FINAL REPORT ON THE YAWS ERADICATION CAMPAIGN IN HAITI

BUDGETARY REPORT ON THE YAWS ERADICATION CAMPAIGN IN HAITI

(Document submitted by the Government of Haiti to the
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Minneapolis, Minnesota, August 1962
Although most of the Delegates have some knowledge of Haiti, it would be best we think to first give a short account of the 27,750 Km.² of mountainous terrain that harbors a population ranging from 3,111,973 (National Census 1950) to 3,584,211 (SANDOR Census, May, 1958). Of this population, 87 per cent live in rural areas to which access is afforded by paths abounding in quagmires and bordered by deep ravines. During the rainy season, access is made even more difficult by landslides that often place insurmountable obstacles in the way of pedestrians and riders. The peasants who live in these rural areas are illiterate and undernourished; the huts they live in are 2 meters 50 high with floors of beaten earth and roofs of thatch. And these ill-ventilated huts that shelter families with from 5 to 10 children have only one entrance. With this background, it is not difficult to grasp the extent of the drama being played in these pitiable settlements where yaws, that promiscuous disease, finds favorable conditions for its spread. Nor is it difficult to grasp the effect that this state of affairs must have on the social and economic structure of which the peasantry is the keystone.

Backgrounds. For many years, perhaps too many years, our medical officers knew little of yaws; what they did know was limited to what they had learned in theoretical courses at the medical school. That is understandable if it is recalled that the gates of town were closed to persons with yaws lesions, so that the rural areas served as quarantine areas. And it explains why the disease, so disfiguring in its tertiary phase, has ravaged the rural areas. It is no exaggeration to speak of an incidence of from 60 to 70 per cent, even though no survey was made to determine it. We shall perhaps be reproached for not having thought about making a survey or rather of not having made it by those who do not take into account what such a survey would have cost us at a time when our financial possibilities were very limited. The absence of such data did not preclude the idea that yaws was a veritable scourge and that urgent action was required. True, in 1916 and especially with the Rockefeller mission in 1924, teams of nurses headed by American physicians attacked the problem and treated patients with arsenicals; but that remained an isolated movement until 193 when an American philanthropist, Dr. James Dwinelle, Director of the American Health Mission, who had been very impressed by what he had seen on his journeys through the country conceived the idea of making a resolute attack on the disease. Encouraged by Dr. Jules Thébaud, at that time Director-General of the Health Service who approved the plan drawn up by the Institute of Inter-American Affairs, Dr. Dwinelle assisted by Dr. François Duvalier, Dr. Aurèle Joseph, and a few young Haitian physicians embarked upon a campaign against yaws; he established stationary clinics in regions where the incidence of the disease was particularly high and used bismuth, sulphasphenamine and mapharsen (less toxic that neo-salvarsan) as therapeutic agents. The yaws problem in Haiti is dealt with in this paper in three periods: (1) First
period: Yaws control under the auspices of the Institute of Inter-American Affairs, 1942-1950; (2) Second period: Yaws eradication or mass campaign, 1950-1958, carried out by the Government of Haiti, WHO, and UNICEF; (3) Third and final period: surveillance, which is the necessary corollary of a mass campaign whose successes of it consolidates. The surveillance program, which began in 1959, is being carried on by the parties to the 1950 Agreement, namely, the Government of Haiti, WHO, and UNICEF.

The results obtained by the American Health Mission, although they came slowly, were sufficient to win the confidence of the peasant suffering from yaws and soon the clinics had more patients than they could deal with (the average daily number of patients treated in the clinics was 800 and I recall that the Cayes-Jacmel Clinic once treated the record number of 1,700 patients in a single day). It therefore became necessary to find a more rapid treatment in order to cut the problem down to size. About that time, after Mahoney and Arnold had shown the effectiveness of penicillin in the treatment of primary syphilis and reports had been published underlining the beneficial effects of this drug in the treatment of treponematoses, Drs. Rein, J. Dwinelle, and Albert Sheldon, carried out trials with penicillin in Haiti. They chose 500 yaws patients and divided them into three groups. The first group (A) of 200 patients were given 30 injections of aqueous penicillin, each of 400,000 units, at an interval of three hours; and the other two groups (BandC), each of 150 patients, were given 600,000 units, the dose being adjusted to the age and weight of the children. From the clinical results of these trials they concluded that even though the doses did not have much effect on the number of serological cures, penicillin was the drug of election in the treatment of yaws. They therefore discontinued the treatment of yaws with arsenic, bismuth, and sulpharsphenamine in favor of penicillin. The spectacular results obtained with this new method of treatment caused a further upsurge of confidence in the rural population which came to the stationary clinics of the American Health Mission the such numbers that the staff was overwhelmed. The average daily number of patients treated in the clinics was between 600 and 700 and we well remember that on the day Mr. Rockefeller visited on the Cayes-Jacmel Clinic there were more than 1,800 yaws patients at the out-patient department. However, the purpose of the work of the Institute of Inter-American Affairs was only to control this disease, in other words, to reduce it to manageable size, for the incidence of the disease was so high that it could not aspire to undertake its eradication, which called for a much larger budget; on the other hand, if we take into account the geographical configuration of the Republic of Haiti; the ignorance of the most elementary rules of hygiene; the sordid promiscuity in which the peasant lives; the absence of demographic data; the non-existence of access routes; it is clear that the elimination of the disease from the national territory, was too great and undertaking for the American Health Mission. And so, after the trials with penicillin made in 1947 by Rein and Kitchen the Mission became interested in the steps taken by the Government to obtain the assistance of international organizations such as WHO and UNICEF in eradicating the disease in Haiti.
How did Drs. Rien and Kitchen proceed? With the help of a board of Haitian physicians they selected three groups of patients (Group A: 450; Group B: 450; and Group C: 258) with primary and secondary lesions in five regions of the Republic (Belladere, Lascahobas, Pilate, Plaisance, and Port-a-Piment). They were all treated with penicillin G in pistachio oil containing 4.5 per cent of beeswax (10 cc vials with 300,000 units per cc). Patients in group A were given a 1 cc injection of penicillin, each day for four days, or 1,200,000 units in all.

Patients in group B were given 1 cc penicillin twice a day, at an interval of 12 hours, for two days, or 1,200,000 units in all.

Those in Group C were given 1 cc of penicillin twice a day, at an interval of twelve hours, for four days, or 2,400,000 units in all.

Before treatment was given, a blood specimen was taken from each patient and sent to the laboratory for the Kahn, Winton, and VDRL test. The results were positive, and clinical and serological tests were made every three months for a year. After four days all the patients were completely cured. The serological results obtained were as follows:

<table>
<thead>
<tr>
<th>Group</th>
<th>Serological cure</th>
<th>36.86%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Serological improvement</td>
<td>55.45%</td>
</tr>
<tr>
<td></td>
<td>Stability and serological relapse</td>
<td>7.69%</td>
</tr>
<tr>
<td>Group A</td>
<td>Serological cure</td>
<td>38.85%</td>
</tr>
<tr>
<td></td>
<td>Serological improvement</td>
<td>51.91%</td>
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<tr>
<td></td>
<td>Stability and serological relapse</td>
<td>9.23%</td>
</tr>
<tr>
<td>Group B</td>
<td>Serological cure</td>
<td>49.00%</td>
</tr>
<tr>
<td></td>
<td>Serological improvement</td>
<td>45.34%</td>
</tr>
<tr>
<td></td>
<td>Stability and serological relapse</td>
<td>5.59%</td>
</tr>
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</table>

The experimenters therefore proclaimed that a simple and sure therapy was available and that yaws could henceforward be cured quickly and cheaply. The Government of Haiti could not let pass the opportunity offered it of undertaking what it had not dared to do before; namely, a campaign for the eradication of this social and economic scourge. But how was it to go about it? The financial situation in the country did not allow the Government to deal with the problem by itself. It, therefore, approached WHO and UNICEF which did not grudge their technical and material assistance. The Yaws and Rural Syphilis Eradication Service came into being as a result of the joint efforts of the Government of Haiti, WHO/PAHO, and UNICEF. And now we enter the second period of the yaws problem (1950-1958).

In 1950, the Government of Haiti therefore signed an agreement with WHO and UNICEF consecrating the era of the eradication of yaws and rural syphilis by antibiotics. It provided for a program of mass treatment aimed at extirpating the disease from the territory of the Republic,
eliminating all sources of contamination, and evaluating the results of the treatment by surveys to be made at the beginning and the end of the campaign. It was agreed that WHO would furnish necessary technical assistance for guiding and conducting the program and for training technical personnel, that the Government of Haiti would provide technical personnel (inspectors), administrative personnel (director-administrator, accountant, secretaries, statisticians, etc.), administrative offices, etc., and that UNICEF would furnish supplies and equipment.

In order to eliminate yaws from the Republic, the plains, valleys, mountains, the remotest corners had to be visited. Technical personnel had to be recruited and it was obviously necessary to have a rather large number of them, thoroughly grounded in the details of the work they had to do, essentially mobile and able to contact and educate the rural dwellers, to make quick and summary surveys, recognize cases of yaws, and use their equipment intelligently, efficiently and economically, and above all to be able to put up with bad weather and to overcome all sorts of difficulties which they are bound to meet here; in other words, this technical personnel had to be young and tough. We therefore recruited 30 young men between the ages of 21 and 35, all holding a public school graduation certificate, a certificate of good health, and a certificate of good character.

Training of inspectors. The Government of Haiti, WHO, and UNICEF work in close collaboration on the technical training of these young men. They underwent about two months intensive theoretical and practical instruction at the SERPIAN Office, the lecture hall of the medical school, the dermatological department of the general hospital, and various health centers in the capital, in elementary aseptic technique, typical yaws lesions, intra-muscular penicillin injections. In the yaws clinics of the American Health Mission, to which they paid frequent visits, they were able to become acquainted with the evolutionary cycle of the disease by having direct contact with and examining a large number of patients and by seeing the mutilations of the tertiary phase.

Uniform. It was unanimously decided that SERPIAN inspectors should not wear any uniform since the Haitian peasant is very afraid of all uniforms; the inspector was given an identity card bearing his photograph.

Collaboration. Since the peasant was the main target of this campaign, he had to be approached and contacted. How could that be done? He was illiterate, he did not read the newspapers, and he had no access to radios. Settlements were few and far between, and in many places there was not less than 3 kilometers between huts. We must, therefore, pay a tribute to the American Health Mission which during its yaws control campaign, 1942-1950, was able to win the trust of the peasants: all that had to be done was to strengthen it by asking the military, civil, and religious authorities to announce at all assemblies such as wakes, cock fights, markets, and dances that the Government was sending doctors to treat cases of yaws.
Inspector. The SERPIAN inspector, who is he? What does he do?

He is a social worker of a new type who is called upon to do work requiring physical fitness and high moral qualities. He must be young, tough, energetic, able to make long treks or rides across the plains, the valleys, and the mountains. He must be able to support inclement weather and to surmount all obstacles, including the hostility of certain ill-informed persons. He must be able to adapt himself to conditions of life that change from place to place. He must have tact enough not to hurt the feelings of those he is called upon to care for, and above all, he must be respectful of their customs and traditions. His part is limited to campaign activities, to treating all cases of yaws, and all cases that resemble yaws, to treating any lesion which may be a portal of entry for yaws infection, inculcating into the peasants the notions of hygiene (frequent baths and thorough soaping, avoidance of direct and indirect sources of contamination, etc.) that enable them to guard against yaws. He must also make them understand that yaws is not an inevitable disease, even less a shameful disease that has to be concealed. It is a disease like any other disease, curable and avoidable, a disease that has to be treated as soon as possible if its long-term consequences, which are always disastrous and disfiguring, and its harmful effects on the individual, communal, and national economy, are to be avoided. He must give the peasant an inkling of the excellence of the treatment which he is going to apply and which will prevent other members of his family from becoming affected. In short, the SERPIAN inspector is at the same time a social worker, a health educator, and valuable assistant to the medical officer of the yaws eradication campaign.

Regulations. To facilitate the work of eliminating yaws from rural settlements, regulations providing for the punishment of offenses were drawn up. In booklet form they were distributed to the inspectors, who were informed by circulars of all changes introduced by the central office in the light of discussions at periodic meetings at which the regulations were explained, and based on the experiences of inspectors during the campaign. A system of grades that makes for easier contacts and better discipline has been established and has enabled us to standardize the work and to check it efficiently.

Grades of Technical Personnel. The technical personnel comprises:

(1) The Comptroller General. He is responsible to the Central Office for the way the field staff do their job and he sees to it that the regulations are strictly observed and the work is uniformly and efficiently performed. His regular reports make it possible for the administration to appreciate the quality and the general progress of the work.

(2) The Inspector General. He is responsible for the activities of his group and the conduct of the staff under his command. He supervises the work of the liaison inspectors and sends reports on the activities of his team to the Central Office through the Comptroller General.
(3) Cartography Team. It is under the supervision of the Inspector General and consists of inspectors who take a census of dwellings and delimit all the rural areas of the communes. It also disseminates information and contacts the authorities (medical, military, civil, and religious).

Methods. As in all campaigns against the treponematoses, there were several methods to choose from and it was not easy to find a sound method. The method of stationary clinics used by the American Health Mission could not be used. It was not suitable for an eradication campaign, which is completely different from a control campaign. The complete absence of statistical and demographic data led us to adopt the method of daily mobile clinics to begin with. Three teams were formed; one for propaganda, one for treatment, and one for checking. They worked as follows: (1) the propaganda team informed the military, civil and religious authorities of the aim of the campaign and of the date of the arrival of the treatment team; (2) on arriving in the settlement on the day announced the treatment team set itself up at a particular place (usually in a school, a church, or the Administrator's office), and all patients reporting to it were given an injection of 1 or 2 cc of penicillin, depending on whether or not they had yaws lesions. The next day the team went on to another sector in accordance with the pre-established itinerary. (3) Three months later the check team followed the same itinerary as the treatment team and dealt with those patients who had not reported to the treatment team.

This method was used until the results of the 1951 census were published. These showed that only 20 to 25 per cent of the population had been covered by the campaign; in the Western Department 133,750 persons were treated out of a population of 1,325,150; in Artibonite 77,684 out of 607,188; and in the Southern Department 455,504 out of 84,716, or a total of 666,738 out of 2,777,054, or 24 per cent. Since the expected results had not been attained it was therefore decided to change to the "house to house" method. Many patients were immobilized by their lesions and could not go to the clinic, and consequently could not be treated. It was therefore necessary to go to them.

In 1951 when the results of the national census were known the method of daily mobile clinics was abandoned in favor of the "house to house" method, so that no one could be overlooked. Maps were made of the rural areas, houses surveyed, visited, and carefully checked. Armed with a map of the rural area the treatment inspector goes from house to house until he has visited all the houses in his area. He numbers each house he visits, fills in a card for each member of the household, and asks the parents to tell anybody who is not there to report to him at his headquarters. He revisits closed houses (where no one is present) during his stay in the locality. He makes enquiries in order to trace the origin of each case of yaws he discovers and he treats all contacts. This method made it possible to treat 3,506,882 persons, or 97 per cent of the total population, between July 1950 and 31 December 1954; of these
1,281,666 were suffering from yaws and the remainder, or 2,225,216, were contacts. The prevalence was therefore 35.7 per cent.

The results of the treatment had to be checked by means of periodic surveys made at random in the country; these random surveys enabled us to trace cases that had escaped treatment because they were in the incubation period or period of latency, or were immigrants from adjacent infected regions or persons who were not present when the treatment inspector made his round.

The survey team is composed of five inspectors under a medical officer. He sets up headquarters at a central point and receives cases that are sent to him by the inspectors distributed according to the four cardinal points; secretions are collected for examination at the Serological Institute.

The "house to house" method has enabled us to cover almost the entire population, especially those who were immobilized by the disease. At this stage of the campaign it became clear on checking the results that the backsliders, the cases which had refused treatment, had to be traced and new suspicious lesions had to be investigated. A zoning system (division of the country into five zones) was therefore adopted, as was a new nomenclature for our technical brigade. The operate system, which was aimed at tracing the remaining cases, the inspector needed additional training, so in December 1961 they began intensive training under Dr. Velarde and Dr. Facio of the World Health Organization and Dr. Edouard Pétrus, Director-Administrator of SERPIAN. A new hierarchy was established: Comptroller-General, Zone Chief, Assistant Zone Chief, Treatment Inspector, but it did not make much difference to the technical responsibilities of these persons. This change of approach from mass treatment to the epidemiological investigation of each new case, and the treatment of each focus of infection, was due to the fact that the whole population of 3,506,882 had benefited from the treatment. The territory of the Republic was divided into 78 geographical sectors. Because the number of inspectors had increased from 30 to 94, it was possible to assign one to each sector. Their task was to make house to house visits to seek out the remaining cases of yaws. They had to follow a pre-established route, treat the cases they discovered, and give special attention to contacts i.e., all persons living in a house in which a case of yaws had been discovered and the inhabitants of neighboring houses, all the children in any school in which a case had been reported. This new system made it possible for us to treat 45,537 persons in the course of 45,653 visits in 1955, and 61,523 persons in the course of 64,827 visits between January and August 1956, or 99.5 per cent of the population visited. This number includes cases of yaws, which amounted to 16,202 or 14.6 per cent of the persons treated, and contacts.
During the review phase of the campaign, which served as a transition between the mass campaign phase and the surveillance phase, the contract binding the parties was prolonged and revised to include a program for the control of urban syphilis. In the following years the contract was again prolonged from time to time and the two programs continued until 1957, when the program for the control of urban syphilis was discontinued and replaced by the smallpox vaccination campaign, which was in turn suspended in 1958 and transferred to the Ministry of Public Health. The number of inspectors was then reduced from 94 to 64.

In 1958 the results of random sampling led to the institution of the surveillance phase --the third and last of the yaws eradication campaign-- and once again the number of inspectors was reduced, because of budgetary difficulties, to 37.

The incidence of treponematoses having been reduced to 10 per 10,000 it was clear that only surveillance spread over a number of years would ensure the suppression of all sources of contamination. In anticipation of this stage, WHO in 1957 had equipped the Service with Mac Arthur microscopes (compact type of ordinary microscopes) for the dark field examination of doubtful cases, and all the inspectors had been trained to use these microscopes. WHO reinforced the national staff with a medical consultant to assist it in developing and carrying out the project under the supervision of the Ministry of Health. From that time onwards, SERPTAN or the Yaws Eradication Service was known as SANDOR or the Rural Domiciliary Health Service, because it was called upon later to take over the activities of the Rural Public Health Service.

**Surveillance.** What is a surveillance campaign? In other words, what is surveillance? It is defined as a special type of activity that inspectors, divided into surveillance teams, carry on in order to maintain a given community free from any infectious yaws; the task of each team is to investigate, to trace, and to treat all sporadic cases of yaws notified to it by the reporting agents (reporting system) in the communities; naturally the teams must maintain constant contact with these agents.

**Surveillance Team.** Each surveillance team consists of five inspectors who have undergone specialized training in dark field examinations. There are seven teams distributed among the five geographical departments; one being a reserve team attached to the Central Office for the investigating of cases reported to it direct. Each team has two Mac Arthur microscopes (the number has since been increased by WHO) and a reconditioned jeep station-wagon. One inspector in each group acts as leader which encourages a spirit of mutual understanding. Since for surveillance work each rural section is considered as a unit the team makes contact with the reporting agents and obtains full information (complete name and address) about
cases of yaws reported, goes to their houses, investigates and treats them and their contacts. The team leader distributed the work among the members of his team according to the number of cases reported, maintains a daily journal of the work of the team in the prescribed form, and submits it to the director of the field force during his visit to the zone; if no cases are reported to the team by the reporting agents, the team makes a random sample before going on to the next rural area. All teams follow itineraries approved by the Central Office.

Reporting System. A reporting system has been built up in the rural areas, the chiefs of the rural police force and their assistants being the main sources of information and auxiliary reporting agents, missionaries, rural school teachers, rural dispensaries, mission dispensaries, local magistrates, tax officials of the rural centers, the employees of specialized agencies such as "Pote cole" and the Malaria Eradication Service whose inspectors work in the hinterland. We obtained the full collaboration of these agencies by explaining that a sound reporting system could assist SANDOR in the very important work of surveillance since all reported cases had to be visited in their homes by members of the team and each case has to be completely investigated including a clinical examination and a dark field examination and that our epidemiologist made enquiries on his rounds in order to trace the sources of contamination. SANDOR also places much reliance on the spirit of discipline and the long experience of each member in particular. Each recognized case of yaws receives 600,000 units of penicillin, and each contact, 300,000. Persons with negative ulcers are of concern to us even though they represent no danger, and are given a supply of sulfathiazole powder to ensure their collaboration in the future.

This method of work soon produced the results we were looking for. In 1959 a total of 625,513 peasants were examined and 635 cases discovered, of which 300 were primary and secondary, 329 wet crab, and 6 of T. pertenue ulcers. In 1960 surveillance throughout the whole country made it possible to examine 1,920,701 inhabitants in 360 rural areas or about 60 per cent of the population of the country; the number of cases detected and treated rose to 695, of which 333 were primary and secondary, 356 wet crab, and 6 T. pertenue ulcers. In 1961, the number of infectious cases found in a population under surveillance of 2,308,706 was 32, between January and July 1962, out of a population of 881,185, it was only six. Thus on the basis of the number of infectious cases in relation to the population under surveillance, the prevalence decreased per 10,000 from 10 in 1959 to 1.9 or 19 per 100,000 in 1960 and continued to decrease in 1961 to 1 per 100,000 and in July 1962 to 0.6 per 100,000.

It should be borne in mind that the regions under surveillance were among the most infected in the Republic and that the number of T. pertenue ulcers reported was negligible. Those results were obtained from certain special investigations.
At the beginning of the surveillance campaign and for the next few months it was suspected that the spirochetes observed in the dark field examinations of ulcers reported at a rate sufficient to alarm public opinion were not all *T. pertenue*. In July 1960, at the suggestion of the medical consultant of WHO and with the technical assistance of the consultant and of the personnel of the National Public Health Laboratory, investigations were begun to ascertain the true nature of the supposedly positive ulcers. Inspectors were asked to prepare two smears from each ulcer positive to the dark field examination and to send them to the Central Office for identification by the National Public Health Laboratory. In 1960, between July and November, 138 specimens were collected and examined by the consultant of the National Laboratory. The results showed that 81 per cent contained *Borrelia vincenti*, sometimes in association with *Bacillus fusiformis*; 1.5 per cent contained *T. pertenue*; and the remainder contained various elements.

These investigations proved that (1) the inspectors were competent in reading the results of the dark field examinations and had adapted themselves to the new procedures; (2) that yaws was progressively becoming rare in Haiti. They also showed that about 96 per cent of the positive ulcers reported from the field were to be considered simple tropical ulcers. Laboratory confirmation of all cases reported as yaws is necessary, since they may be certain dermatoses unrelated to the disease. This control measure is making it possible to obtain a more precise evaluation of the prevalence of yaws in the country.

This measure continues to produce statistical results. As to its curative and epidemiological there is no concern since from the beginning of the eradication campaign the inspectors have been authorized to treat all cases resembling yaws and their contacts as cases of yaws, so as not to allow any case of yaws to pass undetected. Comparative tables of the results obtained are reproduced in the annexes and show that, according to field reports, prevalence at the end of June 1962 was 0.009 per cent or 9 per 100,000, but that according to the findings of the National Public Health Laboratory it was only 0.0006 per cent or 0.6 per 100,000 statistically.

**Dosage of Penicillin.** Basing itself on the results of the trials both of the American Health Mission and of Bristol Myers, SERPIN, in agreement with the WHO representatives, decided as early as the beginning of the mass campaign to use a dose of 2 cc for cases of yaws and a dose of 1 cc for contacts. To ensure that the dose contemplated was effective, a research center was set up at Bainet where the density of yaws cases was high. At the clinic established there, secretions from lesions were examined microscopically and blood specimens were collected for Kahn and VDRL tests. All patients giving a positive reaction (secretions and blood) received 2 cc of penicillin. Once a week to begin with and then after two months once a month blood specimens were taken for examination. After eight days all the lesions had cicatrized; on the other hand, serologically, two years were to elapse before a satisfactory result (about 96 per cent) was obtained.
Since it is acknowledged that in a mass campaign the important thing is to control the disease and to eliminate one of the main means of spreading the disease the minimum dose for treating yaws is therefore 2 cc of penicillin. This dosage is still being used with success.

Equipment. At the beginning of this report we emphasized how tough the staff who were going to carry out this new type of work in Haiti had to be. The equipment they were going to use had to be no less tough. UNICEF which in accordance with the 1950 agreement had undertaken to furnish the necessary equipment understood that point so well that it kindly supplied us with jeeps for the transport of our inspectors and supplies over the cut-up roads of our mountainous areas. Those jeeps made it possible for our technical personnel to travel in all seasons and to exercise close supervision over a rather important sector. A person who is assigned a vehicle which he drives himself and for which he is personally responsible takes great care of it, for to him it is a valuable tool. As a proof of this statement we cite the fact that the vehicles delivered in 1956 have already done more than a 100,000 miles but thanks to good maintenance are still in active service.

Technical equipment still consists of field sterilization kits, penicillin, syringes, needles, towels, cotton wool, alcohol, etc., all of which is packed in a handy knapsack. As early as 1957 WHO thought it advisable, in anticipation of future developments, to provide SERPIAN with Mac Arthur microscopes.

Mention should also be made of administrative equipment which comprises report forms, requisitions, treatment cards, and everything required to ensure quick, uniform operations and easy checking of field staff and equipment.

Integration. It is undeniable that in every eradication campaign the final stage is its integration with the health services, if the advantages gained are not to be lost. The Yaws Eradication Campaign is no exception. That is why this matter was taken up in 1960, when the prevalence of yaws was 1.9 per 10,000 or 19 per 100,000, and again in 1962, when the prevalence had fallen to 0.06 per 10,000 or 0.6 per 100,000.

In 1961 we came to the conclusion that integration could be effected in either of two ways:

1) To integrate SANDOR with the National Health Services and at the same time to extend the health activities of its specialized personnel.

2) To hand over the Yaws Service to the local services so that they might continue to pursue its objective, the complete extirpation of the disease which soon will no longer constitute a problem, even if no preventive measures are taken.
The first solution is expensive, but in the absence of a well organized rural medical service, it is the only one that can be recommended. As for the second, it would be the preferable solution if the local health services had already attained a sufficient degree of development.

The WHO representatives therefore proposed progressive integration to the Ministry of Public Health. This was to be based on the transfer of a team of inspectors to the "Pote Cole" health division in the north (a well organized service), for a period of one year. They would not only be responsible for yaws surveillance but would also undergo at the same time in the centers of that institution additional training to fit them to be even more useful in the future. This team would be renewed every year for the benefit of the other teams. This proposal was approved by the Secretary of State for Public Health and Population and was put into effect on 16 November 1961.

Combined Yaws Surveillance and Smallpox Vaccination Campaign

As the surveillance program developed and the prevalence continued to decrease, the WHO consultant took up with the Government of Haiti the matter of the possible resumption of the smallpox vaccination campaign that had been discontinued in 1958. The combination of these two programs, whose methods of execution were similar, would enable the last unsuspected cases of yaws to be traced. But the project could not be put into effect because of financial difficulties. Meanwhile, prevalence had fallen to a point such that were a thousand dollars offered for the discovery of a case of yaws, it would all be spent in a vain attempt to find a case that could be confirmed by laboratory examination. Now, how to go about getting the idea of a combined yaws surveillance and smallpox vaccination campaign accepted, since certain authorities maintain that yaws no longer exists and others argue that there has not been a case of smallpox in Haiti for 40 years? Perhaps they are right. But they forget that if they are right, then the present generation, especially pre-school and school age children are particularly susceptible. There again, it was the representative of WHO, who, bearing in mind (1) the occurrence of several cases of smallpox at the beginning of the year in London and in Dusseldorf, Germany; (2) the endemic nature of the disease in Ecuador, Brazil, and especially the Congo between which country and Haiti traffic was increasing owing to the speed of the present modern means of transportation, suggested that on behalf of the Government of Haiti the Minister of Public Health should ask the Governments of Latin America to donate sufficient dried and glycerinated vaccine for a possible smallpox campaign. As a matter of fact this assistance has been spontaneously offered by these Governments and that of WHO has always been available to them, so that it will be possible to put this combined Yaws Surveillance Smallpox Eradication Campaign into practice, thanks to an initial consignment of 100,000 doses from the Government of Colombia. It was inaugurated on 9 July 1962 in a form of pilot project in the 6 rural areas of the commune of St. Marc.
Since a considerable improvement in the standard of living of the peasantry is to be counted on, we are certain that our hinterland will soon be definitely free of this social and economic scourge, especially if the Alliance for Progress is good enough to consider the plan for the development of rural public health submitted by the Minister of Public Health of Haiti, a plan which is and has been for many years one of the main concerns of my Government but whose realization has been hampered by an inadequate budget among other things.

It is now time for us, in the name of the Government of Haiti, to pay public tribute to WHO/PAHO for its assistance, which explains our presence here among you. To its staff whose experience, devotion, and perseverance have been sorely tried we doubt whether we can express gratitude which is their due.

To UNICEF, the ever generous UNICEF, which, despite the fact that the obligations of the agreement are no longer binding, has never tired of our tales of woe, we do not know what to say. Therefore, in the name of our Government, we simply say, "Thank you".

6 August 1962
ANNEX I

YAWS PREVALENCE

1950-54 to 1962

1.085
0.412
0.208
0.095
0.017
0.019
0.001
0.0006

NUMBERS OF CASES AND CONTACTS TREATED

BY YEARS 1954 - 1960

Cases

Contacts

YEARS


PHASES

House to House  Mopping Up  Sample Survey  Campaign of Surveillance

50,000  50,000  50,000  50,000  50,000  50,000  50,000

60,876  6,592  11,789  87,113  50,869  26,658  21,703  695  13,361

800,000  750,000  700,000  650,000  600,000  550,000  500,000  450,000  400,000  350,000  300,000  250,000  200,000  150,000  100,000  50,000
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<thead>
<tr>
<th>Month</th>
<th>Areas Visited</th>
<th>Population under Surveillance</th>
<th>Cases Found</th>
<th>Cases Confirmed</th>
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<td>47</td>
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<tr>
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<td>35</td>
<td>167,499</td>
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<td>3</td>
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<td>147,437</td>
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<td>June</td>
<td>37</td>
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<td>July</td>
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<td>36</td>
<td>213,613</td>
<td>40</td>
<td>11</td>
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<td>43</td>
<td>213,329</td>
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<td>1</td>
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<td>October</td>
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<td>233,257</td>
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<td>0</td>
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<tr>
<td>November</td>
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<td>150,115</td>
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<td>105,071</td>
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<td><strong>TOTAL</strong></td>
<td><strong>393</strong></td>
<td><strong>2,308,706</strong></td>
<td><strong>272</strong></td>
<td><strong>32</strong></td>
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<tr>
<td>Month</td>
<td>Areas Visited</td>
<td>Population under Surveillance</td>
<td>Cases Found</td>
<td>Cases Confirmed</td>
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<tr>
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<tr>
<td>January</td>
<td>16</td>
<td>93,856</td>
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<td>February</td>
<td>22</td>
<td>119,938</td>
<td>15</td>
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<td>March</td>
<td>26</td>
<td>168,082</td>
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<td>April</td>
<td>25</td>
<td>163,344</td>
<td>4</td>
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<td>May</td>
<td>20</td>
<td>156,840</td>
<td>0</td>
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<tr>
<td>June</td>
<td>28</td>
<td>179,455</td>
<td>22</td>
<td>0</td>
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<tr>
<td>TOTAL</td>
<td>137</td>
<td>881,515</td>
<td>80</td>
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The Republic of Haiti, which has an area of 28,000 Km.\(^2\) occupies the western part of the island that is known as Haiti, Hispaniola, or Santo Domingo; the other part is occupied by the Dominican Republic, which has an area of about 50,000 Km.\(^2\).

Although smaller, the Republic of Haiti is the more populated; it has 3,100,000 inhabitants, 87 per cent of whom live in the rural areas.

Agriculture is the main source of natural wealth. Its economic structure therefore rests on the peasantry whose working capacity, and therefore agriculture production, has always been handicapped by yaws, a rural disease with a very high prevalence.

It is estimated by some to be as high as 60 to 70 per cent. As a matter of fact, the lack of any statistical data made it impossible to be precise. Many attempts had been made to control the disease; nevertheless, the situation was getting worse owing to lack of funds. However, special mention should be made of the efforts to combat the disease undertaken by the Rockefeller Mission in 1924 and more particularly the sharp attack made on it in 1941 by the Institute of Inter-American Affairs and the members of the American Scientific Mission. Nevertheless, the disease continued to spread.

The Government of Haiti, alarmed by the extent of the ravages caused by this disease among the peasantry and after having learned of the effectiveness of penicillin in treating primary syphilis, lost no time in asking PASB for assistance in planning a program for the definitive solution of the problem, especially after the favorable conclusions of the survey made in Haiti in 1947 by Dr. Rein and Dr. Kitchen of Bristol Myers with the assistance of a board of Haitian physicians all of whom were agreed as to the beneficial effects of penicillin in the treatment of treponematoses.

The request of the Government of Haiti was favorably received, and the Tripartite Agreement signed on June 1950 by the Government of Haiti, PASB/WHO, and UNICEF gave rise to the Yaws Eradication Service (SERPIAN), the purpose of which was as follows:

1. To undertake a national yaws eradication program based on systematic treatment with antibiotics.
2. To combat rural syphilis by means of antibiotics and to eliminate most of the sources of infection.
3. To evaluate the results of the yaws and syphilis campaign by means of surveys of the number of cases at the beginning and the end of the campaign and by serological examinations.
4. To train professional and auxiliary personnel in methods of eliminating yaws and controlling syphilis.
PASB and WHO undertook to provide technical consultants; the Government of Haiti agreed to defray the remuneration of local personnel; and UNICEF undertook to furnish the necessary equipment (supplies, penicillin, syringes, etc., means of transport).

Once programming was complete, that is to say once the objective was defined and the respective engagements were defined and assigned, it was necessary to get on with the execution of the program.

An Haitian physician was appointed Director/Administrator, placed under the authority of the Ministry of Public Health, and charged with recruiting:

One Personnel and Finance officer.

Shorthand typists (1 bilingual).

One statistician, statistical clerk for the compilation of data.

One cartographer and assistants for determining the configuration of the country and for preparing the necessary maps for the various phases of the campaign.

One store manager and assistant for the checking and renewal of supplies and equipment (Penicillin, etc.).

One officer responsible for transport, equipment and its maintenance. The necessary field personnel.

In accordance with the plan established a budget was drawn up and containing the following main heads of expenditure:

Salaries, Central Office;
Salaries, Inspectors or technical personnel;
Travel Expenses, Central Office, for Inspectors (per diem);
Travel Expenses, technical personnel (per diem);
Communications (telegrams);
Hiring and Maintenance of animals (transport) and guide;
Fuel (gasoline and oil);
Maintenance of vehicles (mechanic, spare parts, and tires);
Office supplies and stationery (Report forms, requisitions, treatment cards, house numbering tags).

Naturally, a certain flexibility was envisaged, in accordance with the general lines of the budget so as to allow, in face of a subsequent expansion of activities, a suitable adjustment between administrative decisions and the changes and modifications that might be the normal result of the exigences of local conditions and the social background in Haiti.
A financial report on the campaign was presented to the most recent International Seminar on the Treponematoses held in Port-au-Prince, 21-27 August 1956.

In the national budget, the allocations for the period, July 1950 to September 1956, were as follows:

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<tr>
<td>1950</td>
<td>$30,000</td>
<td>$213,850</td>
<td>$196,000</td>
<td>$196,000</td>
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</table>

The cost to international organizations in the same period was as follows:

(a) UNICEF contribution (supplies: penicillin, syringes, cotton wool and vehicles (28)) $630,000

(b) WHO (salaries of consultants, travel expenses, per diem, stipends for Haitian fellows) $282,000 $912,000

To date, 3,700,000 people have been treated. The per capita cost of the campaign is thus 52 American cents, and the campaign may be considered virtually complete since the incidence has fallen to 1/2 per cent.

A new smallpox vaccination campaign has been grafted on to the work of SERPIAN, and the inspectors of field personnel that numbered 94 at the peak of activities was reduced to 64 in 1957.

For financial reasons, the Public Health Department gave instructions in November 1958, to suspend the smallpox campaign, and the field personnel was further reduced to 37.

The successor to the Yaws Eradication Service was the Rural Domiciliary Health Service or SANDOR, which had the task of beginning the last phase of the campaign. The so-called surveillance phase.

Seven groups, each of five inspectors, were formed; one group was assigned to each geographical division and two groups, known as mobile teams, were kept ready to deal with reports or urgent calls for help.

Consequently, the budgetary credits allocated reflected the reduction in field personnel and administrative personnel.

The budgetary allocations for the years 1956-1962 were as follows:

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<tbody>
<tr>
<td>1956</td>
<td>$110,000</td>
<td>$96,000</td>
<td>$88,000</td>
<td>$88,000</td>
<td>$88,000</td>
<td>$96,000</td>
<td>$566,000</td>
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</table>
In 1957, WHO provided the inspectors with Mac Arthur microscopes in order to facilitate surveillance work and is still helping the Government of Haiti to trace the last cases of yaws by providing materials that are not available locally, such as batteries for the microscopes and sulfathiazole powder for treatment of ulcers. It is worth mentioning that in addition to the six sent in 1957, 20 more microscopes, each costing $300, were provided in 1960 for surveillance work.

Furthermore, in addition to a sanitary inspector, who supervises the work of the field inspectors, WHO continues to provide a medical consultant whose zeal and devotion to the Haitian people in his work is beyond praise and is highly appreciated both by the inspectors and the senior officials of SANDOR.

Although since 1958 UNICEF has fulfilled all its obligations to the yaws eradication campaign, it continues to maintain interest in the activities of SANDOR and is always ready to help it to solve its problems whether by supplying spare parts for the motor transport which is still giving good service in the surveillance campaign or by exchanging stocks of penicillin, whose expiration date has passed.

It is hoped that this succinct report of the administrative and budgetary aspects of the yaws eradication campaign in Haiti, from its initiation in July 1950 to 1956, through the period of transition, 1956-1958, and into the so-called surveillance phase, from 1958 to date, will be of use to all public health workers in making a comparative evaluation, which will make it possible, by correlating the results obtained and the experience acquired, to free humanity from the scourges that undermine the vital forces of a nation.

For its part, Haiti justly proud of the colossal success of this campaign, the results of which have been presented in the attached technical report, while rendering public tribute to the humanitarian activities of those two great international organizations, WHO and UNICEF, is happy to present this document that expresses vividly and in concrete form what can be done by good will, mutual aid, and international cooperation.

July 1962