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TUBERCULOSIS CONTROL AMONG MIGRANT WORKERS

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Note

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CONTENTS

1. INTRODUCTION

Tuberculosis in immigrants and foreign workers has long been recognized as an important health problem. It has now assumed even greater significance in view of the vastly increased number of people moving for the purpose of employment within their own countries or to other countries.

Following its activities relating to the health aspects of labour migration[1] and to the prevention of the inter-country spread of communicable diseases,[2] the Regional Office for Europe of the World Health Organization, in collaboration with the Government of Switzerland, convened a Working Group on Tuberculosis Control among Migrant Workers in Bern from 22 to 24 April 1975.

Twenty-eight physicians, specialists in pulmonary diseases and tuberculosis, were present. The programme of the meeting is given in Annex I, a list of the working papers and background documents in Annex II, and the list of participants in Annex III.

Dr J.-P. Perret, Deputy Director of the Federal Service of Public Health, formally opened the meeting and welcomed the participants. He gave a brief summary of the procedures applied in Switzerland since the introduction of the Federal Law of 1928 on the prevention of importation of active tuberculous cases into the country by means of border examinations. Migrant workers who were in the country were regarded as Swiss citizens and had access to all health facilities. In certain areas there were even special institutions for migrant workers.

Dr M. Arhirii, Regional Officer for Chronic Lung Diseases, welcomed the participants on behalf of Dr Leo A. Kaprio, Director of the WHO Regional Office for Europe, and expressed his thanks to the Swiss Government for its hospitality. He then referred to the two previous meetings which the Regional Office had convened in Algiers and Izmir concerning the health problems of migrant workers and emphasized that those problems were also of great interest to other international organizations, some of which were represented at the meeting. A single health problem, namely tuberculosis, would be discussed, and if agreement was reached on that issue it would form a basis for tackling other health problems affecting migrant workers.

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[1] World Health Organization, Regional Office for Europe (1974) Health aspects of labour migration; Report on a Working Group, Algiers, 6-9 November 1973, Copenhagen

[2] World Health Organization, Regional Office for Europe (1974) Prevention of the inter-country spread of infectious diseases; Report on a Conference, Izmir, 3-7 June 1974, Copenhagen

Dr Annik Rouillon (International Union against Tuberculosis - IUAT) stressed the Union's concern with the problems of migrant workers and recalled its meeting in Paris in 1964, which had been attended by some of the participants in the present meeting.

The fact that other international organizations were represented demonstrated that WHO considered them to be valuable partners. The IUAT was relatively free to initiate certain activities. Every year it organized meetings, which were attended by representatives of many of its 92 member countries.

Tuberculosis was the disease seen most frequently among migrant workers, and was also the most feared, both by the host countries and the countries of origin.

Dr D. Djordjevic (International Labour Office) spoke of his organization's deep interest in the problem under review. He pointed out that migration was not a contemporary problem; it already existed in the nineteenth century, when 35 million people had emigrated to the USA. Eleven million foreign workers and their families were now estimated to be living in Europe. They had particular problems, among which tuberculosis was of special significance. International agreements existed concerning non-discrimination against foreign workers, who should be given living and working conditions equal to those of nationals of the countries in which they lived.

Dr K.-L.E. Hitze, Chief, Tuberculosis Unit, WHO Headquarters, conveying greetings from Dr H. Mahler, Director-General of WHO, drew attention to the health problems of immigrants and foreign workers in other parts of the world, not only in industrialized countries but also in a number of developing countries where large-scale projects were in progress. He also referred to nomadic populations and to the masses of refugees in Asia and Africa fleeing from famine, floods, earthquakes and war.

Recalling the previous recommendations of WHO concerning case-finding and treatment, Dr Hitze pointed out that the work of other international organizations in tuberculosis control complemented WHO's programme of activities in that field.

Dr E. Arnold was elected Chairman of the meeting, and Dr V.H. Springett Vice-Chairman. Dr T. Atlamaz acted as Rapporteur and Dr M. Arhirii was the Secretary of the Working Group.

2. HEALTH ASPECTS OF LABOUR MIGRATION IN EUROPE

2.1 Health aspects of labour migration in Europe from the point of view of receiving countries

Europe may be divided into two parts: the comparatively wealthy industrialized region in the north, and the less industrialized and less affluent south. This division of wealth in Europe is in line with that pertaining in other parts of the world. Generally speaking, two types of country may be identified: those importing workers and exporting tourists, and those importing tourists and exporting workers.

The diseases suffered by migrant workers can be broken down into different categories: diseases which they import, and those which they acquire in the host country, including diseases (e.g., mental illness) which they acquire in adjusting to their new surroundings.

2.1.1 Imported diseases

Public opinion in host countries is often based on fear of such diseases. They can be broken down by category (ethnic origin of migrants) and by sector (exotic parasitic and exotic non-parasitic diseases), and can easily be traced, provided that physicians and health officials receive prior warning that such diseases may be found among migrants. The selection of biological tests to be undertaken should be determined according to the diseases that can be forecast, and by the worker's origin. Such a selection is bound to reduce the cost of systematic disease-tracing tests.

Imported diseases must be stripped of the myths surrounding them. In practice, they cannot normally be transmitted. They often consist of parasitic conditions which mostly require a vector or intermediate host if transmission is to take place. Nevertheless, they must be traced and treated.

The impact of such imported diseases varies according to the numbers, in absolute terms, of migrant workers in any given area, and according to their ethnic origin and their numbers within their own group.

2.1.2 Acquired diseases

This category is dominated by tuberculosis in all its forms, both pulmonary and non-pulmonary.

Migrant workers form a basically young group living in poor conditions of health, housing, and nutrition, and they constitute a high-risk group.

It is known that tuberculin tests are positive in 80% of new arrivals, and therefore cases of tuberculosis consist of re-infection or recrudescence, and not, in most cases, of new infections. It may thus be said that usually the disease is acquired in the host country, but the infection is imported. Hence, indiscriminate BCG vaccination is not an ideal solution.

Tuberculosis in the migrant worker is not so much a medical problem as a town planning problem, and is bound up with the building of decent housing in a socio-cultural context which is open, which seeks to provide them with a sense of equilibrium and to smooth their path; it is a question of "environmental hygiene".

Out-patient treatment reduces periods of confinement in sanatoria.

Acquired diseases also include seasonal illnesses and gastro-intestinal disturbances which have often given rise to unnecessary operations.

Generally, exotic imported diseases (even cholera) present no real danger because they cannot be or can only rarely be transmitted in Europe in our present state of sanitary development. Diseases acquired by the migrant, on the other hand, constitute a real danger both for him and for his own country when he returns (e.g., tuberculosis foci). An undeniable danger is created by the living conditions that are imposed or tolerated in certain receiving countries.

2.1.3 Illness arising from adjustment (mental illness)

From the psycho-social standpoint, migration gives rise to two types of problem; some relating to how migrants are introduced into their new environment, and others relating to the receiving community's approach to the newcomers. These aspects cannot be dissociated.

The process of the migrant's social adaptation to a new community may be divided into three phases: adjustment, integration, and assimilation. Each phase corresponds to the migrant's conscious and subconscious restructuring mechanisms.

The overall psychiatric morbidity of migrants may be divided into two types of disturbance; imported mental illness (classical mental syndromes), and mental illness resulting from migration. Morbidity from classical syndromes is, however, normally lower than that among the natives of the host country.

The incidence of mental disturbances resulting from immigration varies according to age, sex, socio-economic class, the social, ethnic and cultural gap between the migrants' country of origin and the receiving country, and the length of their stay. It also depends on whether the receiving environment is segregationalist or hospitable in its approach; finally, its incidence varies according to the social vicissitudes experienced by the migrants.

With regard to mental illness resulting from migration, the real problem does not lie in the alleged ethnic frailty, inferiority, or inequality of the migrant. The mental outlook of the citizens of the receiving country

would be at equal risk of being disturbed if they had to subject themselves to the standards of behaviour of the migrants' community of origin.

The host society should be more receptive to the problems raised by labour migration because the movement could be partly reversed, possibly in the not-so-distant future.

Sensitivity to migration movements should form part of the effort to open up different sections of mankind to the realities of a true world community.

2.2 Health aspects of labour migration in Europe from the point of view of countries of origin

The health aspects of labour migration give rise to more complex problems for countries of origin than for host countries. These include the problems of the family members left behind, as well as the special problems of workers returning to their own countries.

One of the health problems of the families left behind is related to the mental and emotional life of the children. The bringing up of children by the mother alone or by grandparents is difficult and not conducive to health. Most countries should therefore encourage workers to bring their families.

The health status of workers who have returned to their own countries has not yet been fully evaluated. Neither countries of origin nor host countries have a system for examining workers upon their return to their own countries, as is done before they are admitted to the host countries.

The available information on the prevalence of communicable diseases and occupational accidents shows that these are higher among foreign workers than among native workers, but that they do not constitute a great health hazard. No epidemiological information is available on the kind and frequency of other diseases among foreign workers, except in a few publications on mental diseases and disorders. It is quite likely that stress-induced diseases are fairly prevalent among foreign workers, and it is therefore impossible to present the physical and mental health problems of foreign workers objectively. Epidemiologists in host countries should not limit themselves to diseases which are important for their own people, but should also study the prevalence of non-communicable diseases in order to assist foreign workers.

When discussing health problems, one should consider not only somatic and mental diseases, but also the underlying social and cultural factors which create such problems. The first question of this kind which arises is the access of foreign workers and their family members to preventive and curative services. The availability of the services and their utilization are two different things. This use is affected by economic and cultural factors, and by the distance between client and institutions. In the case of foreign workers, however, a new factor is added to these basic ones. It is the language barrier, which aggravates the adverse effect of all the

other cultural factors. According to a survey carried out in the Federal Republic of Germany in 1968, 55 per cent of the foreign workers who had been living in Germany for less than two years spoke no German. The language barrier, first of all, hinders communication between physician and patient, and between patient and nurse. In the case of preventive services such as periodic examinations and early diagnosis of preventable diseases, the language barrier and cultural factors affect the use of the available services more than in the case of patient care. Since foreign workers are in great need of health education in different fields such as nutrition, child care and personal hygiene, a solution to the problem of communication between health personnel and workers is absolutely essential.

The language barrier also has an indirect adverse effect on health. Foreign workers who do not speak, read or understand the language of the country cannot understand safety regulations in factories, find suitable accommodation or spend their free time and weekends as pleasantly as native workers.

Measures taken by the receiving countries to overcome the language difficulties of foreign workers include the organization of language courses and the use of interpreters in hospitals. The only effective measure which has not yet been taken is the provision of primary care facilities and public health services where the physicians and nurses talk the languages of the foreign workers concerned. This could be achieved in two ways. Either the physicians and nurses of the host countries should learn appropriate foreign languages fluently, or physicians and nurses from the countries of origin of the migrants should be allowed to practise in the host countries.

Some social problems which prevent social well-being and cause psychosomatic diseases should also be mentioned. Firstly, social conflicts greatly disturb foreign workers, who should not be treated in receiving countries as invaders or intruders, since they contribute to the prosperity of these countries and provide better living conditions for their citizens. The governments of receiving countries should conduct educational programmes designed to create better understanding between their citizens and foreign workers.

Secondly, social stresses cause a variety of diseases. The causes of social stresses are numerous, among them the fear of unemployment and deportation. This is a serious matter, and the unfair employment policy of some governments aggravates the problem.

Clandestine workers are a special group among foreign workers. It is estimated that there are more than 50 000 such workers in Europe. Their health and social problems are more serious than those of other workers, and there is no way to help them. This is a difficult situation which must be clarified through the joint efforts of host countries and countries of origin.

Foreign workers should be regarded as an at-risk group. Special organizations should be set up to carry out extensive social well-being

campaigns and health care programmes for foreign workers. These workers are entitled to special services because they need them, and also because they pay taxes to governments, premiums to insurance organizations and dues to unions, but receive far fewer services than the citizens of the receiving countries. Foreign workers should not be regarded only as a necessary source of manpower. They should be assisted to obtain the same rights and opportunities as the citizens of receiving countries. Otherwise, the employment of foreign workers may become a new form of slavery which will bring shame on our contemporary culture. Foreign workers will clearly remain an important source of labour in European communities for many years to come, and host countries should therefore treat them as their own citizens.

2.3 Discussion

It is not always possible to obtain data about the epidemiological situation since the registers do not give precise information.

There are two types of migrant workers: those (usually from Moslem countries) whose aim is to earn money and after a certain period return to their own country, and those who would like to settle in and become nationals of their adopted country.

The foundation of special institutions for foreign workers or the specialization of existing health centres will not help in the adaptation of the migrants. However, such centres may be helpful in areas where there are large concentrations of foreigners.

Tuberculosis as a whole should not be considered as an acquired pathology; the infection itself is imported but the disease may be activated under stress or in difficult living conditions.

If suitable lodging conditions are made available, most foreign workers would prefer to bring their families to the host countries.

3. EPIDEMIOLOGICAL DATA ON TUBERCULOSIS IN MIGRANT WORKERS

3.1 Federal Republic of Germany

By the sophisticated use of census figures and statistical data on notified cases it is possible to obtain a realistic picture of the epidemiological impact of tuberculosis on both the native and the non-native population. No distinction is made between migrant workers and other foreigners, e.g., students, businessmen, etc., but migrant workers are numerically the most important sub-group.

3.1.1 Incidence of tuberculosis

These data stem from Baden-Württemberg, the Federal Land (State) with the highest number of migrant workers. Table 1 shows the absolute figures of notifications, both new cases and relapses, from 1968 to 1971, as well as the rates per 100 000. Because of the different size of the basic groups, only the relative figures can be compared directly; in practically all groups they are higher in non-Germans than in Germans.

In table 2 the figures are broken down by age and sex, for all types of active tuberculosis combined. Differences are least marked in the oldest age-group; they are more distinct in females than in males.

3.1.2 Observed and expected risk

The data available allow the expected number of cases among migrant workers to be calculated, i.e., the number of cases which would occur in relation to morbidity among the German population.

The results of such calculations are given in table 3, for Land Baden-Württemberg from 1968 to 1971, and for Land Rheinland-Pfalz from 1965 to 1971. The figures represent the grand total and not annual numbers or rates. The overall rate in males rises to somewhat more than 50 per cent, in females up to 100 or 140 per cent. To this extent the common idea of an increased risk of tuberculosis in migrant workers is confirmed.

The total epidemiological impact can be calculated adequately, using the observed number of German patients plus the expected number of non-German patients as a basis (line three in both sections). In Baden-Württemberg in a four-year period an excess rate of 5.7 per cent in males and of 7.1 per cent in females indicated that migrant workers were subject to a higher risk of contracting tuberculosis. For Rheinland-Pfalz the corresponding figures are 1.7 and 1.9 per cent. The lower figures for Rheinland-Pfalz are due to the much smaller number of non-Germans in this State and thus the observed difference may be judged as marginal.

Table 4 is compiled in the same manner as table 3, but grouped by age and sex for all cases of tuberculosis.

3.1.3 Extent of pulmonary tuberculosis

The extent of pulmonary tuberculosis as defined by the 1969 edition of the Diagnostic Standards is available for Stuttgart patients for the period 1964-1972 (table 5). This table does not bear out the thesis that tuberculosis among migrant workers is always, or at least usually, more extensive than among Germans. The results indicate that migrant workers seek access to medical services as promptly (or as tardily) as do Germans.

Table 1

INCIDENCE OF ACTIVE TUBERCULOSIS, BADEN-WÜRTTEMBERG, 1968-71 (BY TYPE OF TUBERCULOSIS)

Year	Germans								Others							
	1.1[a]		1.2[b]		2[c]		Total		1.1		1.2		2		Total	
	No.	0/0000	No.	0/0000	No.	0/0000	No.	0/0000	No.	0/0000	No.	0/0000	No.	0/0000	No.	0/0000
Males																
1968	1074	28	3070	79	471	12	4615	119	105	36	346	118	72	24	523	178
1969	1098	26	2822	72	423	11	4343	111	130	34	427	113	88	23	645	170
1970	1148	30	2530	65	360	9	4038	104	157	38	480	116	136	33	773	186
1971	1135	29	2290	59	381	10	3806	99	214	43	427	86	120	24	761	154
Females																
1968	408	9	2040	47	654	15	3102	71	26	16	181	108	78	47	285	170
1969	382	10	1914	44	561	13	2857	65	24	11	208	99	94	45	326	155
1970	404	9	1682	39	534	12	2620	60	48	18	229	87	107	40	384	144
1971	503	12	1497	34	486	11	2427	56	59	20	241	80	108	36	408	136

a = respiratory tuberculosis, bacteriologically confirmed

b = ditto, not confirmed

c = extrapulmonary tuberculosis

Table 2

INCIDENCE OF ACTIVE TUBERCULOSIS, BADEN-WÜRTTEMBERG 1968-71
(by age-group, all types of active tuberculosis)

Year	Germans										Others									
	0-14		15-29		30-44		45-59		60+		0-14		15-29		30-44		45-59		60+	
	No.	0/0000	No.	0/0000	No.	0/0000	No.	0/0000	No.	0/0000	No.	0/0000	No.	0/0000	No.	0/0000	No.	0/0000	No.	0/0000
Males																				
1968	645	61	921	108	1016	125	963	122	1070	180	38	114	139	101	239	198	89	315	18	330
1969	589	55	833	99	999	118	914	164	1008	167	64	98	172	124	280	180	106	290	23	326
1970	441	42	751	93	934	109	857	154	1055	174	61	93	247	172	339	211	110	292	16	217
1971	440	42	731	94	900	106	744	135	991	160	74	119	244	138	330	166	97	208	16	178
Females																				
1968	623	62	710	86	607	73	519	64	643	72	36	113	112	156	107	233	25	200	5	96
1969	528	52	702	85	545	64	506	63	576	63	53	135	136	150	113	195	20	128	4	61
1970	487	49	563	71	522	61	481	61	567	62	62	99	152	141	141	206	26	141	3	38
1971	401	40	580	75	481	56	431	53	534	57	66	111	182	143	127	156	30	136	3	32

Table 3

DIFFERENCES BETWEEN OBSERVED AND EXPECTED NUMBER OF NON-GERMAN TUBERCULOUS PATIENTS, BY TYPE OF TUBERCULOSIS

	Baden-Württemberg 1968-71				Rheinland-Pfalz 1965-71			
	Type of tuberculosis[a]							
	1.1	1.2	2	Total	1.1	1.2	2	Total
Males								
Absolute number	159	610	252	1021	61	123	47	231
Percentage[b]	36	57	65	60	46	56	78	56
Percentage[c]	3.2	5.2	14.2	5.7	1.4	1.6	2.6	1.7
Females								
Absolute number	62	484	269	815	18	64	40	122
Percentage[b]	65	129	228	140	82	94	138	103
Percentage[c]	3.5	6.4	11.4	7.0	1.2	1.5	1.9	1.9

a = respiratory tuberculosis, bacteriologically confirmed
b = percentage of the difference between observed and expected number of cases
c = excess rate in percentage; base: observed number of German patients + expected number of non-German patients

Table 4

DIFFERENCE BETWEEN OBSERVED AND EXPECTED NUMBER OF NON-GERMAN TUBERCULOUS PATIENTS, BY AGE

	Baden-Württemberg 1968-71					Rheinland-Pfalz 1965-71				
	Age-group									
	0-14	15-29	30-44	45-59	60+	0-14	15-29	30-44	45-59	60+
Males										
Absolute number	141	248	470	186	24	14	53	104	36	19
Percentage[a]	146	45	65	86	49	58	48	62	42	73
Percentage[b]	6.4	6.5	10.3	5.0	0.6	0.9	2.0	3.3	1.1	0.6
Females										
Absolute number	122	271	331	60	- 3	14	76	42	6	- 1
Percentage[a]	78	87	211	146	- 17	70	146	140	55	- 14
Percentage[b]	5.2	9.5	14.3	3.0	-0.1	0.4	5.8	2.1	0.5	-0.1

a = percentage of the difference between observed and expected number of cases
b = excess rate in percentage; base: observed number of German patients + expected number of non-German patients

Table 5

EXTENT OF PULMONARY TUBERCULOSIS (STUTTGART, 1964-1972)

Group	Extent of pulmonary tuberculosis (numbers expressed in percentages)								
	Minimal			Moderately advanced			Far advanced		
	1964-66	1967-69	1970-72	1964-66	1967-69	1970-72	1964-66	1967-69	1970-72
Bacteriologically confirmed									
Germans: males	8	7	9	61	72	68	31	20	23
females	18	10	17	63	71	68	20	19	16
Others: males	12	13	9	62	66	74	26	23	17
females	25	21	0	69	71	84	6	7	16
Bacteriologically not confirmed									
Germans: males	68	46	48	32	53	51	1	1	1
females	74	51	51	25	46	47	1	2	2
Others: males	61	56	47	39	43	53	0	1	0
females	62	56	40	38	44	55	0	-	4

3.1.4 Late primary infection

There is a fair amount of evidence that a considerable number of migrant workers arrive without being infected by tubercle bacilli, but become infected during the first few years of their residence in the host country (table 6). The differences between Germans and non-Germans are statistically significant, but as the absolute figures are not very high the effect of indiscriminate BCG vaccination of migrant workers must be limited.

3.1.5 Risk of contacts

Additional information on the risk of tuberculosis in migrant workers is given in table 7. It is based on the results of a special survey carried out in the Federal Republic of Germany from 1 August 1972 to 28 February 1973. There were 482 index cases with bacteriologically confirmed respiratory tuberculosis and 8457 contacts (including 1344 non-Germans and 377 whose nationality was not stated). A diagnosis of tuberculosis (all types) was made in 57 contacts by contact examination. There seems to be a tendency for the risk of contracting active tuberculosis to be highest in the homologous group. However, in male non-German contacts the risk was higher for a German index case than for a non-German male one (chi square 5.564, $p < 0.02$). The other differences are not statistically significant. The spread of tuberculosis between natives and migrant workers is by no means a one-way affair. Migrant workers may be a little more at risk than the native population.

3.1.6 Social class

The role of social class as a determining factor in morbidity and mortality from tuberculosis is now widely neglected. This does not seem completely justified because it could be shown that Germans of the lowest social class are over-represented among patients with bacteriologically confirmed pulmonary tuberculosis and, here again, among patients in the advanced stage of the disease. Bearing in mind the results among Germans, this point seems to be important, because the majority of migrant workers must be classified as members of the lower or lowest social classes. There is one additional marked difference between German and non-German female patients: the rate for housewives is much lower among the latter than among the former.

The increased risk for migrant workers depends, at least to some degree, on their social class. The epidemiological situation in their native country is not the only decisive factor.

3.1.7 Conclusion

To summarize, there is no doubt that migrant workers in the Federal Republic are subject to an elevated risk of contracting tuberculosis. However, the risk can be reasonably accurately assessed and there is no need for serious concern in this respect.

Table 6

RISK OF LATE PRIMARY INFECTION (STUTTGART, 1965-1972)
AGE-GROUP 15-44 YEARS

Group		Diagnosis			
		Tuberculosis of endothoracic lymph nodes		Tuberculous pleural effusion	
		No.	0/0000	No.	0/0000
Germans:	males	9	1.0	67	7.6
	females	17	1.8	45	4.8
Others:	males	5	1.8	37	13.1
	females	4	3.3	23	18.9

Table 7

RISK OF CONTACTS BY SEX AND NATIONALITY
(CASES PER 100 000, ALL TYPES OF TUBERCULOSIS)

Index cases		Contacts				
		Germans		Others		Total
Nationality	Sex	Males	Females	Males	Females	
German	Males	805	1087	455	1818	952
	Females	525	498	0	0	488
Others	Males	172	629	305	1379	389
	Females	0	0	1449	0	128
Total		642	792	729	787	705

3.2 Netherlands

3.2.1 Epidemiology

Whether a host country considers tuberculosis among its immigrant workers to be a potential health problem depends largely on how the tuberculosis situation in the host country compares with that in the countries where the immigrant workers originate.

In the Netherlands (population 13.5 million) the number of persons from abroad residing in the country is of the order of 300 000. Of these, about 100 000 are immigrant workers in the strict sense. The others are citizens of the realm, citizens of EEC countries, citizens of Australia, Austria, Canada, Finland, Iceland, Monaco, Norway, Sweden, Switzerland and the USA, who are exempted from the health examination. The immigrant workers are under a legal obligation to have themselves examined for tuberculosis when entering the country, in order to obtain a residence permit.

Absolute figures on tuberculosis incidence in these immigrant workers must be considered as approximations, and this is even more true for incidence rates. Subject to this reservation, tuberculosis incidence rates in male immigrant workers aged 20-39[1] are compared with the rate for the corresponding age-group in the Dutch population. Excluding primary tuberculosis, the ratio between these two incidence rates is of the order of 17:1 (see table 8).

An effort is made to relate this type of comparison to a comparison between the known or estimated infection incidence in the countries of origin on the one hand, and in the host country on the other.

By taking into account the nationalities which compose the group and the infection incidence (or risk of infection) in the respective home countries, the epidemiological background of the group can be simulated. The infection risk to which the immigrant group has been exposed up to the day of emigration can be stated. The artificial concept of an "average infection risk in the home country" would be valid if all the immigrant workers had originated from one country. The ratio of this calculated average infection incidence - forming the epidemiological background of the immigrant group residing in the Netherlands - to the known infection in the Dutch population is 20:1.

This serves to illustrate the fact that well-founded data on infection incidence in the home countries of immigrants, together with infection incidence data from the host population, can throw light on the findings regarding tuberculosis incidence in guests and hosts; to a certain extent the findings may even be predicted.

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[1] All cases of tuberculosis found in immigrants within two months of entry are discarded in these calculations.

Table 8

TUBERCULOSIS NOTIFIED IN 20-39 YEAR-OLD MIGRANT MALES
WHO HAVE STAYED IN THE COUNTRY ≥ 2 MONTHS,
AND IN DUTCH MALES AGED 20-39
AVERAGE ANNUAL FIGURES AND RATES
PER 100 000 POPULATION, 1968-1970

	Pulmonary tuberculosis			Primary tuberculosis	Other forms	Total
	Smear positive	Culture positive	No bact. confirm.			
Migrants						
absolute numbers	22	26	56	7	16	127
Rate per 100 000	40	48	110	13	31	242
Dutch males						
Rate per 100 000	2.6	3.0	6	3	1.8	16.4
Ratio Dutch/ migrant males	1/18	1/16	1/18	1/4	1/17	

A review is given in table 9 of the time interval between the entry of immigrants into the country and the diagnosis of active tuberculosis (including cases found within two months of the day of entry).

Table 9

INTERVAL BETWEEN ENTERING THE NETHERLANDS AND DIAGNOSIS OF ACTIVE TUBERCULOSIS
(All forms, both sexes, all ages, 1965-1970 inclusive, 2121 cases)

Time interval	Absolute numbers	%
$\leq$ 2 months	899	42
2- 5 months	454	21
6-12 months	208	10
13-24 months	202	10
$>$ 2 years	259	12
Unknown	99	5
Total	2121	100

3.2.2 Infectiousness of immigrant workers

In a country where mass BCG vaccination has never been applied, the tuberculosis surveillance system permits the recognition of so-called "group infections". The purely arbitrary definition of a group infection as used in the Netherlands notification system is as follows:

> "A group infection is a collection of more than six cases of primary tuberculosis occurring in more than two households, and caused by one and the same infectious source... OR a collection of more than 20 tuberculin conversions caused by one and the same infectious source".

During the period 1960-1964 a yearly average of nine such group infections was reported. During 1965-1971 this figure was six per year. Although immigrant workers have caused accidental tuberculous infections, up to the present not one "group infection" caused by an immigrant worker has been reported in the Netherlands. There is therefore no reason to consider that tuberculosis among guest workers is a very serious problem for the host population, provided that the host country avails itself of an active tuberculosis surveillance and control system.

Data illustrating the practical experience of the Amsterdam Tuberculosis Clinic in relation to a population of 880 000 which includes 30 000 immigrant workers, are given in table 10.

Table 10

TUBERCULOSIS CLINIC, AMSTERDAM
Indigenous population: 850 000
Foreigners (incl. illegals): 30 000 = 3.5%
Tuberculosis incidence figures - relapses excluded
Average figures, 1972-1973

	850 000 indigenous population		30 000 foreigners		880 000 total	
	No.	%	No.	%	No.	%
Pulm. smear positive	29	(73)	11	(27)	40	(100)
Pulm. culture positive	28	(78)	8	(22)	36	(100)
Pulm. no bact. confirm.	35	(63)	21	(37)	56	(100)
Total pulmonary tuberculosis	92	(70)	40	(30)	132	(100)
Primary forms	23	(79)	6	(21)	29	(100)
Other forms	21	(68)	10	(32)	31	(100)
TOTAL	136	(71)	56	(29)	192	(100)

It may be seen from table 11 that the incidence of different forms of tuberculosis among foreigners forms about 30% of the total incidence, although the group of foreigners numbers only 3.5% of the total population.

This table gives a comparison of tuberculosis rates, expressed per 100 000 population. The rates for the indigenous and the foreign population compare as 1:12. This relates to both sexes and all ages.

At present the tuberculosis infection risk in the Netherlands is 0.03 per cent annually, that is, 3 infections per 10 000 population per year. It can be estimated - by calculation - that in order to increase this infection risk from 3/10 000 to 4/10 000 per year, the country with its 13.5 million population would have to import about 700 000 migrant workers of the type we

Table 11

TUBERCULOSIS CLINIC, AMSTERDAM
Indigenous population: 850 000
Foreigners estimated: 30 000 = 3.5%
Tuberculosis incidence rates - relapses excluded
Average rates, 1972-1973

	Rates per 100 000 indigenous population	Rates per 100 000 foreigners
Pulm. smear positive	3.4	36.7
Pulm. culture positive	3.3	26.7
Pulm. no bact. confirm.	4.1	70.0
Total pulmonary tuberculosis	10.8	133.4
Primary forms	2.7	20.0
Other forms	2.5	33.3
TOTAL	16/100 000	187/100 000
	= ± 1 : 12	

have now. A further requirement would be that the guest workers would be immediately and fully integrated into the Dutch population. In other words the present 100 000 migrant workers can maximally enlarge the general infection risk for the native population from the present 0.03% to 0.032%.

Therefore, epidemiologically speaking, the presence of the existing number of migrant workers cannot be a serious danger. However, from the individual medical and humanitarian points of view everything possible should be done to find every case of tuberculosis and treat it.

3.3 Other countries

The problem of migrant workers and therefore the tuberculosis problem connected with it, exists not only in the European Region but also in other parts of the world.

In the USA, with the sustained decline in the number of new cases of tuberculosis, it is feared that a greater percentage of persons with newly

diagnosed tuberculosis may have been infected with tuberculosis abroad, where the rates of tuberculosis are much higher.

The data from Australia show that the "migrant" proportion of the Australian population provides a significant proportion of the tuberculosis notifications each year, and that, comparatively, there has been only a marginal decrease in the notifications of "migrants".

United Kingdom: an analysis of notifications of tuberculosis in the city of Birmingham for the period 1970-1972 (by place of birth and for each sex) in relation to the results of the census of 1971, compared with a similar analysis made 10 years earlier, shows that, for all males, the notification rate declined from 0.99 to 0.67 per 1000 per year during this 10-year period, and for all females there was a decline from 0.48 to 0.42.

The lowest notification rates were for those born in Great Britain; 0.28 per 1000 per year for males in 1971 and 0.18 for females; for those born in Ireland the rates were 0.95 and 0.44 respectively, and for those born in the West Indies 0.71 and 0.44. The highest rates were recorded in immigrants from Pakistan: 7.8 per 1000 per year for males and 10.8 for females. The rates for immigrants from India were only a little less: 5.1 and 8.3 respectively. Except for the rates for those born in India and females born in Pakistan, there was a decline of 50% or more in the last 10 years. The differences between age-groups and between sexes for any one birthplace group were very much less than the difference in rates between groups defined by place of birth.

In Switzerland, the morbidity among migrant workers is 15% higher than among the Swiss population. However, the rates among foreigners are somewhat less than the rates in their own countries; this is probably due to pre-entry examinations performed at the border.

In France the tuberculosis morbidity among foreign workers in the age-group 20-50 years is 3-4 times as high as in the French population in the same age-group.

According to a study performed during the time when tuberculosis was treated in sanatoria it was found that the rates among foreign workers of different origins were as follows (France being 1): Italy 1, Spain 1, Portugal 2, Turkey and Yugoslavia 3-4, Magreb countries 5-6, other African countries 10-12.

3.4 Discussion

It was pointed out that unless the data given about migrant workers are separated according to their countries of origin, they will not be comparable, since the various host countries receive varying numbers of immigrants from different countries with different epidemiological situations.

It was also mentioned that, according to recent figures, more than 80% of the immigrants from Africa are tuberculin-positive; there is

therefore no danger of group epidemics occurring among them, as was the case among large groups of tuberculin-negative subjects in the past. However, it was emphasized that migrants living together in a rather crowded environment are at greater risk of being reinfected when one of them contracts bacillary tuberculosis.

The possibility of migrants contracting primary infection or heavy reinfections during the waiting period in their own country and/or during their travel to the host country has also to be considered.

It was confirmed that the longer the stay of the migrants in the host country, the less likelihood there is of their contracting tuberculosis; when this does occur, it is usually during the first two years. From an epidemiometric point of view, this fact is important, and shows that exogenous infection has very little effect on the incidence of tuberculosis among migrants.

The role of stress and the feelings of loneliness and homesickness, exacerbated by especially language difficulties, were said to have more effect on the migrants than their actual living conditions, especially since many of them come from poorer and less hygienic conditions. Nevertheless, they do not avail themselves of the existing health and social facilities until they have become really adjusted, and this may take a considerable time.

4. MEASURES APPLIED IN THE DETECTION OF TUBERCULOSIS AMONG EMIGRATION APPLICANTS

4.1 Algeria

Migration from Algeria has been mainly to France, but partly also to Belgium, the Federal Republic of Germany and the German Democratic Republic.

Various agreements concluded between the Algerian and French Governments in 1964, 1968 and 1971 limit the number of Algerian workers migrating to France. Migrants have to find a job within nine months of their entry into France. However, since September 1973 the Algerian Government has completely halted the emigration of workers to France.

The health examination of applicants was performed by a French medical mission which had branches in various parts of Algeria. The health examination for emigration is not performed for tuberculosis alone, but comprises clinical, radiological and biological examinations. As a result of these examinations, the candidate may be labelled temporarily or permanently unfit for emigration.

The rate of permanent refusals for all causes during the period 1971-1973 (September) was 12 per 1000. Of those, only 2 per 1000 were refused because of tuberculosis.

The majority of the migrant workers are young, in good health, sufficiently motivated to undertake the trip abroad and to engage in hard work in the host country.

4.2 Italy

The number of persons emigrating from Italy in 1972, the latest year for which figures are available, was 141 852 persons (96 283 men and 45 569 women). These may be divided into two groups:

(1) Assisted emigrants (emigration is organized and controlled by the Ministry of Labour as a result of official requests transmitted to it from abroad). These emigrants are subject to a medical examination, either by the Italian authorities or by those of the host country.

In Italy, workers wishing to emigrate must undergo a medical inspection supplemented, if possible, by an X-ray. The medical examination takes place before a committee consisting of the doctor of the health administration of the commune where the central anti-tuberculosis dispensary is situated and the doctor of this dispensary.

Since emigration at present takes place mainly to the Federal Republic of Germany, the Government of this country has set up a special centre for medical inspection in Verona.

Under regulation No. 1916/68 of the European Economic Community on the free circulation of workers in the member countries, nearly all the workers settle abroad without having recourse to the official bodies. That is why the Ministry of Labour decided to facilitate pre-selection as far as possible by entrusting this to the doctors of the health administration of the various communes, with a view to increasing by this means the amount of "assisted emigration". It must, however, be recognized that these medical examinations are, in fact, of a rather summary nature.

The Ministry of Labour arranges for candidates for emigration to countries outside Europe to be examined, and certain countries such as Australia and Canada have them examined by Italian representatives. Certain other countries, those in South America for example, require only a certificate of general good health.

(2) Non-assisted emigrants. Such emigration, which is not officially organized, is generally solicited or encouraged by relatives or friends who are already abroad. Emigrants in this group are not controlled when taking up work in the host country.

It would certainly be desirable to institute an X-ray and a tuberculin test for all workers who emigrate. Furthermore, since studies are at present being carried out on the prophylactic value of chemotherapy on individuals who are found to have manifest residues of tuberculosis lesions, it would be useful to be able to recognize the carriers of these residues and to provide them with appropriate treatment.

Failing official arrangements, it is necessary to intensify the anti-tuberculosis and medico-social propaganda, particularly in the regions which provide the largest contingents of emigrants and which are often those most affected by tuberculosis.

4.3 Portugal

From 1960 onwards, Portugal has provided a relatively high number of emigrants in relation to its population (about 8 700 000 in 1970). Prior to 1960 most emigrants went to other continents, but since then European countries have been preferred (Federal Republic of Germany, France, Netherlands, Switzerland, etc.). Although there have been some skilled workers among them, most have come from the rural population. Representatives of the professions, and university students, have joined the exodus, mainly for political reasons.

With regard to tuberculosis, the mortality rate in Portugal is very high compared with that in other European countries (48.2 in 1960; 12.3 in 1973). The incidence of the disease may be evaluated as 100 per 100 000 yearly, and the prevalence of infection is high, mainly in the older age-groups, though it is decreasing in rural areas.

Accordingly, the emigration authorities subject persons requesting exit visas to stringent controls. The basic method of screening for tuberculosis is the X-ray examination. Miniature X-rays or full-sized radiographs are used depending upon available facilities. Any image that is suspect results in an exhaustive study using the necessary radiological, bacteriological and possibly other techniques, to ascertain if tuberculosis is present and, if so, to evaluate its activity. Clandestine emigration, formerly very considerable, still remains a problem. For illegal emigrants control seems possible only in the recipient countries. Most important would be the initial examination. In Portugal the yearly miniature X-ray for the general population or factory workers has been of very little value in finding cases of tuberculosis. This does not mean that regular follow-up in emigrants is unnecessary, as the different environmental and psychological conditions faced in recipient countries might result in a higher incidence of tuberculosis.

Recent studies have shown that in Portugal there are at least four regions with different epidemiological situations, due to differences in the effectiveness of the health organizations and measures applied to control tuberculosis in each of them.

4.4 Spain

Two phases may be distinguished in Spain's policy towards prospective emigrants: the first, which may be regarded as having ended around 1964, was characterized by a certain lack of experience; the methods used were not as strict as they should have been.

Since 1964, when emigration became an important factor in the Spanish economy, it has become necessary to introduce regulations which have had a favourable effect on medical control examinations. These examinations are centralized in provincial health prefectures, which are usually well staffed since they have a specialized medical staff which almost always includes a specialist of the National Tuberculosis Patronato.

As medical check-ups become more and more thorough, almost all residual pulmonary lesions, even old ones, are being eliminated, except, of course, those due to primary infections.

Statistics taken from records of health examinations carried out among prospective emigrants during 1973 and 1974 by the Madrid Prefecture, which cover almost five million inhabitants, have revealed the following facts.

(a) The number of control examinations went down from 864 in 1973 to 514 in 1974.

(b) The distribution by sex was 70% men and 30% women, no significant change in these percentages being recorded over a period of time.

(c) Distribution by age: in the last two years the emigrants had an average age of 30 years. Those leaving for America were two or three years younger than those leaving for other countries in Europe.

(d) Distribution by marital status: unmarried 62%; married 36%, widowed 2%. The number of unmarried persons was higher among emigrants to America.

(e) Distribution by destination: 1973: America - 7%, Europe - 93%;
1974: America - 15%, Europe - 85%.

In these two years the countries most favoured by emigrants were, in America, Colombia, and in Europe, Switzerland.

(f) The frequency of rejections for health reasons amounted to 5% in 1973 and to 4.5% in 1974 of all subjects examined.

(g) Lung diseases represented 40% of the reasons for rejection in 1973 and 1974.

The Federal Republic of Germany, which receives a large proportion of the Spanish emigrants, has a Federal Institute of Employment and Assurance against Unemployment, to which any German or foreign worker wishing to obtain a work permit must apply.

This organization has commissions abroad which undertake the task of drawing up contracts for emigrants wishing to work in the Federal Republic of Germany. In Spain, a commission of this kind functioned until November 1973. The number of emigrants examined during the 11 months of 1973 was 31 491, of whom 3173 (10.07%) were rejected. Residual or active pulmonary lesions represented the reasons for rejection in 2623 cases.

A study of the X-rays on which these rejections were based shows that the standards were high, and because of this strictness Spain was the country which, throughout the period of the commission's work, had to recall the least number of emigrants with old tuberculosis lesions.

4.5 Turkey

Turkish labour migration has assumed increasing importance during the last decade. The great majority of Turkish migrant workers go to the Federal Republic of Germany, while smaller numbers go to Australia, Austria, Belgium, Denmark, France, the Netherlands, Sweden, Switzerland and the United Kingdom (see table 12). The Turkish labour office, at the request of the host countries, is responsible for the administrative selection of these workers. There are two main offices, in Istanbul and Ankara, but candidates may also apply through the labour offices in other cities.

Intergovernmental agreements exist with some host countries, which have set up their own offices in Turkey to carry out health examinations of applicants.

The Federal Republic of Germany has an office in Istanbul, an agreement having been signed in 1961. The screening examinations are performed by German doctors and include:

(a) blood tests for venereal diseases, sedimentation rate;

(b) urinalysis (sugar, protein, urobilinogen), pregnancy test for women;

(c) miniature X-ray, and if indicated, standard radiography (the latter is performed routinely for prospective coal miners, etc.); persons having even minor pulmonary lesions (fibrotic and calcified sequelae) are rejected;

(d) general physical examination.

The age limit is 35 for unskilled workers and 40 for skilled workers. Some workers receive special training before leaving to take up work abroad.

Austria uses the Federal German office for the selection and examination procedures.

Table 12

YEARLY NUMBERS OF TURKISH WORKERS GOING ABROAD

Country	1961-1967	1968	1969	1970	1971	1972	1973	1974*
Australia	-	107	970	1 186	879	640	886	1 018
Austria	6 016	673	973	10 622	4 620	4 472	7 083	2 338
Belgium	13 917	-	-	431	583	113	265	540
France	88	-	191	9 036	7 897	10 610	17 544	10 541
Germany, Federal Republic of	176 190	41 409	98 142	96 936	65 684	65 875	103 793	1 126
Netherlands	6 646	875	3 404	4 843	4 853	744	1 994	1 458
Switzerland	719	97	183	1 598	1 342	1 312	1 109	680
United Kingdom	8	-	4	563	1 289	82	116	101
Others	458	43	108	4 360	1 295	1 381	3 030	1 658
TOTAL	204 042	43 204	103 975	129 575	88 442	85 229	135 820	19 460

* Up to end of October

France has an agreement with Turkey (1965). An office was set up in 1969 in Istanbul, and French doctors conduct the medical examinations: tests for venereal diseases and blood sedimentation rate and radioscopy for pulmonary control are performed. For suspect cases, a standard chest X-ray is taken by a private Turkish health institute. The French office provides the workers with Turkish-French phrase books in order to help them master the language problem.

Belgium and the Netherlands have an office in Ankara.

Neither Denmark nor the United Kingdom has an agreement with Turkey and no examination is performed.

Sweden has an agreement with Turkey but no examination is performed: very few workers go direct to Sweden from Turkey.

Switzerland has no agreement with Turkey, but all alien workers are examined for communicable diseases at the Swiss frontier.

Australia has an office in Ankara where Australian medical staff perform the required examinations.

The Turkish Government plays no role in the medical screening of migrant workers; this is based mainly on the regulations enforced by the various host countries.

The present arrangements introduced by certain countries for the health control of labour migration ensure that tubercular workers are not accepted; however, members of migrant workers' families are not examined before going abroad.

Furthermore, the problem seems to be more important as far as illegal migrants are concerned. This is a matter which can be dealt with only by the host countries.

The yearly numbers of emigrant applicants (1969-1973) who have had the chest X-ray examination required by certain host countries, and the number of refusals due to X-ray findings, are shown in table 13. The percentage of refusals varies from 4.1 to 6.1.

When compared with the findings of Turkish screening services for work applicants, these rates correspond with the percentages of total lung shadows of any type. The percentages for shadows interpreted as probably active tuberculosis are 1.5 to 1.7, as will be seen in table 14.

Similarly, the percentages of tuberculosis suspects found during general population surveys (1964-1970) are also lower (see table 15) for age-groups above 15 years.

Table 13

REJECTIONS OF PROSPECTIVE IMMIGRANT WORKERS
ON THE BASIS OF X-RAY FINDINGS

	Males			Females					
Year	Number examined	rejected	%	Number examined	rejected	%	Total	rejected	%
1969	87 532	3 953	4.5	23 129	619	2.6	110 661	4 572	4.1
1970	87 443	4 833	5.5	24 717	633	2.5	112 160	5 466	4.8
1971	62 904	4 473	7.1	19 685	568	2.6	82 589	5 041	6.1
1972	60 543	3 417	5.6	23 134	572	2.4	83 677	3 989	4.7
1973	97 218	5 232	5.3	32 409	632	1.9	129 627	5 864	4.5

Table 14

ISTANBUL SCREENING SERVICE

Year	Work applicants	Tuberculosis suspects	%	Total lung shadows (any type)	%
1972	18 599	298	1.6	774	4.1
1973	24 979	443	1.7	931	3.7
1974	22 622	340	1.5	776	3.4

Table 15

NUMBER OF SUSPECTS DURING THE X-RAY SURVEY IN ISTANBUL (GENERAL POPULATION) 1964-1970

Age-groups	15 - 19		20 - 24		25 - 44		45 - 64	
	M	F	M	F	M	F	M	F
Number examined	71 457	71 633	55 688	66 485	188 272	211 209	93 672	103 036
Suspects	909	689	996	871	7 283	4 836	5 950	3 883
%	1.2	0.90	1.7	1.1	3.8	2.2	6.1	3.7

4.6 Yugoslavia

The number of Yugoslav migrant workers is approximately 700 000, of whom some 500 000 are employed in the Federal Republic of Germany. Others work mostly in Austria, France, Sweden and Switzerland.

Yugoslavia still has a relatively high tuberculosis morbidity. In spite of a steady improvement in the epidemiological situation, the prevalence of active pulmonary tuberculosis in 1973 was 441.8 per 100 000 population, while the incidence was 99.5 per 100 000 population. The consequence of an even more serious epidemiological situation in the past is the very high percentage of persons with healed inactive tuberculous sequelae (around 8% of the adult population).

Logically, such a situation has necessitated caution in the admission of Yugoslav workers to other countries. Measures are therefore taken to prevent the transmission of tuberculosis into the receiving country and to eliminate, as far as possible, the occurrence of an exacerbation of inactive lesions in persons exposed to numerous psycho-physical stresses in their new surroundings.

As a rule, prospective emigrants apply through the official employment bureaux, although evasion of the legal procedures is not uncommon.

The medical documentation necessary for obtaining a permit to work abroad includes certification of normal pulmonary findings based on compulsory chest radiography, as well as a physician's opinion on the applicant's working ability. This medical certificate is submitted to the medical experts of the receiving countries for final review.

Although all the receiving countries pay special attention to tuberculosis, their standpoints are not uniform. For instance, the Federal Republic of Germany considers healed tuberculosis, as well as active tuberculosis, to be a contraindication for admission. Only calcified primary complex, solitary isolated foci in the lungs, and slight pleural adhesions without a decrease of respiratory function, are excepted.

According to the data for 1972, 19.3% of the applicants were rejected for health reasons. Of all the rejections, 45.3% were because of pulmonary findings. Almost 10% of the applicants were rejected because of active tuberculosis or its sequelae; this reflects the still serious epidemiological situation in Yugoslavia, with regard to this disease, the more so, since the majority of applicants belong to the younger age-groups (under 21: 30.3%, 21-30: 49.8%, total under 30: 80.1%).

Because of these strict screening measures, active tuberculosis was identified in only 20 of the almost 250 000 Yugoslav nationals arriving to take up work abroad during the period 1969-71.

Besides making compulsory the presentation of data on pathological lung changes, the Dutch authorities require a statement from the applicant

to the effect that he has never received hospital treatment for tuberculosis. Both Sweden and France require information on any history of tuberculosis in the applicant, as well as a normal chest X-ray. For Austria it is necessary to certify that the applicant is not suffering from active tuberculosis, whereas Luxembourg demands a certification that the applicant is not suffering from active infectious tuberculosis.

Special consideration should be given to the possibility of tuberculosis being transmitted by members of the worker's family who follow him abroad and whose health control is far from adequate, as well as by workers who obtain employment after evading the legal procedure, sometimes because they have not satisfied the legal health control requirements.

The screening of migrant workers is indispensable; it should be standardized on the basis of joint criteria and information on these problems should be made available on a permanent basis through collaboration between the health services of the countries concerned.

4.7 Discussion

The advisability of emigration applicants having a chest X-ray examination, preferably before leaving their country, was confirmed. Agreement between host countries and countries of origin about the criteria for fitness of work is an important factor. For the host countries sending missions abroad, this depends on the number of applicants to be imported from a given country; if the number is small, an agreement with the authorities of the country of origin on using their existing organization for the health examination of migrants would be more logical.

The use of fluoroscopy should be abandoned. Tuberculin testing could be utilized as an adjunct, for differential diagnosis if desired. However, screening using bacteriological examinations is not practicable. This method may be used for further follow-up of the temporarily or permanently refused suspects with a view to their definitive diagnosis and eventual treatment. The strictness of the X-ray criteria was criticized by some speakers; however, it was acknowledged that the host countries are naturally anxious to select the best and healthiest applicants, since this importation of manpower is an economic necessity.

The health examination of family members was also discussed and their examination in the country of origin was accepted. However, the detection of tuberculosis among family members should not act as an obstacle for the worker, or for his family. The decision as to whether the sick member remains in the country of origin for treatment or receives treatment in the host country should rest with the worker himself.

5. MEASURES APPLIED IN THE PREVENTION, DIAGNOSIS AND TREATMENT OF TUBERCULOSIS AMONG MIGRANT WORKERS AND THEIR FAMILIES

5.1 Belgium

In Belgium, the nationality, method of recruitment and type of occupation of migrant workers play an important role in the health measures which they must undergo, particularly with respect to pulmonary tuberculosis. Nationals of member countries of the European Economic Community (EEC) have the right to carry on a paid occupation on Belgian territory under the same conditions as those applying to the national workers, but they remain subject to the general legislation regarding the immigration authorities. On the other hand, nationals of countries which are not members of the EEC, but which have signed a special agreement, either with Belgium or with the Organisation for Economic Co-operation and Development (OECD) must, in order to be able to have a paid occupation in Belgium, be in possession of a work permit, the granting of which is subject to the prior signing of a contract with an employer and the production of a medical certificate issued in the country of origin by a doctor designated by the Belgian consular or diplomatic official accredited there.

This permit, valid for a year, is renewable and carries with it the authorization to reside in Belgium for the corresponding period, provided that the person concerned also satisfies the general provisions relating to the settlement or residence of foreigners within the country.

There are numerous exceptions to this procedure: they relate to political refugees, highly-qualified specialists, registered nurses, servants, dependent wives, etc.

However, many travellers make their way into Belgium without either a work contract or a medical certificate, on the basis of a tourist passport. Generally speaking, they go to live with compatriots and try to find a job. Some, if they succeed in this, try to regularize their situation: they generally obtain a work permit, provided that they have presented a medical certificate which must state that a radiological test on the lungs has given a satisfactory result. Nevertheless, it is no good disguising the fact that this way of penetrating into Belgium by "infiltration" gives rise to numerous abuses, both on the part of the employers, who tend to exploit, for their own ends, the irregular situation of such workers, and also on the part of the latter, who try to evade the conditions laid down by the State with regard to their residence.

All migrant workers who have acquired legal status as defined above are assimilated with the Belgian workers and enjoy the same rights.

All workers, whether Belgian or foreign, are compulsorily affiliated to the National Office for Social Security (NOSS), which guarantees to active workers, to their spouses, and to their parents and progeny living

under the same roof, indemnities for occupational disability, medical and pharmaceutical care, hospitalization, involuntary unemployment, etc. This Office, which operates under a State guarantee, is mainly financed by workers' and employers' contributions.

During their school years, children and adolescents regularly undergo compulsory medical examinations accompanied by tests for allergy to tuberculin and by radiological examinations of the lungs.

The medico-social infrastructure of the country consists of a network of 110 anti-tuberculosis clinics and 55 health centres, complemented by mobile radiological services which are responsible for case-finding and surveillance and operate gratuitously and voluntarily. There are 1900 sanatorium beds distributed throughout the country. In addition, the National Children's Fund operates, for infants and young children, 340 clinics open to all, and free. There are 48 000 hospital beds for acute diseases, etc.

Referral to these institutions and liaison with them is undertaken either by the doctors responsible for the compulsory measures described above (factory doctors, school doctors, etc.) or, if necessary, by a private doctor.

The provinces, communes and private bodies are increasingly taking the initiative to set up reception and information centres which enable immigrants and their families to have easier access to these various institutions.

In the end, the case-finding, surveillance and treatment measures taken in Belgium on behalf of the migrant workers depend for their success, above all, on the possibility which the workers have to integrate themselves into the working environment in a manner which gives them legal status. Their fate and that of their families is then similar to that of the Belgian workers. This circumstance leads to the neglect of persons who are benefiting from various exceptions or who are working illicitly. In order to clarify the situation, it can be said that in 1973, for example, 5892 work permits were issued to persons entering Belgium during the year. Among them, 250 were political refugees, and 1500 (approximately) belonged to privileged categories. The number of illicit workers is not known, but in certain years it has been estimated to be about equal to that of the legal immigrants. This situation is all the more disturbing in that it shows clearly that during the first months of their presence in the host country, the migrants and their families manifestly run an increased risk of an onset of patent tuberculosis.

The National Belgian Fund for Defence against Tuberculosis has proposed that not only the work permit but also the residence permit should be subject to the production of a medical certificate. On the other hand, at the time of renewals, an unfavourable result would not meet with expulsion but with a request to undergo treatment.

5.2 Denmark

The problem of migrant workers has appeared only lately in Denmark and has not yet become a major one because the number of migrant workers prior to 1969 was not appreciable and restrictions on the immigration of foreigners were introduced in November 1970.

The migrant workers are concentrated in and around the larger towns, whereas the rest of the country contains only a few.

The countrywide network of chest clinics tried on their own initiative to have as many immigrants as possible examined by persuading the employers to send their migrant workers for examination immediately after they were engaged.

However, it soon became advisable to lay down rules for the tuberculosis control of migrant workers because a number of them had tuberculosis at the time of immigration. Furthermore, the majority, owing to language difficulties, failed to take full advantage of the social services, even though the examination for tuberculosis at chest clinics and the treatment are paid for by public funds.

In August 1973, the Ministry of Home Affairs laid down the general principles for tuberculosis examinations of migrant workers. A tuberculosis certificate based on an X-ray examination is a prerequisite for obtaining a residence and labour permit. A similar certificate is required at subsequent applications for an extension of the residence and labour permit during the first two years. Thereafter no further compulsory examinations are required.

The migrant worker is also required to undergo treatment for tuberculosis if the disease is diagnosed. The members of his family are not affected by these general principles, but frequently the whole family appears when a migrant worker comes for an examination at the chest clinic. This development is encouraged as much as possible.

The following factors have weakened the preventive effects of these directives:

(a) an uncontrolled number of migrant workers enter the country illegally and take up residence without being officially registered;

(b) the obligation to obtain a tuberculosis certificate prior to applying for a residence and labour permit is not always fulfilled;

(c) the migrant workers' families are not subject to compulsory tuberculosis control;

(d) with Denmark's entry into the EEC, a number of migrant workers and their families avoid compulsory tuberculosis control.

5.3 Federal Republic of Germany

Every foreigner over 16 years of age must have a medical examination before he can obtain a permit to reside in the Federal Republic of Germany (FRG). The examination can be performed in the home country by a special commission, or in the FRG, either by a public health officer or by an authorized physician. The setting of this examination differs slightly, depending on the institution which conducts it, but in any case an X-ray examination is included so as to detect all cases of pulmonary tuberculosis.

The residence permit is refused in the following cases:

(i) bacteriologically confirmed pulmonary tuberculosis;
(ii) other active pulmonary tuberculosis;
(iii) probably active tuberculosis.

If the immigrant is too ill to return immediately to his country he is treated as long as is necessary. This treatment is paid for by the social assistance system.

The social security system covers migrant workers and their families. The migrant worker who takes up employment in a dependent position becomes by law a member of the social health insurance system. As long as they are maintained by the head of the family, the spouse and children are insured automatically without an extra fee. Usually 9-13 per cent of the gross income must be paid in equal parts by the insured person and the employer. Medical care and hospital care is completely free of direct costs for an unlimited period of time.

If the insured person is incapable of work, the employer has to pay him his normal wage for the first six weeks, after which a sickness allowance is paid by the health insurance for a period of up to 78 weeks. This sickness allowance is about 80 per cent of the most recent net income. It requires regularly repeated medical certificates. This provides a very strong motivation to visit a doctor as soon as possible and regularly. Every patient has a free choice of panel doctors; these include an increasing number of foreign doctors who have their own surgeries.

In the case of tuberculosis, the social health insurance has to pay only if the patient has worked less than six months or has not received previous in-patient treatment. In all other cases the pension insurance has to cover hospital or sanatorium care. Throughout the period of hospitalization, whatever its duration, and for a period of up to two years after that, the pension insurance has to pay the sickness allowance; an additional period of 78 weeks covered by the health insurance may follow. Thus the number of disability pensions resulting from tuberculosis is considerably declining. If by chance a patient with tuberculosis is not insured, the local social assistance has to pay for the treatment and provide reasonable support for the family as long as disability is present.

The language barrier is overcome mainly by the following methods:

(1) guides prepared by the insurance companies; however, these are of no avail in cases of illiteracy;

(2) learning common medical expressions used by doctors;

(3) utilizing the help of children (who learn German very quickly), friends, relatives, etc.;

(4) seeking the support of one of the numerous national centres or the consulates, particularly in complicated affairs.

Tuberculosis control measures are applied without regard to nationality. There are no special programmes for migrant workers, but some methods are used more intensively among migrant workers than among Germans, e.g., BCG vaccination of the newborn. The children of migrant workers are not admitted to school until they have had a tuberculin test. If the result is positive an X-ray is performed. There is no difference between migrant workers and German nationals with regard to examination of patients with symptoms, contact examination and mass miniature X-ray. If a migrant worker has to be treated for tuberculosis, in-patient treatment is preferred because of social conditions. This is why the percentage of migrant workers in hospitals, and especially in sanatoria, is so high and why the prevalence of tuberculosis in migrant workers is so greatly over-estimated by clinicians. As most migrant workers have to perform physical work and ambulatory treatment is often difficult to arrange, the duration of in-patient treatment tends to be longer for migrant workers than for Germans. In spite of this, disciplinary problems are less serious with migrants than with Germans and the results of treatment are at least comparable.

5.4 Netherlands

Migrant workers require a residence permit which the police will issue only if the worker submits a certificate from a Dutch tuberculosis clinic. Once the migrant worker has his residence permit, he can obtain a work permit and from that moment he is under no further legal obligation with regard to his health.

The tuberculosis service, which is based on the voluntary co-operation of the public, will invite the migrant worker to be re-checked. During the first two years of his stay this is done every six months. During the following three years it is done annually. In addition, workers employed by larger factories are regularly checked by their own occupational health services.

Nowadays extremely few - if any - migrant workers are expelled from the country on account of tuberculosis, although for some categories this is still legally possible.

BCG vaccination is given in the Netherlands to the children of immigrant workers if they would be liable to vaccination when living in their home country.

5.5 Sweden

The number of immigrants to Sweden in 1972 was 29 894 (15 377 men and 14 517 women). The distribution of the population according to nationality was as follows:

Swedish	7 722 455
Aliens, total	406 705 - including the following totals by country:

Finland	196 999
Yugoslavia	40 726
Denmark	29 222
Norway	26 674
Germany, Federal Republic of	19 213
Greece	16 853
Italy	7 093
USA	6 397
United Kingdom	5 922
Poland	5 529
Turkey	5 078
Czechoslovakia	4 240

A Central Tuberculosis Index was established in 1969 for the surveillance of tuberculosis in Sweden. Tables 16 and 17 are based on figures from the 1973 Report of the Index.

No regulations on antituberculosis measures for immigrants exist in Sweden, and there is no established practice in this respect. The immigrants are supposed to attend, if necessary, the tuberculosis dispensaries, where all examinations and treatment are free of charge. However, it is evident that owing to language difficulties and to a lack of knowledge of the Swedish health system, many immigrants do not make use of the available services to the same extent as the Swedes themselves.

In 1973 the Swedish Society for Lung Medicine issued the following recommendation to its members: "In 1971-1972, 39 per cent of all newly detected cases of pulmonary tuberculosis in the under-40 age-group were immigrants. Immigrants from countries with a more difficult tuberculosis situation than our own form a tuberculosis risk group. They should be examined by chest X-ray as soon as possible after their arrival in Sweden. The chest physician concerned should decide on continued check-ups on a case-to-case basis, the lung X-ray findings, case history and other circumstances being taken into consideration". Owing to lack of communication between the immigration authorities and the dispensaries, this recommendation is not proving very effective.

Table 16

INCIDENCE OF ACTIVE TUBERCULOSIS (ALL FORMS) IN SWEDEN, 1973

a. Number of cases

Age-group	Present and previous nationality Swedish		Present and/or previous foreign nationality		Total	
	Male	Female	Male	Female	Male	Female
0-19	15	8	6	6	21	14
20-39	96	92	61	67	157	159
40-59	283	194	56	28	339	222
60-	463	271	5	14	468	285
Total	857	565	128	115	985	680
b. Per 100 000 population	23	15	60	57	24.3	16.6

Table 17

INCIDENCE OF ACTIVE POSTPRIMARY PULMONARY TUBERCULOSIS IN SWEDEN, 1973

a. Number of cases

Age-group	Present and previous nationality Swedish		Present and/or previous foreign nationality		Total	
	Male	Female	Male	Female	Male	Female
0-19	6	8	2	3	8	11
20-39	72	77	52	49	124	126
40-59	224	110	52	19	276	129
60-	388	192	5	8	393	200
Total	690	387	111	79	801	466
b. Per 100 000 population	18	10	53	42	19.8	11.4

5.6 Switzerland

5.6.1 Legal aspects

A distinction should be made between the medical examination of foreign workers before they are granted permission to work in Switzerland, and medical care during their residence in the country.

(a) Medical examination before taking up employment

This is a health check at the frontier, the purpose of which is to detect communicable diseases. When a disease is detected, the figure 2 is written in the passport of the person concerned; in such a case, that person is not admitted to take up employment and is usually obliged to return to his home country. The power of the Confederation to carry out frontier health control is based on Article 69 of the Federal Constitution,[1] which states: "The Confederation may, by means of legislation, take measures directed towards controlling communicable diseases, very prevalent diseases and diseases which are particularly dangerous to man and animals".

On the basis of this Article, the Federal Law of 2 July 1886 was enacted, relating to measures to be taken against epidemics constituting a general danger; this was supplemented on 18 February 1921 by a specific reference to the frontier health service: the Federal Council was given the power, "in respect of international frontier traffic and health surveillance, to prescribe special measures to protect the country from the invasion of endemic diseases". The Confederation may thus organize the frontier health service; measures are not limited to the four diseases (smallpox, cholera, plague and exanthematous fever) referred to in the first law on epidemics. In order to accomplish its task fully, the frontier health service must be flexible so as to be able to adapt to epidemiological conditions prevailing abroad. In this connexion, directives governing the work of the frontier health service during the postwar period were promulgated by a decree of the Federal Council and by a regulation of the Federal Department of the Interior dated 17 December 1948.

The 1886 law on epidemics recently underwent a complete revision; a new law on epidemics, adapted to present-day conditions, was passed by Parliament on 18 December 1970.[2] It did not, however, enter into force until 1974, since when it has served as the legal basis for the organization of the frontier health service.

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[1] Federal Constitution of the Swiss Confederation (29 May 1874, with amendments up to 1 January 1969)

[2] Federal law on the control of communicable diseases affecting man (Law on epidemics) (18 December 1970)

On the basis of Articles 7 and 38 (paragraph 1) of the new law, the Federal Council enacted a regulation on the frontier health service on 17 June 1974.[1] This stipulates, inter alia, that the Federal Service of Public Health, through its frontier health service, shall take such measures as may be necessary. The Service organizes the operation of frontier health stations, ensures that there is a sufficient number of doctors qualified as frontier doctors, and that the latter have at their disposal the equipment, apparatus and trained personnel necessary for the performance of their tasks. The Service of Public Health, in the light of the epidemiological situation with regard to communicable diseases in the home countries of immigrant workers, decides which diseases are to be made subject to control at the frontier. At the present time, only one disease is subject to control, namely, pulmonary tuberculosis (by X-ray). In accordance with these new regulations, the Service of Public Health is also empowered to carry out health measures at the frontier in time of war; such was not previously the case.

(b) Medical care during residence in Switzerland

When the foreign worker has passed the frontier health examination, this is confirmed by the figure 1 being entered in his passport; he then receives the same treatment as a Swiss citizen. This is not the case, however, for foreign workers who are returning to Switzerland and who, because of illness, are allowed only provisional entry for purposes of work (1p entered in passport). A person who has been given the figure 1 may join a sickness and accident insurance scheme. At the Federal level, sickness insurance is not compulsory, and only a few cantons make it compulsory. Accident insurance, on the other hand, is compulsory for undertakings which are affiliated to the Swiss National Accident Fund (CNA). While residing in Switzerland, the foreign worker, like any Swiss citizen, has a free choice of doctor. When necessary, he may seek treatment in a clinic, by a private doctor or in a tuberculosis dispensary. The larger enterprises have their own doctors, and similarly hospitals have a staff doctor who carries out a general medical examination of all new employees. Special attention is paid to tuberculin tests and, where appropriate, to BCG vaccination, which is performed regularly in most large enterprises and is available to foreign workers and Swiss citizens alike. There are no medical examinations specifically for foreign workers in the country.

5.6.2 Medical aspects

Although tuberculosis is only one of the medical problems facing migrant workers, it is nevertheless one of the most important. Efforts to control this disease have two aspects:

[1] Regulation on the frontier health service (17 June 1974)

(1) detection of tuberculosis which may exist at the time of migration;

(2) treatment of foreign workers who contract tuberculosis during their stay in the host country.

The following arrangements are in force in Switzerland:

(a) For 25 years, i.e., since 1949, screening at the time of immigration by means of an X-ray examination has been carried out by the frontier health control service. Before presenting himself at the frontier, every foreign worker must be in possession of a work permit, which becomes valid only after he has been controlled by the frontier health service. The X-ray photograph is taken on the spot, and immediately developed and studied, thus enabling the person concerned to continue his journey without delay and reach his place of work on the same day.

When the migrant worker holds an establishment permit or residence permit he is no longer subject to frontier control, his position being the same as that of a Swiss resident. The seasonal worker undergoes an examination every time he enters the country, i.e., once yearly.

(b) Treatment within the country calls for little comment, for the position of migrant workers is the same as that of other inhabitants. If a person contracts tuberculosis, the sickness insurance scheme becomes responsible for all treatment expenses, including the cost of medical care, hospitalization and drugs. Moreover, in most trade associations there is a daily sickness allowance equivalent to 80% of the salary.

Morbidity among migrant workers has been the subject of several studies, all of which conclude that it is slightly higher than the average morbidity in the country. It should be emphasized that this group is a selected one, as the frontier control service has already acted as a filter. Thus, with a few exceptions, morbidity is represented only by diseases contracted in Switzerland. Generally speaking, there are two categories of patients:

(1) Those who enter Switzerland already infected; these constitute the large majority. In fact, studies show that most of them have a positive tuberculin reaction. Although they are healthy when entering the country, they later contract tertiary tuberculosis, in most cases pulmonary. There can be no doubt that the stress of immigration, the new living conditions, and work to which they are frequently unaccustomed, all play a part in triggering the disease.

(2) A minority of cases coming from communities where the level of infection is low enter Switzerland with a negative tuberculin reaction. They may become infected in Switzerland and exhibit primary or secondary reactions.

It is difficult to give exact figures concerning migrant morbidity in relation to the country's native inhabitants, since these figures vary from area to area and from year to year. According to sanatorium statistics, foreign workers comprise 20% - 25% of all the patients, whereas they represent only 13% of the population. Thus the difference, if it exists at all, is not great. It may also be explained partly by the fact that these patients come from countries where the endemic level is higher than that in Switzerland, and their morbidity would be similar to that existing in Switzerland about ten years ago. In view of the fact that it shows a tendency to decrease, morbidity among migrant workers in Switzerland poses no special problems and gives no cause for concern.

Migrant workers are invited to take part in public health measures and in X-ray examinations organized according to at-risk groups (these examinations are compulsory for hospital staff, miners or others exposed to silica, for certain categories concerned with foodstuffs, etc.).

Children for whom school attendance is compulsory are examined by the school health services, which carry out tuberculin tests and offer BCG vaccination.

5.7 United Kingdom

Migration of workers and their families into the United Kingdom in recent years has been mainly from Commonwealth countries in Asia, Africa and the Caribbean area. This differs from the situation in other European countries, where the main movement of workers has been northwards from the Mediterranean area.

Migrants intending to work in the United Kingdom need to obtain a work permit before leaving their home country. The issue of this work permit is dependent, among other things, on a satisfactory chest X-ray report. No factual information is advisable on how many intending migrants are excluded; the number of work permits issued is now much smaller than some years ago.

Immigrant workers may undergo a limited health examination at the point of entry and may be required to have a chest X-ray. Any found to have tuberculosis may be refused admission.

Families of workers are urged to undergo medical examination before their arrival in the United Kingdom, but this is not compulsory. Where evidence of a satisfactory medical examination in the country of origin is not provided by husbands, wives, and children under 18 of United Kingdom residents, such persons are referred by the immigration authority for medical examination, but are not normally refused entry on medical grounds. Any found to have tuberculosis are granted permission to enter, on the condition that they report to the local medical authorities at their destination. Other dependants can be refused entry on medical grounds. The local authorities are informed immediately of any such conditional entry.

All immigrant workers and their dependants are issued with information cards in appropriate languages, advising them of the facilities of the National Health Service and the need to register with a general practitioner. All immigrants also supply information on their immediate destination in the United Kingdom.

The local medical authorities are informed by the immigration authorities of all new arrivals expected in their area. In most receiving areas, a health visitor or inspector calls at the address within days, reinforcing the advice to register with a general practitioner and making an appointment for a chest X-ray if this has not been performed prior to entry. It may be noted here that London's Heathrow airport has facilities for X-raying persons arriving from abroad.

General practitioners are advised to refer all immigrants registering with them for chest X-ray, not only on first registration, but also subsequently if they change doctors.

If they are of school age, immigrant children are examined at a special clinic before starting school. The routine of these clinics includes a tuberculin test: if the result is positive, the children are referred for chest X-ray and appropriate action; if negative, they are given BCG vaccination.

Babies born to Asian parents are offered BCG vaccination as a routine soon after birth in most areas.

The facilities of the National Health Service are available to all immigrants immediately on arrival. Thus, medical examinations by general practitioners and specialists are available without charge, including any special investigation (radiology, bacteriology, etc.) required. Treatment in hospital is also provided free of charge. Drugs for out-patients (i.e., domiciliary chemotherapy) are available on payment of a flat-rate prescription charge, at present 20p per item. This charge is waived for children, pensioners, and workers receiving sickness benefit or social security payments.

Similarly, immigrant workers qualify for National Health Insurance benefits after a period of 26 weeks in employment. If they become ill within this period, they are eligible for social security payments.

No separate records are kept concerning the use of diagnostic and treatment services by immigrants. The only information available is that based on special studies carried out either nationally over limited periods, or on a longer-term basis in some areas where there are many migrant workers.

6. CO-OPERATION BETWEEN THE HEALTH AUTHORITIES OF COUNTRIES EXPORTING AND IMPORTING MANPOWER CONCERNING THE PREVENTION OF TUBERCULOSIS IN MIGRANT WORKERS

The movement of people from countries where the socio-economic level is generally low has inevitably created problems regarding the protection of the migrants' own health and the health of the native populations in the host countries.

Tuberculosis is by far the most frequent communicable disease risk, and the need for special co-operation in this regard between the countries importing and exporting manpower has quickly made itself felt. It has become apparent that such co-operation should be organized or reorganized in modern and rational ways likely to bring about effective prevention of the disease.

Measures which need to be taken to organize or reorganize this co-operation must be based on a knowledge of the epidemiological situation in both donor and host countries and of the tuberculosis control policies in each of these categories of country.

6.1 Exchange of information between the donor country and the host country concerns:

(a) the epidemiological situation with regard to tuberculosis in both countries; the place of tuberculosis among major public health problems; attitudes of the population towards tuberculosis;

(b) the organization of tuberculosis control measures; legislative and statutory aspects, local application, degree of adaptation in the receiving country to special problems connected with tuberculosis among immigrants;

(c) health infrastructure and functioning of the health services: system of medico-social protection (social security, etc.); voluntary organizations in the health service;

(d) the development of the epidemiological situation in both countries, information being exchanged according to a frequency to be determined.

6.2 Measures to be taken before workers leave their own country

6.2.1 The medical examination prior to departure from the donor country should be jointly organized.

A joint medical commission should carefully draw up a protocol for the medical examination of the prospective emigrant, setting out:

(a) the aptitude criteria to be met by the workers themselves and by the members of their families;

(b) the scope of the medical examination;

(c) the approach to be adopted towards those who present an abnormal thoracic picture.

6.2.2 The introduction of a migrant worker's health record book, prepared by the same joint medical commission that is responsible for drawing up the medical examination protocol, and registration cards establishing liaison between the medical services of the donor and the host country could also be considered. This health record book should accompany the worker throughout his working life and all medical procedures and findings should be entered in it.

6.2.3 Health and civic education for the prospective emigrant should be organized in the form of a short course, lasting several days, after he has been declared fit. This course should be arranged with the assistance of "social workers" or monitors from the host country. Its purpose would be to provide the candidate with information on the new living conditions which he will experience in the host country.

6.3 Measures to be taken after workers arrive in the host country

6.3.1 All first arrivals (especially those who are residing for the first time outside their home country) undergo a period of great vulnerability, especially as regards contracting tuberculosis. In this situation it is therefore necessary:

(a) to give particular attention to their living and working conditions;

(b) to make it possible for them to consult doctors within the framework of dispensaries where interpreters and social workers familiar with immigrants' problems are available;

(c) to ensure that the activities of voluntary organizations include measures aimed at making immigrants aware of the risks to which they are subject and of the facilities available to them.

These are tasks for the host countries, but they can be undertaken much more effectively with the co-operation of the health authorities in the donor countries. For example, doctors and social workers from the host countries could pay information visits to the donor countries or, conversely, social workers from the latter could be recruited by host countries by agreement with their governments. A part could also be played by those immigrant workers who have resided for a considerable period of time in the host country and are familiar with conditions there.

6.3.2 With regard to immigrants arriving direct in the host country and who have work, as well as those who enter as tourists or illegally and

who later request a work permit, provision is made for a medical examination for which responsibility lies entirely with the host country. Since the same problems arise here as those reviewed above, it would appear very desirable for the fitness criteria, the content of the medical examination, the fate of those who have abnormal chest X-ray pictures, the content of the "health" section of a possible course upon arrival, the documents to be given to new arrivals, etc., to form the subjects of consultation with the health authorities of the donor country and, still better, the subjects of joint study with their representatives.

Illegal immigrants and those without work are among the categories most exposed to the risk of contracting tuberculosis. It is desirable that they should be given the means to regularize their situation at the earliest opportunity and to obtain employment, but it is also necessary to avoid favouring illegal immigrants to such an extent that legal immigrants are discouraged. Doctors in both donor and host countries should press their respective government authorities to organize migration in such a way that the safeguarding of the immigrants' health is always taken into consideration.

6.3.3 Since the implementation of these measures requires the support and participation of immigrant workers and their families, they have to be informed and convinced. Hence, there is a need, in respect of tuberculosis, to conduct health education that is adapted to the mentality and requirements of the immigrants. This educational work should form part of the literacy and language training programmes of the host country or of social and cultural activities for immigrants. It should be accompanied by occupational health examinations.

If the objectives set out here are made the responsibility of the host country, adaptation of the organization of the host country's tuberculosis control programme to the immigrants' needs could well be studied in collaboration with those responsible for the tuberculosis control programme in the country of origin.

6.3.4 Direct, close and permanent co-operation should be established between the various occupational health services of the host country and its mission in the donor country so as to keep the doctors who are in charge of the initial health examination informed about the progress of their candidates. This information regarding the fate of immigrant workers at the health level has a dual effect:

(a) to evaluate tuberculosis morbidity among immigrants in the host country and to inform the donor country thereof;

(b) to make the work of the doctors in the mission set up in the donor country less depressing by keeping them informed of the results of their work.

The temporary return to the donor country of patients undergoing treatment may give rise to certain difficulties, e.g., the risk that treatment

will be abandoned, or the difficulty of obtaining there the drugs prescribed by doctors in the host country. Here, too, collaboration between doctors or dispensaries or at the highest official level may enable solutions to be found to these problems.

Harmonization of the diagnostic and treatment methods used in the donor and host countries should be carried out on a systematic basis.

At present, cases of repatriation of tuberculosis patients are exceptional and therefore each constitutes a special case.

6.4 Practical means of co-operation

It is necessary to make optimal use of the existing structures for consultation and thus to develop opportunities for contact between interested bodies at all levels, at the same time paying attention to the private sector of medico-social or socio-cultural activities and avoiding cumbersome administrative procedures.

6.4.1 At the government level, i.e., at the highest level, the question of tuberculosis prevention should be tackled from both the technical angle and the socio-economic angle at regular meetings. Well-defined, flexible and humane organizational measures relating to migration, a suitable reception and decent living conditions are the proper ways of preventing tuberculosis. Physicians, to whatever country they belong, have a key role to play here vis-à-vis the responsible politicians.

6.4.2 At the level of directorates-general of health, countries can make a joint in-depth study of technical problems of a statutory nature: fitness criteria, content of the medical examination upon arrival or departure with regard to tuberculosis control (especially the problem of the tuberculin test and the BCG vaccination, whose practical realization sometimes proves difficult), health record book (health card), establishment in the host country of dispensaries for new arrivals, at which interpreters and specialized social workers are available, etc.

6.4.3 Contacts between those responsible at national level for tuberculosis control (and between representatives of voluntary tuberculosis organizations) should make it possible better to adapt tuberculosis control in the host country to the needs of immigrants.

The use of national voluntary organizations in the donor countries, and especially in the host countries, may serve three purposes:

(a) that of assistance in adaptation and acclimatization;
(b) that of health education; and
(c) that of psychosocial assistance.

6.4.4 At the more decentralized levels (missions of host countries in donor countries, sectorial medico-social and socio-cultural activities in

the host countries), co-operation passes beyond the medical framework and should draw upon the services of social workers, health educationalists and leaders of voluntary organizations.

In this field, it would seem appropriate to promote the exchange of "social workers" in the broadest sense of this term by:

(a) contacts between social workers in the host countries who are familiar with migration problems, and their colleagues in the donor countries, by means of study visits to the latter;

(b) visits by social workers from the donor country (consultants, organizations, etc.) to the host country, or their recruitment by the host country with the agreement of the authorities of the donor country.

6.4.5 Co-operation between host and donor countries regarding the prevention of tuberculosis in migrant workers could be furthered, where existing structures prove insufficient, by establishing agencies which would be responsible for organizing and maintaining such co-operation.

The national workers' emigration offices in the donor countries and the foreign workers' immigration offices in the host countries should be made responsible for organizing inter-country collaboration by means of a joint medical or medical and administrative commission.

6.5 Discussion

It was pointed out that imperative rules could not be formulated by the Working Group, because the importation of manpower was an economic problem for the receiving countries, which had the prerogative of determining health criteria in respect of prospective immigrants. It was also stressed that the procedures of case-finding and treatment should not be applied in a discriminatory way to foreign workers and their families.

It was agreed that the suggested health record book was not practical, due to the danger of its possible use for purposes other than purely medical ones.

The need to make health education and help available to migrants so as to facilitate their adaptation to their new social life and to make them familiar with the health services of the host country was emphasized; this could be most effectively achieved through co-operation between the host countries and the countries of origin.

PROGRAMME

Tuesday, 22 April 1975

Registration of participants

Opening of meeting

Health aspects of labour migration in Europe
Countries of origin - Dr N.H. Fişek
Host countries - Professor M. Gentilini

Epidemiological data on tuberculosis in migrant workers
Federal Republic of Germany - Professor G. Neumann
Netherlands - Dr J. Meijer

Legal aspects: medical examination of foreign workers in Switzerland
Dr Susy Roos

Wednesday, 23 April

Measures applied in the detection of tuberculosis among emigration applicants

Algeria	-	Professor D. Larbaoui
Italy	-	Professor G. Daddi
Portugal	-	Dr F. das Neves Almeida
Spain	-	Dr C. Zurita Gonzalez-Vidalte
Turkey	-	Dr T. Atlamaz
Yugoslavia	-	Dr V. Zrilić

Measures applied in the prevention, diagnosis and treatment of tuberculosis among migrant workers and their families

Belgium	-	Professor M. Millet
Denmark	-	Dr K.H. Clausen
Federal Republic of Germany	-	Professor G. Neumann
Sweden	-	Professor G. Dahlström
Switzerland	-	Dr E. Arnold
United Kingdom	-	Dr V.H. Springett

Thursday, 24 April

Co-operation between the health authorities of countries exporting and importing manpower concerning the prevention of tuberculosis in migrant workers
Dr H. Coudreau and Professor D. Larbaoui

General discussion

Conclusions and recommendations

Closure of meeting

ANNEX II

LIST OF WORKING PAPERS AND BACKGROUND DOCUMENTS

Working papers

Health aspects of labour migration in Europe as seen from the point of receiving countries - Professor M. Gentilini	ICP/MBD 002/6
Health aspects of labour migration in Europe as seen from the point of donor countries - Professor N.H. Fişek	ICP/MBD 002/7
Epidemiological data on tuberculosis in migrant workers	
Federal Republic of Germany - Professor G. Neumann	ICP/MBD 002/8a Corr.1
Netherlands - Dr J. Meijer	" " 8b
USA and Australia - Dr K.-L.E. Hitze	" " 8c
Measures applied in the detection of tuberculosis among emigration applicants	
Italy - Professor G. Daddi	ICP/MBD 002/9a
Portugal - Dr F. das Neves Almeida	" " 10
Spain - Dr C. Zurita Gonzalez-Vidalte	" " 9c
Turkey - Dr T. Atlamaz	" " 9d
Yugoslavia - Dr B. Zrilić	" " 9e
Measures applied in the prevention, diagnosis and treatment of tuberculosis among migrant workers and their families	
Belgium - Professor M. Millet	ICP/MBD 002/11a
Denmark - Dr K.H. Clausen	" " 11b
Federal Republic of Germany - Professor G. Neumann	" " 11c
Switzerland - Dr E. Arnold	" " 11d
UK - Dr V.H. Springett	" " 11e
Sweden - Professor G. Dahlström	" " 11f
Co-operation between the health authorities of countries exporting and importing manpower concerning the prevention of tuberculosis in migrant workers - Dr H. Coudreau and Professor D. Larbaoui	" " 12
Medical examination of foreign workers in Switzerland: legal aspects - Dr Susy Roos	" " 13

Background documents

International Union against Tuberculosis (1965) Scientific meeting II: Tuberculosis in immigrants and foreign workers, Annual session 1964 Bull. int. Un. Tuberc., 36, No. 1

World Health Organization, Regional Office for Europe (1974) Health aspects of labour migration; Report on a Working Group, Algiers, 6-9 November 1973, Copenhagen

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ANNEX III

LIST OF PARTICIPANTS

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