

This Week's Citation Classic[®]

Williams H & McNicol K N. Prevalence, natural history, and relationship of wheezy bronchitis and asthma in children. An epidemiological study.

Brit. Med. J. 4:321-5, 1969.

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We compared three randomly selected groups of 7-year-old schoolchildren in Melbourne who had mild wheezy bronchitis, moderate wheezy bronchitis, and asthma to a control group and followed up the study until the children were 10 years of age. [The SCF[®] indicates that this paper has been cited in over 235 publications.]

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In 1946 I was appointed head of the Department of Clinical Research in the Royal Children's Hospital, Melbourne. A major field of inquiry in this department was respiratory illness in children.

In 1947 I spent eight months at the Department of Child Health in the Faculty of Medicine of the University of Newcastle upon Tyne, England, and was impressed with the importance and value of prospective longitudinal epidemiological research in a randomly selected population in studying illness. The 1,000-family study of Newcastle upon Tyne, which ran from infancy to 15 years, became a landmark for elucidating the natural history of illness and examining cause and effect in the outcome of children's development.

By 1960 asthma was the major respiratory problem in paediatrics, as the frequency of tuberculosis and suppurating lung disease was greatly reduced due to effective medical treatment. A major problem of investigating asthma was in its definition. Asthma was bedevilled with synonyms: asthmatic bronchitis, wheezy bronchitis, allergic bronchitis, allergic asthma, pollen asthma, infective asthma, psychogenic asthma, exercise-induced asthma, and extrinsic and intrinsic asthma. Little was known of the relationship of these disorders to each other, and any knowledge of the natural history was biased by retrospective methods of study applied to selected populations from special hospital clinics or private practices. What was needed was a long-term epidemiological study of a randomly selected population of children with symptoms not of "asthma" but of recurrent wheezing, as wheezing was the one common factor of all the so-called "different" asthmatic disorders.

Seven-year-old children were selected because they could be readily followed up, as they were registered in a school system, and because most children who developed wheezing attacks had done so by this

age. The schools and school health doctors were most cooperative, but the Melbourne branch of the Medical Association was "touchy" since investigation might interfere with private practice. A strict rule was made that on no occasion should any advice of any sort be given to the children interviewed or their families.

K.N. McNicol (who died this year) and I followed the children at ages 7, 10, and 14 years, and my successor in the Department of Thoracic Medicine, Peter D. Phelan, arranged the follow-up at ages 21 and 28 years. The majority of the reports of these studies have been published in the *British Medical Journal* (see references 1-6).

The accumulated evidence of this longitudinal study indicated that patients with recurrent wheezing had a common basic disorder that included bronchial hyperreactivity and a disordered immunological state; there were also a number of trigger mechanisms that precipitated the attacks of wheezing.

In broad concept this was not very different from the description of asthma by Thomas Willis, the English physician who, with extraordinary insight, wrote in 1684:

An asthma is a most terrible disease, for there is scarce anything more sharp and terrible than fits thereof. But as to the evident causes, there are many, and also of diverse sorts. Asthmatic persons can endure nothing violent, or unaccustomed; from excessive cold or heat, from any vehement motion of the body or mind, by any grave change of the air, or of the year, or of the slightest errors about things not natural, yea, from a thousand other occasions they fall into fits of difficult breathing.

If Willis could be present at a world symposium on asthma in 1988, he might well say, "Well, you haven't got much further since my day!"

The follow-up study of 1987 when the patients were aged 28 has shown that those patients in early adolescence who had frequent attacks of wheezing commonly had a poor prognosis and that those with mild or trivial wheezing in adolescence may develop wheezing attacks in the third decade. Other disturbing facts were that many patients with recurrent symptoms and continuing airways obstruction were receiving inadequate treatment and that many were making their condition worse by smoking.

There is little doubt that many patients could enjoy better health if they understood the nature of their disorder, the importance of continuing and monitoring their treatment, and the care of their general health. As with most continuing disabilities, a trusted personal relationship with one physician is the most likely way that patient education and responsibility can be achieved in helping asthmatic subjects to a better way of life.

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