

# A Practical Method of Active Case Finding and Epidemiological Assessment: Its Origin and Application in the Leprosy Control Project in Indonesia<sup>1</sup>

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## HISTORICAL BACKGROUND

A method of active case finding, called the propaganda treatment survey (PTS) system, was introduced by Muir and Rogers in India in 1927. The basic idea was to detect, by means of health education, and to bring under treatment as many leprosy patients as possible at an early stage of the disease.

More or less the same system was adopted by Sitanala (The Figure) for Indonesia in 1932 (<sup>2-8</sup>). It was introduced under the name of exploration surveys, and the main aim was to gain an idea of the leprosy situation in areas in which the disease seemed to be highly prevalent. At the same time, these areas were used for epidemiological research and treatment trials.

The way the surveys were carried out is of special interest and is described in detail by Tumbelaka (<sup>5</sup>). Health education was given to all authorities concerned during their weekly meetings. Hygiene, clinical signs of leprosy and the policy of control were discussed. The latter was based on a preliminary study of the beliefs of the local population with regard to leprosy.

With the assistance of the local authorities, potential patients were traced, examined and their contacts checked. Chaulmoogra oil and its derivatives were the medicines of choice. Patients were advised to live separately from their families but in the same compound and to keep themselves busy. This was known as the Norwegian

system (<sup>2-8</sup>). Accidental diseases were treated and hygiene improved.

The result of this humane approach was that more and more patients came forward voluntarily after the surveys had finished. The method was discussed at the International Leprosy Congress in Cairo in 1938, whereupon a Committee of the League of Nations visited Java to study the procedure.

## OLD METHOD USED AFRESH

The principle of exploration surveys was re-introduced in Indonesia in 1977, first of all in the eastern province of South Sulawesi. At that time, local random sample surveys revealed an estimated prevalence of up to 15.3 per 1000 ( $\pm 3.4$  95% confidence limits) against a registered one of around 3 per 1000. Health centers and subcenters were found all over the province. All medical personnel were trained in leprosy control and the treatment available. Contact surveys and school surveys were routinely carried out and health education given. Why did a considerable number of patients still escape our attention?

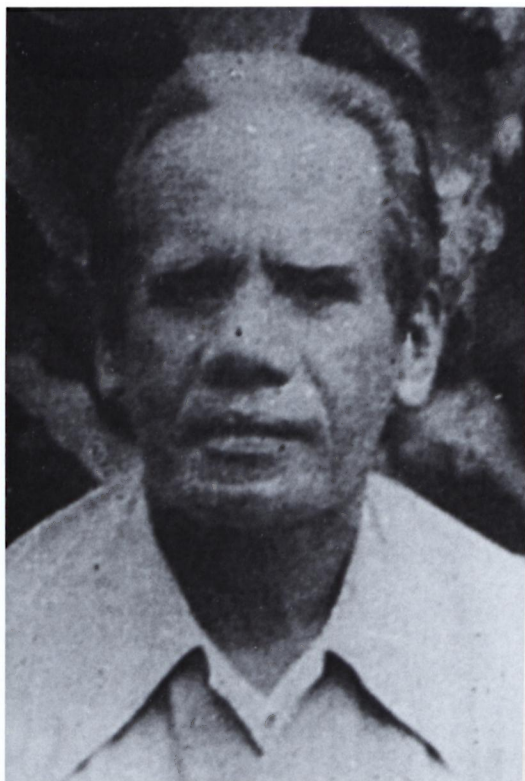
A pilot project, based on the principle of case finding in an exploration survey was carried out in a subregency called Bantimurung. In a population of 40,000, 48 indeterminate/tuberculoid (I/T) and no less than 62 borderline/lepomatous (B/L) cases (Madrid classification) were newly detected. An interview by a health educator revealed that the majority of these patients were eager to be treated but shy about visiting the Health Center and preferred to take the drug from nearby local authorities. Moreover, family members prevented them from showing themselves in public since they were afraid of being identified with the disease.

It became clear that health education for the patient, family and the public should be

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THE FIGURE. Dr. J. B. Sitanala.

increased and that the problem could not be solved without the active participation of the community. Local authorities proved able to overcome the stigma in their dealings with the patients and their families.

In view of the result of this pilot survey, the government decided to reintroduce the principle of the old exploration surveys in Indonesia and to start in the province of South Sulawesi where the disease was highly endemic. The surveys were given the name of chase or trace surveys (<sup>4</sup>).

At that time South Sulawesi consisted of 21 regencies, divided into 155 subregencies, each with an average population of 32,000. Chase surveys were carried out in each subregency. An experienced leprosy worker addressed all local civil authorities, religious leaders and members of the social committee at their regular meeting, focusing attention on the signs of leprosy and the efficacy of treatment, especially at an early stage. They were informed that leprosy could be cured and that treatment was free of charge. Ample time was reserved for posing questions.

Cooperation was requested for the purpose of contacting, by subtle means, persons suspected of having leprosy; emphasis was placed on the need for examination and, in cases of persons shown to have leprosy, treatment. High priority was to be given to health education all over the area. Lists with names were collected by the local medical officer after 1 month. Persons on the lists and their contacts were examined at home or at the Health Center. This was followed by treatment, if necessary. Patients already registered were checked again. Information from patients resulted in the detection of more cases. Ever since, these surveys have been carried out according to the same guidelines.

As mentioned before, random sample surveys revealed the existence of a considerable number of undetected cases and, therefore, the aim of the chase surveys was case detection. Every regency had its own team of leprosy workers, and each team had to cover a different number of subregencies, depending on the size of the population. The average time needed to cover one subregency was about 3 months, and the surveys were carried out one at a time as part of the leprosy workers' routine duties.

## RESULTS

During the chase surveys in the 155 subregencies of South Sulawesi, in a population of 4,960,000 a total number of 6280 cases were newly detected, namely, 3865 I/T and no less than 2415 B/L cases, all in need of treatment and nearly all with a case history of more—and in some cases much more—than 1 year. It is fair to assume that many would never have sought treatment voluntarily, although a number of I/T cases might have healed spontaneously.

It is worthwhile to look in more detail at the chase surveys in the Bone Regency. Leprosy is highly endemic in this regency which, with 21 subregencies, is the biggest in South Sulawesi. Here, the local leprosy team had been reinforced by two experienced nurses from The Leprosy Mission. During the period 1983–1987 all subregencies were covered by chase surveys, and in a population of 643,000 a total of 1492 cases (852 I/T and 640 B/L) were newly detected, mostly with a case history of more than 1 year. All needed treatment. Twenty-

five percent came within disability grade II/III (WHO classification 1970).

It should be mentioned that, by other means of detection, 1166 patients (448 I/T and 718 B/L) came forward during the same period. This means that 66% of the I/T and 47% of the B/L cases were discovered in the chase surveys. However, these percentages have to be treated with some caution since some cases, detected in chase surveys, might have come forward in other case-finding activities had they not been previously caught in chase surveys.

Immediately after finishing the chase surveys, a random sample survey in this regency revealed an average estimated rate of still-undetected paucibacillary (PB) and multibacillary (MB) cases (WHO classification 1988) of 6.7 and 0.2 per 1000, respectively. It seemed that the majority of MB cases had been detected, but that there was still a considerable reservoir of undetected PB cases, 60% of them with a case history of more than 1 year. Although epidemiologically of limited importance, they represented a potential cause of disability. Nevertheless, disabilities grade II/III were not (yet) found among these newly detected patients in the sample.

### DISCUSSION

It is clear that chase surveys have proved their usefulness in Indonesia. Local authorities were able to overcome the stigma and to convince patients to go for examination and treatment. Without this "push" many would never have sought treatment voluntarily. A pre-condition for the surveys was that sufficient medicine could be assured for the whole period of treatment of all newly detected cases.

In addition to the conventional methods of active case finding, chase surveys are very effective in high-endemic regions, especially in the initial phase after opening new project areas, but they can also be used for this purpose in low-endemic regions. If included in the leprosy workers' routine duties, no additional expenses are incurred. Afterward, repeated contact with the local authorities is recommended to ensure that no recognizable cases escape our attention (mini-chase surveys).

At the same time, chase surveys provide general information about the local leprosy

situation. If necessary, they can be carried out for this purpose on a random sample basis. This principle, known as the rapid village survey, has been recommended in recent publications (<sup>1,3,7</sup>).

Chase surveys provide no more than an approximate reflection of the real situation. They are not an alternative to random sample surveys in high-endemic regions. Besides providing a wealth of additional information, random surveys reflect the true rates of undetected cases. How many patients are still hiding? What is their classification and age? What is their disability rate and case history? This is important information required to detect unknown sources of infection.

In the low-endemic areas of Indonesia, random sample surveys were not recommended unless political or other important reasons required a more detailed picture of the situation. Here, chase surveys or mini-chase surveys can play a prominent role (<sup>1</sup>).

Considering the results of the chase surveys in Indonesia, one very much wonders whether elimination of leprosy can be achieved without emphasizing the importance of active case finding, especially in areas in which the disease is still highly endemic. In 1977 active case finding was still highly recommended (<sup>6</sup>); nowadays, the elimination program is based mainly on passive case finding, and active case finding dealt with in a neglectful fashion. One can postulate that the results of multidrug therapy (MDT) would encourage new patients to go voluntarily to clinics to get their medication but during the chase survey in Bone Regency all known patients were already receiving MDT. Nevertheless, it appeared that many still needed a "push" to come forward.

### SUMMARY

Random sample surveys in the past have revealed high estimated against low registered prevalences for leprosy in several parts of Indonesia. A pilot project showed that the problem of cases that had not yet been detected could not be solved without the active participation of the local authorities, who proved able to overcome the stigma and to convince potential patients to go for examination and treatment. The pilot project was based on the principle of what

are called exploration surveys, which were introduced by Sitanala in Indonesia in 1931. The Indonesian government decided to reintroduce these surveys in 1977 under the name of chase or trace surveys. They are carried out within the framework of the leprosy workers' routine duties and no additional expenses are incurred. Since then, thousands of patients of all types and with long case histories have been detected and brought under treatment. Without this "push" it is fair to assume that many would never have sought treatment voluntarily. In view of the experience in Indonesia, one wonders whether leprosy can be eliminated without emphasizing the importance of active case finding, especially in areas in which the disease is still highly endemic. Chase surveys also provide rough information about the local leprosy situation. Although of great value, they are not, in high-endemic regions, an alternative to random sample surveys which reveal, besides a wealth of additional information, the possible unknown sources of infection.

### RESUMEN

En Indonesia, los programas de exploración al azar aplicados en el pasado, consistentemente reflejaban tasas bajas de prevalencia de la lepra. Un proyecto piloto mostró que el problema de los casos no detectados no podría ser resuelto sin la participación activa de las autoridades locales quienes demostraron su capacidad para minimizar el estigma de la enfermedad y para convencer a los pacientes potenciales de asistir a examen médico y de someterse a tratamiento. El proyecto piloto estuvo basado en las llamadas jornadas de exploración introducidas por Sitanala en 1931. El gobierno de Indonesia decidió reintroducir este programa en 1977 bajo el nombre de jornadas de caza para la detección de casos. Estas jornadas se efectúan dentro del marco de las actividades rutinarias de los trabajadores de la lepra, sin la necesidad de incurrir en gastos adicionales. Desde entonces, cientos de pacientes de todo tipo, incluyendo casos de larga duración, se han detectado y se han puesto bajo tratamiento. Sin este "empujón" es seguro que muchos de los casos nunca hubieran solicitado tratamiento de manera voluntaria. En vista de la experiencia en Indonesia es difícil aceptar que la lepra pueda ser erradicada sin recurrir a la búsqueda activa de los casos, especialmente en aquellas áreas donde la enfermedad es de alta endemia. Las jornadas de cacería de casos también proporcionan información sobre la situación local de la lepra. Sin embargo, aunque estas jornadas de cacería resultan de gran valor en las regiones de alta endemia, no substituyen a los estudios de exploración al azar ya que éstos,

además de proporcionar una buena cantidad de información adicional, revelan las posibles fuentes de infección.

### RÉSUMÉ

Des enquêtes par échantillonnage aléatoire ont révélé dans le passé des prévalences élevées pour la lèpre dans différentes régions d'Indonésie, alors que les prévalences enregistrées étaient basses. Un projet pilote a montré que le problème des cas qui n'avaient pas encore été détectés ne pouvait pas être résolu sans la participation active des autorités locales, qui se montrèrent capables de surmonter le stigma et de convaincre les patients potentiels de rechercher l'examen et le traitement. Le projet pilote était basé sur le principe de ce qu'on appelle des enquêtes exploratoires, introduites en Indonésie par Sitanala en 1931. Le gouvernement indonésien décida de réintroduire ces enquêtes en 1977 sous le nom de "chase-surveys" ou "trace-surveys." Elles sont réalisées dans le cadre des activités de routine des travailleurs de la lèpre, et n'entraînent aucune dépense additionnelle. Depuis lors, des milliers de patients de tous types et avec des maladies de longue durée ont été détectés et mis sous traitement. Sans cette "impulsion," il est raisonnable de supposer que beaucoup n'auraient jamais recherché volontairement le traitement. Au vu de l'expérience indonésienne, on se demande si la lèpre peut être éliminée sans insister sur l'importance de la détection active, particulièrement dans les régions dans lesquelles la maladie est encore fortement endémique. Ces enquêtes exploratoires fournissent également une information grossière sur la situation locale en ce qui concerne la lèpre. Bien que de grande valeur, elles ne sont pas, dans les régions à haute endémicité, une alternative aux enquêtes par échantillonnage aléatoire qui révèlent, en plus d'une moisson d'informations additionnelles, les sources inconnues possibles de l'infection.

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