PLAINTIFF'S EXHIBIT
UC-4918

CONSENSUS CONFERENCE
ON
SCREENING FOR LUNG CANCER
SEPTEMBER 18-20, 1978

S U M M A R Y

A conference on screening for lung cancer was held September 18-20, 1978, in Reston, Virginia, under the sponsorship of the Division of Cancer Control and Rehabilitation, National Cancer Institute, in collaboration with the National Institute for Occupational Safety and Health. It was one of a series of meetings held by the Division to reach a consensus on the current prospects for broader application of the results of medical research. The purpose of this conference was to determine whether there were adequate scientific grounds for concluding that mass screening of individuals at high risk of lung cancer (followed by appropriate diagnostic work-up and treatment of those individuals with suspicious findings) would reduce mortality from the disease.

Participants in the conference included chest physicians, surgeons, radiologists, endoscopists, pathologists, cytologists, immunologists, epidemiologists, and statisticians, as well as representatives from occupational and family medical practice, government, industry and labor. The Conference and its Steering Committee were chaired by Dr. Howard A. Andersen, Mayo Clinic, and Dr. John C. Bailar III, National Cancer Institute.

Lung cancer now accounts for about 14 percent of all cancer cases and 22 percent of all cancer deaths; incidence in men at present is about four times that in women, but incidence in women is increasing more rapidly than in men. Cigarette smoking is the predominant cause in both sexes, but increased risk of lung cancer has been reported also in asbestos workers, coke oven workers, uranium miners, workers in certain metal smelting and refining plants, and in some branches of the chemical industry. In most instances that have been studied, cigarette smoking significantly increased the risk of lung cancer among such workers. Generally, incidence has been found to be proportional to the dose or duration of exposure to the carcinogen. Variations in individual susceptibility, possibly due to genetic effects, immune factors, or other respiratory diseases, appear to play a role in lung cancer risk.

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The pathogenesis of lung cancer has been deduced from histological studies of bronchial tissue from patients dying of lung cancer, and from smokers, ex-smokers, nonsmokers, and those without pulmonary disease who have died from other causes. Progressively increasing frequency of hyperplasia and of atypical cells has been found in the bronchial epithelium in proportion to the duration and amount of cigarette smoking. Although the frequency of these abnormal changes has been greatest near the bifurcation of the major bronchi, they also have been found throughout the tracheobronchial tree. All stages, from slight hyperplasia to carcinoma-in-situ and invasive cancer, have been observed. The bronchial epithelium of ex-smokers has shown histological evidence of reversibility of premalignant lesions after cessation of smoking. However, a basis for correlating the abnormalities of cells shed into the sputum with the various premalignant lesions that have been detected histologically has not been clearly established.

In discussing the requirements for satisfactory screening tests, care was taken to distinguish between screening and diagnosis. It was recognized that the purpose of screening is to sort out rapidly and effectively those asymptomatic members of a population who probably have the disease in question from those who do not, leaving final determinations to be made by appropriate diagnostic methods.

Among the potentially useful methods for detecting pre-symptomatic lung cancer, only chest X-ray and cytological examination of the sputum have been found to be sufficiently well developed at present to warrant consideration for practical application in screening. Strict control of standards and of technical competence is necessary in both cases to ensure reliability. The two tests appear to be complementary in that peripheral tumors are detected more readily by radiography while sputum cytology is more effective in detecting lesions in the larger bronchi.

Interim results of controlled clinical trials that involve screening for lung cancer by chest radiography and sputum cytology were reviewed. These trials, now in progress, include a total of about 15,000 heavy smokers over the age of 45 judged to be at high risk of developing lung cancer, and a similar number of controls. The results will be analyzed to determine the effect of screening (with subsequent diagnosis and treatment of disease discovered during the screening) on lung cancer mortality, but the data accumulated do not yet show any significant difference in mortality between the screened and the control groups. It is believed that any difference in mortality which might be achieved as a result of screening should be detectable in another two to three years.

Other studies of the effects on lung cancer mortality due to screening by chest radiography or sputum cytology, or both, also showed negative or equivocal results.

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CONCLUSIONS AND RECOMMENDATIONS

The following conclusions express the findings of the conference:

1. Current prospective studies of asymptomatic individuals who have been screened for lung cancer by chest X-ray examination and sputum cytology do not at present show any evidence of a significant reduction in mortality from the disease. These studies must be continued for several more years before the accumulated information will be sufficient to allow a relationship between screening and mortality to be determined. Results of these studies should be kept under continuing review.

2. Until the value of screening for lung cancer by these methods has been demonstrated, mass screening programs should be limited to well-designed, controlled studies, with provision for analysis of results, and for further diagnostic work-up and treatment, when indicated.

3. While some screening programs for lung cancer have been initiated among workers in certain industries, caution is strongly recommended in starting any new ones. Screened workers cannot be assured of an overall benefit on the basis of existing data.

4. None of the above recommendations on the application of chest radiography and sputum cytology in <u>screening</u> is intended to apply to their diagnostic use in individuals who present to physicians with signs or symptoms that suggest lung cancer.

5. Continued research on better methods of screening for lung cancer, including improvements in the methods now under trial, should be strongly supported. At present, no other techniques appear to be ready for clinical application.

6. Whether for screening or diagnosis, the control of quality in performing and interpreting chest radiography and sputum cytology is essential. (Radiographic quality can be assured through supervision by qualified radiologists. Accuracy of interpretation in screening can be enhanced through double reading of chest X-rays by appropriately trained individuals. Qualifications of cytopathologists should likewise be assured through such measures as competency examinations and continuing education programs. Standards of performance of cytopathological laboratories should be determined by an appropriate accrediting body.)

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