing a rate of 25 per 1 000 or more in children, that rate could be taken as an approximate estimate of the total prevalence; (*b*) in areas with a rate below 8 per 1 000 in children, there was a certain pattern suggesting that the total prevalence might be roughly 3–4 times the prevalence in children (the survey in Brazil was an exception); and (*c*) for Thailand (Khon Kaen area) the ratio between the prevalence in children and that in the total population was about 1 : 4 in 1962 and slightly higher in the 1972 survey. Thus 10 years of control measures had not changed this ratio significantly, even if the initial prevalence in children—3.2 per 1 000—had been reduced to 0.8 per 1 000 and the total prevalence had dropped from 12.4 to 3.7 per 1 000 during the same period.

Further data concerning other countries are required to confirm the validity of the above-mentioned method of estimating general prevalence, which is therefore suggested with reservations.

From the data given here, it appears that mass examination or a random sample survey of schoolchildren may provide useful information concerning the degree of leprosy endemicity and also, in certain instances, may suggest the order of magnitude of the total prevalence in the area concerned. This approach could be tested in conjunction with the methods of prevalence estimation referred to earlier.

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