

## II-2.

Jerome Cornfield: A Method of Estimating Comparative Rates from Clinical Data. Applications to Cancer of the Lung, Breast, and Cervix. *Journal of the National Cancer Institute* 1951; 11:1269-1275.

Cornfield's "A Method of Estimating Comparative Rates from Clinical Data" is perhaps the most famous paper in this collection, for, as every beginning epidemiology student should know, it introduced the use of the odds ratio as an estimate of relative risk from case-control studies. It is interesting, though, that this procedure was not the only or even the first method introduced in the paper. Cornfield fully appreciated the importance of looking at absolute as well as relative risks, and before introducing the odds ratio formula Cornfield gave a method of estimating absolute rates from case-control data using an external estimate of the total (crude) rate in the source population (this method is algebraically equivalent to Bayes' theorem).

A few aspects of the paper seem dated, most notably Cornfield's failure (in my view) to distinguish properly between period prevalence and incidence rates. Types of incidence were not distinguished in Cornfield's era [Vandenbroucke, 1985], and Cornfield's use of the rare-disease assumption can be seen as stemming from this lack of distinction. Proper methods of adjusting the relative risk estimate were not considered by Cornfield, and his use of adjusted exposure proportion is inadequate. Nevertheless, Cornfield recognized the most serious limitation of his method, namely the possibility of bias in selection of the case and control groups.

## Reference:

Vandenbroucke JD. On the rediscovery of a distinction. *Am J Epidemiol* 1985; 121:627-628.