

Pope, *et al*, in an article, "Development of Tuberculosis in Infected Children."<sup>1</sup> As recently as 1937, Frost, in a discussion of the control of tuberculosis, said: "We do not yet know enough about the nature and durability of any immunity which may be conferred by infection acquired in childhood."<sup>2</sup> Pope points out that these questions can be answered, at least in part, by careful observation over a sufficient period of time of two population groups, namely, children who at the beginning of observation had tuberculous infection, and those who did not give evidence of infection. The basic material presented in this paper consists of data on some 400,000 school children tuberculin-tested in the Chadwick Clinics conducted by the Massachusetts Department of Public Health during the period 1924-1934, the re-examination of certain groups of these children, and the cases of tuberculosis and their mortality reported in the entire group to the end of 1936.

Among the infected children (reactors to the tuberculin test of von Pirquet) the attack rate from adult type of tuberculosis in subsequent years was 189 per 100,000 population, which was four times the rate of 43 per 100,000 noted among the nonreactors. The death rate from tuberculosis was three times as great among the reactors and the case fatality was essentially the same in the two groups.

A selected group of some 19,000 children with roentgenological signs of primary infection or a history of contact who were re-examined annually was the subject of special study. During a period of eleven years of observation, 6 per cent of these children developed adult pulmonary tuberculosis.<sup>3</sup> Also, in this group, children with a history of exposure to tuberculosis in the family had an attack rate from the disease two and a half times that among children without known exposure.

Age-specific morbidity rates for ages 6 to 19 indicated that adult pulmonary tuberculosis in school children is infrequent below the age of ten. The incidence rises rapidly after age ten, and much more rapidly in girls than in boys.

A significant comment made by Pope concerning the results of this study is as follows: "All of our evidence indicates that in school children

<sup>1</sup> Pope, Alton S.; Sartwell, P. E.; and Zacks, David: Development of Tuberculosis in Infected Children. *American Journal of Public Health*, December, 1939, 29, No. 12.

<sup>2</sup> Frost, Wade H.: How Much Control of Tuberculosis? *American Journal of Public Health*, August, 1937, 27, No. 8, p. 759.

<sup>3</sup> The average age of these children at the beginning of observation was 11 years, and the average number of years observed was 3.4.

it is the *age* of the individual rather than the time of exposure or any environmental factor which determines the time at which tuberculosis develops." This finding is in general agreement with a conclusion drawn from Frost's study of tuberculosis mortality in successive cohorts.<sup>4</sup> His conclusion was: "Constancy of age-selection (relative mortality at successive ages) in successive cohorts suggests rather constant physiological changes in resistance (with age) as the controlling factor."

This study of Pope's offers further evidence of the need for special public health supervision of infected children during the period of adolescence when resistance to tuberculosis is ostensibly lowered. It is apparent from the data presented that relatively close clinic supervision does not prevent the development of adult pulmonary tuberculosis in infected children. Therefore, some additional measures of control or prevention which can be applied at the ages when resistance is lowest must be sought.

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<sup>4</sup>Frost, Wade H.: The Age Selection of Mortality from Tuberculosis in Successive Decades. *The American Journal of Hygiene*, November, 1939, xxx, No. 3, Section A, pp. 91-96.