

THE LEPROSY FIELD SURVEY SYSTEM EMPLOYED IN VENEZUELA

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The principles and organization of the current antileprosy campaign in Venezuela have been discussed by Convit in another article.¹ The present article is an outline of field-work practice as it has been worked out in this campaign. It is not to be expected that the system will prove practical in its entirety in all parts of the world, as ethnologic, cultural and religious differences will require modifications of procedure, but it is still hoped that much of it will be of general application and may serve especially as a basis for training field assistants.

TRAINING OF PERSONNEL

It will be readily agreed that careful selection of personnel is of primary importance. Work in the field is hard and enervating. It requires not only a strong physique but also a high degree of emotional stability in human contacts, exemplified by tact, prudence and good common sense, besides solid medical knowledge.

The training of leprologists—who are physicians—should include: (1) A complete formative course in leprology. (2) Special instruction in dermatology to permit distinguishing skin diseases of the region which simulate leprosy. (3) The elements of anthropology. (4) The elements of biostatistics.

The auxiliary personnel, which includes inspectors, nurses and assistants, should also receive adequate training, especially as regards sanitation, human relations and responsibility. Preference should be given to persons with a high sense of dedication to the cause.

EPIDEMIOLOGIC SURVEYS

In even the smallest epidemiologic survey in the campaign against leprosy, the work is important and difficult and requires arduous personal effort. It depends on various primary and secondary factors.

The primary factors are: (a) geography; (b) population density; (c) communication systems; (d) means of transportation; (e) cultural factors; (f) material and equipment; (g) the necessary personnel.

The secondary factors comprise the collaboration obtainable from: (a) local civil authorities; (b) local sanitary officers; (c) educational centers; (d) spiritual leaders; and (e) other persons.

¹ See preceding article in this issue.—EDITOR.

Geography.—It is a fundamental necessity for the leprologist in charge to have a clear idea of the topography of the region he is going to investigate. This includes a knowledge of the mountains, their heights and the areas they cover; the rivers, their course, extent and navigability; the fauna, including dangerous animals; the rainy season and its duration. A knowledge of all these things makes it possible for him to foresee difficulties and take the necessary precautions.

Population density.—It is also necessary to know, even if only approximately, the number of inhabitants in the region to be surveyed and to have reliable information about the people, not only those living in larger groups but also the scattered population. This will facilitate the selection of sites for the field centers in such a way that they will be more or less equally accessible to all of the inhabitants of the region. In this connection, consideration must of course be given to the topography and the roads, as well as to the available means of transportation.

Communication systems.—Information about the roads, trails and waterways, dangerous localities, distances, resources, etc., is necessary in order to enable a party to select the proper route at the proper time.

Means of transportation.—Where trails are the only roads, the traveler—in a country like Venezuela—must necessarily have recourse to saddle and pack animals. He must know how many animals are obtainable in the region, and where and when they can be obtained. There are places which can only be reached by a combination of means, partly by car, partly on horseback, and partly on foot. Some places can only be reached by airplane, others only by river craft. All these things must be known about in order to plan a field trip.

Cultural factors.—A well-grounded knowledge of anthropology gives the field worker an insight into social customs and their biologic relations. The folklore of ethnic groups often points toward cultural origins and influences, and gives an idea of the psychologic forces which operate within a community and are intimately linked with its traditions and beliefs, as well as with the response of its members to suggestion. Its influences are felt in their manner of forming families, and in the type of dwelling they make and the congestion therein, which is common. It has to do with their food habits and the effect of these on their nutritional condition and their resistance or susceptibility to disease.

An understanding of these conditions and influences is necessary for the physician who works in primitive rural communities, the more so as current standards of hygiene, nutrition and medical treatment are often lacking, and he must find the means of accomplishing his objective by coordinating them with the traditions and ways of life as he finds them.

He must also know something about the daily work of the com-

munity and of the time of the day when the men are at home, as well as the times when the children are likely to accompany their parents to the fields. On feast days and market days he is often sure to get the greatest attention.

Personnel.—The composition of field teams varies from ideal to minimal. For the work as carried out in Venezuela the *ideal* would be a leprologist with 3 assistants—one of whom would act as inspector—and a nurse. The *minimum* would be a leprologist with 2 assistants, of which one would have to act as inspector.

Material and equipment (not including personal equipment).—These include both medical equipment and supplies, and other necessary materials.

Equipment proper: Histamin solution, 20 cc.; Mitsuda antigen, Mantoux antigen, and BCG vaccine (these three in quantities according to the numbers of persons to be examined); novocaine, 2 per cent solution, 100 cc.; syringes, 5-10 cc., 6; hypodermic needles, caliber 22, 20; hypodermic needles, caliber 26½, 1,000; bottles (small, penicillin type) with 10% formol solution; sterilized gauze, cut into small lengths; sterilized cotton, in small wads; absolute alcohol, 1 liter; swab-sticks with cotton; small basins, 3; handles for lancets, 3; lancet blades, 12; scissors, 3 pairs; slides, 1 box; plain pincers, 3; merthiolate, 1 bottle; mercurochrome, 1 bottle; antiophidic serum, 3 ampules; oxyquinoline tablets, 1 tube; Darrier's ointment, 1 jar; small cardboard or metal boxes, 100; sterilized gloves, 2 pairs; small surgical outfits with needles, sutures, etc., 6.

Other materials: Blanks for case histories (patients and contacts); notebooks; a transparent ruler, millimeter scale; black and colored pencils; stub books for issuing certificates; prescription blanks; sheets, large, 6; a piece of plastic cloth, 2 × 2 m.; safety pins; paper bags; thermos bottles, large, 3; laboratory coats for staff; mosquito nets; a loud speaker equipped with transformer and functioning with batteries.

A practical method of packing.—A practical method of transporting the equipment is important. To move about in the field with such a variety of articles by various means of transportation is a problem in itself. It has often happened that articles have been left behind at the time of leaving a place. To make checking easy and to avoid breakage, two methods of packing have been devised in our work.

(1) A wooden cabinet, as shown in Fig. 1, equipped with 3 drawers

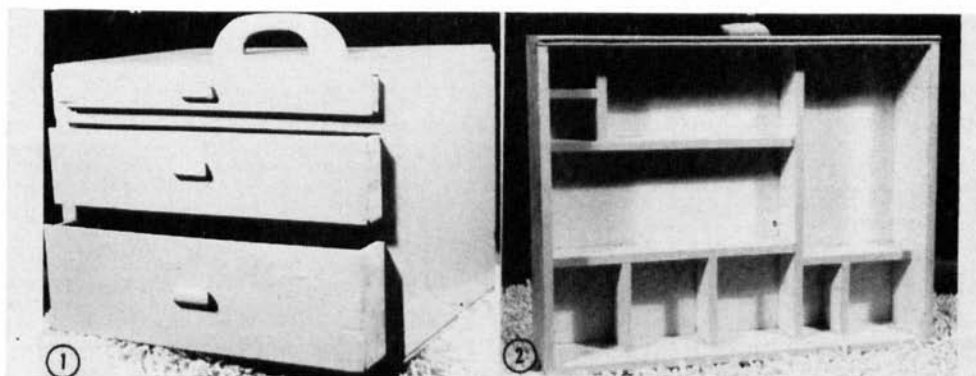


FIG. 1. Wooden cabinet for transportation of equipment.

FIG. 2. Divisions of one of the drawers of the cabinet. (Another drawer was divided otherwise, to accommodate other objects, and one was not divided.)

divided into compartments of different sizes to accommodate the various articles. These are easily checked, as an empty compartment will indicate that something is missing.

(2) A large canvas, preferably waterproof, cut to the pattern shown in Fig. 3 and provided with a system of pockets into which the articles fit or can be tied. It is then folded and rolled into a pack. The box is generally to be preferred, as a greater number of articles can be accommodated, with better protection.

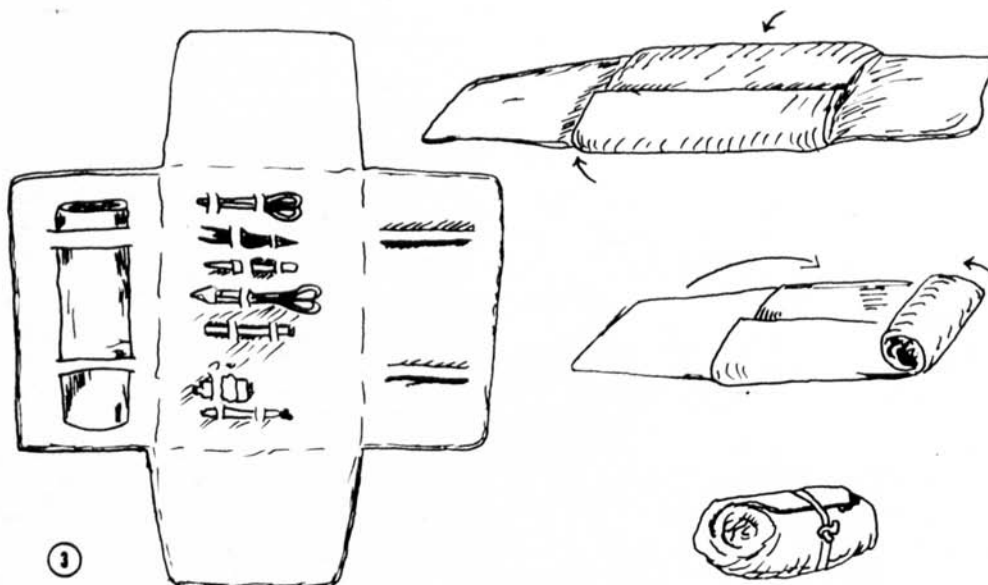


FIG. 3. Canvas roll as an alternative method of packing equipment.

Operation under rural conditions.—Epidemiologic field work in rural areas requires a well-thought-out working system and a thorough consideration of all details, so that time will not be lost in contriving make-shifts while the people to be examined get tired of waiting.

One cannot expect in rural environments facilities for dermatologic work that requires good light, and usually recourse must be had to such improvizations as hanging up sheets. At times there are no tables available, and when there are they may not fulfill ordinary hygienic standards. In such cases the piece of plastic cloth listed comes in handy for covering a table or any other smooth surface.

SECONDARY FACTORS

(1) *Collaboration with local authorities.*—Such collaboration is very useful, especially when one has the good fortune to meet with an intelligent and interested community chief who will give his whole-hearted and active help.

(2) *Collaboration with local public health officials.*—This is a matter of great importance, as the resident rural medical officers supply

the greater part of the information needed, and it is through them that contact is maintained between the central leprosy service and the population in endemic areas.

(3) *Educational centers*.—It is often found that the schoolhouse—where there is one—is the best place in which to work. The teachers are not only apt to give valuable information, but they will often volunteer to do clerical work in connection with the survey.

(4) *Spiritual leaders*.—In a rural area the people often look to their priest for guidance in practically everything that affects their lives. It is therefore wise to enlist his interest and cooperation. He can deal with the survey in his sermons, and do much to allay any apprehensions of the people. His cooperation is especially important where it is necessary to overcome a deep-rooted sense of modesty, which is often too strong in profoundly religious and fashioned minds to permit the physician to examine the whole body.

(5) *Other persons*.—Old persons in a community, when questioned, may prove to be good sources of information concerning cases known in the past. Knowledge of such cases is important for tracing contacts within and outside family groups. Attention should be given also to casual and spontaneous remarks in conversation, as they may disclose facts of interest to the survey.

WORKING METHODS

A field assistant accompanies the inspector from house to house and writes down the names of the occupants on a special registration sheet, using a separate sheet for each family group. During the interview an effort should be made to obtain information about cases in the area, and notice should be taken of anything suspicious. However, if information has already been given of old cases in the vicinity, a tactful approach should be made to get data on family contacts and neighbors. The field assistant should also take note of roads and trails and select a convenient place for the examinations. When all the data have been gathered in the area, the registration sheets are taken to the central office of the service, where the names are entered in alphabetical order in a stub book for issuing certificates. An estimate is next made of the number of days necessary to complete the survey by clinical examination in the field. A field party can generally examine 300 persons a day, applying the Mantoux test at the same time. The inspector or field assistant, with the aid of local authorities, notifies the families that have been selected from the register to come on a certain day to a certain chosen house. If the people in the area are very scattered, two groups may be examined in one day, each at most convenient place according to roads and transportation facilities.

When the field party has arrived at the chosen place, preparations are made for performing the examinations with celerity. An assistant is occupied exclusively with recording the names of the persons to be

examined and passing them on in groups of 5 or 10 according to the size of the room. He may make the Mantoux tests at once if there is room enough, otherwise he passes the people on to the examination room where the inspector will apply the test while the leprologist makes his examination.

Priority is given to mothers with small children. The rest of the people are admitted in alternate groups of men and women to avoid discontent. All persons examined are instructed to return to the same place 3 or 4 days later for the reading of the Mantoux test.

On the day when the Mantoux test is to be read, the people are lined up in single file to pass a table where the individual certificates, already in alphabetical order, are made out after the results of the test have been observed and noted on the person's certificate and its stub.

If the reading is negative, the person is sent to the assistant who administers the BCG vaccine. The dose in such cases is 0.2 cc. on the back in two injections, 8 cm. apart. If the Mantoux test is 1+ positive (5-10 mm.), the person is given only 0.1 cc. of BCG. More strongly positive persons are not vaccinated, but are advised to go to the rural medical station to be examined for tuberculosis. A list of these strongly-positive cases is sent to the resident rural medical officer.

Once the investigation is finished, the records are checked to find out who failed to come for the first examination, and who failed to come on being notified a second time. An assistant stays behind to read the Mantoux reactions of those who did not come. If there are not too many of them, this is done by visiting them at their homes.

Those who never showed up at all are insistently notified to come for examination, until all the inhabitants of the region under survey have been examined. In this manner a record is obtained of all cases and their contacts for the rural medical center, or the medical center of the district, or both.

In a leprogenic area thus investigated, a field assistant remains and is charged with the following duties:

- (1) To attend to the distribution of the DDS tablets in quantities to last each patient 1 or 2 months according to how far away he lives, except in the cases where it is preferable to give the medicament in suspension.
- (2) To vaccinate controls with BCG every 3 or 4 months, until a strongly positive Mitsuda reaction is obtained.
- (3) To vaccinate with BCG all children between the ages of 0 and 15 years during 4 years, and to keep a careful record of this work.
- (4) To register the population for future surveys in the localities, within the district, where none has been made.
- (5) To give out information on all sanitary problems in connection with leprosy, so as to make everybody in the locality sanitation-conscious and to stimulate the interest of the patients in getting cured and keeping in touch with the leprosy service.
- (6) To see to it that all patients and contacts are notified to come to a given population center whenever the physician requires it, which will be every 4 to 6 months.
- (7) To report to the rural medical officer the patients who are found to be in bad condition.

Records of the survey.—Data such as the names and the numbers of the persons examined, and the results of the Mantoux tests as well as the BCG vaccinations, are recorded on individual sheets to form a register for which the stubs of the book of certificates and the primary lists are the sources of information. These sheets are made into a book in which is inserted, by way of introduction, a summary of the work with useful information about the terrain, rainfall, the availability of horses, etc. In a space under the heading “observations,” notations are made of the patients found and their nearest neighbors.

DISCUSSION AND CONCLUSIONS

There can be no doubt but that a survey made entirely by house-to-house visits would be ideal, but that is difficult when we deal with a scattered population in a large and thinly-populated area. Moreover, since it is not to be expected that all members of a household will be at home at the same time, the work would naturally be slow and require great physical effort on the part of the field party.

In the various methods of survey that we have used, one of the greatest obstacles has been the impatience of a crowd when they are waiting to be attended to. This may be the cause of too rapid examinations, with the result that incipient cases pass unnoticed, or errors may be made in recording the basic information so as to cause confusion and delay later on.

The system described is the one now in use by the field parties working under the direction of the Leprosy Division, and it has proved very valuable in getting high percentages of the people on the record—almost the whole population, we may say. The field assistant who remains in the locality and sees to it that the patients receive treatment in their homes, makes note of the children born after the initial census, and also of all persons who hereafter come to live in the zone, thus exercising an epidemiologic control. The treatment and control of patients in their homes is very important, the more so as the medicaments available nowadays (DDS in tablets or in injectable suspension) are really effective. Practically all persons in a leprogenic area are reached by the personnel in charge of the permanent BCG prophylaxis, and all cases of actual leprosy receive treatment. The system is easily coordinated with a program of sanitary education and with certain kinds of immunologic work, e.g., in connection with diphtheria, tetanus, etc.; but this may, of course, involve an increase in the trained personnel.

SUMMARY

In this article concerning epidemiologic work in Venezuela with special reference to leprosy, attention is called to the primary and secondary factors to be considered in a minimal survey of the leprosy problem. Among the primary factors are the geography of the region, the density of the population, the communication system and means of

conveyance, cultural factors, material and equipment, and the personnel required. As secondary factors are mentioned the collaboration to be obtained from other parties, such as civil authorities, local sanitation officials, officials of health centers, spiritual leaders, and other persons.

A practical system of survey is described. This system is considered to be very valuable, as it makes it possible to treat the patients in their homes. The cost is much lower than it would be than to confine the patients in institutions.

RESUMEN

Se esbozan algunas consideraciones generales sobre las bases doctrinarias de la epidemiología especialmente hanseniana y se expresan los diversos factores que condicionan las encuestas mínimas epidemiológicas hansenianas, clasificándolas en factores primarios y secundarios. Entre los factores primarios se encuentran: la geografía de la región, densidad de población, vías de comunicación, medios de transporte, cultura, material y equipo y el personal necesario que a su vez se considera como personal ideal y personal mínimo requerido. Entre los factores secundarios se comentan las colaboraciones de otros organismos: autoridades civiles, autoridades sanitarias locales, los centros de salud, los directivos espirituales y de otras personas.

Se describe un sistema práctico de realización de encuestas y se comentan los resultados que se consideran de un gran valor no sólo por permitir un tratamiento domiciliar sino un control mayor de pacientes a un costo relativamente bajo, en relación al costo en los institutos hospitalarios.