TUBERCULOSIS AMONG INDIANS AND ESKIMOS

1950 - 1952

INTRODUCTION

Canada's Native Indians and Eskimos, numbering about one-eightieth of the population, make up over one-eighth of the nation's tuberculosis problem, as measured by admissions into tuberculosis sanatoria and units. These peoples, amounting to just over one per cent of the 1951 Census population, accounted for approximately 13 per cent of all tuberculous admissions (first admissions and readmissions) in the three-year period 1950-1952 (Fig. 1). Their admission rate during this period was 12.3 times as high as for the remainder of the population. Put in another way, if the whole Canadian population had experienced the same rates as Indians and Eskimos, a total of 454,000 persons would have entered tuberculosis institutions during the three years rather than the 42,000 actually admitted.

FIGURE-I

INDIANS AND ESKIMOS

The object of the present paper is to indicate, in a general way, the extent to which higher institutionalized tuberculosis incidence among Canada's Indian and Eskimo peoples affects the national rate, both in total and for various age groups.

Limitations inherent in the source data have made it necessary to use some estimation, as described in the Appendix. Average figures for the "pericensal triennium", 1950-1952, were used to minimize the possibility of bias from small variations between figures for successive years where frequencies are small. For these reasons the rates for the total population will not necessarily be comparable with those published in the Bureau's annual report, "Tuberculosis Statistics"

Total admissions

The average annual number of admissions for the 3-year period was 13,905. On the basis solely of proportion to the whole population it might be expected that 164 of these would be Indians or Eskimos. In fact, however, 1,789 were admitted-12.9 per cent of the total and 10.9 times the "expected" number.

The disproportionately large number of Indian and Eskimo tuberculous direct admissions is reflected in the group's extremely high admission rate per unit of population. For all ages combined, the Indian and Eskimo rate is 12.3 times that for the rest of the population, and has the effect of inflating the total rate by 13.5 per cent. Over the triennium, the average rate was 1,080.3 per 100,000 population per year among the Indian and Eskimo peoples; in other words, slightly more than one in every hundred became a tuberculous direct admission each year. In contrast, the corresponding rate for the rest of the population was 87.5 per 100,000.

Prepared in the Institutions Section, Health and Welfare Division

TABLE 1. Population, 1951, and tuberculous admissions[1], 1950-1952 average, by origin

Origin	Population		Admissions		Rate per 100,000 population
	Number	Percentage	Number	Percentage	
All origins	14,009,429	100.0	13,906	100.0	99.3
Indian and Eskimo.......................................	165,607	1.2	1,789	12.9	1,080.3
Other origins	13,843,822	98.8	12,117	87.1	87.5

1. Includes first admissions and readmissions.

Age and origin

The striking difference between the admission rates for the two populations is even more pronounced in certain age groups. Tuberculosis not only hits the younger Indian-Eskimo age groups with greater impact than older persons but does so much more strongly than in the rest of the population. There are three obvious ways of viewing this effect -

(a) How are the total Indian-Eskimo admissions distributed percentage-wise among their several age groups in comparison with the similar distribution for the rest of the population?

(b) How much greater is the admission rate in a given age group of the Indian-Eskimo population than the rate in the corresponding group of the remaining population, i.e., what is the 'factor increase' at each age?

(c) By what amount is the national rate in each age group of the total population biased upward by reason of the inclusion of Indians and Eskimos?

The three approaches are discussed below in order.

More than half of the Indian-Eskimo admissions had not reached their 20th birthday, one in five being a child under 10 years of age. An additional third were aged 20 to 39 years, and only one in seven was past the age of 40. In contrast, only one-seventh of the admissions among the rest of the population were under 20, and less than one-twentieth were 9 years or younger; three out of ten were over 40 years. The heaviest proportion of cases among Indians and Eskimos fell on the age group 10-19 with slightly smaller percentages affecting the two adjacent groups of 0-9 years and 20-29 years. For the remainder of the population, however, the highest proportion of admissions were among those aged 20-29 years, and the next highest among persons aged 30-39 years. The median age at admission was 19.2 years for Indian and Eskimos, 31.4 years for others, 29.8 years for the whole population. The differing shapes of the population pyramids are illustrated below. (Fig. 2)

FIGURE - 2

## PYRAMIDAL PERCENTAGE DISTRIBUTIONS OF ADMISSIONS BY ORIGIN AND AGE *
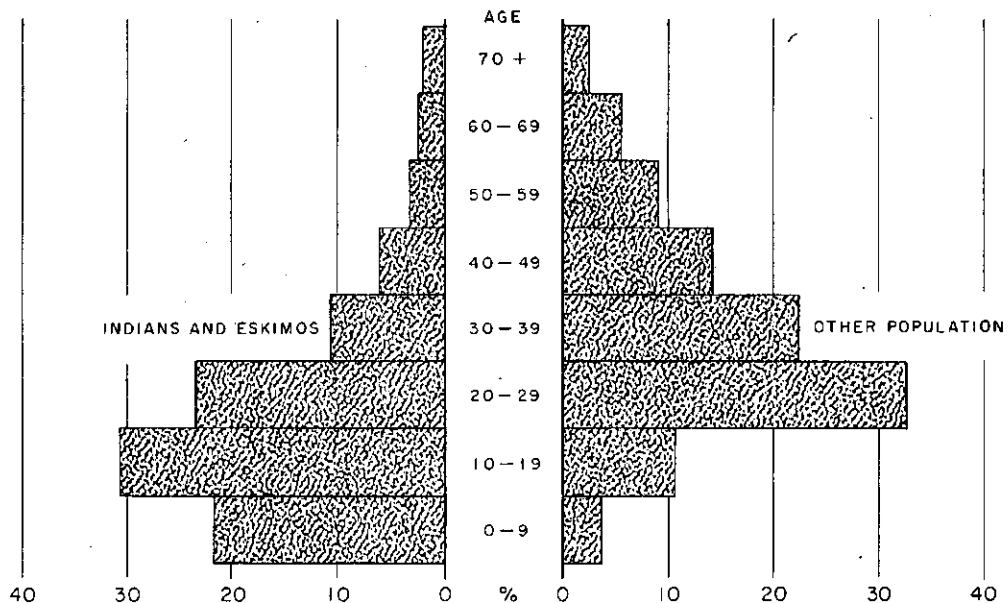
*Tuberculous First Admissions and Readmissions

The factor increase in rate of the Indians and Eskimos over the residual population is 12.3. It is significantly high in every age group but is most pronounced at the beginning and the end of the life-span. Children under nine show a rate, among Indians and Eskimos, of 50 times the corresponding rate for the residual population. In the next decade of life the increase ratio is still 25. It reaches its lowest point in the fifties, and increases thereafter. Both populations reach a maximum rate in the twenties; but whereas the residual rate tapers off in both directions from the maximum, the Indian and Eskimo rate has a slight increase in the sixties and upward. Figures 3 and 4 illustrate these points.
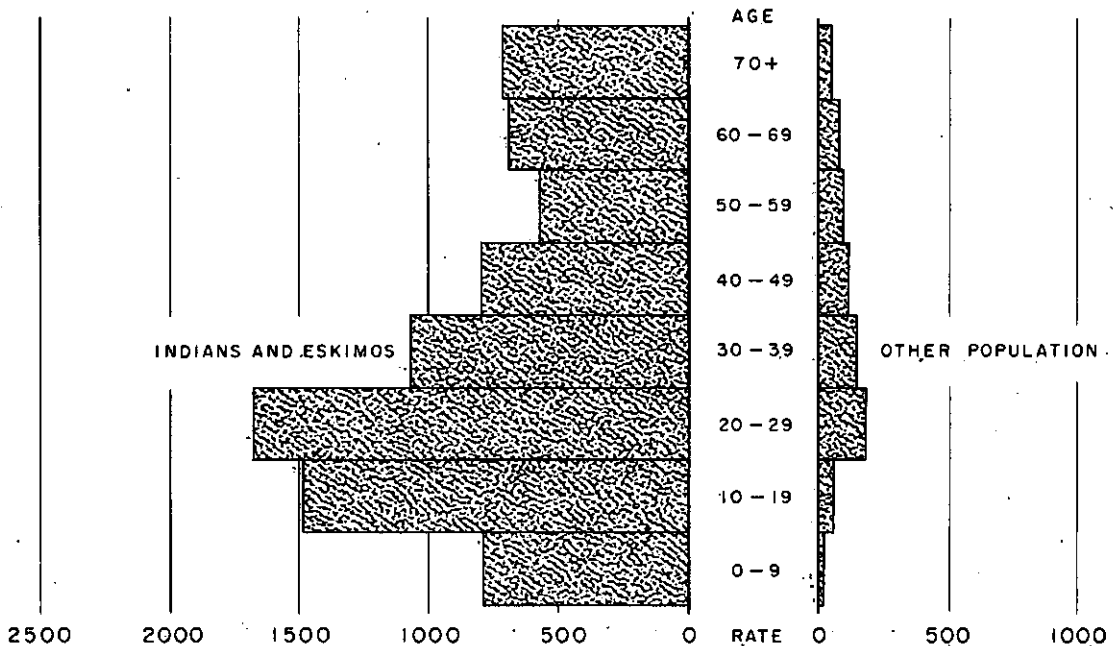
FIGURE-3

INDIAN AND ESKIMO FACTOR INCREASES, BY AGE*
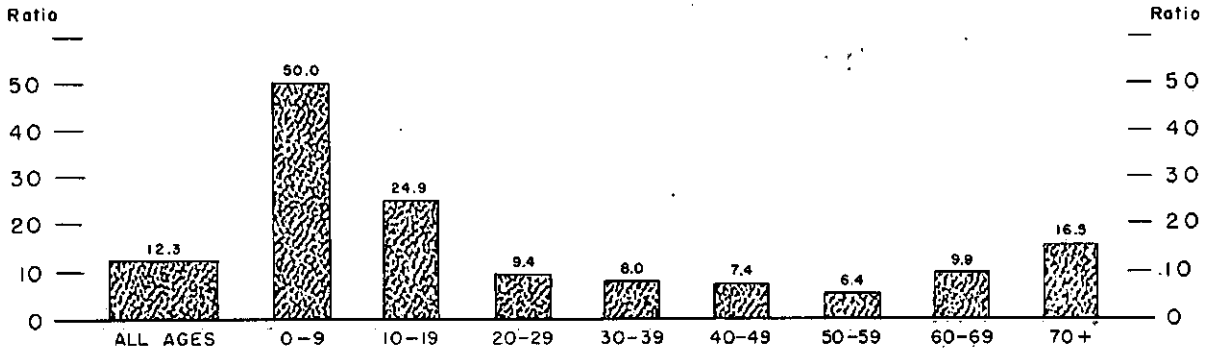
* Ratio of Admission Rate for Indians and Eskimos to Rate for Others.

FIGURE-4

ADMISSION RATES BY ORIGIN AND AGE *

* Tuberculous First Admissions and Readmissions per 100,000 Population

The final question relates to the proportion by which the national rate is raised by virtue of the inclusion of the more-vulnerable indigenous population. Here, again, the youngest age group shows the most striking effect. The rate in children under 10 is raised by four-fifths although Indians and

Eskimos constitute only 1.6 per cent of the population in this age group. In the next decade of life, 10-19 years, the national rate is still 40 per cent higher than it would be if Indians and Eskimos were excluded. The inflationary effect is much less at ages over 20 years, the minimum being reached in the fifties where an increase of 4.3 per cent is produced. The total effect for all ages combined is to raise the national admission rate by 13.5 per cent (Fig. 5).

FIGURE-5

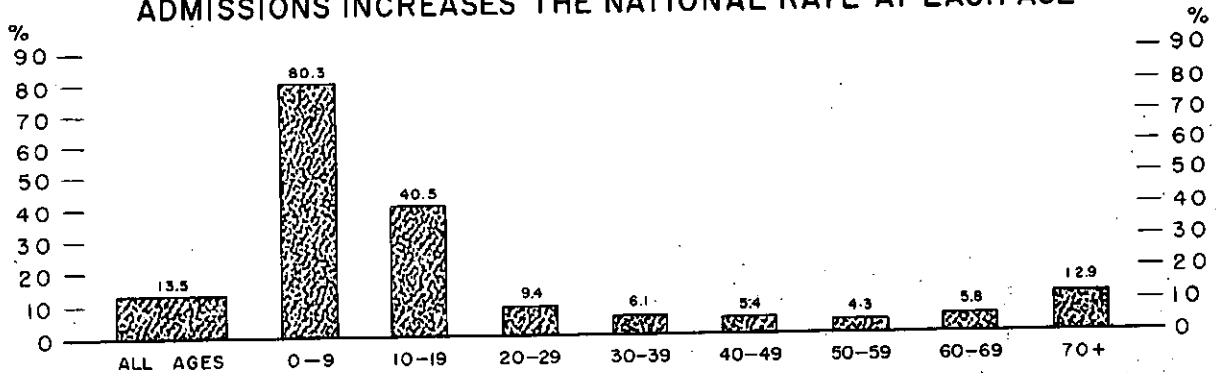PERCENTAGE BY WHICH INCLUSION OF INDIAN AND ESKIMO ADMISSIONS INCREASES THE NATIONAL RATE AT EACH AGE

TABLE 2. Tuberculous admissions[1], 1950-1952 average, by origin and age

	All ages	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70 or over
	Numbers								
Total	13,906	855	1,829	4,355	2,898	1,810	1,145	700	314
Indians and Eskimos	1,789	389	548	418	190	107	56	43	38
Others	12,117	466	1,281	3,937	2,708	1,703	1,089	657	276
	Percentage distribution by age								
Total	100.0	6.1	13.2	31.3	20.8	13.0	8.2	5.0	2.3
Indians and Eskimos	100.0	21.7	30.6	23.4	10.6	6.0	3.1	2.4	2.1
Others	100.0	3.8	10.6	32.5	22.3	14.1	9.0	5.4	2.3
	Percentage distribution by origin								
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Indians and Eskimos	12.9	45.5	30.0	9.6	6.6	5.9	4.9	6.1	12.1
Others	87.1	54.5	70.0	90.4	93.4	94.1	95.1	93.9	87.9
	Rates per 100,000 population								
Total	99.3	27.4	83.6	196.2	141.9	112.2	92.8	74.5	48.1
Indians and Eskimos	1,080.3	759.8	1,481.1	1,678.7	1,073.4	792.6	571.4	693.5	703.7
Others	87.5	15.2	59.5	179.4	133.8	106.5	89.0	70.4	42.6

1. Includes first admissions and readmissions; percentages may not add to exactly 100.0 because of rounding to nearest tenth of one per cent.

Conclusion

The high tuberculous admission rate among Indians and Eskimos presents an obvious epidemiological problem tending to becloud the dimensions of the nation's tuberculosis incidence. This clouding operates in two directions: firstly, there is an increment to the total rate which is hidden in aggregate figures and makes the picture among the general population appear worse than it actually is; secondly, the very high rate for Indians and Eskimos is concealed in the much larger numbers applying to the rest of the population.

Appendix

Admission figures used in this report are based on the average of 1950, 1951, and 1952 (the pericensal triennium).

Indian and Eskimo admission figures for 1950 and 1951 were inflated by 9.7 per cent to allow for the addition in 1952 of the Northwest Territories to the reporting system. The 1952 admissions there were all Indians and Eskimos.

Total population admission figures for 1950, 1951, and 1952 were obtained by deflating published figures to exclude transfers, reviews, and admissions "to continue treatment" which were included in the tabulations, in those years, of tuberculous admissions by age. The assumption here was that the age distribution of the transfers, etc., was not significantly different from that of the first admissions and readmissions. The 1950 and 1951 figures were then appropriately adjusted to include the Northwest Territories.

In 1952 admissions of unreported age were tabulated and published separately. Previously these had been allocated to age groups. A parallel allocation was made in 1952 figures for this report.

Admission figures for the "other" population were obtained by simple subtraction.

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