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Executive Board

PROGRESS REPORT ON UNICEF/WHO ASSISTED ANTI-YAWS CAMPAIGNS: HAITI, INDONESIA, THAILAND AND THE PHILIPPINES

Submitted by the Director-General of the
World Health Organization

53-22303

(46 p.)+7 b.

FORWARD

This report has been submitted by the Director-General of the World Health Organization to the UNICEF Executive Board as one of a series of progress reports on mass health programmes jointly assisted by UNICEF and WHO.

UNICEF is currently assisting yaws campaigns in seven countries. The UNICEF allocations have been as follows:

Country	Allocation		Date of Initial Allocation
Africa -			
Liberia	$50,000		1952
Nigeria	150,000		1953
		$200,000	
Asia -			
India	39,000		1953
Indonesia	1,650,600		1950
Philippines	268,000		1951
Thailand	779,600		1950
		2,737,200	
Latin America -			
Haiti	580,000		1949
		580,000	
		$3,517,200	

In the four programmes reported in this paper 2,830,000 persons were treated by 30th June 1953, as follows:

Indonesia	787,000
Thailand	310,000
Philippines	48,000
Haiti	1,685,000
	2,830,000

UNICEF is also aiding in campaigns against bejel and syphilis, diseases also caused by the treponema organism and treated with penicillin. Bejel/syphilis control campaigns are being aided in Iraq and Syria and syphilis control campaigns are being aided in Afghanistan, Burma, China (Taiwan), India, Indonesia, and Yugoslavia.

In 1951 UNICEF allocations for campaigns against yaws, bejel, and syphilis constituted 3.6 percent of all allocations for projects of long-range benefit; in 1952 it constituted 9.2 percent, and at the March 1953 Executive Board session it was 16.4 percent.

Maurice Pate
Executive Director

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1. INTRODUCTION

In 1948 the United Nations Special Mission to Haiti[1] recommended that an organized, nationwide campaign against yaws be undertaken in that country in view of the high prevalence of the disease and the beneficial results expected from it. Likewise in 1948 the Parran-Lakshmanan Survey Mission to the Far East[2] considered yaws to be a serious health problem in several countries in the Far East and recommended projects in Indonesia and Thailand.

In 1949 the WHO Expert Committee on Venereal Infections and Treponematoses[3] supported these recommendations from the viewpoint that medical advancements now justified large-scale campaigns against the treponematoses and that an island-wide attack on yaws in Haiti and other areas should go forward. Long-acting repository penicillin now offered an opportunity for extending directly medical benefits to millions of women, children, adolescents and adults in tropical areas and to developing epidemiological and other methods which would add to available knowledge of public-health techniques.

The Joint Health Policy Committee of UNICEF/WHO at its third session in 1949[4] expressed the wish that concrete yaws campaigns would develop quickly, and following receipt of requests from governments and closer preliminary analysis of the problems concerned through activities of various WHO advisers, the UNICEF Executive Board made initial allocations for supplies and equipment for yaws campaigns in Haiti (1949), Indonesia and Thailand (1950) and the Philippines (1951). Further allocations to these projects have been made as the projects developed.

WHO has acted by the furnishing of technical advisers for the planning, initiation,

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[1] United Nations Technical Assistance Mission to Haiti, UN Publications 1949 IIB.2

[2] Report of the Survey Mission to the Far East, E/ICEF/72, 1948

[3] WHO Technical Reports Series No.13 (published) 1950

[4] Off.Rec. World Hlth Org. 22, 46, 1949

execution and follow-up of these projects (as well as other treponematosis projects, such as the endemic syphilis project in Yugoslavia and the Bejel project in Iraq, in addition to various syphilis projects in pregnant women, nursing mothers, children and adolescents in many countries in all regions). WHO also undertook to be the international technical co-ordinator through its HQ staff, the regional advisers, consultants and field personnel as well as through the organization of the First International Symposium on yaws control in Thailand in 1952 and through special consideration of the problems concerned by its Expert Committee on Venereal Infections and Treponematoses and its subcommittee on Serology and Laboratory Aspects.

At its session earlier this year the UNICEF Executive Board expressed the wish to obtain a report by WHO on the yaws projects assisted by the two organizations. The projects in Haiti, Indonesia, Thailand and the Philippines have advanced considerably during the 18 months since an interim memorandum was presented by WHO to the UNICEF Executive Board (E/ICEF/188, annex 1) and the Board may therefore now wish to obtain a fuller view of the problems concerned, the progress made, as well as the prospects in the yaws programme as a whole. There are yaws projects assisted by UNICEF and WHO in addition to those mentioned which have recently commenced or which will commence in 1953, namely in Sarawak, South-India, Liberia and Nigeria, and these are not included in the present report.

2. THE PROBLEM

Yaws is a communicable disease conditioned in its distribution by physiographic, economic, sanitary and other conditions. It is a rural disease, highly prevalent in the tropical and subtropical regions of the world, where it is almost exclusively confined to the belt between the Tropic of Capricorn and the Tropic of Cancer. It is estimated that some 20 million cases exist. (see map).

Yaws results from the interplay of the environment, the human host and the specific causative micro-organism - TREPONEMA PERTENUE - which gives rise to serious clinical syndromes in man. The disease is usually acquired in childhood or early adolescence. This early onset in life is illustrated in Table 1.

Table No. 1

Age at onset of yaws (Jamaica)[1]

	Children and Adolescents				Adults		
	Under 5 years	5-9	10-14	15-19	20-29	30 and over	Total
Number of cases	626	803	298	91	49	23	1,890
Percentage of total	33.1	42.2	15.7	4.8	2.5	1.27	100

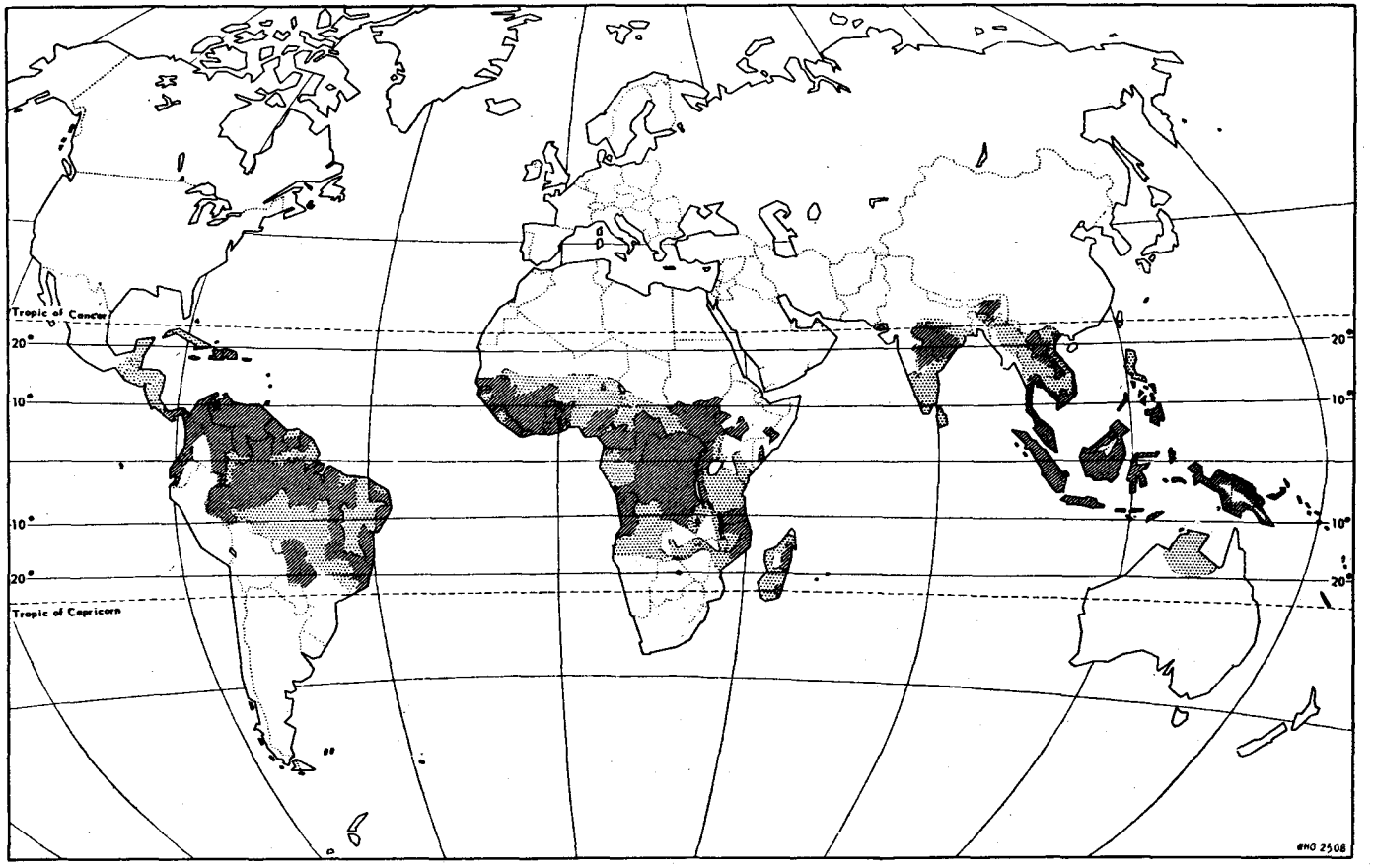
The early manifestations are highly infectious. The disease is perpetuated in the community by close direct contact of infected individuals with other household and community members. It is possible that it is transmissible also in indirect ways. Shrivelled legs, ankles and elbows locked, noses and palates eroded, plantar and palmar lesions and a variety of other manifestations result during the years following the onset of the disease. Some of these conditions are illustrated in the series of photographs attached.

Yaws cripples but is not an obvious killer, and thus probably does not play an important role as a "natural" population check. Yaws treatment programmes do therefore not result in more mouths to feed in the rural community. It is a disease "by the end of the road" - roads being symbolic of social and economic advancement. Millions of children, adolescents and adults in rural communities in the tropical belt suffer from yaws, resulting in incapacitation and invalidism in the most productive age groups of life at a time when national development may require able bodies, hands and feet in agricultural programmes and expanding economies.

For reasons as yet not clearly understood it appears that yaws will attack males more frequently than females. Painful "crab yaws" (plantar lesions), palmar and other manifestations reduce available manpower for cultivation of fields in areas where three crops a year sometimes may be possible and limits the number of hands requiredin

[1] Hill K. Bull. WHO (1953) 8.29

GEOGRAPHICAL DISTRIBUTION OF YAWS — RÉPARTITION GÉOGRAPHIQUE DU PIAN



MULTIPLE PAPILLOMATA — PAPILLOMES MULTIPLES

Lesions in various stages of evolution — Lésions à divers stades d'évolution

HYPERKERATOSES — HYPERKÉRATOSE

Palmar changes in tertiary yaws; slight contracture of little finger, probably not due to yaws — Pian tertiaire : altérations palmaires ; légère contracture du 5e doigt, qui n'est probablement pas d'origine pianique

GUMMATA AND ULCERS — GOMMES ET ULCÈRES

Indolent ulceration on anterior surface of left leg — Ulcération à évolution lente sur la face antérieure de la jambe gauche

BONE AND JOINT LESIONS — LÉSIONS OSSEUSES ET ARTICULAIRES

Secondary polydactylitis — Polydactylite secondaire

BONE AND JOINT LESIONS — LÉSIONS OSSEUSES ET ARTICULAIRES

Goundou — Goundout

Tertiary bone lesion ; nodular lesions and frontal lesion — Lésion osseuse tertiaire ; lésions ganglionnaires et lésion frontale

plantation labour. Asked what yaws as a disease meant to him a young Indonesian peasant stated that: "Sooner or later you are bound to get it (yaws) on your hands and then you cannot dig your ground".[1]

3. THE PROGRAMME

Yaws is highly susceptible to penicillin as are the other treponematoses - syphilis, bejel and pinta. With the introduction of repository penicillin preparations it became clear that patients with yaws could be cured rapidly with long-acting procaine-penicillin G in oil with aluminum monostearate (internationally known as PAM), and that only a limited number of injections were required. It thus became possible a few years ago to organize mass campaigns against the treponematoses in underdeveloped areas. Because of both the preventive and curative effect of penicillin the spread of the disease in households and communities can be checked by systematic treatment of cases and their contacts. Such a procedure was not possible with the prolonged courses of toxic arsenicals previously used in underdeveloped countries.

It has been said that "penicillin is not public health", and that supplies alone will not assure success in a selective public-health programme. Penicillin is, however, a powerful public-health weapon in treponematosis control work. The experience in yaws projects conducted over the last three years by the health administration of Haiti, Indonesia, Thailand and the Philippines with the assistance of UNICEF and WHO indicates that mass diagnosis and treatment will result in immediate and long-term benefits if the projects are carefully planned and systematically carried out.

3.1 Benefits

Early infectious lesions in yaws disappear rapidly after treatment with penicillin, as illustrated in the series of photographs attached. The satisfactory outcome in detailed follow-up studies of PAM therapy in such patients is illustrated in Table 2.

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[1] Courtesy of Mr. S. Keeny, UNICEF ARO, July Report 1952

Table No. 2

Results of therapy in early infectious yaws patients with different amounts of PAM

Therapy schedule	No. of patients	Satisfactory results		Period of observation in months	Observer and Area
		No.	%		
0.6 PAM, single injection	161	151	93.8	18	Levitan Petrus et al. (Haiti)
1.2 PAM, single injection	599	590	98.3	12	Huggins (Thailand)
1.2 POB, 2 injections	314	285	90.8	12	Rein (Haiti)
2.4 PAM, 2 injections	794	764	96.2	12	Kodijat (Indonesia)
0.6-2.4 PAM, 2 injections	323	309	95.7	5	Soetopo (Indonesia)

In far advanced cases of long duration, penicillin cannot be expected to be equally effective although the disease can be arrested and various symptoms alleviated. However, the more children treated at the time of the early manifestations the fewer will be the neglected crippling manifestations later in life. This long-range preventive effect of large-scale penicillin campaigns represents therefore an impact of general social and economic value.

Penicillin makes friends in rural communities and develops health consciousness in the population. It paves the way for acceptance by the people of other health measures, provides an opportunity for long-range development of rural health activities and contributes generally to the strengthening of the national health services.

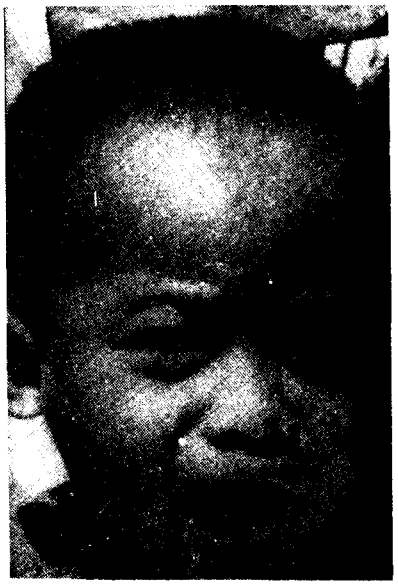
The immediate benefits - in terms of actual numbers examined, treated and cured of yaws or protected from infection because of exposure risk - were reported to the UNICEF Executive Board in April 1952 by WHO (E/ICEF 188, p. 42). The yaws programme has since then gained momentum through the great efforts made by the health administrations in

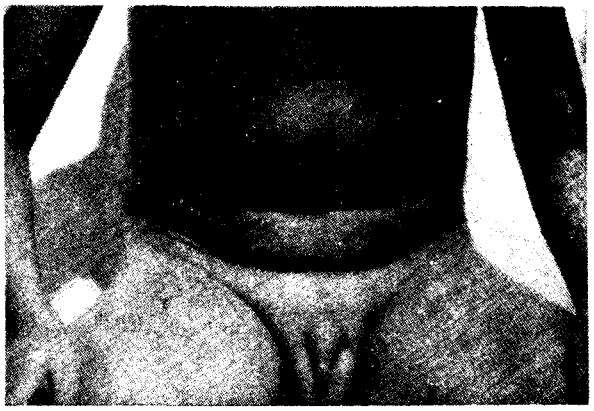
Early infectious yaws lesions in an Indonesian boy

before and after [redacted] treatment with 1.2 million units of Procain Penicillin G

in oil with aluminium monostearate (-PAM)

Lésions récentes du pian infectieux chez un jeune garçon indonésien, avant et après traitement par 1.200.000 unités de pénicilline huileuse procaïnée, avec du monostearate (- PAM)





Haiti, Indonesia, Thailand and the Philippines, and by mid-year 1953 approximately 10 million people at risk had been examined and 2.8 millions had been treated with penicillin. The overall progress has been recorded from the beginning of the projects until mid-1953 in Table 3 (see page 8).

3.2 Organizational and technical aspects

(a) Programme development

Yaws in the past was a somewhat neglected disease, partly because of the type of therapy available (toxic arsenicals, long duration of treatment) and partly because of the fact that the yaws infected population lived beyond "the end of the road", where it was sometimes inaccessible, where medical attention was often limited and where controlled studies and follow-up were difficult. With the advent of penicillin programmes many obstacles had to be overcome within a minimum of time: lack of facilities of all sorts, lack of trained professional and auxiliary personnel, academic resistance on the part of professional groups conditioned by the era of metalchemotherapy as well as limited experience on organizational, administrative and technical aspects of treatment campaigns based on mobile field teams. As the work progressed in the campaigns under study it became necessary to revise preliminary estimates, procedures and techniques. Methods and approach might also to some extent vary between areas of high, moderate or low prevalence of the disease, such as is for instance the case in regard to the required intensity of contact treatment.

The basic features of the campaigns remain, however, the same, namely the utilization to the fullest possible extent of auxiliary personnel, which after training and initiation into field work carries out propaganda, examinations, injections and record keeping under marginal medical supervision and the holding of mobile mass-clinics with or without house to house canvassing. Gradually the rural policlinics and health centres have also been brought into the projects. This is particularly the case in Indonesia where a "simplified" field approach was instituted in 1952. Common to all projects is the penuria of personnel. This required the governments to set new standards for the selection and training of male nurses, sanitary inspectors, injectors and assistants. The health administrations have built up a corps of such workers practically from scratch and against many difficulties. Some details on the excellent

Table No. 3

BENEFICIARIES IN THE YAWS PROGRAMME

Project	1950		1951		1952		1953[3]		Total	
	Examined	Treated	Examined	Treated	Examined	Treated	Examined	Treated	Examined	Treated
Haiti	(4)	210,522[1]	(4)	589,978[1]	(4)	746,516[1,2]	(4)	138,035[1,2]	(4)	1,685,041[1,2]
Indonesia	256,788	33,724	1,244,236	228,385	2,556,091[1]	293,000[1]	1,756,728[1]	232,336[1]	5,813,833[1]	787,445[1]
Philippines	-	-	102,245	9,850	838,060[1]	25,362[1]	410,045[1]	22,649[1]	1,350,350[1]	48,011[1]
Thailand	235,176	28,300	588,783	82,350	1,102,246[1]	122,586[1]	754,167[1]	76,809[1]	2,680,732[1]	310,045[1]
Total	-	272,546	-	872,563	-	1,187,464	-	469,829	-	2,830,542

(1) Includes contacts and cases found on resurvey

(2) Provisional

(3) 6 months only

(4) Not available

record of governments in this regard have been given in the project reports attached. The elements of training and the gradual improvement of working conditions and wages allowed by the governments have also been described in document E/ICEF/188.

It is obvious that great difficulties are often encountered in the campaigns for geographic and topographic reasons. Also the seasonal occurrence of rains, floods and typhoons will hamper field operations. Fasting periods, local holidays and celebrations will also reduce the number of effective working days in some of the projects. Occasionally civil disorder has prevented the campaign or the follow-up examinations to go forward.

In the formula for a rational approach to treponematosis control and the development of yaws projects on a large scale, there are considered to be five important stages:

1. Orientation and preliminary analysis of the problem
2. Development of plans of operations
3. Demonstration training and survey phase
4. Expansion phase (mass campaign)
5. Consolidation of the programme, including its integration into strengthened local health services.

These phases can be discerned in the projects under study as they developed. All projects have now several areas which are in phase 4 with indication of transition to phase 5 in some instances, for example the islands of Leyte and Samar in the Philippines and in Haiti.

(b) WHO as co-ordinator

The role of WHO as the technical co-ordinator in the treponematosis programme has been exercised in several ways.

(1) Various advisers and consultants have been assigned to the projects on the requests of the governments. The following indicates the situation in 1953:

Project*	Advisers**	Nurses	Temporary*** consultants	Other	Total
Haiti	1	-	2	-	3
Indonesia	2	-	1	?	3
Thailand	2	2	-	-	4
Philippines	-	-	1	-	1

* The training, personnel assignments etc. of national personnel are described in 3.2(a) above and in the individual project-reports.

** Includes laboratory experts

*** Includes regional advisers and consultants, made available by WHO offices in the Americas, South-East Asia and the Western Pacific regions

(2) Any appraisal of results of the individual yaws projects or the yaws programme as a whole depends largely on the studies being carried out in pilot areas or "control areas" where detailed epidemiological, clinical and laboratory findings can be evaluated, since it is neither possible nor necessary to apply detailed study techniques throughout the mass campaigns. Only on the basis of scientifically studied sample areas can the wider mass campaign go forward on a sound basis. Furthermore, comparative appraisals as between projects and interchange of data and experiences are fundamental since there is no assurance that the interplay between the differing environmental factors, the host and the yaws treponema follow identical patterns in different geographic areas.

(3) The mechanism for interchange of scientific information and co-ordination of research has been provided by WHO through:

(a) the furnishing of technical publications, documents and information by WHO headquarters and regional offices to the health administrations, the natural programme leaders and WHO advisers,

(b) periodic inter-regional progress reports and appraisals of the various projects based on steadily accumulating information;

(c) the calling of an inter-regional conference on yaws - the First International Symposium on Yaws Control - in Bangkok (organized by the Thai Health Administration with the assistance of WHO and in collaboration with UNICEF) where more than 70 experts, including health administrators, advisers from all projects and experts on various aspects of the yaws problem from different regions were participants;

(d) appraisal of technical and organizational problems by the WHO Expert Committee on Venereal Infections and Treponematoses;

(e) the activities of the WHO expert sub-committee on serology in a co-operative interlaboratory programme for standardization of serological antigens and methods and the search for better and simpler techniques in the serodiagnosis of yaws; and

(f) the continued work of the International Treponematosis Laboratory Centre at Johns Hopkins University, Baltimore, USA, aiming at the study of the biological and immunological relationship between strains of treponemes isolated in the different control projects, the definition of the effect of environmental temperature on different species of treponemes, the development of new and more practical serological techniques, watching for the potential development of penicillin resistance in yaws - a possibility of paramount importance for the outcome of the projects embarked upon by health administrations, but which has so far not been observed, - etc.

A series of medical publications which relate to the treponematosis control work assisted by UNICEF and WHO has been published in the medical press the world over by national yaws workers, WHO staff, consultants and advisers. An entire volume of the WHO Bulletin was devoted to the International Yaws Symposium in Bangkok. In the lay press UNICEF and WHO have done considerable public information work.

From these and other studies it is possible at the present time to give further emphasis to some of the points already suggested in the preliminary report to the UNICEF Executive Board in April 1952, at the same time pointing to new and important considerations:

(1) The treatment of yaws with a single injection of PAM in the minimal amounts recommended by the WHO Expert Committee on Venereal Infections and Treponematoses is highly efficacious, provided the PAM used meets minimum requirements of WHO

Following the considerations at the International Yaws Symposium in Bangkok in March, the fourth session of the Expert Committee in July 1952, and a resolution by the WHO Executive Board at its eleventh session[1] drawing the attention of governments to the problems concerned, a reorientation in regard to dosage and one-injection versus multiple injection treatment schedules took place in Thailand, Indonesia and the Philippines. In Haiti with a high prevalence of yaws and a high proportion of infectious cases a single injection schedule has been used since the inception of the project. The dosage in Haiti remains lower than the adjusted doses in Indonesia and Thailand. In Haiti a high percentage of infectious cases are found, while in Thailand and Indonesia a high proportion is probably in the latent stage. While small dosages of PAM are highly efficacious in the early infectious stages of yaws, higher doses for routine treatment of prevailing old and latent cases may be required. Also the further possibility of a difference in strain susceptibility to penicillin in different projects cannot be ignored. This important question as well as others, for example the immunological relationships between strains, remains under study at the International Treponematosis Laboratory Centre. These studies are of direct practical importance for the field work.

In mass campaigns based on simplified treatment schedules it is necessary that the PAM preparations consistently maintain effective blood concentrations for several days. The technical considerations of WHO in mass campaigns are predicated on the use of PAM preparations of a minimum standard. Experience in the yaws projects assisted by UNICEF and WHO pointed out the necessity for the establishment of minimum requirements for such preparations. These have been established in co-operation between the WHO Expert Committees on the Unification of Pharmacopoeias and on Venereal Infections and Treponematoses, and have been included in Volume II of the International Pharmacopoeia. The attention of health administrations has been drawn to the desirability that these

[1] WHO Tech. Rep. Series No. 63, page 39

minimum requirements be used as a guide in national procurement of this penicillin preparation so as not to jeopardize the results in treponematosis control programmes. Only a small amount of preparations of inferior quality was used in the projects under study and special care has since been taken to watch areas in which these were actually applied.

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

Results of surveys and resurveys in sample areas of the four countries indicate the effectiveness of the yaws campaigns. This is illustrated in Table 4.

Table No. 4

Results of sample resurveys in four projects
(at 6-12 months)

Project Area		No. examined	No. cases	Prevalence of yaws
Haiti (Dépt. du Sud)	1st survey	9,752	4,160	48.2%
	2nd "	12,915	103	0.8%
Indonesia (Drijo)	1st survey	1,632	357	21.87%
	2nd "	1,667	96	5.76%
Philippines (Daram)	1st survey	16,072	2,900	18.00%
	2nd "	16,481	409	2.48%
Thailand (Nonzkratom)	1st survey	2,891	386	13.35%
	2nd "	2,859	8	0.28%

In other instances the results have been less good, and the number of new cases represented by reinfections, infectious relapses or re-introduced disease from neighbouring areas has been causing concern. This question is to some extent connected with the intensity of the treatment of household and community contacts in the different projects.

(3) Contacts of infectious cases without overt signs of yaws should receive preventive (abortive) treatment

The WHO Expert Committee on Venereal Infections and Treponematoses has indicated

that quantitative data show greater accomplishments when household and other contacts are treated at the same time as the actual cases found, since such contacts may be incubating the infection or may have latent disease subsequently giving rise to new infectious cases in the community. It is in the interest of the local yaws campaign that an epidemiological definition of such contacts be provided, since the pattern will be different in areas of high, medium and low prevalence of the disease. The average prevalence of yaws found in the campaigns under study has been:

Haiti	50-55 per cent
Indonesia	15-20 " "
Thailand	10-15 " "
Philippines	3.5-5 " "

Haiti was an area of high prevalence of yaws and many opportunities existed for the transmission of the disease. The most efficient and rapid results would therefore be obtained by treating most members of the community. This procedure may, however, be wasteful in areas of moderate prevalence of the disease. In such areas contact treatment could be confined to the segments of population at risk, e.g. direct household contacts, all children under a given age, and/or the toddler and school age groups. This is now done in parts of Indonesia and Thailand where the prevalence of the disease is less than one-third of that in Haiti. In low prevalence areas treatment can be confined to clinical and/or serological cases and to their immediate family or household contacts. This is applied in some low prevalence areas in Indonesia and was previously applied also in the Philippines. The rational of this principle is illustrated in Table 5 which indicates the findings of positive blood tests for yaws in household contacts of clinical cases and among members of other households where no clinical cases of yaws were found, in high and low prevalence areas.

Table No. 5

Contacts and non-contacts with positive serological tests as potential sources for spread of infection in high and low prevalence areas[1]

Yaws prevalence	Number of households		Percentage seropositivity of household members		
	With yaws	Without clinical yaws	Contacts plus patients	Contacts	Non-contacts
21-30%	622 (47.2%)	697 (52.8%)	95%	90%	60%
1-2%	134 (4.7%)	2,749 (95.3%)	40%	18%	7%

[1] Li, H.Y. WHO/VD/SERO/49

The intensity of contact treatment can therefore be determined only when the actual extent of the problem in the local communities is being established during the first survey. The survey must serve as a practical guide for the most rational use of men, money and materials in the campaigns. It is, therefore, not possible in the planning stages at the outset of the campaign to forecast the actual penicillin requirements for contact treatment. Direct comparison between the campaigns in the different areas cannot be made. There is the additional fact that the total job in the island of Haiti in spite of the high percentage of cases found and the greater number of contacts to treat is limited to a rural island-population of some two million people as compared to the size of the job (the populations, the terrain to be covered, manpower and organization needed etc.) in the other projects.

(4) The population coverage in the initial survey and on control (follow up) examinations should be as complete as possible and should reach no less than 90 per cent of the total population in the area

In order to eliminate the sources of infection in the communities the completest possible coverage of the population should be assured at the original survey. On re-survey of the areas it is necessary to re-examine not only the cases previously found and treated but as many as possible also of the non-sick population and those missed at the original survey. This will improve the chances for suppressing the remaining foci of infection which may otherwise spread the disease again. Various campaign techniques can be used to obtain this. From data presented in the attached progress report on Haiti the advantages of the "house-to-house method" of case-finding in that country has been illustrated. On the basis of such findings and similar observations in other projects a reorientation in the approach has taken place in this regard. The population coverage on survey and on control examinations is increasing and in spite of considerable difficulties has in many instances exceeded 90 per cent. Recent results in Thailand are particularly encouraging.

(5) Mass treatment alone is not enough. There are required several control examinations in order to eradicate the disease and to consolidate the initial gains

The initial results that can be obtained in yaws campaigns have already been illustrated in Table 4. In the various projects under study a number of re-survey teams

are currently following up areas previously covered, and commitment of personnel for this purpose will increase in the future. The mass treatment phase of the yaws campaign represents only the initial step towards full control and eradication of the disease. After the first or second follow-up examination it should be possible to maintain control with smaller forces. An analogy has been used that "To put out a blaze demands a large force, scattered over the countryside; a few watchers, appropriately placed, suffice to control remaining smoldering embers. Without these, however, the first wind will again fan the fire to life".[1] Governments must foresee in their planning and budgets the need for follow-up examinations and consolidation so that the gains obtained through the initial mass sweeps can be secured. Consolidation should be conceived also in its wider sense, namely to include progress towards generalized public-health programmes. This is dependent on the existence or creation of some form of permanent rural health facility in the areas. It should be possible for the health administrations to take advantage of the progress to date: "the citizens have been alerted, the population has been enumerated, personnel has been recruited, a basic record system is available and community facilities are on hand in many areas. The time for transition is now .....", it has been stated[2] in connexion with the first highly successful treponematosis control programme assisted by UNICEF and WHO, namely the endemic syphilis project in Bosnia, Yugoslavia. This project has now advanced to the stage where such consolidation is taking place through the local rural health services reinforced by personnel previously assigned to the special campaign. A similar stage has been arrived at in the yaws project in Haiti and in the Philippines, Leyte and Samar, where also the rural health services, reinforced by personnel experienced in the yaws campaign, are following up the mass campaign and watching for possible foci of infection which may flare up. The possibilities for consolidation have been favourable in Leyte and Samar. In Thailand and Indonesia the best methods by which to consolidate are under study at the present time, and are referred to in the individual project reports.

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[1] E/ICEF/188, 1952, p. 38

[2] Clark, E.G. WHO Techn.Rep.Ser. 63:43, 1953

(c) Cost Considerations

Details of cost considerations will undoubtedly be available in UNICEF reports presented to the Executive Board as will an analysis of the contributions of governments. The fact remains that while the total estimated cost per person examined in Haiti, Indonesia and Thailand by the end of 1951 ranged from US $0.55 to $0.60 and the per capita cost of treating yaws during that period ranged from US $1.10 to $4.32, the figures by the end of 1952 were lower, namely, approximately $0.23 per person examined, respectively $2.05 per person treated in Indonesia, and $0.25 and $2.52 in Thailand. It is expected that by the end of 1953 the costs will be further reduced to $1.96 per yaws case treated in Indonesia with a corresponding reduction in Thailand. These calculations are based on averages for the total period since the beginning of the campaigns and details as to the decreasing case cost as the yaws projects develop over a period of time will not be entered into here. The cost in the Philippines' yaws project which commenced later than the other projects was higher, namely just below $4.- per case treated at the beginning of 1953.

The actual per capita cost of treatment for the year 1953 has been forecast to drop sharply in Indonesia, namely to $1.25-1.50 and by 1954 the total cost to government and UNICEF should drop to about $1.- per case treated of which penicillin represents less than one half.

These calculations do not include WHO costs for advisory project personnel, consultants etc. Distributed over a period of time the increase resulting from these outlays will not significantly alter the above calculations.

One is led to believe that funds spent by governments and international organizations for treponematosis control show "maximum effect for minimum outlay", as suggested in the Technical Discussions at the Sixth World Health Assembly.[1]

4. THE PROSPECTS

After three years the first part of the yaws project in Haiti has been completed

[1] Chron.World Hlth Org. 1953, 17, p. 203-210

and the mass survey and treatment of the rural population at risk has been carried out. Anti-yaws work has also been begun in the contiguous areas along the border of the Dominican Republic (PASB), where a limited yaws problem exists. The yaws eradication envisaged in the island is within sight but not yet achieved. It is dependent on the intensity of resurveys and the case-finding efforts in areas where cases were missed and where the disease is apt to recur. The Haiti project is now entering the consolidation phase where opportunity is offered for general improvement and strengthening of rural health services. An effort is being made by the government in this respect. Similar considerations apply to the yaws project in the islands of Leyte and Samar which were the initial areas of operation selected in the Philippines. The project is now transferring to other islands in accordance with the plan of operation. In Indonesia and Thailand special problems are encountered and the best approach to consolidation after resurveys are under study while the projects are expanding into new areas. The goal for 1953 in the three mass projects in the East is to examine seven million people and to treat 700,000 persons in 1953. It is clear that the governments are making a considerable effort in this regard. But unless personnel can be trained and made available the campaigns cannot continue to expand at the present rate, since the need for resurvey and control will gradually increase. These projects must in any case continue for several years if the yaws control effort shall have a lasting nationwide effect.

With increasing intensity of contact treatment in areas of high and moderate prevalence the requirements of penicillin will increase somewhat. At the same time this is to some extent offset by the increasing acceptance of lower dosages of PAM for mass treatment purposes.

The continued assistance of UNICEF and WHO will be required in these long term projects. On the basis of the experiences made during the course of these three years in these four projects, interest has been stimulated in co-ordinated continental and subcontinental action in tropical areas where yaws is a public-health problem. Initial efforts in Africa with the assistance of UNICEF and WHO in Liberia and Nigeria are being made in 1953. A concerted co-ordinated attack on the disease in tropical Africa as a whole could however bring benefit to many more millions of people. Action is also

contemplated in the Americas and the Western Pacific. It was stated[1] in a presentation at the First International Symposium on yaws in Bangkok:

> "The cause of yaws is known. A simple, safe, and practical form of ambulatory therapy, based on penicillin-assay investigations and clinical evaluation, is available. It is now possible to control the infectious stage and ultimately to eradicate the disease in a relatively short period of time. There is no reason why millions of people throughout the world should be affected with this crippling and disfiguring non-venereal treponemal disease."

With the work under way a beginning has been made. In the planned further undertakings in Africa, the Americas and Western Pacific regions there is an opportunity for international organizations to play a significant role in yaws control.

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[1] Rein, C.R. and Kitchen, D.K., Bull.World Hlth Org. 1953, 8, 102

COUNTRY PROGRAMMES

THE YAWS PROJECT IN HAITI

1. Extent and Nature of the Yaws Problem

Of the 3.0 to 3.5 million people living in the Republic of Haiti, roughly five-sixths live in underdeveloped rural areas where the disease yaws has been rampant. Estimates of the prevalence of yaws in the past are difficult to make; however, in the four-year period 1945-1948 inclusive, a total of 612,017 cases were reported to the Department of Public Health. The experience of the recent past indicates that 50-55 per cent of the rural inhabitants had yaws. Thus, approximately 1.5 - 1.7 million people in Haiti had yaws and many more were potential victims of the disease.

2. Earlier Anti-yaws Work

Since the development of effective anti-treponemal drugs, attempts have been made to ameliorate the situation. In 1941, upon the request of the Haitian authorities, the Pan-American Sanitary Bureau made a yaws survey and presented a plan for the control of the disease.

Early in 1942 another campaign against yaws was started jointly by the Haitian Government and the Institute of Inter-American Affairs. This project, first based on therapy with heavy metals was later changed to penicillin following a demonstration of the effectiveness of POB. It has been based on treatment given at stationary clinics and the work has supplemented the activities of the more recent WHO/UNICEF-assisted mass treatment campaign.

The United Nations Mission of Technical Assistance to Haiti, which surveyed the needs for economic development of the country in 1948, made the following recommendation:

> "With a view of bringing this disease under effective control - a goal which can be attained by determined full-scale effort, though the encountering difficulties are great - an organized nation-wide anti-yaws campaign should be vigorously pursued for some three years; the costs of such a campaign are considerable, it is true, but, if incurred, would in fact represent an investment in the labour factor of production, increasing its efficiency with beneficial effects on the economic development of the country."

The WHO Expert Committee on Venereal Infections and Treponematoses at its third session in 1949 concurred in this recommendation, and recommended:

"That the syphilis/yaws project in the island of Haiti and in the Dominican Republic proceed as soon as possible, and that:

"(a) the technique to be used be based on procaine penicillin G in oil with 2 per cent aluminum monostearate;

"(b) at the present stage of planning, the establishment of a sound minimal administration and other control machinery be studied, to enable health administrations, with the necessary outside assistance, to consolidate the public-health gains obtained by the initial mass approach; considerations should include the study of measures for the prevention of reinfection;

"(c) the results obtained be carefully studied in view of the importance of the application of such public-health techniques to other areas where yaws and treponematoses are endemic."

After several years of planning, the mass penicillin treatment campaign, with WHO technical guidance and UNICEF supplies, got under way in July 1950. It has been in continuous operation since that time.

3. Objectives of the WHO/UNICEF-assisted Project

As stated in the plan of operations, the objectives of this project were:

"1.1 To initiate a programme to eradicate yaws from Haiti by antibiotic mass treatment methods.

"1.2 To control rural syphilis by antibiotic treatment through the elimination of most of the sources of infection.

"1.3 To evaluate the results of such treatments by the analysis of morbidity and mortality rates and serological examinations, in the light of adequate statistical procedures.

"1.4 To train local professional and auxiliary personnel in methods of yaws eradication and rural syphilis control.

"1.5 To assist the Secretariat of State of Public Health of Haiti to the extent compatible with the attainment of the above objectives of the project and by giving expert advice on related problems."

4. The Methods Used

From its inception this project has utilized the simplest possible methods of approach. Considering the high prevalence of the disease in the rural areas of Haiti it was decided to treat every person encountered, either as a patient or as a contact and therefore a potential patient. Moreover, in view of the limited number of medical personnel, it was decided that the mass treatment would be carried out by rapidly trained auxiliary personnel. Even the treatment schedule was simplified and a single injection of 600,000 units of PAM has been given to all persons with clinical or anamnestic evidence of yaws, regardless of their age or the stage of the disease. Those with no clinical manifestations nor any history of yaws have received 300,000 units of PAM.

At first, the approach was by mobile clinics, to which patients were attracted by propaganda prior to the arrival of the teams. Later, following a study of population coverage by different methods, the approach was changed to a house-to-house survey, which has proved to be more efficient.

From the beginning of the project there has been a special treatment control area in the Bainet area of southern Haiti. From this area have come data of great practical interest to all concerned with yaws control work.

The UNICEF supplies for this project have consistently arrived in ample time and in ample amounts so there have never been delays in the work for lack of supplies. A small amount of unsatisfactory penicillin found its way into the work in 1951, but prompt action prevented this from seriously compromising the work.

The co-operation of the government has been whole-hearted. In spite of many difficulties a sufficient number of personnel for census work and for mass treatment has been available, and the field workers have shown themselves to be enthusiastic and efficient. The co-operation of the people has also been excellent. WHO has maintained its staff of Advisers and in addition has sent short-term consultants to the area each year.

5. Accomplishments

During the summer of 1953, the first mass treatment campaign in Haiti was completed, the entire country, including the island of Gonave, having been covered. The numbers of persons treated, including contacts and cases on resurvey, is given in Table I.

Table I

Year	Persons Treated
1950	210,522
1951	589,978
1952	746,516 (1)
1953 (2)	138,035 (1)
Total	1,685,041

A measure of how greatly the prevalence of active yaws cases has been reduced as a result of the campaign is shown in Table II, which shows the results of two spot rechecks made one year following the mass campaign.

Table II

	Mobile clinics (Département du Sud)	House-to-House (Département de l'Ouest)
Persons in Area	15,967	3,003
Persons treated during mass campaign	9,752	2,764
% of total treated	61.0%	92.0%
Persons seen during Recheck	12,915	2,514
% seen during recheck	80.9%	83.7%
% active yaws cases encountered during recheck	0.8%	0

(1) Provisional

(2) 6 months only

It is apparent that the house-to-house approach has been better, both in terms of the proportion of the population covered and in terms of the outcome of the campaign. It is also apparent that as a result of the campaign, the prevalence of active yaws has been dramatically reduced.

6. The Future

Based on data from the research area at Bainet, it is estimated that the overall recurrence rate will be about 3 per cent at eighteen months. Moreover, it is known that some pockets of infection were not reached during the mass campaign - particularly in the Département du Sud, where the mobile clinic approach was used.

It would be unwise for the yaws control activities in Haiti to be sharply curtailed at this point. The work now must be continued so that all persons in whom there is a relapse or reinfection, or who were missed during the mass treatment campaign will be covered. More and more of this work ultimately will be done in the stationary clinics as time goes on.

It is not yet known how long the full complement of trained personnel will be required. Many more resurveys will be required and active case-finding must continue for some time. Yet the project has reached the consolidation phase, and it is already apparent that a very significant improvement in public health has been achieved in Haiti. The ultimate objective - complete eradication of the disease - has not yet been achieved, but all those who have been concerned in any way with the work agree that it is in sight.

THE YAWS PROJECT IN INDONESIA

1. Extent and Nature of the Problem

The population of Indonesia is estimated to be 75 millions of people, the vast majority of whom live in underdeveloped rural areas. If the prevalence of yaws throughout the islands is the same as it is in the areas already surveyed (17.3%), it may be estimated that there are about 13 million cases of yaws in the country.

Yaws, although associated with a low mortality rate, results in a high morbidity - thus its control does not result in "more mouths to feed". More than three-fourths of the infectious cases occur among children below the age of 18 years. It is, however, in the productive age groups that the crippling effects of the disease are mainly seen, limiting the capacity for useful work, reducing the amount of food, and obstructing the economic development of the country.

2. Earlier Anti-Yaws Work

The yaws problem in Indonesia was already realized prior to the Second World War and active anti-yaws work was carried out. During World War II control measures were completely stopped, and there was a sharp rise in the incidence of the disease. Even prior to the consolidation of the United States of Indonesia in December 1949, a committee was formed to consider how yaws could best be brought under control since it was one of the most prevailing diseases in the area.

The plans for the present project assisted by WHO/UNICEF were drawn up by WHO consultants and the Indonesian Government, and following approval of the project by UNICEF, the work began in May 1950.

Commencing with two target areas in the Residencies of Djakarta and Jogjakarta, the operation has since been extended to West Java, Lesser Suda Islands, North Sumatra, Kalimantan Barat (West Borneo) and Kalimantan Selatan (South Borneo).

3. The objectives of the WHO/UNICEF-Assisted Project

The main objective of this project is to reduce the yaws to a level at which it can readily be kept under control by the rural health service as these are developed: When yaws is no longer a community problem, there is every hope that a definite social and economic improvement will result. A secondary, but also a very important result of these extensive field operations is to bring a feeling of health consciousness to the recipient population, and thus pave the way for the development of a more complete system of rural health units.

4. The Methods Used

The campaign is based on teams of 6 to 8 mantris (trained nurses) working under the supervision of full-time and part-time medical officers. For the whole of Indonesia the total number of medical and nursing personnel available is 1,200 doctors and 3,500 mantris In the treponematosis control programme, there are 21 medical officers and 185 mantris. There is little likelihood of any great increase in the numbers of this type of personnel that can be made available for the project

It was to meet this grave difficulty stemming from shortages of personnel that there has been developed in addition to the above-mentioned team work, a plan (known as the TCP-simplified) whereby 200 assistant nurses (djuru pateks) working in polyclinics under the supervision of mantris will be trained in the diagnosis and treatment of yaws aiming at further expansion of the project. This approach was started in August 1952. Early 1953 there were 24 regular mass treatment teams in the field and 35 "simplified" teams working.

After having been trained, assistant djurupateks systematically visit villages around the polyclinic by previous appointment with the village authorities. The population is examined and all patients found with active yaws are asked to report to a village site on a particular day, where the diagnosis is checked and treatment administered under the supervision of the Regency medical officers. This simplified and economical approach was tried on a pilot basis in East Java with success, and has now

become an integral part of the project. The "performance index" /that is the number of people examined per mantri/ varies from area to area and during the season is between 1:750 to 1:1400.

The TCP Headquarters is at Jogjakarta. This serves as a training school for both doctors and mantris. The training is facilitated by the painstaking and accurate survey, diagnosis and follow-up work done by the Headquarters teams, the information relating to the scheme as a whole which is readily available and can be understood by the various trainees from the numerous charts and diagrams prepared by the personnel at Headquarters, and by the teaching facilities available at the serologic laboratory and the small hospital for yaws cases at Jogjakarta. From the TCP Headquarters there have been carried out several important pilot studies to determine the efficacy of various treatment schedules and types of approach to the communities. Among other studies, there is now one for evaluating the efficacy of the new repository penicillin preparation Dipenicillin, and blood concentration studies to determine the effect of heavy manual labour in a hot humid climate on the duration of effective blood levels.

The treatment schedule for adults from the beginning of the campaign has been 2 injections of 1.2 mega units of PAM given at 4-7 day intervals. Correspondingly smaller doses have been given to children. Recently, single dosages of 1.8 mega units has been adopted in new areas, and evaluation projects have been set up to check the efficacy with this dosage. Investigations into the efficacy and usefulness of new long-acting diamine penicillin salts in yaws are currently carried out.

The principle has now been accepted that the treatment of contacts with half the above dosage is an essential part of the campaign. It is considered that at the first mass survey and treatment in new areas all household and school contacts of infectious cases should be treated, and that at each resurvey all known contacts of infectious cases should receive the benefit of a prophylactic injection of PAM. However, to date few contacts have actually been treated.

5. Accomplishments

The number of people seen and the number of cases treated between May 1950 and June 1953 are as follows:

	Population Examined			Cases Treated		
	1st survey	2nd survey	Total	1st survey	2nd survey	Total
1950	256,778	-	256,778	33,724	-	33,724
1951	1,244,236	-	1,244,236	228,385	-	228,385
1952	1,833,908	722,183	2,556,091	244,341	48,659	293,000
1953 (Jan-June)	821,389	935,339	1,756,728	185,946	46,390	232,336
Totals	4,156,311	1,657,522	5,813,833	692,396	95,049	787,445

The population coverage in many instances has reached the desired level of 90%; however in other areas it has fallen below this level.

The target of 400,000 cases to be treated in 1952 was not met for the following reasons: (a) difficulty in finding suitable personnel to do the work; (b) a lower incidence of the disease than was anticipated; (c) greater inaccessibility of the population; (d) greater emphasis on thoroughness of coverage and (e) increased emphasis on resurveys, during which lower prevalence rates are found than on original surveys.

For 1953 the target is 500,000 cases. In the first 6 months 232,336 cases were treated. There is hope, therefore, that the target number will be met.

6. The Future

The enormous magnitude of the yaws problem, and the limitations in the number of personnel available for further expansion make it obvious that yaws control in Indonesia is a long term objective.

The speed of expansion of this campaign must be within the economic means of the country, and is indeed a great obstacle to expansion. To expand beyond the means of the community would inevitably result in failure to achieve the long term objectives. The health budget of Indonesia for 1953 was set at a lower level (5%) than 1952. The campaign must also evolve with due regard to the other public health needs of the community. The introduction of the "TCP simplified" will contribute to facilitate the consolidation of the project since the "Djurupateks" and their assistants are remaining in the sub-districts where they carry out special yaws work. When the campaign expands to the more isolated areas, difficulties in communications will be experienced, with an inevitable increase in the cost per case treated. Certain modifications will become necessary when the smaller outer islands are approached.

The establishment of penicillin treatment facilities at polyclinics and the introduction of "case-finders" will be useful in reducing the incidence of yaws in the interval prior to mass surveys being carried out in these areas. A permanent follow-up will also be carried out by the polyclinics.

It is difficult to indicate in measurable terms the social and economic benefits resulting from a campaign of this nature. Nevertheless, any community freed from the crippling effects of a high incidence of yaws is in a better position to achieve community betterment. Tangible results are being seen in Indonesia, and it is only necessary to visit a village community where the mass survey and treatment has been carried out to appreciate how the local people are thankful for the results achieved. A recent report quotes an old villager who observed that "since the yaws campaign started, the buffalos have become fatter because the children were free from the disease and could tend the animals better".

THE YAWS PROJECT IN THAILAND

1. Extent and Nature of the Yaws Problem

Of the 18.3 million people living in Thailand, it is estimated that approximately 60% or about 11 million live in areas where yaws is found. In the areas thus far surveyed, the prevalence of the disease has been about 13 per cent. Hence it may be estimated that there are about 1,430,000 cases in the country.

Experience has shown that the distribution of the disease is distinctly patchy, with heavily infected villages in the middle of low prevalence areas and vice versa.

As elsewhere, yaws is associated with remoteness, and low standards of personal hygiene. There is some evidence that these conditions have improved somewhat in recent decades.

2. Earlier Anti-yaws work

Prior to implementation of the present yaws control campaign, the small amount of treatment given was administered in the form of arsenicals by stationary rural clinics. These clinics were few in number, particularly in areas of highest prevalence of the disease and could have had little or no effect on the control of the disease.

The present WHO/UNICEF-assisted project began in April 1950, following the development of a plan of operations by the Government of Thailand with the assistance of WHO consultants.

3. Objectives of the WHO/UNICEF-Assisted Project

The objective of the campaign was stated from the beginning to be a nation-wide campaign to control yaws by using modern therapeutic and epidemiologic methods to reduce the number of infectious cases to the point where those remaining could be dealt with by stationary rural health facilities. As the campaign has developed, it has been realized that the yaws work have other important effects: (a) the fostering of health consciousness through health education of the public, and (b) the development of more and better rural health services through the use of a yaws control "spearhead", which so readily impresses the population of the benefits of modern medicine.

4. The Methods Used

The yaws control campaign in Thailand is based on the use of mobile teams consisting of one medical officer and (usually) four auxiliary workers. As a result of the training programme that has been established, the numbers of personnel engaged in the work has gradually expanded:

Category of Personnel	1950	1951	1952	1953		No. of Resignations or reassignments		Present strength (mid 1953)
National Director	1	1	1	1	-	0	=	1
Medical Officers	4	14	19	23	-	5	=	18
Nurses	14	17	71	76	-	7	=	69
Sanitary inspectors	13	103	116	127	-	13	=	114
High School graduates	-	-	22	22	-	7	=	15
Totals:	32	135	229	249	-	32	=	217

Difficulties in recruitment of personnel have been apparent with most categories. In the case of doctors especially, the main obstacles appear to be the difficult field conditions, separation from families, and lack of private practice. Although a per diem allowance is given to field personnel, this does not appear to compensate them for the income they would derive from private practice in Bangkok or the larger towns. In Thailand female physicians and military nurses have lately been assigned to the project to meet personnel needs. Seventeen regular teams and three follow-up teams were working at the beginning of 1953.

The yaws control teams are mobile, and frequently are required to travel a considerable distance in order to reach the patients. One of the difficulties has been to find a sufficient number of qualified drivers to take the teams to different areas.

Two control areas have been set up, one in Nongkratoom in Rajburi province, and the other in Nawang in Ubol province. In these control areas, patients were given different schedules of treatment and periodic clinical and serological examinations.

Treatment: Up to the end of October 1952, the treatment schedule for adult patients consisted of two injections of 1.2 mega units. Since that time single injections of PAM have generally been given in the following amounts:

Cases

Age group	PAM dosage
0 - 2 years	0.3 mega units
3 - 10 years	0.6 " "
Over 10 years	1.2 " "

Contacts

Under 10 years	0.3 " "
Over 10 years	0.6 " "

Investigations into the efficacy and practicability of using new long acting diamine penicillin salts against yaws are currently underway.

Four laboratories have been established and are functioning, and a fifth is being equipped. Up until now, the laboratories have been performing serologic tests mainly from patients in the control areas. After completion of the yaws campaign it is planned that these be developed into general public-health laboratories.

In November 1952, some changes were made in the methods used in the campaign as a result of recommendations made by the WHO Expert Committee on Venereal Infections and Treponematoses: (a) the change to a single injection schedule of therapy, (b) the institution of resurveys, and (c) the treatment of contacts, defined as all household contacts and also all contacts in the same class as children found to have infectious yaws in areas where the prevalence of the disease was found to be 15% or over or where a large percentage of the cases found (20% or more) were of the infectious type.

5. Accomplishments:

The number of people seen and the number of cases treated between May 1950 and July 1953 were as follows:

	Population Examined			Cases Treated		
	1st Survey	2nd Survey	Total	1st Survey	2nd Survey	Total
1950	235,176	-	235,176	28,300	-	28,300
1951	588,783	-	588,783	82,350	-	82,350
1952	710,164	392,082	1,102,246	106,906	15,680	122,586
1953 (Jan.-June)	647,601	106,566	754,167	72,009	4,800	76,809
Totals:	2,181,724	498,648	2,680,372	289,565	20,480	310,045

There can be little doubt that yaws is a significant health problem in Thailand on the basis of the findings made in areas so far covered. Also it is clear that the yaws project is a long-term undertaking. It is planned that some 750,000 people will be examined in the second half of 1953 and 1,750,000 in 1954. At the present rate of progress and taking into account the need for resurvey work etc. the project will go forward over the next 3 - 5 years, depending on the availability of personnel. Plans are afoot for intensified training of field workers in 1953, 1954. While relatively many cases were missed in the early periods of the campaign the population coverage has improved greatly over the last year. The work may go forward somewhat more slowly but nevertheless more efficiently from an epidemiological viewpoint. The recent supplying by UNICEF of 200 kits for field use, so that the individual field workers are equipped with necessary material for survey and treatment over a period of time, is also adding to the efficiency of the operation and work is being focused on areas with exceptionally high incidence of yaws whenever contiguous to areas of operation. Plans for the best way of assuring consolidation of the project through the existing Provincial Public-Health Service strengthened by yaws field workers to watch over areas with 50,000 inhabitants are currently under consideration.

The absence of data does not permit efforts to measure the effects of the yaws control project on the economy of the areas at this time. It is considered however that the gradual improvement of rural health services through the Treponematosis Control project, including its educational aspects, as well as other rural projects, such as plague control, VD control and control of intestinal parasitism (MSA projects) will contribute in no small measure to an increased wellbeing and productivity of the rural areas.

YAWS PROJECT IN THE PHILIPPINE ISLANDS

1. Extent and Nature of the Yaws Problem

The Philippine archipelago consists of 7,091 islands, encompassed in an area about 1,150 miles long and 660 miles wide. The total population is now about 20 million people, three-quarters of whom live in rural areas.

Yaws is reported to be endemic in 39 of the 51 provinces. In 30 of these, the prevalence is reported to be less than one per cent. In the other nine provinces - those to be covered by the WHO/UNICEF-assisted yaws control project - the average prevalence of the disease is 3.6%, with certain localities showing a 20% prevalence rate.

Yaws is most common on the smaller islands, along the sea coast, along rivers, and in the swampy regions on the larger islands. It is found chiefly in isolated rural areas, and seldom in towns where there are public-health clinics; it is associated with poverty and with low standards of personal hygiene.

2. Yaws Control Activities

Prior to the advent of the WHO/UNICEF-assisted project, there was little effective anti-yaws work being carried out in the areas under consideration.

In August 1951, the Government, assisted by WHO and by UNICEF, began its present campaign in the island provinces of Samar and Leyte, where the prevalence of yaws among the rural population was believed to be about 8 per cent. The examination target in the rural areas (75 per cent of the total population of the two provinces) was 1,204,073 persons. It was calculated that five teams of 6 persons each working at the rate of about 10,000 examinations per month would finish the campaign in two years. It was soon demonstrated, however, that the teams could not average 10,000 examinations per month, and the Government increased the team personnel from six to eight persons and added one more team, making a total of six teams with 48 persons in all.

3. Objectives of the Campaign

As stated in the plan of operations, the objectives of the campaign are:

"1. To carry out a programme of yaws control in the provinces of Leyte, Samar, Surigao, Agusan, Davao, Cotabato, Zamboanga, Sulu, and Catanduanes.

"2. To examine the population in rural areas of these provinces and give curative treatment to all discovered cases of yaws and significant contacts.

"3. To reduce the incidence of yaws so that it can be controlled by the local health forces.

"4. To train the local health personnel in methods of treatment and control, and to prepare a continuing long-term integrated yaws control programme to be carried out by the Government."

4. The Methods Used

As noted previously, there are six teams each with eight persons carrying out the yaws control work in the Philippines. Five of these have been working in Samar and Leyte and one each on the islands of Surigao, Cotabato and Catanduanes respectively. Five additional teams will work on Mindanao.

Each team consists of a doctor, a public-health nurse and six sanitary inspectors. There is also a clerk and usually a driver or outboard mechanic. The doctor in charge is the president of the local sanitary division which consists of 1-4 municipalities. Most of the sanitary inspectors are high school graduates, and are trained as sanitarians and immunizers. All have had considerable experience and all are able to speak the local dialects.

The teams travel from village to village within the municipalities. Through the municipality mayors, the population is advised of the date of arrival of the team and a census is taken. While the team is in a municipality, the local sanitary inspectors, usually two in number, and other local health workers, work with the team and are given training in yaws control work. The "performance index" of the sanitary inspectors has varied from 1:500 early in the campaign to 1:1400 in recent months. The doctor does not move from his sanitary division, but conducts the work in preparation for carrying it on after the team moves on. When the team moves, the records are left behind in the charge of the president of the sanitary division who arrange follow up of the cases treated.

Thus, the entire yaws control programme eventually becomes integrated into the public health structure of the province and the work will be carried through to its completion after the mass treatment project is finished.

Penicillin dosage: From September 1951 - April 1952, the dosage of PAM was: Children (under 10 years): 0.6 mega units x 2; adults (over 10 years): 1.2 mega units x 2. Following the Bangkok Yaws Symposium, and the visit of WHO consultants, these dosages were changed to single injections in the following amounts:

	Infective lesions	Late lesions	Latent cases	Contacts
Infants (0-2 years)	0.3	0.6	0.3	0.15
Children (3-9 years)	0.6	0.9	0.6	0.3
Adults (10 years and up)	1.2	1.8	1.2	0.6

5. Accomplishments

The total numbers of persons examined and treated from the beginning of the campaign in August 1951 to 17 May 1953 are as follows:

	Estimated population	Number examined	Cases found	
Samar	830,324	541,117	18,857	(3.5%)
Leyte	951,739	682,037	23,658	(3.5%)
Cotabato	90,466	17,628	1,582	(9.0%)
Surigao	175,863	109,590	3,701	(3.4%)
Total	2,038,392	1,350,585	48,011	(3.55%)

It should be noted that in a period of less than two years, two-thirds of the population has been covered, and that this is 88% of the target 2 year coverage of 75% of the population.

Samar and Leyte, the areas of the initial programme, are expected to be completed so far as the mass campaign is concerned, by August 1953, well within the target date set in the plan of operations.

Resurveys of the control areas and of areas of high incidence have been carried out by one team and by a small reduced team of two for the areas in which the prevalence of yaws exceeded 10 per cent. The major part of the population covered in the initial campaign were left to the care of the local municipal sanitary inspectors who hold yaws clinics once per week after the departure of the mass treatment teams. At first, two clinics per week were held, but it was soon found that once a week sufficed.

The results of one resurvey done at Daram were as follows:

	Population	No. of cases
First survey	16,072	2,900 (18.00%)
Second survey	16,481	409 (2.48%)

6. The Future

There are no important problems in the campaign at present. The work in the nine provinces to be covered by the WHO/UNICEF-assisted programme will be completed within the time scheduled. After this, in 1955, the Government will resurvey the same areas to do follow-up work thoroughly.

When finally integrated into the national public-health structure, the yaws control work will cover 700 municipalities in 39 provinces. In the areas covered 109 municipality doctors have so far "taken over".

The programme of training for all presidents of sanitary divisions and most of their sanitary inspectors is being carried on, and in due time, the Government plan to have no less than 400 doctors and more than 800 sanitary inspectors trained to consolidate the work. Since as a result of the mass treatment campaign, the incidence of yaws will have been greatly reduced, the outlook for complete elimination of the disease from the Philippine Islands is hopeful.

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UNICEF

MICROFICHE INPUT CONTROL AND INSTRUCTIONS RECORD

No. 149 (1)

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

Date ...../77. (2)

(4) (5)

(3) 77.CF. E/ICEF/

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A (17*) ENGLISH UNICEF

(6)(7)(8) "NR" "NR"

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

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C	C-1 10	C-2 11	C-3 12	C-4 13	C-5 14	C-6 15	C-7 16	C-8 17	C-9 18	C-10 19	C-11 20	C-12 21
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E	E-1 34	E-2 35	E-3 36	E-4 37	E-5 38	E-6 39	E-7 40	E-8 41	E-9 42	E-10 43	E-11 44	E-12 45
F	F-1 46	F-2 47	F-3 48	F-4 49	F-5 50	F-6 51	F-7 52	F-8 53	F-9 54	F-10 55	F-11 56	F-12 57

(13)

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

TRAILERS YES( ) NO

(14)