Comment on historical article

Air pollution and other local factors in respiratory disease—Fairbairn and Reid, 1959

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The paper, *Air pollution and other local factors in respiratory disease*, by Fairbairn and Reid . . . is the best example that I know where routinely available information has been used to explore a hypothesis in an imaginative, innovative way.

As a result of the 1952 London smog episode a number of groups began work on both the acute and chronic effects of air pollution. Although the London smog episode was clearly associated with a large number of excess deaths, little, if any, evidence was available that this type of air pollution could cause a prolonged health effect. Reid and his group at the London School of Hygiene began a variety of studies to try to disentangle the relationship between air pollution and other social factors on the aetiology of chronic respiratory disease.

This paper is probably the best example of how such a study can be done. As a measure of the level of air pollution the authors used a fog index since no routine methods of measurement of air pollution were available at that time. Using this index they then undertook a variety of analyses to determine the association between fog occurrence, disease and a number of other social variables. They were able to show that, for bronchitis, fog was the most important and consistent association whereas

this was not true for other conditions, such as cancer of the lung, pulmonary tuberculosis or influenza.

To explore this hypothesis further, they then used routinely available sickness absence data, sickness disability data and premature retirement data from an occupational group undertaking the same work in all parts of the country—Post Office workers. They were able to show that the associations shown through mortality analyses were also present for morbidity analyses and they were then able further to disentangle social and environmental factors by examining the records of individuals of approximately the same social standing who were exposed and not exposed. The Post Office clerks, who sorted the mail, had almost the same pay rates as the postmen who delivered the mail. As they showed, it was only the postmen who had an excess of bronchitis and pneumonia with differing levels of air pollution, and this was not true for colds or for influenza in the same consistent way.

The paper is also exceptional in that it emphasizes the importance of consistency of patterns observed and was able to disentangle the different effects of air pollution from other features of urban life on respiratory disease and mortality.