exposed group came. Assuming the same diagnostic and reporting standards for both groups, one may thus determine how the chance that a member of an exposed group will develop lung cancer compares with the chance that such a person would develop the disease if he were not a member of the exposed group. If the likelihood of developing lung cancer is substantially increased by being in the exposed group (e.g., a certain occupation) one may conclude that the exposure is a causative factor in the disease. The key to this analysis lies in determining comparative incidence rates for a suspect group and a control population.

But first it is necessary to identify suspect exposed groups. That was the aim of the present study. The importance of pin pointing these groups arises from the fact that incidence studies require assembling sizable populations and observing the occurrence of the disease in them—a large and expensive task. If, for example, data were obtained implicating occupations beyond those already known to be causative factors in lung cancer, one would be justified in assembling populations of the occupational groups and observing them for lung cancer incidence rates—a study which would develop more definite proof of the presence or absence of an etiological relationship.

Several methods of investigation have advanced our knowledge in this sphere. First, is clinical observation of association between a case or a few cases of lung cancer and some exposure, e.g., asbestos. One defect of this method is that such clinical observation depends largely on chance and often involves such small numbers of cases that the validity is questioned. Where made, of course, such observations are helpful.

Another common method of identifying suspect occupations in a highly fatal disease, such as lung cancer, is to note the frequency of the various occupations on death certificates where the disease appears as the cause of death. The frequencies of the occupations on such death certificates may then be compared with those on all death certificates for the general population. If certain occupations appear with much greater frequency on death certificates for lung cancer than on certificates where death is due to other causes, one may conclude that the occupation may be involved and should be intensively investigated. Important achievements may be credited to the use of this method. However, major difficulties with this use of death certificate data arise from the following circumstances: only one occupation may be recorded; while this is supposed to be the "usual occupation," it is often not correctly recorded and duration in the occupation is not recorded. All these circumstances tend to blur the identification of suspect occupations from death certificates.

The method selected in the present study was to determine the lifelong occupational and tobacco-usage history of lung cancer patients (and a control group) by actual interview with the patients. The work history included the number of years engaged, name of company, industry, a description of duties, and listing of products and hazardous materials known to the patient.

Data Collection

Patients observed during 1949–1952 in 11 California hospitals (three county general hospitals, five veteran or military, two university, and one private hospital) comprised the study group. An interviewer especially qualified in occupational analysis obtained the data from each patient in the cooperating hospitals whose condition permitted the interview. The session with each patient often lasted two hours or more, since many details about smoking were