Research-data
A No. 4

The Influence of the Improvement of Death-rate of Tuberculosis on the Future Population of Japan.

by

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The death-rate of tuberculosis in Japan, as shown in table I, is very high compared with those of civilized countries in Europe and America. If it were improved to the extent of those countries, the general death-rate in Japan will certainly be decreased according to the extent of improvement, and consequently the future population must be more large than in case there were no improvement in the death-rate of tuberculosis.

In the observation of the death-rate of tuberculosis by years of age, the death-rates in Japan are most high in younger ages, regardless of sex, so that if it were improved to have the type of death-rate of tuberculosis in civilized countries in Europe and America, the reproductive population will certainly be more large and consequently the future population must be more large.

Table I. The death-rate of tuberculosis by groups of age in Japan in 1937 (Rate per population of 100,000)
The figures parenthesized indicate the rate in England & Wales in 1936)

Year	Male		Female	
0 - 4	62	(52)	55	(48)
5 - 9	40	(20)	49	(16)
10 - 14	65	(15)	148	(21)
15 - 19	363	(49)	197	(81)
20 - 24	499	(95)	187	(116)
25 - 29	396	(95)	362	(96)
30 - 34	286	(90)	248	(75)
35 - 39	215	(103)	185	(54)
40 - 44	188	(108)	144	(54)
45 - 49	184	(130)	124	(48)
50 - 54	190	(141)	119	(44)
55 - 59	184	(136)	109	(43)
60 - 64	173	(119)	89	(40)
65 - 69	148	(91)	75	(37)
70 & over	94	(51)	43	(29)
Total	205	(83)	202	(57)

This

This research aim to appreciate the influence of improvement in death-rate of tuberculosis on future population, and as the method for it, two kinds of future population were computed, namely the population in case of there were no improvement in death-rate of tuberculosis (1st estimation) and the population in case of death-rate of tuberculosis were improved, other conditions being the same (2nd estimation). By comprison of these two kinds of future population, the influence of the improvement in death-rate of tuberculosis is expected to know.

Estimation of future population extend from 1935 to 1995, because the newly born in 1935 pass through reproductive period (15-59 years) in 1995.

I. Hypothesis

1. Birth-rate — Applied to specific birth-rates of female by years of age in 1935

2. Death-rate

1st estimation — Applied the death-rates by years of age in 1930-35, and for the newly born after 1935, applied the death-rates by years of age in 1931-35.

2nd estimation — It was assumed that since 1935 death-rate of tuberculosis by groups of age in Japan had been improved to the same level of England & Wales in 1936. Therefore the death-rate which was applied in

2nd

(2nd estimation should
(be lower than the
(death-rate which was
(applied in 1st
(estimation.
(In 2nd estimation the
(death-rate are reduced
(in crude-rate 1.3‰
(and 1.5‰ for males
(and females against
(1st estimation.

3. The rate of male infants born to female infants born was supposed to be 104.8 to 100.

II. Estimated future populations

A Table I (1st estimated population)

Year	Total	Male	Female
1935	67,254,148	34,734,133	34,520,015
1940	73,553,307	36,828,639	36,724,968
1945	78,273,216	39,133,791	39,139,425
1950	83,473,304	41,682,784	41,790,920
1955	89,232,862	44,513,121	44,719,741
1960	95,391,959	47,539,575	47,852,384
1965	101,704,527	50,630,609	51,073,918
1970	108,146,591	53,777,996	54,368,595
1975	114,857,189	57,057,373	57,799,816
1980	122,027,796	60,571,635	61,456,161
1985	129,756,041	64,385,642	65,370,399
1990	138,001,334	68,448,742	69,552,592
1995	146,617,107	72,716,151	73,900,856

B.

B. Table II (2nd estimated population)

Year	Total	Male	Female
1935	69,254,148	34,734,137	34,520,015
1940	74,100,021	37,090,018	37,010,003
1945	79,540,368	39,742,120	39,798,248
1950	85,632,994	42,723,917	42,909,077
1955	92,444,032	46,068,108	46,375,924
1960	99,772,782	49,665,835	50,106,947
1965	107,356,216	53,375,169	53,981,047
1970	115,203,164	57,204,158	57,999,006
1975	123,501,306	61,253,474	62,247,832
1980	132,478,485	65,645,547	66,832,938
1985	142,218,696	70,432,169	71,786,527
1990	152,657,959	75,577,539	77,080,420
1995	163,460,843	80,912,512	82,548,331

In the 2nd estimated population, the death-rate is reduced and consequently the number of survior increase, especially as the death-rate of those in reproductive period is decreased, so that the number of person that bear child increase (for instance the population of female for 25-29 years of age in 1995 is 5,497,658 in the first estimated population and 6,217,687 in the second estimated population, thus the difference between two estimated population amount to the great number of 720,029) and consequently the number of births in five years of 1965-75 amount to 21,253,013 in first estimated population and 23,669,655 in 2nd estimated population, thus the difference between two estimated populations amount to the great number of 2,416,642)

These two factors operate twice on future population so that the difference between two estimated populations are enlarged as the years pass, and in 1995, the difference amount to the great number of 16,840,000.

Thus

Thus we can understand that the influence of death-rate due to tuberculosis on future population movement is great enough beyond our imagination.