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Archie Cochrane (1909–1988)

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Archibald Leman Cochrane was born in Galashiels, Scotland, on 12 January 1909, into a well-off Scottish tweed-making family, the first son of Walter Francis and Emma Mabel (née Purdom) Cochrane. His father was killed at the Battle of Gaza when Archie was only eight years old; one of Archie's brothers (Walter) died aged two from pneumonia; the other (Robert) died aged 21 after a motorcycle accident. Unsurprisingly, Archie's lifelong relationship with his older sister, Helen, was very close, and it was her son and daughter-in-law – Joe and Maggie Stalker – who cared for Archie at their home in Somerset, England, in the years before his death on 18 June 1988.

That Archie's sister Helen outlived him was in part because he challenged a diagnosis of dementia made after she had been admitted to a psychiatric hospital. Further investigation led to the discovery that she and Archie both had porphyria. Because he was concerned that other members of the family scattered around the world might unknowingly have the condition and put themselves at risk, he solicited urinary and faecal samples from 153 relatives and succeeded in obtaining satisfactory specimens from 152 of them.

In some ways this anecdote encapsulates the essence of Archie Cochrane. He was always ready to challenge medical (and non-medical) authorities to provide better evidence about the basis for their diagnoses and treatments. Although he had an epidemiologist's interest in the wellbeing of communities, he was also deeply concerned for the welfare of individuals. And, as reflected in the survey of his relatives, he was known particularly for achieving very high rates of participation and follow-up in his epidemiological and clinical studies.

Early life

After attending a preparatory school at Rhos-on-Sea in Wales, Archie Cochrane won a scholarship to Uppingham School in Rutland, England, in 1922, where he became a school prefect and a member of the rugby football first XV. In 1927, he won a scholarship to King's College Cambridge, where he graduated in 1930 with first class honours in Parts I and II of the Natural Sciences Tripos, and also completed second MB studies. An inheritance enabled him to continue studying, and during 1931 he worked on tissue culture at the Strangeways Laboratory in Cambridge.

Richard Doll (1912–2005) has suggested that it was fortunate for medicine that Archie soon tired of what he concluded was trivial research. Furthermore, he became anxious about his sexual development, and this led him to abandon his research and seek medical help. He received little sympathy from the British doctors he consulted, but found that doctors at the Kaiser Wilhelm Institute in Berlin were willing to take his problem seriously. Between 1931 and 1934 he underwent psychoanalysis with Freud's leading lay analyst, Theodor Reik (1888–1969), initially in Berlin, but then in Vienna and the Hague as Reik fled from Hitler. Archie did some medical studies in Vienna and Leiden during this time, and published his first paper (Elie Metchnikoff and his theory of an 'instinct de la mort'). More significantly, these three years in Europe resulted in Archie becoming fluent in several languages, which were to serve him well later when he was a prisoner of war medical officer. His sojourn in Europe in the early 1930s also instilled in him a hatred of fascism and a sceptical attitude to all theories (including psychoanalysis) which had not been validated in experiments.

After returning to Britain in 1934, Archie enrolled as a clinical medical student at University College Hospital (UCH), London, but he abandoned his studies two years later in order to serve

as a volunteer during the Spanish Civil War in a Field Ambulance Unit on the Aragon front and at the siege of Madrid. He resumed his clinical studies at UCH in 1937, and qualified MB, BCh (Cantab) in 1938. Until the outbreak of the Second World War he worked first as a house physician at the West London Hospital and then as a research assistant at the Medical Unit at UCH. As a captain in the Royal Army Medical Corps, he served first in Egypt as a hospital medical officer, then as a medical officer in D Battalion Layforce, a commando unit. The one military action in which he was then involved ended disastrously in Crete. Following the surrender of Allied troops there in 1941, he served as a prisoner of war medical officer in Salonica, Hildburghausen, Elsterhorst, and Wittenberg-am-Elbe – he was subsequently awarded MBE (military) in recognition of this service. During these prisoner of war days he wrote poetry (subsequently published privately in 1954 as 'Poems from Prison') as a defence against distress.

Archie's experience as a prisoner of war medical officer made clear to him the importance of care when there is no hope of cure, and reinforced his interest in testing unsubstantiated claims about the effects of medical treatments.

*'I remember at that time reading one of those propaganda pamphlets, considered suitable for POW [prisoner of war] medical officers about "clinical freedom and democracy". I found it impossible to understand. I had considerable freedom of choice of therapy: my trouble was that I did not know which to use and when. I would gladly have sacrificed my freedom for a little knowledge. I had never heard of "randomized controlled trials", but I knew that there was no real evidence that anything we had to offer had any effect on tuberculosis, and I was afraid that I shortened the lives of some of my friends by unnecessary intervention.'*¹

Indeed, it was during his time as a prisoner of war that Archie organized what he later referred to as his 'first, worst and most successful clinical trial'.²

Epidemiology

After leaving the army at the end of the war, Archie Cochrane obtained a Rockefeller fellowship in preventive medicine. The first element of this involved attending the Diploma in Public Health course at the London School of Hygiene and Tropical Medicine, where he was greatly influenced by Austin Bradford Hill's (1897–1991) teaching on

epidemiology and randomized clinical trials. In 1947, for the second element of the fellowship, Archie went to the Henry Phipps Clinic in Philadelphia, where he became interested in X ray studies of pulmonary tuberculosis and developed what became a lifelong interest in inter- and intra-observer error.³

Back in Britain in 1948, Archie joined the scientific staff of the recently formed Medical Research Council's Pneumoconiosis Research Unit in Penarth, near Cardiff (South Wales), and initially conducted groundbreaking comparative studies of dust levels in the coal mines of South Wales. Two years later, he launched the Rhondda Fach – Aberdare Valley ('two valleys') scheme to investigate the aetiology of progressive massive fibrosis. Archie worked at the Pneumoconiosis Research Unit for over a decade, during which time his main interests were the X ray classification of coal workers' pneumoconiosis and the relationship he demonstrated between X ray categories, dust exposure and disability. His interest in this field continued for the rest of his life, as reflected in the completion during 1974–1986 of 20- and 30-year follow-up studies of the population of the Rhondda Fach.

Archie's research set very high standards for epidemiological studies because of his insistence on achieving very high response rates in surveys and follow-up studies, and for his checks on the reproducibility of the measurements made. The meticulous quality of his work owed a great deal to the team of disabled miners he formed to help maximize survey follow-up rates. It was an exceptional departure from the use of professional researchers, but Archie's miner assistants drew in their colleagues and helped to reduce resistance to taking part in the research.

The quality of Archie's research was reflected in the decision by the MRC to invite him to establish and direct a new epidemiology unit based in Cardiff. Archie took up this invitation in 1960, and was appointed in the same year to the David Davies Chair of Tuberculosis and Diseases of the Chest at the Welsh National School of Medicine. He held the chair until 1969, when he was appointed CBE.

Under Archie's direction, the MRC Epidemiology Unit quickly established an international reputation for the quality of its surveys and studies of the natural history and aetiology of a wide range of common diseases, including anaemia, glaucoma, asthma and gallbladder disease. Indeed, the Vale of Glamorgan became the epidemiologically

most well-defined area of the UK. These studies led naturally to Archie's interest in the validation of screening strategies within the National Health Service. Indeed, he became a leading critic of the introduction of screening for cancer of the cervix on what he regarded as seriously inadequate evidence of its effects.

Clinical trials

Although Archie Cochrane himself was particularly proud that the quality of his epidemiological studies had set new standards for the specialty, he is probably most widely remembered for his advocacy of randomized controlled trials. He always acknowledged the important influence of Bradford Hill in introducing him to the principles of using these studies to obtain unbiased estimates of the effects of healthcare interventions, and the establishment of the MRC Epidemiology Unit under his direction provided him with the opportunity to put these principles into practice. The Unit coordinated a wide variety of randomized trials to evaluate pharmaceutical, surgical and health service interventions. The trials with the most enduring and important implications for human health were those led by Archie's colleague Peter Elwood (1930–), who succeeded him as director in 1974. These pioneering studies were the first to establish that aspirin could reduce the incidence of cardiovascular diseases.

Randomized trials are of obvious relevance in guiding decisions about the use of resources in health services. An invitation from the Nuffield Provincial Hospitals Trusts to prepare the 1971 Rock Carling Lecture provided Archie with an opportunity to develop this theme, and he did so in a way that no-one had done previously. His delivery of the lecture itself (on 20 March 1972, in Edinburgh) was apparently less than fluent; but the book that resulted from it – *Effectiveness and Efficiency: Random Reflections on Health Services* – promptly became an influential best seller.¹

Archie's little book was written in a very readable style, and covered important issues of general interest: the importance of using randomized trials to identify which health service interventions are more likely to do good than harm; the relevance of assessing the costs of the options available when deciding what to make available within the British National Health Service; and the importance of equitable access to effective treatments, and to sensitive care when cure was not possible. The seminal importance of the book was recognized by the lay media as well as the

medical press, and it was subsequently translated into several languages.⁴

International recognition

In the year the book was published, 1972, Archie Cochrane became the first president of the new Faculty of Community Medicine (subsequently Faculty of Public Health). He received an honorary doctorate from the University of York the following year; was Dunham Lecturer in Harvard University, USA, in 1974; became an honorary fellow of the American Epidemiological Association in 1975; and in 1977, he received an honorary doctorate from Rochester University, USA, and became an honorary fellow of the International Epidemiological Association.

In 1979, in a contribution to a book published by the Office of Health Economics,⁵ Archie wrote: 'It is surely a great criticism of our profession that we have not organised a critical summary, by speciality or subspeciality, adapted periodically, of all relevant randomized controlled trials'. A few years after his death, this proved to be the rallying point that led to the creation of the Cochrane Collaboration (www.cochrane.org). Over 15,000 people in many countries and specialties – most of them volunteers – are now involved in preparing and maintaining systematic reviews of randomized trials and other evidence within this international, non-profit organization. Cochrane Reviews are published electronically in The Cochrane Database of Systematic Reviews, the principal element of The Cochrane Library.

Archie Cochrane was an accomplished gardener (his scree garden won an award from the Royal Horticultural Society) and a discerning collector of modern art and sculpture. He died of cancer in 1988 after a long illness. As he concluded in the obituary he wrote about himself for publication in the *British Medical Journal*, 'He was a man with severe porphyria who smoked too much and was without the consolation of a wife, a religious belief, or a merit award – but he didn't do so badly'.

Archie Cochrane's life has been described in an autobiography written with the assistance of Max Blythe;⁶ a celebratory volume edited by Xavier Bosch;⁷ and an entry authored by Richard Doll in the *Dictionary of National Biography*,⁸ and a version of this article has been published in the *Dictionary of Medical Biography*,⁹ edited by William and Helen Bynum. More information about Cochrane and his work is held in the

Archie Cochrane Archive at the Centre for the History of Evaluation in Health Care, Cardiff University.

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