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UNITED NATIONS
ECONOMIC AND SOCIAL COUNCIL

GENERAL

E/ICEF/188
3 April 1952

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UNITED NATIONS INTERNATIONAL CHILDREN'S EMERGENCY FUND

Executive Board

REPORT OF THE EXECUTIVE DIRECTOR ON EXPERIENCE WITH UNICEF-ASSISTED YAWS CONTROL PROGRAMMES IN HAITI, INDONESIA AND THAILAND

Table of Contents

Introduction

1. Yaws is an infectious disease, widely spread in the tropics, affecting especially children. It is caused by an organism of the treponema group, a group also responsible for syphilis, bejel and pinta.

2. UNICEF has worked closely with the World Health Organization in assisting Governments to undertake projects in the field of treponematosis control. UNICEF has aided principally programmes for treating syphilis in pregnant women and newborn infants, and programmes for the treatment and control of yaws. In addition, UNICEF is assisting a number of country maternal and child health projects in which syphilis or bejel control is an integral part.

/3. The following

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3. The following paper is confined to a progress report and appraisal of three yaws-control programmes which UNICEF is currently assisting in Haiti, Indonesia and Thailand. Section I of this paper contains a summary of yaws-control in these three countries; Section II discusses experience with various phases of the mass campaigns. A progress report by WHO is included as Annex I.

4. UNICEF assistance to Haiti, Indonesia and Thailand for yaws control, totals $1,930,000. An additional $628,000, to extend the programme in Haiti and Thailand, is being recommended to this session of the Executive Board.

5. UNICEF is also assisting Burma, the Dominican Republic, North Borneo and the Philippines in yaws control, and Iraq and Syria in bejel-control, with problems similar to those arising in Haiti, Indonesia and Thailand.

6. The syphilis-control programmes aided by UNICEF employ different patterns of organization. In Afghanistan, Burma, India, Indonesia and Thailand, syphilis-control projects are in the early stages of development and do not lend themselves to appraisal beyond the general comment that they promise to give important help to maternal and child health programmes, but to relatively small numbers of persons. In Yugoslavia, the syphilis-control programme is a mass campaign, conducted in an area of endemic syphilis, and the number of persons aided is comparable to the yaws campaigns.

7. At present UNICEF is assisting 9 countries in treponematosis projects. (In 3 others, similar projects are part of MCW plans. See Table I, footnote 1.) New recommendations, before the current session of the Board include the first UNICEF assistance in this field to Liberia, and the extension of further assistance to the Philippines, as well as the extension of aid to Haiti and Thailand referred to above. If the recommendations, totalling $842,000, are approved, the number of countries will be increased to 10 and current allocations for assistance to these programmes will total $3,674,000.

/8. The following

8. The following table shows the allocations which have been made by UNICEF to country maternal and child care programmes for the control of syphilis, bejel and yaws, the status of these programmes in respect to UNICEF assistance, and the country programmes for which new allocations are recommended.

Table I

UNICEF Assistance to Country Treponematosis Programmes

Allocations Approved Since Inception and Recommendations to This Session of Executive Board

Country	Type of Project		Allocation $	Status of UNICEF Assistance
Asia 1/				
India	Syphilis Control		107,000	Approved Current
Indonesia	Yaws and Syphilis Control		1,200,000	Approved Current
Philippines	Yaws and Syphilis Control		147,000	Approved
	Total:	$261,000	114,000*	Recommended Current
Thailand	Yaws and Syphilis Control		410,000	Approved
	Total:	$778,000	368,000*	Recommended Current
Eastern Mediterranean				
Palestine Refugees	Syphilis Control		25,000	Approved Completed
Iraq	Bejel and Syphilis Control		150,000	Approved Current
Liberia	Yaws and Malaria Control		100,000*	Recommended

1/ For Afghanistan and Burma, UNICEF assistance to Maternal and Child Welfare programmes includes aid for syphilis control; in North Borneo the MCW project assisted by UNICEF includes Yaws Control. The portions of the allocations going directly to assist this work, however, are relatively small.

* Recommended for approval to this session of Executive Board.

Country	Type of Project	Allocation $	Status of UNICEF Assistance
Eastern Mediterranean			
Syria	Bejel and Syphilis Control	50,000	Approved - To begin September 1952
Europe			
Austria	VD Laboratory	37,000	Completed
Bulgaria	VD Control Demonstration	37,000	Completed
Czechoslovakia	VD Control Campaign	84,000	Completed
Finland	VD Control Demonstration	28,000	Completed
Greece	MCW Syphilis Control Demonstration	10,000	Completed
Hungary	VD Control Demonstration	58,000	Completed
Italy	MCW Syphilis Control Demonstration	78,000	Completed
Poland	VD Control Campaign	308,000	Completed
Yugoslavia	Endemic Syphilis Control	374,000	Approved Current
Latin America			
Dominican Republic	Yaws Control	74,000	Approved Not yet in operation
Haiti	Yaws and Syphilis Control Total: $580,000	320,000 260,000*	Approved Recommended Current
	Total Allocations	$4,339,000	

* Recommended for approval to this session of Executive Board.

SECTION I

PROGRESS REPORT ON YAWS-CONTROL CAMPAIGNS IN HAITI, INDONESIA AND THAILAND

HAITI

UNICEF Allocation

1. An allocation of $320,000 to assist the Government of Haiti in a yaws control campaign was approved by the UNICEF Executive Board in November 1949. The campaign, assisted by UNICEF and WHO, began on 20 July 1950. Plans covered a period of two years through June 1952. A recommendation is before the current session of the Board requesting approval of an additional $260,000 to assist the programme for a second two-year period ending June 1954. Approval of this recommendation will bring the total allocation to $580,000, covering the period July 1950 - June 1954.

Number of Persons Covered by Campaign through December 1951

2. By the end of December 1951, after 17 months of operation, 770,000 persons in rural sections of Haiti, about 28 per cent of the total rural population, had been surveyed and treated.

Size of the Problem

3. The population of Haiti in 1950 was 3.1 million persons. The urban population, assumed to be relatively free of yaws, was 12.4 per cent of the total. Density of population for the entire country was 112 persons per square kilometer. The area of Haiti is 27,750 square kilometers; four-fifths of the country is highly mountainous.

4. The economy is agricultural. Haiti is divided into five Departements which in turn are divided into arrondissements, having few if any large centers of population. The rural population lives principally on small farms scattered throughout the mountains and is not concentrated, as in some countries, in villages. Their

/dwellings are

dwellings are dispersed about the countryside; but the people themselves are moving about. They are at work in the fields or traveling to and from a market center. A high proportion of them travel long distances with their market produce.

5. The incidence of yaws in Haiti is not known. Limited studies, including the experience of the present campaign, have placed it at around 50 percent of the rural population. "Yaws" includes persons with a past history or present evidence of the disease. If this percentage holds true throughout all rural areas of the country, it would mean that at the start of the campaign in June 1950 about 1.3 million persons in rural Haiti had signs of yaws.

6. Through October 1951, in daily clinics, except for small control groups, every person examined received an injection; present plans call for a house-to-house canvass with treatment of yaws, and injection of others in households among members of which yaws is found. It is not expected that this new approach will appreciably reduce penicillin requirements.

7. The World Health Organization has recommended that at least 90 percent of the population must be reached in the initial mass survey if the control is to be effective. With this recommendation in view, all of the rural population of Haiti, 87.6 percent of the total population, has been taken as the estimate of the number of persons to be surveyed. This means that at the beginning of the campaign the number of persons in Haiti to be examined was about 2.7 million. At the beginning of 1952 there remained somewhat less than 2 million to be examined by field teams working in the initial "sweep", or rechecking areas already covered.

Treatment

8. Penicillin has been used exclusively in the campaign. The dosage established by WHO for Haiti is substantially less than the dosage used in Indonesia and Thailand. Persons attending the clinics are classed as cases or others ("contacts"- persons without symptoms of the disease but living in contact with an infectious case); the cases receive 600,000 units (2cc.) of penicillin (PAM) in a single intramuscular injection, and the others, 300,000 units (1 cc.).

/9. A control

9. A control study unit at Bainet in the Departement de L'Ouest is undertaking to evaluate the single-dose penicillin therapy and to establish a minimum effective dose. The results of the study to date appear to support the conclusion that the dosage used in the mass campaign, 600,000 units (2cc.) is sufficient to cure clinical manifestations of yaws in Haiti. Experimentation to determine whether or not a smaller dosage is equally efficacious continues.

10. UNICEF also assisted the Government in equipping a serological laboratory which is now an integral part of the Department of Public Health. This laboratory performs an average of 10,000 tests per month. The serological tests required for the control study of dosages set up in Bainet are handled by this laboratory.

11. For planning purposes, it has been assumed that of the persons remaining to be examined at the beginning of 1952 half will require 2 cc. (600,000 units) of penicillin to cure the disease and the other half, 1 cc. (300,000 units) of penicillin.

Organization of the Campaign and Progress to Date

12. In the mass campaigns, exclusive of control groups, out of 708,000 persons treated by the end of 1951, 376,990 received 2 cc of penicillin and the remaining 331,165 received 1 cc. Expressed in percentages, of the persons surveyed 53 per cent had signs or past history of yaws, and the remaining 47 per cent were assumed to have direct contact with the disease. Of the 376,990 cases treated, one-third were children. In addition to the persons surveyed through the mass campaign, nearly 62,000 persons were treated in control clinics.

13. The technique followed during the first phase of the campaign in Haiti involved the use of mobile teams of inspectors working through daily clinics set up temporarily in places accessible to the rural population. A time and place for

/the clinic was set

the clinic was set and the total population of the area urged to attend. All children attending were injected either as cases or others.

14. Through 28 October 1951 (the latest date for which information is available by districts) in the Departement du Sud in which the mass treatment clinics operated, 393,000 persons had been seen out of an estimated population of 740,000 or 53 per cent of the population of the area. While follow-up work was not complete in this Departement, the ground had been covered once by the mass clinic method. A programme of spot survey is now being carried out in this area in order to establish the percentage of infectious cases missed.

15. On 27 October 1951 a "house-to-house method" was begun, which, as the name implies, involves visits to every house in the area of operation for the purpose of on-the-spot inspection of the population and treatment of infectious cases of yaws and their contacts. If no yaws case is found, the household will not be treated. This method is being tried in an effort to increase the percentage of the population covered by the survey. It is recognized that the plan may prove slower than the mobile clinic technique, but it is hoped that if more complete coverage can be achieved, the slower rate, and therefore higher cost, will be justified.

Campaign Staff

16. The bulk of the personnel making up the teams are lay inspectors trained in all phases of the yaws campaign; propaganda, treatment and record keeping. These workers are recruited with secondary reference to education, background or experience, but with primary emphasis on good health, sympathy with the campaign and ability to learn the techniques of the campaign and to serve as jeep driver-mechanics. They are recruited and trained by the Department of Health and form

/a highly satisfactory

a highly satisfactory corps of auxiliary personnel. Inspectors receive a monthly salary which compares favorably with rates of pay for skilled workers. It is assumed that this personnel will form a pool from which permanent inspectors for the Government's continued yaws-control programme may be recruited. At the end of December 1951, 23 inspectors were operating in the field and 10 additional inspectors were being trained. The number of inspectors will be increased to over 40 in 1952, and it is hoped to expand this number at a later stage of the campaign.

17. Supervising the campaign are a small number of Haitian doctors. (The total number of doctors in Haiti is 240). International technical personnel provided by WHO is assisting the campaign: 3 doctors, one serologist and one statistician. In the field, chief inspectors and general inspectors supervise teams.

Rate of Survey

18. The present rate of survey and treatment is difficult to determine because of the change in October 1951 to the "house-to-house" method of operation. The average number of persons surveyed per month in the period 20 July 1950 through 13 October 1951 in the daily clinic method was over 43,400. If an average of 25 inspectors were working per month, this represents a ratio of 1 inspector to about 1,736 persons surveyed per month. During the period 27 October 1951 through 15 January 1952 (81 days), 94,400 persons were surveyed through the "house-to-house" technique, an average of a little less than 35,000 per month, a rate (based on 23 inspectors) of 1 inspector to 1,522 persons. The rate varies greatly from month to month depending on the terrain to be covered, weather conditions and number of inspectors in the field. In order to examine an estimated 2 million persons by June 1954, the number of persons surveyed must be increased to an

/average of 66,700 per

average of 66,700 per month for the entire 18 month period. At an average rate of 1 to 1,667 persons per month, 40 inspectors would be able to meet this target.

Cost of the Campaign

19. Through the end of 1951, UNICEF expenditures to assist the campaign totalled $295,000 as follows:

Supplies and Equipment (shipped)	$ 33,000
Transport (12 jeeps and parts)	29,000
Penicillin (shipped)	233,000
Total	$295,000

Out of the allocation of $320,000, about $25,000 in penicillin remained to be shipped in 1952.

20. The amount of penicillin used through the end of 1951 has been about 1,241,000 c.c. valued at approximately $161,330. Through the end of 1951 the average amount of penicillin used, related to the total number of persons injected (not calculating loss and breakage), has been 1.57 c.c. per caput.

21. The cost of examining and treating 770,000 persons through December 1951, including three-fourths of the cost of permanent supplies and equipment, may be roughly estimated as follows:

Estimated Cost of Campaign Through December 1951
(Based on Amounts Programmed for the Period Ending June 1952)

UNICEF	
Penicillin Used (1,241,000 c.c.)	$161,300
3/4 of Cost of Equipment and Transport	46,500
WHO	
Budget	55,000
Government	
3/4 of Two-Year Budget	160,500
Total	$423,300

/Using this

Using this method, the average cost per person surveyed and injected would be about 55 cents. Actually the cost is lower since the life of the equipment and transport can be assumed to be longer than the duration of programmed international assistance; in this case longer than June 1952.

22. The Government of Haiti has established a budget for the campaign of $107,000 per year for the first two years of operation through June 1952. If further assistance is granted from UNICEF, this budget will be increased to $196,000 per year for the second two-year period of the plan of operations; i.e., through June 1954.

23. UNICEF has been asked to continue assistance from July 1952 through June 1954. The allocation recommended, principally for penicillin and transport, is $260,000. WHO/PASB has provided technical assistance and services for the campaign at a cost of $80,600 for two years July 1950 to June 1952. WHO will continue to pay the salaries and transportation expenses of one chief medical adviser, one field medical consultant, one clinician, and one serologist during the years 1952-53 and 1953-54 at a cost of approximately $55,400 per year, or a total of $110,800 for the two years.

24. The total cost of the campaign, through the projected end of the mass treatment phase, in June 1954, can be estimated as follows:

Estimated Cost of Campaign July 1950 - June 1954

(Based on Total Amounts Programmed and Recommended, 1950 - June 1954)

UNICEF	
First allocation	$320,000
Recommended allocation	260,000
WHO/PASB	
First two years	80,600
Second two years	110,800

/Government

Government

Budget for first two years	214,000
Proposed budget for second two years	392,000
Total	$1,377,400

The total number of persons with signs of yaws is estimated as half the rural population and the total number of other persons to be treated as the remaining half, or 2.7 million persons to be surveyed and treated during the entire four-year period. The average cost, therefore, would be about $.51 per person to be surveyed and treated. The average cost, related only to the number receiving 2 c.c. of penicillin would be $1.02.

Plans for Continued Control

25. The yaws campaign in Haiti is to comprise three phases: (a) mass diagnosis and mass treatment, followed by (b) establishment of permanent treatment dispensaries located at strategic points, and (c) a system of case-finding and on-the-spot treatment by a yaws attendant on home visit. The first phase of the programme has now been in operation since June 1950 and techniques of mass treatment are being tested. It is planned to complete mass treatment of the population by the middle of 1954. The Institute of Inter-American Affairs is assisting the government to establish a number of permanent dispensaries. The main objective of the Government is to establish a permanent organization within the Haitian Public Health Service to safeguard the gains of the campaign.

Conclusion

26. The major difficulties encountered in carrying out the yaws campaign in Haiti have been summarized by Government and WHO officials. Three technical questions appear to be in process of solution:

/(a) the dosage of

(a) the dosage of penicillin required to cure yaws in Haiti;

(b) the incidence of infectious yaws; thereby determining whether or not it is necessary to treat the total rural population with penicillin;

(c) the technique for reaching the highest possible percentage of the rural population whether through mobile mass-treatment clinics, house-to-house surveys, or some combination of these two techniques.

27. The following factors have made the conduct of the campaign difficult:

(a) Lack of an official Government census

Until a few months ago no population figures for Haiti were available; estimates of population by area, age and sex were extremely tenuous. No definitive information was available concerning the prevalence and incidence of yaws.

The yaws control campaign is working closely with the Government offices responsible for the 1950 census. Unprocessed data are made available to the teams working in the field and the campaign personnel cooperate in checking the census enumeration. As the 1950 census material is analyzed and checked the problems of coverage become clearer;

(b) Roads, weather conditions and transport

Except in the immediate vicinity of urban centers, means of public conveyance are virtually non-existent. Roads, if they exist, are extremely primitive. It is common for rainfall during long periods of the year to obliterate roads completely. Jeep transportation is essential for teams and supplies. Road conditions are so bad that jeeps must be constantly repaired. The campaign staff in many areas travels on horseback, if animals can be rented, or if not, travels through the area on foot. These conditions considerably retard the work of the campaign.

(c) Complete lack of mass communication facilities

All propaganda regarding the campaign, and information as to dates and times of clinics, must be publicized by word of mouth.

(d) Social organization of the community

The fact that the rural population is dispersed over the countryside, often in mountainous terrain, presents a major problem in attempting a house-to-house campaign.

/(e) Mobility of the

(e) Mobility of the population

The rural population is highly mobile, especially women who travel frequently from farm to market, spending two or three days on the road. This mobility emphasizes the need for speed in conducting the campaign. It is virtually impossible to be certain that an area already treated is not reinfected by movement back and forth between the region treated and an area of infection.

28. A number of the factors operating to make the campaign a success have been:

(a) Government Interest and Support

The Government has given its full support to the campaign, making every effort to facilitate the work, build up staff and assure the success of the operation.

(b) Successful Treatment

The use of penicillin to cure yaws is entirely successful. Open sores caused by yaws disappear soon after treatment.

(c) Public Enthusiasm

In every area in which the campaign has operated the teams have been received with enthusiasm. Very few refusals have been noted in the house-to-house canvass.

(d) Use of Auxiliary Personnel

The use of jeep driver-injectors has contributed largely to the speed with which the campaign got under way. Thus personnel was easily and quickly recruited because of the wage rate established by the Government, and because high standards of education were not demanded. Training was simple and emphasized field practice. Careful judgment was exercised in final selection of trainees for field jobs. The results have been highly satisfactory.

INDONESIA

UNICEF Allocation

29. The Executive Board of UNICEF has allocated a total of $1,200,000 to assist the Government of Indonesia in a yaws and syphilis control programme. The first apportionment of $1,100,000 was approved in May 1950. This assistance was programmed for a duration of two years. The Government's plan for the treatment of yaws through a special campaign in selected areas is based on earlier efforts to control the disease undertaken in East Java between 1936 and 1942.

Size of the Problem

30. The population of Indonesia in 1950 is estimated to have been about 73.5 million, with an average density of 49 persons per square kilometre. The area of Indonesia is 1,491,564 square kilometres. The country is made up of approximately 3,000 islands. The islands of Java and Madura, with an area of 132,174 square kilometres, have an estimated population of more than 52 million and a population density of over 390 persons per square kilometre. It is reported that in some rural sections of Java population density exceeds 1,000 persons per square kilometre. Less than 4 percent of the people of Java live in cities. In rural areas, they live principally in small villages with a fairly high degree of social organization.

31. From earlier studies and results of the present survey, it is believed that the incidence of yaws in selected rural areas of Indonesia is around 15 percent. It is difficult to establish the size of the yaws problem in Indonesia, to locate the areas of highest infection, and to judge the size of the population in those areas. The original plan of operations called for a concerted attack over a two year period, throughout selected areas of Indonesia in which the population was estimated to total 12 million.

/Number of

Number of Cases Treated Through December 1951

32. The Government began its present campaign, assisted by WHO and UNICEF, in May 1950 in two areas of Java where the incidence of yaws was believed high: the districts of Jogjakarta (population estimated at 1.85 million) and Djakarta (population estimated at 1.45 million). By the end of 1951, 17 months after the commencement of operations, the yaws control mass campaign using mobile teams was in operation in 10 separate areas, including parts of Java, Sumatra and Kalimantan. About 268,000 persons had been treated, representing 18 percent of 1.5 million persons examined. It is estimated that the persons examined represented somewhat less than 70 percent of the estimated population (2.2 million) of the areas covered. In addition, examination and treatment was being carried out in a pilot project in two districts of East Java, employing a technique whereby cases of yaws are located by an inspector and brought to the regency Doctor for treatment.

Treatment

33. Penicillin is used exclusively in the yaws control campaign, although arsenicals are still employed in treating yaws through established policlinics in Indonesia. Only those persons diagnosed as having yaws have received injections. Up to the present time the dosages of penicillin, administered in two injections, established by WHO for this country, have been as follows:

Age	United Per Dose	Total Dosage	Interval Between Doses
0 - 2	.3 million units (1 cc.)	.6 million units (2 cc.)	4-7 days
2 - 10	.6 million units (2 cc.)	1.2 million units (4 cc.)	4-7 days
10 and over	1.2 million units (4 cc.)	2.4 million units (8 cc.)	4-7 days

/The Government

34. The Government also has provided a research team to investigate dosage and other problems in connection with the development of techniques for the control campaign. A serological laboratory and experimental hospital were established at Jogjakarta.

Organization of the Campaign

35. The plan of operations calls for the use of teams consisting of one doctor, if possible, and eight male nurses, who in Indonesia are called mantris. The latter type of paramedical personnel have been used for some years in rural policlinics in Indonesia. They have a primary school education and four years of hospital training. The mantris used thus far in the campaign, have been recruited from those living in the areas of field operation.

36. These teams travel from village to village, in the control areas, some members of the team moving ahead to advise the village of the work and to assemble the population for the clinic on the appointed day. In most cases, inspection, diagnosis and treatment of yaws cases, is undertaken by the main force at the time established for the clinic. Statistical records are maintained by a member of the team. Full advantage is taken of the village Civil Administration which cooperates in taking the census of the area under operation as well as in collecting the people on the appointed day for the clinic. The section of the team responsible for diagnosis and treatment moves on to another location, returning after a few days to the villages recently treated in order to administer the second injection of penicillin.

37. The gradual expansion of the campaign, and the difficulties of obtaining a sufficient number of mantris, have resulted in the "dilution" of teams by replacing two mantris on each team by the same number of field clerks. These clerks take over only the administrative and record keeping functions of the team. The problem of providing full-time supervisors, doctors or experienced health officers, for the

/teams has been

teams has been met in part by using regency doctors as part-time supervisors of the teams.

38. By the end of 1951, a staff of around 150 persons were devoting full time to the campaign. On 24 February 1952, 157 full time mantris were at work and 11 in training.

39. WHO, with financial aid from UNICEF during 1950-51, posted 2 specialists (a chief consultant and a serologist) in Indonesia to assist in the organization of the campaign. WHO will continue this assistance in 1952.

Rate of Survey

40. The rate of examination and treatment during the last three months for which reports are available (December 1951, January and February 1952) has been as follows:

	December 1951	January 1952	February 1952
Population of area	134,492	156,248	197,697
Population Examined	107,801	117,396	149,113
Number of Persons Treated	20,200	22,578	17,691

The total cumulative figures since the start of the campaign through 24 February 1952 are as follows:

	Cumulative Report 24 February 1952	
	Number	Percent
Population of Area Covered	2,547,734	100% of population of area
Population Examined	1,762,218	69% of population of area
Number of Persons Treated	302,560	17% of population examined
Total Penicillin Consumed Through 24 February 1952	1,987,379 cc.	

41. The ratio of sanitary inspectors to persons examined in the mass campaign in December 1951 and February 1952 averaged 1 to 730.

/The amount

42. The amount of penicillin consumed represents 573,929 injections. The average amount of penicillin consumed per person treated was 6,5 cc.

Plans for Continuation of the Campaign

43. Considerable experience has been gained in the campaign to date and a large number of persons trained in the technique of control, diagnosis and treatment with penicillin. The Government has decided, however, that the present plan of operations must be revised to increase the rate and area of coverage, and at the same time to reduce the cost per case treated.

44. It has therefore been proposed that the campaign be extended, first, by making maximum use of existing rural policlinics; and second, by developing a technique for seeking out and diagnosing cases of yaws in a district not served by a mass survey team or a policlinic and bringing these cases to designated clinics where they can be treated by the regency doctor. This latter technique is being tested in East Java and it is planned to institute it in 20 districts there and to extend it to 20 additional districts elsewhere in the country. It is estimated that in this way, in each district, approximately 300 additional cases can be treated per month. It is hoped that through this method and the use of existing rural policlinics, of which there are some 400 in operation in Indonesia, the number of cases treated can be increased by approximately 120,000 per year.

45. The Government is continuing to train mantris and clerks for the mass campaign work and to expand the number of teams in operation. It is planned to add five teams for 1952 to work under the present mass survey method of operation. If the rate of treatment by the regular teams can be increased to 25,000 per month or 300,000 per year, it is felt that the number of cases treated in 1952 may reach a total of 400,000. In 1953 this figure may be increased to 500,000.

/It is estimated

46. It is estimated that an effective campaign against yaws in Indonesia must reach a goal of a million cases treated a year in order to bring yaws under control throughout most of the islands within a ten year period. At present around 20,000 cases a month are being treated, or 250,000 annually.

47. A Coordinating Committee has been established in Indonesia to help work out policy and plans for the expanded yaws control campaign. This Committee consists of representatives of the Government, UNICEF, WHO and the Mutual Security Administration (MSA).

Cost of the Campaign

48. UNICEF has spent, through the end of 1951, approximately $681,500 as follows:

Penicillin (shipped)	$454,000
Supplies & Equipment (shipped)	93,000
Transport (67 jeeps)	105,000
Project Personnel, WHO 1950-51	27,000
Fellowships	2,500
Total	$681,500

The value of 1,738,472 cc. of penicillin used through the end of 1951 was approximately $226,000.

49. In the first 19 months of operation through December 1951, during which 1.5 million persons were surveyed, the Government can be assumed to have spent about 70 percent of its two-year budget of $678,000, or $474,600, providing local personnel, maintenance of transportation equipment, buildings for laboratories, etc. The costs of the campaign could therefore be estimated by applying 70 percent of the value of supplies and equipment to this period as follows:

UNICEF	
Penicillin used	$226,000
Project Personnel (WHO)	27,000
70% of Value of Supplies, Equipment and Transport	138,600
Government	
70% of Two-year Budget	474,600
	$866,200

/Using this

Using this method, the cost of surveying 1.5 million persons and treating the cases of yaws in that group, has been about .58 per person. The cost per case has been approximately $3.23. Actual costs are lower, of course, since the value of permanent equipment cannot be assigned to the period of international assistance alone, but must be distributed over the life of the equipment or the entire period of the campaign.

Conclusions

50. Major problems of technique face the campaign in Indonesia. First is the question of dosage; if in adults 2.4 million units of penicillin are required to treat infectious cases of yaws, and if the two injections method is applied, it is necessary to see the people on two different occasions, a procedure which involves considerable time and organization. The amount of penicillin, used per dose, also affects the cost of the campaign. Second, if "contacts" are treated, this will greatly increase the estimated numbers of persons requiring penicillin. Third, the size of the rural population of Indonesia is a major factor affecting organization and financing of an effective yaws control campaign.

51. It has been found necessary to re-evaluate the size of the job in Indonesia, and to estimate the time and cost involved in bringing yaws under control. The following factors have made progress difficult:

(a) The lack of information needed to provide a realistic estimate of the problem;

(b) Slowness in getting the operation underway;

(c) Lack of medical personnel and trained mantris of the type required by the plan of operations, lengthy training period, and delay in substituting subaltern personnel for more highly trained mantris on mass survey teams;

/(d) Unsettled

(d) Unsettled conditions in some parts of Indonesia where operations were started and had to be curtailed;

(e) Lack of sufficient Government funds to substantially expand the present mass campaign.

52. It is proposed by the Government to meet some of these problems by revising the plan of operations as outlined above.

THAILAND

UNICEF Allocation

53. During 1950 the Executive Board of UNICEF approved two allocations of $92,000 and $318,000, totalling $410,000, to assist the Government of Thailand in a yaws-control campaign. Work on a small scale began in May-June 1950 in three rural provinces. Experience demonstrated that the original $92,000 assistance from UNICEF was insufficient and that additional funds would be necessary. When the second allocation was made, the Administration indicated that additional funds would probably be required as the campaign progressed. Further assistance in the amount of $368,000, to benefit one million women and children, is now recommended to the Executive Board. If this recommendation is accepted, UNICEF allocations to assist the yaws-control campaign in Thailand will total $778,000.

Size of the Problem

54. The population of Thailand is estimated to have been 18.3 million in 1950. The total area of the country is 513,521 square kilometres and the density of population 36 persons per square kilometre. At least 80 percent of the total population, or 14.6 million may be assumed to live in rural areas.

55. Original compilations of reports of village headmen from 61 of Thailand's 71 provinces, estimated the total number of cases of yaws at 225,000, or roughly 1.5 percent of Thailand's rural population. Actual experience now indicates an incidence of 15 to 20 percent among the 9 million inhabitants of the target disctricts to be surveyed, i.e., 1.35 to 1.8 million yaws patients. The work now going on in northeast Thailand covers 163,250 square kilometres, with a population of about 6 million and an estimated .9 to 1.2 million yaws patients. Requirements of the campaign will be multiplied if, in addition to these persons actually suffering from yaws, persons with whom they come in contact are to be injected.

/ Number of

Number of Persons Treated Through December 1951

56. The incidence of yaws varies from one district to another and was reported in some remote rural sections as high as 23 percent. During the small scale preliminary operation of the summer of 1950, 9,100 patients were treated. The number of treatments has increased from 3,500 per month to 13,500 per month. By the end of 1951, a total of 800,000 persons had been surveyed, representing about 70 percent of the population of the districts covered. Persons treated total 110,650, or 14 percent of those surveyed.

Treatment

57. As in Indonesia, the total dosage of penicillin used in this campaign has been: for adults, 2.4 million units (8 cc); in children .6 to 1.2 million units (2 to 4 cc); both children and adults are treated with two injections. Persons believed to be in contact with infectious yaws have not been treated. A plan has been proposed to treat such persons in the future. The dosage has not been determined. The penicillin requirements of the campaign may thus be increased, unless the dosage for "infectious" cases can be substantially reduced.

58. By the end of 1951 for the 110,650 cases treated 640,000 cc. of penicillin were used. This represents an average of 5.78 cc. per case. Of the penicillin used, two-thirds were provided by UNICEF and one-third by the Government. UNICEF's share, 42,664 vials, is valued at approximately $55,500.

Organization of the Campaign and Rate of Survey

59. The Public Health Department of Thailand has made the greatest effort to further the campaign. It deployed to the yaws mass survey 88 of its 100 sanitary inspectors graduated in 1951. It began at Rajburi, one of the original yaws control centres some 80 miles from Bangkok, building accommodations for the training of medical and auxiliary personnel. In three months the buildings were finished, and

/ after another

after another three months 10 medical officers, and the 88 new sanitary inspectors had been trained in the techniques of the campaign and made ready for the field. Beginning in April 1952, a further 30 inspectors are to be trained, and to complement them 60 high school graduates are to be prepared as lay injectors. Rajburi is being developed as a training and control centre to guide general work in the field. The total staff of 148 now consists of 14 medical officers, 95 sanitary inspectors, 4 nurses, 35 persons for administrative jobs and 38 others. Working with these are 3 international personnel provided by WHO (a chief consultant, a bacteriologist and a public health nurse). The Government hopes in the course of 1952, by adding the 30 new trainees and others, to increase the present staff of 184 to a total of 300. One doctor now supervises about 7 sanitary inspectors.

60. The intensified mass treatment campaign did not start until July 1951. From around 1,500 cases treated per month for the first six months of 1951, the number increased to 13,360 for the month of January 1952. The current rate of examinations and treatment is indicated by statistics for the months of December 1951 and January 1952 as follows:

	December 1951	January 1952
Population of Area Covered	113,818	112,802
Population Examined	83,389	82,503
Number Treated	11,264	13,360

During December 1951, 88 sanitary inspectors were at work, an average of 1 inspector to 938 persons surveyed. In January 1952, 67 inspectors working on 12 mass treatment teams surveyed 82,503 persons, an average of 1,230 persons per inspector. In addition, 13,000 persons were surveyed in January by the control and follow-up teams using 23 inspectors. The average for January therefore, taking into account all persons surveyed, was 1,000 per inspector.

61. Through the end of January 1952 a total of 906,856 persons had been examined

/ and 124,010

and 124,010 treated. For these cases a total of 728,180 cc. of penicillin had been used, an average of 5.87 cc. per person.

Plans for Expanding the Campaign

62. The Government intends to expand the operation in 1952 to survey 1,500,000 persons, and to accelerate the rate of inspection so that by the end of 1952 the campaign will be surveying approximately 2,000,000 persons per year. UNICEF supplies of penicillin are thought to be sufficient to carry the programme, as planned at present, through the end of 1952. This position, however, may be affected by changes in the category of persons and the size of the dosage. If plans for expanding the programme are adopted, it is hoped that by the end of 1954 over 6 million persons may be surveyed, out of a goal of 9 million, as follows:

	Number of persons surveyed through the end of
1951	800,000
1952	1,500,000
1953	2,000,000
1954	2,000,000
Total	6,300,000

The 30 new sanitary inspectors and 60 lay injectors should make available 15 more teams for 1952 (using in all teams 4 sanitary inspectors and 2 lay injectors). Four more doctors will be added, making a total of 16 doctors working in the campaign. It is hoped in this way to double the rate of progress by the end of 1952. In 1953 it is planned to train 40 more sanitary inspectors.

Cost of the Campaign

63. The Government has spent $362,500 (U.S. equivalent) on the campaign through the end of 1951 and will increase its budget for the next three years, providing as follows:

Thai Government Budget for the Campaign:

1950	$162,500
1951	200,000
1952	250,000
1953 (planned)	300,000
1954 "	300,000
Total	$1,212,500

The Government provides one-third of the penicillin used in the campaign, to be applied to adults.

64. Through the end of 1951 UNICEF has spent approximately $371,000 as follows:

Penicillin (Shipped)	$247,000
Supplies and Equipment	45,000
Transport	45,000
Personnel - WHO 1951	32,000
Other	2,000
Total	$371,000

65. Estimated expenditures through the end of 1951, distributing the cost of supplies, equipment and transport over the proposed duration of the mass campaign, (4 1/2 years) would be as follows:

UNICEF	
Penicillin Used	$55,500
Supplies, Equipment and Transport (1/3 of total)	30,000
Personnel - WHO	32,000
Government	362,500
	$480,000

This represents an average cost per person surveyed of $.60, or an average cost of $4.32 per case treated through 1951. By the end of 1954, with a projected number of 6.5 million persons to be surveyed, the total cost of the campaign will be as follows:

UNICEF	
Approved	$410,000
Recommended	368,000
Government	
Budgeted and Planned	1,212,500
WHO	
1951	6,000
1952 and 1953	41,000
Fellowships	11,000
Total	$2,048,500

The average cost per person to be surveyed would be approximately 30 cents. Based on the estimated number of cases of yaws (i.e. 15 percent of 6.5 million persons surveyed, or 975,000), the cost per case of yaws treated would be somewhat more than $2.00.

Conclusion

66. The WHO and the national personnel responsible for the supervision of the campaign are attempting to work out technical problems of treatment and organization of the campaign. Problems concerning dosage, treatment of persons not showing manifestations of yaws but living in contact with infectious cases, the extent of coverage and the rate of survey in the mass campaign and the percent of absenteeism in cases requiring second injections are under consideration.

67. Well delivered plans of operations at every stage and the training of sufficient personnel to carry on field surveys and treatment at an effective rate are the major problems facing the campaign, assuming that UNICEF assistance and Government financing will be continued through 1954. Through the use of lay injectors as well as sanitary inspectors, the Government has taken steps to increase the working force in the field. The Government also has raised the pay schedule for

/ field personnel

field personnel. It plans through these means to double the present rate of progress by the end of 1952. It is hoped that tactical decisions will soon be agreed upon which will permit the development of definite plans of operations.

68. If the goal of 2 million persons surveyed a year can be achieved and maintained, there is a good prospect that by the end of 1954 the mass campaign will have surveyed two-thirds of the estimated 9 million persons to be covered in the areas of operation. This achievement would represent a coverage of about 33 percent of the total population of Thailand.

69. The yaws control work is carried on in rural Thailand under difficult physical conditions. Unsettled conditions near the Malayan Border, where the incidence of yaws is high, make it impossible to cover that area in the near future.

SECTION II

EXPERIENCE IN YAWS-CONTROL CAMPAIGNS IN HAITI, INDONESIA AND THAILAND

Description of Yaws

1. Stitt [1] describes yaws as an infectious, contagious, non-venereal disease. It shows a striking limitation to the tropics and is more common in areas of high tropical rainfall. Infection occurs most frequently through breaks in the intact skin by direct contact with an infectious yaws lesion. Yaws is usually acquired in childhood; it is chiefly a disease of children, adult immunity is probably a result of attacks in childhood. In Jamaica, and Ceylon about two-thirds of the cases occurred before puberty. The peak of the infection rate in the Jamaica study occurred around 8 years, when about 20 to 30 percent of the people were infected. Few new infections were found after 30. Similar rates prevail in Africa.[2]

Penicillin Treatment

(a) Immediate Benefits

2. It has been established beyond doubt that infectious yaws manifestations disappear after treatment with penicillin. The immediate benefit of yaws campaigns can be measured in terms of cases treated. It may be assumed that at the end of 1951 in the countries under discussion the following numbers of persons, who have been treated with penicillin, have been cured of yaws, or protected from infection arising from immediate contact with lesions still infectious: Haiti - 770,000; Indonesia - 268,000; and Thailand - 111,000.

/b. Long Term

1/ Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases, Seventh Edition, 1944, Blakiston Company, Philadelphia, pages 392, 400.

2/ Harding, Tr. Roy. Soc. Trop. Med. and Hyg. 42/347.

(b) Long Term Benefits

3. It is presumed that new infection and reinfection can only be introduced by an infectious case, and communicated only to those persons not possessing immunity. It is, therefore, possible, by treating all infectious persons, and persons believed to have come in contact with them, to free an area of yaws, and by surveying the area at properly spaced intervals for cases missed or new cases, to keep it free.

Development of the Campaigns

4. At the beginning of the campaigns little was known about the size of the problem of permanent control. The only thing known with any certainty was that penicillin would cure yaws and that there was a lot of yaws to cure. The incidence of yaws in the three countries could not be determined accurately, and rural population statistics were unavailable. Assistance was obtained from WHO and UNICEF and the work began. The programmes were planned on the spot, step by step, in the face of serious obstacles.

5. As work progressed, it was possible to revise the preliminary estimates of numbers of persons to be treated, and to define the scope of the campaigns. All three Governments made great sacrifices to support their programmes with additional funds, with additional personnel and for longer periods of time than originally contemplated.

6. The machinery having been established for campaigns on a mass scale, a step had been taken in the direction of yaws control. Personnel had been trained, and techniques to assure coverage and speed of survey were being tested. Government participation increased.

Indirect Benefits

7. Apart from the immediate profits of the cure and control of a distressing disease, yaws campaigns have been useful in many ways. Yaws is a rural disease;

/it avoids

it avoids the towns and has a predilection for remote water-soaked places. And so, in order to seek it, teams have brought organized medical effort to the most hidden spots, spots which but for this effort might long have remained concealed.

8. The benefits of penicillin have been so prompt and so apparent, that by themselves and without persuasion people have come to ask for it. The campaigns have acted as an entering wedge for other health measures that may follow. In this way, they have helped Government health officials.

9. Training of auxiliary personnel has been furthered. Methods for simple and speedy preparations of these workers have been developed, giving promise of a staff easily recruited, rapidly trained and within the financial resources of the country.

10. Field teams in each country have accepted targets to raise the rate of survey, although for many this required a break with traditional work patterns. A few mixed international and national teams have been useful in this connection, setting work targets and demonstrating that trained professional personnel can travel into remote rural areas and perform the tasks of an arduous campaign.

Tactical Questions

11. Tactical questions concerning the best method of reaching all infectious cases of yaws, the speed at which the survey must progress and the nature of the permanent organization required to control the disease afterwards, are of major concern to WHO advisors and national personnel directing the campaigns in each country. Controlled investigations, now underway or planned, and experience gained in mass surveys will produce information directing the tactics of campaigns for permanent control of yaws.

/Problems of Technique

Problems of Technique and Organization

(a) Coverage

(i) Completeness

12. WHO states that unless 90 percent of the people are inspected, the amount of yaws left untreated will constitute a serious source of reinfection. The geography of yaws makes it a disease peculiarly difficult to reach. The percentage of the population actually reached has seldom been 90 percent, although current reports indicate that the extent of coverage has been increasing. Estimates range around 70 percent over limited areas.

13. The attack may be improved in three ways: (1) by attempting to increase coverage in the initial mass campaign; (2) by using "control" teams to resurvey the area after a period of time; and (3) by establishing permanent machinery for continued follow-up and education. In connection with step one, WHO is recommending a house-to-house canvass; in the resurvey under step two, WHO has recommended that the entire population of the area be reexamined. The final phase of continued control, step three, is dependent on the existence, or establishment, of some form of permanent rural health service in the areas covered.

(ii) Speed of Coverage

14. In addition to completeness of coverage, it is necessary to maintain a tempo of survey and treatment during the initial mass campaign which insures against infectious cases coming in contact with the population already surveyed and treated.

15. Although infectious yaws may be diagnosed without much error, the shortage of doctors and experienced nurses has made it difficult to undertake careful "case finding" during the mass surveys. A history of yaws serves to identify a "case" as much as the appearance of yaws lesions. Furthermore, the time required to make a diagnosis with certainty, delays the mass campaign. In Haiti, where the incidence

/is assumed

is assumed to be high, and the dosage of penicillin is the lowest of all the campaigns, it has been considered more expedient and cheaper to inject persons with penicillin, needlessly perhaps, than to spend much time in thorough examinations.

16. The technique followed thus far in Indonesia and Thailand of using two injections of penicillin for yaws presents organizational difficulties and is another factor affecting speed of coverage.

(b) Treatment of Persons in Contact with Infectious Yaws

17. The WHO is recommending that persons in contact with infectious yaws also be treated with penicillin: the dosage, however, may be reduced. The recommendation may mean a substantial increase in the amount of penicillin required. Further investigation is needed to determine whether or not adults should be treated in this manner.

(c) Dosage of Penicillin

18. Experiences in all countries indicate that "the treatment of yaws with a single injection of procaine penicillin G in oil with 2 percent aluminus monostearate (PAM) in the minimal amount recommended by the WHO Expert Committee on Venereal Infections and Trepanematosis, is highly efficacious".1/ Infectious manifestations disappear after a single injection. The problem of dosage is under investigation through controlled experiments in each country, and is being carefully watched by the WHO. The average amount of penicillin consumed through the end of 1951, related to the numbers of persons treated in each campaign, can be expressed in per caput figures as follows:

Haiti, 1.57 cc: Indonesia, 6.5cc: and Thailand, 5.78 cc.

/(d) Organization of

1/ WHO report to UNICEF Executive Board, Annex 1, page

(d) Organization of the Mass Survey Phase of the Campaign

19. Techniques employed in the mass survey have variet somewhat from country to country. In general, however, campaigns were begun with teams consisting of supervisory medical personnel assisted by para-medical personnel to carry out the work of propaganda, examination, injection and record keeping. In all countries mobile mass clinics have been held. In order to improve coverage, house-to-house canvassing has also been employed at some stage in each of the campaigns.

20. The social organization of the community has much to do with the effectiveness of mass campaign techniques. In places like the Island of Java where the population lives largely in villages with a high degree of social organization, the mass clinic technique can achieve high coverage. In areas of dispersed population, such as in rural Haiti, with primitive communications, the house-to-house technique, while appearing to be called for because of the difficulties of assembling the population for clinics, at the same time greatly reduces the speed of coverage.

21. The organization of the campaign is seriously affected by geography and weather. The terrain, the weather and flooded roads must be considered in providing adequate transportation.

22. Lack of population statistics and census maps has seriously hampered organization. In undertaking a house-to-house canvass, time must be spent in map making and locating houses in the area to be covered.

23. In a few areas civil disorder has prevented establishment of campaigns and has necessitated withdrawing teams which had already begun work.

Recruitment and Training Campaign Staff

24. Difficulties in providing trained personnel led Governments to establish new standards of training.

/25. In Haiti

25. In Haiti a minimum number of doctors were detailed by the Government Health Service to supervise the campaign. As no personnel was available to start the field teams it was decided to train inexperienced recruits in the necessary technique. One of the few requirements was that the trainees should be able to drive and care for a jeep. They were trained to perform all functions of the campaign: propaganda, injection and record-keeping.

26. This jeep-driving corps of sanitary inspectors is carefully supervised and screened during the early period of field practice. Those who do not perform successfully are released and new recruits trained. Through this simple system it has been possible to build as large a staff as the local budget will permit. The work has progressed satisfactorily; this staff forms a nucleus of experienced workers from which the Government may recruit permanent control teams. No network of rural health centers which could be used for extensive follow-up and control of yaws exists in Haiti at the present time.

27. In Thailand trained sanitary inspectors were recruited for the field staff and some doctors were available, although none with extensive experience in yaws control. The Government, in order to meet the needs of the campaign is also using lay injectors as auxiliaries to inspectors on field teams.

28. In Indonesia the plan of operations called for field teams made up of a doctor and trained male nurses (mantris). The latter, employed for some years in rural policlinics, are recruited from persons having primary school education, and receive four years of hospital training. It was found impossible to provide a full-time doctor for each team. The mantris were divided into teams of eight persons. Lately, the difficulty of obtaining a sufficient number of mantris to expand the work has been met in part by replacing two mantris in each team with the same number of field clerks to perform administrative tasks and keep records.

/Future plans for

Future plans for Indonesia call for the full use of existing rural policlinics (of which there are 400), as well as the mass campaign teams now at work in the field.

29. In all countries wages of field workers have gradually improved. Arrangements have been made for the prompt payment of personnel. In Thailand, a double per diem has been granted the field workers, and in February 1952 the whole pay schedule was increased 25 percent.

Government Participation.

30. In Indonesia, the UNICEF allocation to date ($1,200,000) will probably not enable the Government to treat more than 6 to 10 percent of the existing cases, which may run anywhere from five to ten million. If persons in contact with infectious cases are also injected, the percentage of actual yaws cases receiving penicillin may be even lower. At the present rate of about 250,000 cases a year, treatment is a job for at least 30 years. The possibilities are therefore being studied of a system which will enlist all of the 400 rural policlinics, in addition to the present mass campaign teams, and help accelerate the work. This will require greater Government participation.

31. In Thailand, if the goal of surveying 2 million persons a year is achieved, the work could probably be completed around 1960. The Government plans to budget $300,000 a year for this programme for the years 1953 and 1954. UNICEF and WHO, if present recommendations are accepted, will spend an additional $420,000 in 1953 and 1954 to assist the campaign.

32. It is hoped to complete the mass survey phase of the campaign in Haiti by the middle of 1954. The Government plans to budget $196,000 annually for this work for the years 1952-53 and 1953-54. UNICEF and WHO plan to spend an additional

/$371,000 for

$371,000 for this same period, if recommendations before the current session of the Board are approved.

33. The mass survey phase of the yaws campaigns is only the first step toward effective control. Governments participating in yaws campaigns must prepare for and insure consolidation of the gains achieved in the mass attacks. The problem is precisely that of fighting a forest fire. To put out the blaze demands a large force scattered widely over a countryside; a few watchers, appropriately placed, suffice to control remaining smoldering embers. Without these, however, the first wind may again fan the fire to life. Such safeguards, in the form of rural dispensaries or ambulatory inspectors, it is the duty of the Governments to budget for and to furnish. Services originally established for yaws may, as yaws recedes, extend to other fields. Using previously trained or additional personnel and equipment they could be developed into permanent rural health centers at little additional cost.

Cost

34. The per caput cost of the campaigns through the end of 1951 are comparable only when related to the number of persons surveyed. The estimates, which include a high percentage of the cost of capital equipment provided through the end of December (see country summaries, Section I) are as follows:

Estimated Per Caput Cost of Surveys through December 1951

(Per Person surveyed)

Haiti	$ .55
Indonesia	.58
Thailand	.60

The per caput cost of persons treated through the end of 1951 is as follows:

Estimated Per Caput Cost of Treating Yaws through December 1951

(Per Person treated)

Haiti	$ 1.10
Indonesia	3.23
Thailand	4.32

/Future Prospects

Future Prospects

35. The WHO, which is providing technical personnel for most of the UNICEF-assisted treponematosis programmes, is conducting a Yaws Symposium in Bangkok, Thailand, between 14 and 30 March 1952, where technical problems concerning mass treatment and control of yaws are being discussed. Regional representatives of WHO, international experts working with Governments on yaws control, and representatives of interested governments have been invited to attend this Conference. Agenda items include discussion of antibiotics in the treatment of yaws; the extent and nature of the yaws problem in the Americas, in Africa and in the South Pacific islands; the development of plans of operations (demonstration, survey and training phases; expansion phase; consolidation phase); the role of international organizations.

36. This Symposium is of particular interest to UNICEF since a number of the problems under discussion seriously affect the organization and cost of yaws campaigns.

37. In evaluating Government requests to UNICEF, both new requests and requests for expansion of approved programmes, the Administration and the Programme Committee are handicapped by inadequate knowledge of the funds which will be required to provide effective assistance. Without a clearer picture of the expected numbers of persons to be injected, the minimum dosage of penicillin required, the length of time needed to undertake the initial mass examination, and the type of follow-up necessary to assure effective control, it is difficult to judge whether the initial requests will bring adequate help to the Government or whether major expansion of the programme is to be expected later, after it is once underway. More definite information is needed from WHO to provide a background against which these requests can be judged. Four questions in particular have direct bearing on the cost and operation of the mass survey phase of yaws control:

/a) It is hoped

a) It is hoped that WHO will be able to establish the minimum dosage of penicillin necessary to treat yaws in various parts of the world. Several countries have begun controlled investigation of this problem with the technical help of WHO. At the present time, the dosage for an adult showing signs of yaws varies from 2 c.c. used in Haiti to 8 c.c. (administered in 2 doses) used in Indonesia and Thailand. The conclusion reached, therefore, may substantially affect the cost of campaigns.

b) Equally important, affecting the amount of penicillin required, is the WHO recommendation that all persons in contact with infectious yaws also be treated with penicillin, but with a reduced dosage. This method, if adopted for all campaigns, will considerably increase the numbers of persons injected.

c) The percentage of the population covered and the rate of survey are important factors in the successful execution of a mass campaign which moves from area to area treating yaws. The WHO has recommended that campaigns to be effective must cover at least 90% of the population in the initial survey, and that an equally high percentage of the same population be re-examined after a period of time. This recommendation has bearing on the technique used for reaching the population to be surveyed, as well as on the rate of progress. House to house canvassing has been recommended by the WHO. This method will considerably prolong the initial survey and thereby increase costs.

d) Information on incidence of infectious yaws also affects plans of operation, for a low incidence would demand methods of approach different to those of a high incidence.

/38. Yaws campaigns

38. Yaws campaigns lend themselves peculiarly to expansion in other directions. Their efficaciousness, already touched upon, speaks for itself without further persuasion. An inspector who with a single injection of penicillin accomplishes miracles of healing, immediately establishes himself among the people as a person of worth and authority. His word, concerning other matters of sanitation, such as building latrines or killing insects, is likely to be listened to.

39. Services beginning as ambulatory house-to-house inspections, followed by the establishment of small rural dispensaries can with time, foresight and an interested staff be stepping stones to better health and sanitation in far off communities which might offer many obstacles to a more direct approach.

ANNEX I

WORLD HEALTH ORGANIZATION

PROGRAMMES FOR YAWS CONTROL IN HAITI, INDONESIA AND THAILAND

A Progress Report by WHO to the UNICEF Executive Board

In the summer of 1950, large scale programmes for the control of yaws were started in Haiti, Indonesia and Thailand. These programmes, under the technical supervision of WHO and made possible by UNICEF support, have now been in operation for a year and a half, and although it is still too early to assess the results in full, it is possible to make a preliminary evaluation.

In terms of the numbers of persons benefited, the programme in Haiti has advanced the most rapidly, that in Indonesia second and the one in Thailand has progressed the least rapidly. In 18 months, between three and four millions of people have been examined and over 1,000,000 persons have been treated with penicillin. The data, expressed as cumulative numbers of persons treated, are given in Table I and are shown graphically in Figure 1.

Table I. Cumulative numbers of Persons Treated in Yaws Campaigns

		Haiti	Indonesia	Thailand	Total
1950	July	----	8,033	----	8,033
	August	26,391	8,761	----	35,152
	September	76,629	13,729	----	90,358
	October	111,557	19,493	2,672	133,722
	November	170,673	30,048	4,852	205,573
	December	210,522	36,852	10,062	257,436
1951	January	238,799	48,707	16,052	303,558
	February	292,179	63,485	17,064	372,728
	March	353,123	74,852	20,123	448,098
	April	377,381	99,500	21,032	497,913
	May	435,032	122,418	23,963	571,413
	June	469,561	131,446	26,869	627,876
	July	528,172	146,310	32,791	707,273
	August	595,370	164,274	42,191	801,835
	September	650,034	183,510	55,281	888,825
	October	700,280	202,470	67,854	970,604
	November	740,829	226,170	80,968	1,047,967

Yaws is predominately a health problem among peasant children in rural areas of the tropics, and is particularly prevalent in communities where the population lives a primitive kind of existance without adequate medical care. Because of these facts, there are significant difficulties in case-finding, and the numbers of patients found depends upon the numbers of medical and para-medical personnel that the National Health Administrations are able to mobilize for their

/yaws control

yaws control work. Thus, the Government of Haiti has been able to assign 30 complete field teams to their yaws control work and Indonesia has been able to mobilize 8 physicians and 132 mantris (male nurses). In Thailand, paramedical personnel were not available in significant numbers and the international team found it necessary to spend considerable time in training them. At present, there are 19 medical officers and 110 trained medical attendants at work in Thailand, and the work is progressing satisfactorily. It is of interest to note that each of the yaws programmes has evolved in the same general manner, although on different levels of scope. (Figure 2).

Any evaluation of the results of the three yaws programmes depends largely upon the results of studies carried out in "control areas". From these and other studies, it is possible at the present time to deduce the following conclusions:

(1) The treatment of yaws with a single injection of procaine penicillin G in oil with 2% aluminum monostearate (PAM) in the minimal amount recommended by the WHO Expert Committee on Venereal Infections and Treponematoses, is highly efficacious.

Data derived from the control area in Thailand illustrate this point:

	Results - 1 month		Results - 3 months	
Type of Lesion	Healed	Improved	Healed	Improved
Early infectious	85.2%	100.0%	100.0%	100.0%
Open Ulcerative	55.5%	100.0%	88.8%	100.0%

(2) In areas where mass treatment has been carried out there has been a significant decrease in the prevalence of infectious cases.

WHO consultants who have reviewed the programme in Haiti report that in areas that have been adequately covered, it is difficult to find infectious cases. Information from the control areas in Indonesia and Thailand also show significant decreases in the prevalence of infectious cases, although careful re-checks have shown sufficient numbers of new infections to cause some concern.

(3) There is ample evidence that mass treatment alone does not suffice to eradicate yaws, and that every effort must be made to consolidate the gains of the mass campaign.

In the village of Nong Kratoom in Thailand, the following situation was observed:

	Persons examined	New cases found
Initial examination	2891 (100%)	675 (23.3%)
Re-check - 1 month	2891 (100%)	0
Re-check - 3 months	2891 (100%)	2 (0.07%)
Re-check - 5 months	not yet complete	17 (0.59%)

/It is of

It is of considerable interest to note that the vast majority of new cases observed in re-checks of areas that have been covered in the mass campaigns have been in persons not previously treated. In other words, recurrent cases are not due to treatment failures but to reintroduction of the disease.

(4) Evidence continues to accumulate indicating that the conduct of the yaws control campaigns must take into account the following technical considerations:

(a) Following mass examination and treatment in a given area, it is important to re-check the same area approximately 6 months later.

(b) When follow-up examinations are made, it is necessary to re-examine not only the persons previously treated, but the entire population.

(c) It is desirable to give "abortive" treatment to household contacts of infectious cases.

(d) During each examination it is desirable to examine as many people as possible. This has been shown to be best done by a house-to-house approach.

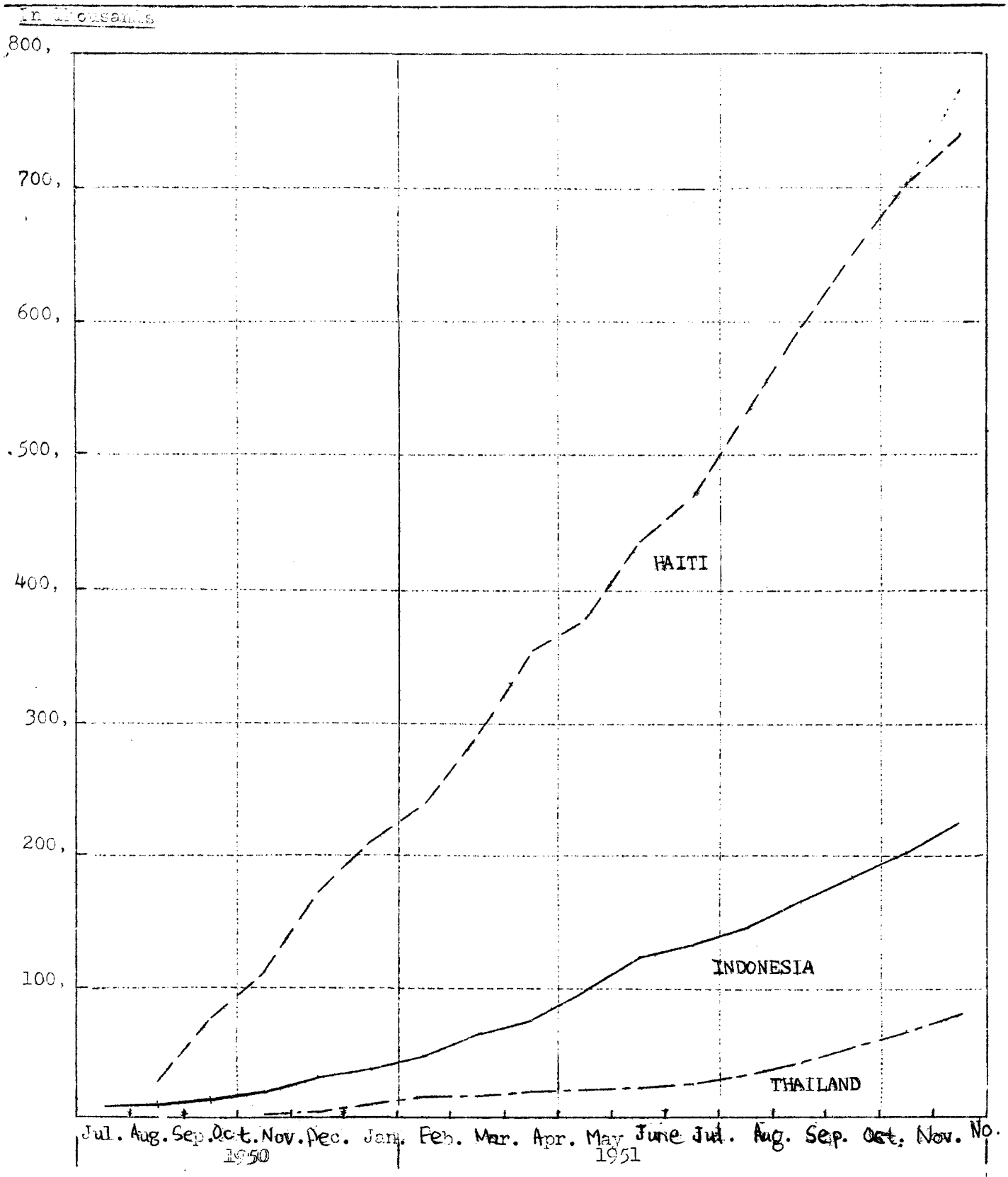
The UNICEF Executive Board should be cognizant of these considerations because the practical implications of them are: (1) that the campaigns cannot continue to expand as rapidly as in the past 18 months, and (2) that more penicillin (for the treatment of contacts) will be required per unit of population covered. (It should be noted that the abortive treatment of contacts has been carried out in the Haiti campaign since its inception.)

In summary, it may be stated that the yaws control programmes in Haiti, Indonesia and Thailand have, in the past 18 months, brought the benefits of modern medicine to over one million persons who are suffering from yaws; that the penicillin treatment used is highly efficacious in the individual case; that mass treatment results in a significant decrease in the prevalence of the disease; and that for technical reasons certain changes are being made in the conduct of the campaigns in order that the gains may more readily be consolidated.

The continued support of UNICEF for these three inherently long-term programmes is urgently required to consolidate the gains already made and to extend the programmes to cover larger numbers of beneficiaries.

FIG. 1

Cumulative numbers of patients treated
in
WHO/UNICEF Yaws Campaigns



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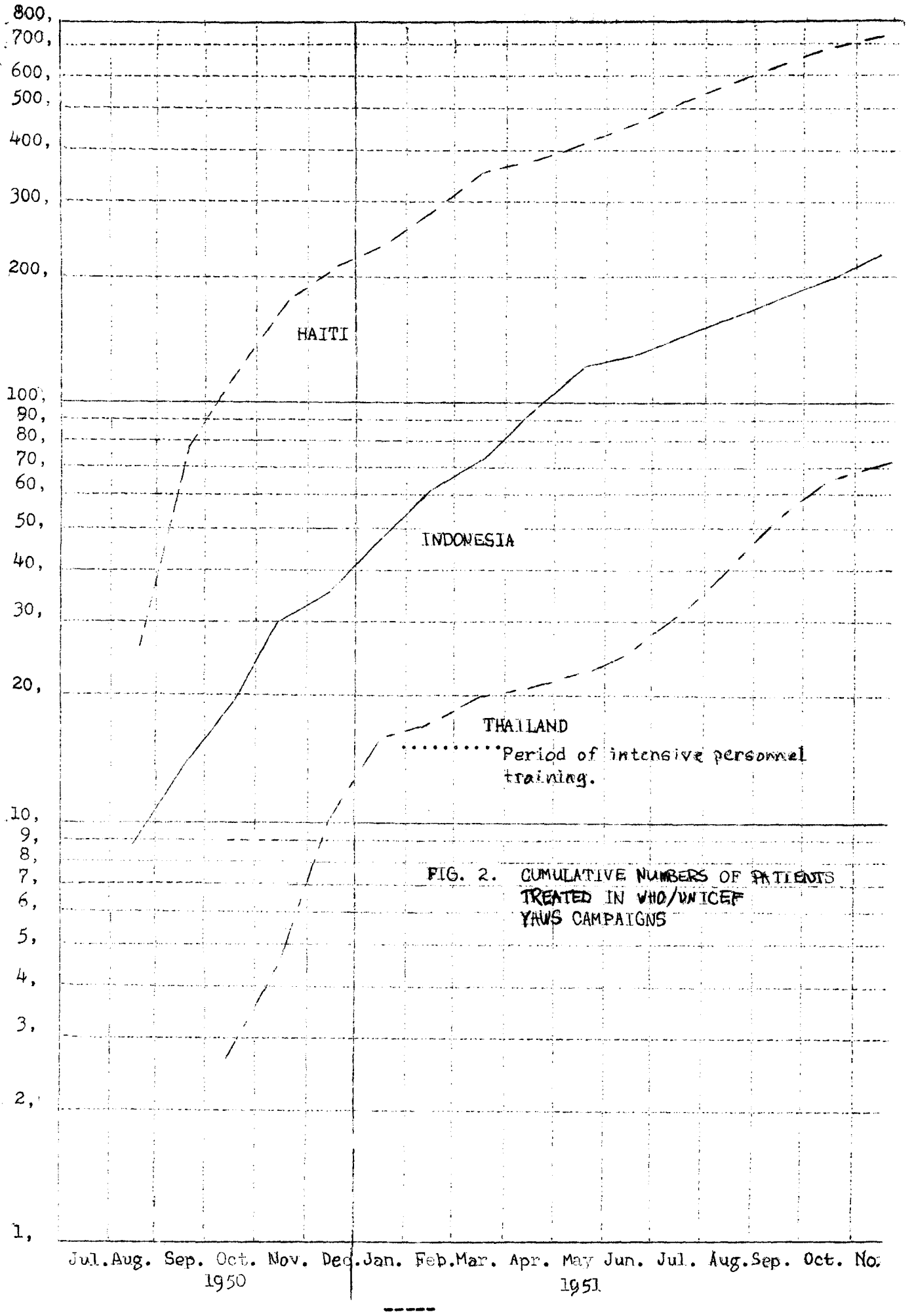

FIG. 2. CUMULATIVE NUMBERS OF PATIENTS TREATED IN WHO/UNICEF YAWS CAMPAIGNS

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UNICEF

MICROFICHE INPUT CONTROL AND INSTRUCTIONS RECORD

No. 117 (1)

(15a) STRIPE COLOUR: White Blue Grey - Yellow - Green - Brown - (Pink) - Red

Date 28 April 77. (2)

(4) (5)

(3) 77.CF. 0098 E/ICEF/ 188

(16a)

RPT. OF EX. DIR.: YAWS CONTROL IN HAITI, INDONESIA & THAILAND

A (17a) ENGLISH UNICEF

(6)(7)(8) "NR" AR/52 "NR" 46p. + 16. (9)

B (12) (11)

	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10	B-11	B-12
	CLEAR	1/1 77.CF .0098	CLEAR	1	2	3	4	5	6	7	8	9
C	C-1	C-2	C-3	C-4	C-5	C-6	C-7	C-8	C-9	C-10	C-11	C-12
	10	11	12	13	14	15	16	17	18	19	20	21
D	D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	D-10	D-11	D-12
	22	23	24	25	26	27	28	29	30	31	32	33
E	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9	E-10	E-11	E-12
	34	35	36	37	38	39	40	41	42	43	44	45
F	F-1	F-2	F-3	F-4	F-5	F-6	F-7	F-8	F-9	F-10	F-11	F-12
	46	47	48	49	50	51	52	53	54	55	56	57
	1	2	3	4	5	6	7	8	9	10	11	12

(18a)

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Code "NR", appearing in any location of Row A MUST NOT be reproduced on microfiche (13)

(19a) ENVELOPE COLOUR: (White) - Blue - Yellow - Pink - Green - Grey

TRAILERS YES( ) NO (14)