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Editorial

Ernst Wynder: the father of tobacco control 1922–1999

It is with considerable sadness that we note the passing of Ernst Wynder exactly 50 years after his landmark presentation of the first scientific evidence in the United States that smoking was associated with lung cancer. Ernst was a scientist with strong convictions, a man of passion who refused to be cowed by senior professionals of the time. As a medical student in 1948, without any epidemiological training and against the recommendations of key professors, he devised a questionnaire on smoking and other major lifestyles and started interviewing lung cancer cases and hospital-based controls. Under the mentorship of Dr. Evarts Graham, he won an American Cancer Society award to continue the work in which he first presented the strong association from results of over 200 cases and controls before a distinguished audience at the American Cancer Society national meeting in 1949. He later noted: 'To my amazement, no question was asked so that there was no discussion following my presentation. In striking contrast, a paper on pulmonary adenomatosis in sheep merited a half hour discussion ... Needless to say I was very discouraged.'

The findings from the study of 648 cases and controls were published in the *Journal of the American Medical Association* in 1950 (Wynder & Graham, 1950) and this was followed shortly by the paper in the *British Medical Journal* by Sir Richard Doll and Sir Austin Bradford Hill (1950). We now look on these two articles as the landmark papers that started the public health campaign against tobacco smoking. The Society for Research on Nicotine and Tobacco has recognized the contributions of Doll and Wynder by naming an award for outstanding epidemiological research after the two of them. However, both Wynder and Doll have commented that their papers went virtually unnoticed by the medical establishment, public health professionals, and the media at large.

While disillusioned, Wynder was not discouraged, and he published the first paper demonstrating that painting tobacco tar solutions on mice induced skin cancer (Wynder, Graham, & Croninger, 1953). By this time, Wynder had come into the sights of the powerful tobacco industry that disputed his findings and challenged him to produce lung cancers in mice; this was a feat they knew was impossible. We now have access to

the tobacco industry documents and can see how they viewed him at the time. A note by the Hill and Knowlton public relations firm in 1953 comments with horror that the response of some senior tobacco industry executives to the rising public concerns with smoking and cancer was to go out and besmirch Wynder's name in public.

In 1954, Wynder used Koch's postulates on causality to be the first to conclude in a scientific publication that smoking caused lung cancer (Wynder, 1954). Under the guidance of Hill and Knowlton, the tobacco industry created the Tobacco Research Council, enlisting researchers to study the basic science of cancer. This group widely disseminated the concerns of two eminent statisticians of the time about the epidemiological nature of the evidence linking smoking and cancer. The criticism that irked Wynder the most was made by R.A. Fisher, who is considered the father of statistics. Fisher, who died in 1961 from lung cancer, suggested that there might be a gene that both made a person smoke and also caused lung cancer. In a paper noting that Seventh Day Adventists had extremely low rates of lung cancer, Wynder felt compelled to ask whether the gene responsible for cancer susceptibility also prevented one from joining the Seventh Day Adventist church (Wynder, Lemon, & Bross, 1959)!

Wynder was not alone in his crusade against smoking, although he presented a strong and passionate voice. Prior to 1961, he had published a total of nine peer-reviewed papers on tobacco and cancer. Each paper added considerably to the available evidence of the day. However, the climate in the medical profession in 1961 can be seen in the editorial in the prestigious *New England Journal of Medicine* on the invited debate between Wynder (1961) and the future leader of the Tobacco Research Council (Little, 1961). This editorial was entitled 'The Great Debate' and it was noted that 'Both authors are dedicated and sincere proponents of their points of view, each upholding what he believes is the truth and nothing but the truth ... (In conclusion) each individual must choose his own course, whether wooing the lady nicotine or abjuring the filthy weed, while the search for the truth continues' (Editorial, *New England Journal of Medicine*, 1961).

In commenting on this, Wynder has noted that this

was only 1 year before the Royal College of Physicians in the United Kingdom labeled cigarette smoke a cause of lung cancer (Royal College of Physicians of London, 1962). Indeed, with all of the evidence compiled in the 1950s, it is hard to imagine how the tobacco industry was able to be so effective with public opinion in the medical profession in the United States as to enable such an editorial to be written. With the value of hindsight, we might say that they must have been blind. However, the arguments used to create doubt then are the same arguments that surface today in discussion of the causal association between tobacco industry advertising and promotion and adolescent smoking. There is no randomized controlled trial, therefore, we cannot conclude causation.

Indeed, after 1961, the lack of support for smoking and cancer research at the Memorial Sloan Kettering Institute was cited by Wynder as a major impetus for him seeking to develop his own institute dedicated to cancer prevention and control research. Wynder created the American Health Foundation in 1969, 2 years before the National Cancer Act, and this Foundation has been on the cutting edge of cancer prevention and control research ever since. Wynder's dream was to establish multidisciplinary research units to tackle research on tobacco-related cancers and nutritional carcinogenesis. With the recent development of the Transdisciplinary Tobacco Use Research Centers, the rest of us are only now starting to catch up with Wynder's dream.

Ernst was a man ahead of his time. He was an advocate for cancer prevention long before it was popular. He started his own personal crusade to convince the medical profession of the dangers of cigarette smoking, and he did this through careful scientific research. Many of us may remember Ernst from recent years as a man with strong opinions on cancer prevention that may have disagreed with our own. It was easy to forget that

he was holding the torch before most of us were born. But Ernst could not adapt to the passivity of the role of senior statesman to which he was so obviously entitled. He had to be out there doing more research, thinking out of the box, challenging other researchers and trying to push the envelope further. It must have been very difficult for him to watch, as the huge rise in adolescent smoking in the early 1990s took initiation levels in this population back to what they were in the early 1960s. Was his unrelenting crusade over 50 years all for naught? His legacy is that we not forget that progress in reducing the health consequences of smoking has been achieved by both excellent science and strong advocacy. We stand on the shoulders of giants. Ernst, we miss you already.

John P. Pierce

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