

THE MORTALITY FROM LEPROSY IN THE NEGRO POPULATION OF ANTIGUA, WEST INDIES, FROM 1857 TO 1956

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Introduction

Antigua is a small island of 108 square miles (282 sq. kilom) in the Caribbean Sea. It is one of the Leeward Islands lying between Puerto Rico to the West, and Guadaloupe, the Windward Islands and Barbados to the South-east. The population is an agricultural one, being engaged in the growing and processing of sugar, the cultivation of cotton, and in fishing. The only town, with 12,000 inhabitants, is concerned with the supplying of the needs of the rural inhabitants, and apart from a sugar mill, there is no industrial activity on the island. Indeed, from an epidemiological point of view the population is a rural and not an urban one. The people are pure negro except for perhaps 10% who are of mixed stock. The white population has never numbered more than 5% of the whole and was usually very much less. The coloured people live in about forty small villages scattered fairly uniformly over the island which except for some hills to the south-west is mainly rolling plain less than 250 feet (76·2 m.) above sea level.

As the author has indicated elsewhere (Uttley, 1960), the island is singularly well situated for a historical survey of the mortality from certain infectious and other diseases, because censuses have been taken on seven occasions since 1861, and fairly complete births and deaths registrations cover nearly all that period. Certificates of the cause of death have been compulsory since 1856, a physician or or coroner having to sign them. No body may be buried without the presentation of both a burial order and a certificate of cause of death. A sufficient number of physicians trained in the British Isles or Canada have always been resident in Antigua, and internal communications are good.

One hundred years ago the population was 36,000; it fell slowly to 28,800 in 1921 since when it has risen rapidly, being 54,200 in 1956. A certain amount of emigration, mostly of young adult males, has taken place at times of unemployment, but a low male/female sex ratio at birth combined with a higher death rate in males than in females has resulted in an adult male/female ratio of 754/1,000, which has varied little over the century.

The Survey

This survey is one dealing with all the deaths registered as having been due to leprosy in negroes in Antigua between the years 1857

and 1956 inclusive. The death registers were investigated to collect the details about the age, sex and year of each leprosy death.

During the century under review there were 158 deaths from leprosy in males and 147 in females, making a total of 305.

The first table gives (a) the deaths from the disease (b) leprosy deaths as a percentage of all deaths, and (c) the crude death rate from leprosy.

TABLE I
Leprosy in Antigua, 1857-1956.

(a) Deaths per decade;

(b) Leprosy deaths as a percentage of all deaths;

(c) The crude death rate from leprosy.

<i>Decade</i>	<i>Deaths in the decade</i>	<i>Leprosy deaths as a percentage of all deaths in the decade</i>	<i>Average annual crude death rate from leprosy per 1,000 living</i>
1857-1866	26	0.20	0.07
1867-1876	17	0.13	0.05
1877-1886	32	0.26	0.09
1887-1896	46	0.40	0.13
1897-1906	51	0.49	0.15
1907-1916	38	0.45	0.12
1917-1926	41	0.51	0.14
1927-1936	14	0.23	0.04
1937-1946	28	0.42	0.07
1947-1956	12	0.21	0.03
	305	0.32	

During the four decades from 1887 the ratio of leprosy to all other deaths remained remarkably constant at about one death per two hundred, but after 1927 the ratio fell both absolutely and relatively. Commensurate with this, the crude death rate also was very steady during the same four decades.

As regards males, the decades with the greatest percentage of leprosy deaths were 15-24 and 25-34 with about one quarter of all the deaths in each age group, followed by the groups 35-44 and 45-54 with approximately one-eighth of all leprosy deaths in each decade. In the case of females the maxima are in the groups 35-44 and 55-64.

The persons curve rises to a maximum of 22% in the age group 25-34, to fall by the next decade to two-thirds of that value, where it remains almost constant for thirty years.

The next table shows the number of leprosy deaths at ages and the percentage of them occurring in each age group:

TABLE 2
Leprosy in Antigua, 1857-1956
Deaths at ages, and percentage of
deaths at each age.

<i>Numbers</i>				<i>Percentage of all leprosy deaths at ages</i>		
<i>Age group</i>	<i>Males</i>	<i>Females</i>	<i>Persons</i>	<i>Males</i>	<i>Females</i>	<i>Persons</i>
0 -	-	-	-	-	-	-
5 -	1	2	3	0.6	1.4	1.0
10 -	4	4	8	2.5	2.7	2.6
15 -	14	8	22	8.9	5.4	7.2
20 -	24	12	36	15.2	8.2	11.8
25 -	48	21	69	30.4	14.3	22.6
35 -	20	28	48	12.7	19.0	15.7
45 -	22	21	43	13.9	14.3	14.1
55 -	13	28	41	8.2	19.0	13.4
65 -	8	13	21	5.1	8.8	6.9
75 plus	4	10	14	2.5	6.8	4.6
Total	158	147	305			

TABLE 3
Leprosy in Antigua, 1857-1956
Average annual death rate per 100,000
at ages over the century. (*)

<i>Age group</i>	<i>Males</i>	<i>Females</i>	<i>Persons</i>
0 -	—	—	—
5 -	0.54	1.04	0.79
10 -	2.03	2.23	2.13
15 -	8.77	4.39	6.44
20 -	16.24	7.24	11.48
25 -	21.38	7.27	13.44
35 -	11.12	12.04	11.64
45 -	17.11	12.10	14.23
55 -	17.78	24.56	21.91
65 -	22.04	20.16	20.83
75 plus	22.10	34.36	29.66
All ages	10.68	8.09	9.28

(*) Based on the means of the numbers in each age group at the seven censuses taken during the century.

In each sex the decade 15-24 has a moderately high mortality per 100,000, but following a fall in the next decade, the rate rises steadily for the rest of life.

The death rate per 100,000 for all ages suggests that males have been killed by the disease about one-fifth more than females.

TABLE 4
Leprosy mortality in the negro elsewhere
in the Caribbean; Crude death rates
per 100,000 of population (*)

Leeward Islands			
<i>Antigua</i>	<i>St. Kitts</i>	<i>Montserrat</i>	<i>British Virgin Islands</i>
1857-1866, 0.07		No data available in the annual reports of these islands	
1867-1876, 0.05			
1877-1886, 0.09			
1887-1896, 0.13			
1897-1906, 0.15			
1907-1916, 0.12			
1917-1926, 0.14			
1927-1936, 0.04	1928-1936, 0.14		
1937-1946, 0.07	1937-1946, 0.03		
1947-1956, 0.03	1947-1956, 0.05		
Windward Islands			
<i>St. Vincent</i>	<i>Grenada</i>	<i>St. Lucia</i>	<i>Dominica</i>
1931-1936, 0.02	1923-1933, 0.007		1933-1936, 0.06
1937-1946, 0.02			1937-1946, 0.05
1947-1953, 0.005	1949-1953, 0.07	1948-1956, 0.004	1947-1954, 0.005
<i>Barbados</i>	<i>Trinidad</i>	<i>British Guiana</i> (Negroes only)	
1919-1926, 0.05			
1927-1936, 0.04	1931-1936, 0.07	1930-1938, 0.07	
1937-1946, 0.02			
1947-1954, 0.005	1939-1953, 0.03	1952-1954, 0.03	
<i>Jamaica</i>	<i>Bahamas</i>	<i>Bermuda</i> (Negroes only)	
1928-1936, 0.02	1927-1936, 0.02	1935-1946, 0.01	
	1937-1938, 0.005	1947-1956, 0.008	
1950-1954, 0.003	(no accurate data for later years)		
<i>American Virgin Islands</i>		<i>Puerto Rico</i>	
1939-1946, 0.15		1939-1946, 0.003	
<i>Curaçao</i>			
1939-1946, 0.18			

(*) My authorities are given in the list of references under the names of the various islands.

Much care must be exercised in interpreting these figures, because in many cases they are by no means comparable. For instance, in the case of Trinidad one-third of the population are East Indians; in Jamaica one-third of all deaths are not medically certified, and furthermore the author is not aware of the degree of care which is exercised in the various territories concerning the medical certification of the cause of death, nor to what extent doctors do in fact sign death certificates.

Discussion

As regards the effect of climate on the prevalence of leprosy in a country, Rogers (1923) showed that, other things being equal,

leprosy is much more prevalent in a hot humid climate than in a colder, dry one. For instance, it is absent, or the incidence is very low, in Peru, the Sahara or South-West Africa, where the rainfall is less than 10 inches a year, but common in the Congo or West Africa which are very hot, damp and humid areas. In the wet northern climates the incidence is intermediate.

In Antigua the prevalence of leprosy is intermediate between the extreme prevalence of Central Africa, and the low incidence of the wet colder climates, as would be expected from a knowledge of the data, which are:

Rainfall	44 inches annually. (111·76 cm.)
Mean temperature	79° F. (approx. 26°C) with a variation of less than 10° (6° C) on either side of the mean.
Mean humidity	79·2°, with a variation between 76·9° in April and 81·5° in October.

Other factors which favour a high incidence of the disease are present in Antigua: poverty, overcrowding in small houses, a low standard of culture and of personal and environmental hygiene. Over most of the period much of the population has lived on the borderline of malnutrition.

In leprosy, more than in many diseases, the mortality figures are not a good guide about the prevalence of the disease over a short period, because the physician so frequently inscribes the cause of death as being due to some intercurrent condition, and the fact of leprosy being present or contributing materially to the death is omitted. In this way mortality statistics understate the situation. However, this factor has played a part throughout the history of the disease and there is no reason to suppose that it is a factor that has fluctuated much from one period to another. Consequently, until the advent of the newer anti-leprosy drugs, the mortality figures are probably a reasonable guide to the secular trends over a long period of time such as a century. This is especially true of Antigua, for reasons already given.

The Antigua mortality figures suggest that the mortality is falling, and is now perhaps one-fifth of what it was half a century ago, and a comparison with current statistics from neighbouring territories indicates that there is no great difference between the mortalities of the disease in the various islands.

The incidence of leprosy in Antigua

In Antigua leprosy has been a notifiable disease for many years. Legislation controlling leprosy patients extends back to 1896, but records of notifications, because of fires and the destruction of old records by insects, do not go further back than 1936 and are very incomplete, so as to be valueless for the purpose of this paper. Muir (1944) when visiting this island stated that there were 90 known

cases, a rate of 2.4 per 1,000; this was at a time when the crude death rate from the disease was 0.07 per 1,000. He considered it likely that there were others not detected, and I would agree with him. In more recent years the figure is lower and the present known rate is 1.4 per 1,000.

Summary and conclusions

Antigua is well placed for a good assessment to be made of the mortality of leprosy over the hundred years 1857–1956 in the negro population of the island.

It was a fairly common disease but its mortality was not as high as might have been expected because many dying of the disease were certified as having died of some intercurrent condition.

The Island has had a coloured population varying over the century from 28,000 to 54,200, and among these there have been 305 deaths, of which 158 were in males and 147 in females.

The crude death rate has fluctuated between a maximum of 0.15 per 1,000 for the decade 1897–1906 and a minimum of 0.03 in the decade 1947–1956, but for the forty years from 1887 the rate was remarkably steady.

The percentage of leprosy deaths, in all deaths, was also very steady for the same forty years, being around 1 in 200 deaths.

Since that date the mortality from the disease has been steadily falling and is now about one-fifth of what it was half a century ago.

As regards the age groups of leprosy deaths throughout the century, in males the maximum was in the age group 25–34, with a value of 21.4 per 100,000, but it rose to about the same figure in old age. In females there was a moderately high rate of 12 per 100,000 for the twenty-year age group 35 to 54; it then rose steadily to old age.

The death rate per 100,000 at all ages throughout the century was 10.68 in males and 8.09 in females. There was no death under the age of five years in this series.

In comparing the present mortality in Antigua with that of neighbouring territories in the Caribbean, allowing for various factors mentioned in the paper, the death rate and the secular changes appear to be much the same throughout the area, as would have been expected when considering the fact that all the populations are poor rural communities living under unhygienic conditions, and that the climate of the area is fairly uniform.

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