

LEPROSY IN THE NETHERLANDS

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From the beginning of this century until the end of the second world war leprosy has been a rare disease in the Netherlands. Only a few new cases are mentioned every year in the annual reports of the Inspector of Public Health.

After 1945 a large number of people have migrated or been repatriated in the Netherlands from countries where leprosy is endemic. The fact that several cases of leprosy and patients in the incubation period of the disease would be among these people did not cause surprise.

Patients can obtain free treatment at the special dispensary of the Gastmann Wichers Foundation at Rotterdam, officially supported by the Ministries of Health and Social Works. Treatment is also free at University Clinics. If patients prefer they may be treated by private practitioners.

The leprosy specialist of the G. W. Foundation is assisted by a full-time nurse-social-worker. Travel expenses are refunded to the patients. Aid is given in regard to rehabilitation, suitable occupation, housing problems, etc. A sanatorium of 40 beds for leprosy patients is maintained by the G. W. Foundation. The building of this was made possible by a generous loan from the Government. The leprosy specialist, accompanied by the social worker, examines all contacts of leprosy patients at least once a year.

The majority of the patients in the Netherlands have taken advantage of the facilities offered by the Gastmann Wichers Foundation. Since 1950, 264 patients have been registered. If known cases treated elsewhere are added and an estimate is made of unknown cases the total of cases in the Netherlands is between 300 and 350.

Therefore, an analysis of the data of the 264 cases registered at the G. W. Foundation gives a fairly accurate picture of the present leprosy situation in this country.

Of these 264 patients, 48 are from the Netherlands, 157 are Indo-Europeans, 16 descendants from Netherlands and West Indian parents, 4 West Indians, 35 Indonesians, and 4 Chinese. Of these patients, 238 were infected in Indonesia, 22 in the West Indies, and one each in Singapore, Hong Kong and Nyasaland.

The type index in all cases is 45%. The differences in type index in Europeans (42%), Indo-Europeans (47%), and Indonesians (46%) are not significant.

There are 183 male and 81 female patients. However, it is not advisable to draw conclusions from this sex ratio, as more European men than women went to the tropics and also more Ambonese men

than women arrived from Indonesia. The Indo-European group is the most representative one and showed a sex rate of 66%, against 75% in Europeans and 80% in Indonesians.

In the European group 43 of the 48 patients were infected in Indonesia. 16 patients were in the army or navy and four of these went for the first time to the tropics after the war. The occupations of the other patients were: missionary, 6; teacher, 4; official, 4; nurse, 2; police, 2; journalist, 1; builder, 1; engineer, 1; student, 5; housewife, 3; without occupation, 2. Although the possibility that some patients were infected in the Japanese prisoner-of-war camps could not be excluded, the evidence was not conclusive.

The importance of examination of contacts of patients is demonstrated in the following figures.

TABLE I

<i>Number of families</i>	<i>Number of patients per family</i>	<i>Total of patients</i>
18	2	36
8	3	24
2	5	10
28		70

Also in 4 married couples a conjugal infection was found and in three families husband and wife were married after the manifestation of leprosy in both. Thus, 84 patients, or 32% of the cases, were found in 34 families. Almost one third of the cases can be explained by contact within the family, or by a member of the family or by a temporary visitor who infected one or more cases in the family. In the remainder the source of infection is often unknown. It may be true that some patients have been unwilling to volunteer information, but it is certain that in the majority of the cases the patient really does not know the source of infection. In these cases there are two possibilities, either the patient was infected by someone who did not show obvious symptoms of leprosy (early lepromatous cases or diffuse lepromatous leprosy) or that in these susceptible individuals only short, incidental, and superficial contact with *M. leprae* was sufficient for transmission of the disease.

In the Netherlands segregation is not compulsory. Although open cases, living in contact with many children or in unsatisfactory conditions in regard to contact with healthy people, are advised to move temporarily to the leprosarium, several open cases are also treated as out-patients. It is of major importance to evaluate the danger of the existing contact with the healthy community.

The majority of the patients had already noticed first symptoms of leprosy before arrival in the Netherlands. In 75 patients first symptoms of leprosy were noticed after arrival.

TABLE 2
Time of Appearance of First Symptoms after Arrival

<i>Years after arrival</i>	<i>number of patients</i>
1	21
2	19
3	15
4	11
5	1
6	4
7	3
11	1
TOTAL	75

As seen in Table 2 first symptoms of leprosy often appear in the first four years after arrival, but thereafter the incidence decreases considerably. Although the incubation period of leprosy is variable, the majority of patients show first symptoms within five years after contact with the source of infection. We have found no reason to assume infection in the Netherlands in the 67 cases that appeared during the first five years after arrival. In the other eight cases we have to choose between a long incubation period or infection in the Netherlands. About these patients the following:

PAT. NI AND N2; Ambonese, reactional tuberculoid type, arrival 1951, first symptoms 1957. Both patients were living in a settlement for Ambonese people. No cases in the family were found. However, in the settlement two lepromatous cases were found. Contact with these patients was denied. The possibility of infection in the Netherlands cannot be excluded; but a long incubation period is still possible. It is also possible that an early indeterminate macule was not recognised.

PAT. B; European, major tuberculoid type, arrival 1939, first symptoms 1945. No cases in the family and no known contacts in the Netherlands. Patient has served in the army in Indonesia.

PAT. V. S.; Neth. X West Indies; minor tuberculoid type, arrival 1950, first symptoms 1956. His brother is a lepromatous patient who showed first symptoms in 1950. Infection in the Netherlands is quite possible, although the possibility that the patient was infected by the same patient as his brother cannot be excluded.

PAT. H.; Indo-European; tuberculoid type, arrival 1950, first symptoms 1957. However, between 1950 and 1954 the patient visited New Guinea and he has no knowledge about contact with patients. He may have been infected there.

PAT. J.; Neth.; reactional tuberculoid type, arrival 1947, first symptoms 1954. No contact known in the Netherlands.

PAT. L.; Indo-European; lepromatous type, arrival 1935, first symptoms 1952. No contact known in the Netherlands.

PAT. V.; Neth. X West Indies; polyneuritic type, arrival 1922, first symptoms 1935. No contact known in the Netherlands. The given date of first symptoms is probably inaccurate.

In none of these cases is there actual proof that the patients were infected in this country, although the possibility remains that this is

true in a few cases. Furthermore not a single case of leprosy has been found in people who never went to the tropics. It is quite possible that in the near future sporadic cases will appear, but at present there seems to be no reason to change the policy in regard to segregation, as it is very improbable that leprosy will become a health problem in this country. On the contrary, it is to be expected that within a few years the number of new cases will decrease again.

TABLE 3

<i>Year of arrival</i>	<i>before</i> 1946	1946	1947	1948	1949	1950	1951	1952
from Indonesia	5	32	11	10	4	30	45	7
from elsewhere	2		5	2	2	2		3
TOTAL	7	32	16	12	6	32	45	10
<i>Year of arrival</i>	1953	1954	1955	1956	1957	1958	1959	
from Indonesia	4	6	41	17	4	18	1	
from elsewhere	2		2	1	4	1		
TOTAL	6	6	43	18	8	19	1	

Table 3 shows that in a period of 14 years 24 patients have arrived from areas outside Indonesia. There is no reason to expect great changes in the numbers of people arriving from these areas in the near future. An average of 2-3 patients per year is to be expected from these countries.

The numbers of patients coming from Indonesia have been very variable. High numbers are seen in 1946, just after the war, when many people left for a leave, or left definitely when Indonesia attained independence in 1950/51 when a large group of Ambonese people was moved to Holland; in 1955/56 when the interior situation in Indonesia became difficult for many European and Indo-European people, and in 1958 when anti-Netherlands activities were followed by another exodus. Compared with the number of people who have moved so far to this country, the number yet to be expected is considerably smaller. Earlier in this article it was shown that the majority of new cases appear within five years of arrival. It is to be expected that the number of new cases from the 1955/56 immigrants will decrease after 1960/61. However, this group is considerably smaller than the former ones. Thereafter a definite decrease in the number of new cases is to be expected.

The importance of New Guinea as a source of infection is difficult to evaluate. The leprosy index along the coast amounts to about 10 per thousand. However, the prevalence is lower in the main settlements where the majority of Europeans live. On the other

hand, there is some increase in the number of Europeans moving to New Guinea and also in the number of Papuans moving from rural areas to the larger towns. As the total number of Europeans in New Guinea is not very high and the leprosy control service is making progress, there is no reason to expect a great number of infections.

A point of interest in regard to the spread of leprosy in the Netherlands is the decrease in the number of tuberculin positive individuals due to the decrease of tuberculosis. Chaussinand¹ has supported the hypothesis that leprosy and tuberculosis are antagonistic diseases. Leiker² has found evidence that in New Guinea the introduction of leprosy in areas with a low tuberculin index is followed by an outbreak of tuberculoid cases of leprosy and that the leprosy index may rise high in a relatively short time. Theoretically an increase of the number of tuberculoid cases is to be expected in Europe too. In practice no evidence of such an increase has been found so far. Undoubtedly, the spread of tuberculosis is not the only factor in the epidemiology of leprosy. If it is true that a hereditary factor is involved it is reasonable to assume that mediaeval leprosy has reduced the susceptible stock in the community. Certainly there are less children born to lepromatous patients than to healthy parents. Hygienic conditions are better than in most countries where leprosy is still endemic. Skin to skin contact is reduced by wearing clothes. Several of these factors working together are probably sufficient to reduce the chance that bacilli enter the skin of a susceptible individual in the European environment.

As long as there is no evidence that even open cases in the community are a danger to the community it is justified to continue the contemporary liberal policy in regard to segregation.

Summary

Leprosy has been rare in the Netherlands, but since 1950 the known cases reached 264, and the estimated total lies between 300 and 350. Patients receive free treatment at the dispensaries of the Gastmann Wichers Foundation in Rotterdam, and at University Clinics, or by private doctors if they prefer, and a 40-bed sanatorium of the G. W. Foundation is maintained for necessary institutional care. The Foundation also maintains a leprosy specialist and a full-time nurse-social worker. The patients originate in countries overseas, and the European patients were infected overseas. Segregation is not compulsory in the Netherlands. The chance of the infection of indigenous inhabitants is not thought to be serious, and because of various environmental factors and because the entry of immigrants from infecting countries has declined, the outlook is good.

References

1. CHAUSSINAND, R. "Tuberculose et lèpre, maladies antagoniques". *Int. Journ. Lep.* (1948) **16**, 431-438.
2. LEIKER, D. L. "Epidemiological and Immunological Surveys in Netherlands New Guinea". (See this issue p. 241.)