

SIR RICHARD DOLL 1912 – 2005**Stephanie Blows**NSW Public Health Officer Training Program
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Sir Richard Doll, who died in July aged 92, was an epidemiologist who demonstrated one of the most important causality relationships of the past century: the association between smoking and lung cancer. In collaboration with Sir Austin Bradford Hill, Doll conducted first a case control study and then a prospective cohort study of British doctors, comparing rates of lung cancer amongst smokers and non-smokers. Although only a small number of deaths occurred in the first few years of the cohort study, Doll demonstrated a clear and significant increase in mortality from lung cancer as smoking increased and a smaller but significant increase in coronary thrombosis.¹ In the 1950s, when 80 per cent of the British population smoked, the implications of these findings were very important.

Since then, the ongoing British Doctors Cohort study has continued to produce evidence about the effects on health of smoking. A recent publication from this study—published in the *British Medical Journal* this year with Doll as first author—showed that on average, smokers die 10 years earlier than non-smokers and smoking kills two-thirds of those who smoke.² As a result of this and other studies, the number of illnesses considered to be smoking related has now been expanded to include a range of cancers, respiratory diseases, and cardiovascular disease. Public health measures introduced in response to this compelling evidence have reduced the proportion of the population who smoke to less than 20 per cent in Australia.³

Sir Richard Doll's extensive contribution to epidemiology and medicine also covered a range of other areas. He published papers that described the risks and benefits of the oral contraceptive pill and disproved the theory about the role of a bland diet in treating gastric ulcers. He also conducted research on the effects of low-level radiation, the role of aspirin in protecting against heart disease, and the link between alcohol consumption and breast cancer. He researched the health of doctors and their families, finding higher rates of suicide and liver disease.

Doll was born in Hampton, England, in 1912 and graduated from St Thomas Medical School in 1937. During his career in medicine he worked in the army from 1939 to 1945, first in France and the Middle East and then in Egypt, where he ran a ward for infectious diseases including diphtheria, polio, and smallpox. He later worked on a hospital ship in the Mediterranean and was involved in the invasion of Sicily. His experiences as an army medical officer were published in the *British Medical Journal*. After leaving the army he started work in 1946 with Bradford Hill at the Medical

Research Council, where he began researching the role of smoking in lung cancer. He eventually became director of the Medical Research Unit. In 1969 he was appointed regius professor of medicine at Oxford University. He formally retired in 1979 but continued to participate in research until nearly the end of his life. Sir Richard Doll married another medical researcher, Dr Joan Faulkner.

Doll's life contained some controversy, not only because of the scepticism of tobacco companies about the link between smoking and diseases. In 2001 he angered the anti-smoking lobby when he downplayed the risks from second-hand smoke. However, as further evidence became available he became persuaded and later strongly argued in support of a link between environmental tobacco smoke and cancer.

Sources: *The Times*, the *Guardian* and the *British Medical Journal*.

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Sir Richard Doll's work turned the tide of what the World Health Organization called the 'brown plague' of the twentieth century. In 1950, with Austin Bradford Hill, Doll authored the first significant study showing the relationship of smoking to lung cancer.⁴ Four years later he commenced the most famous longitudinal study in medical history, the British doctors study, with 34,439 participants.¹ Then every 10 years he published the latest chapter in what had happened to the smoking doctors in the group. In 1994, one in two had died from a smoking caused disease.⁵ By 2004, at the 50-year follow-up, two in three had died, losing an average of 10 years off normal life expectancy.²

When Doll first published his findings in 1950, about 80 per cent of men smoked. Today in Australia 17 per cent of men smoke each day. Among doctors it is down to three per cent. Today there are about three million smokers in Australia. Had Doll never started tobacco's downhill ride, the figure might well have been five times that. Everything we take for granted today, like smoke-free planes and restaurants, can be traced back to his work.

The impact of Doll's research compares with the discovery of vaccination by Edward Jenner. After Doll's work began appearing in print, hundreds of millions of people who would have been expected to take up smoking didn't and there are now far more ex-smokers than smokers.

* Simon Chapman is the Editor of *Tobacco Control* and, along with Richard Doll, was awarded the Luther Terry Medal for Tobacco Control in 2003.

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EPI REVIEW

EPIDEMIOLOGY OF NEWLY DIAGNOSED HIV INFECTION IN NEW SOUTH WALES, 1994–2003

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Human immunodeficiency virus (HIV) infection is caused by a retrovirus transmitted from person to person via infected blood and body fluids such as semen and vaginal fluids. Most persons infected with HIV develop detectable antibodies within one to three months of infection. People with this disease are able to transmit HIV throughout their life.¹ The control of HIV remains an important public health challenge with an estimated 38 million persons infected worldwide.² NSW has approximately 57 per cent of all newly diagnosed HIV infections in Australia.³ Surveillance for new HIV infections enables health departments to identify groups at risk and to monitor long-term trends in the disease, which in turn informs the development of prevention policies and programs.

This review presents an analysis of new notifications of HIV infections among NSW residents for the period January 1994 to December 2003.

METHODS

In NSW there are seven HIV reference pathology laboratories. These laboratories confirm HIV infections and notify positive clinical specimens. Under the *NSW Public Health Act 1991*, all HIV reference pathology laboratories in NSW are required to notify the NSW Department of Health of persons newly diagnosed with HIV infection.

A nationally standardised case definition is applied. The definition requires the detection of HIV by a repeatedly reactive result on screening test and a positive western blot and/or virological assay. Laboratories send a standard notification form with the HIV positive result to the treating medical practitioner, seeking detailed demographic information about the case and information about clinical history, health status and HIV risk exposure. De-identified information is forwarded to the NSW Department of Health and entered on a secure database, the NSW HIV/AIDS Database.

De-identified data, comprising cases defined by the HIV and AIDS protocol for NSW public health units⁴, were extracted from the database and analysed. We undertook a descriptive analysis of cases by age group (based on date of first positive HIV diagnosis), country of birth, place of residence and HIV risk exposure category. ‘Place of residence’ is described according to 2003 NSW area health service boundaries. ‘Country of birth’ and countries with high prevalence of HIV, were defined according to the Joint United Nations Programme on HIV/AIDS (UNAIDS).⁵ Annual crude notification rates were calculated using Australian Bureau of Statistics population estimates for NSW (accessed through HOIST, the Health Outcomes Indicator Statistical Toolbox).

As described above, risk exposure category information is obtained by the treating medical practitioner through consultation with the case. For surveillance purposes, where there was more than one reported risk exposure, a hierarchy of risk is used to designate a case’s primary risk exposure and one or more secondary risk exposure/s, as defined according to the *Rules for Risk Exposure Assignment*.⁶ The primary risk exposure is that most strongly associated with