HILTON C. LEWINSOHN
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CONFIDENTIAL

J. Wister Meigs, M.D.,
Yale University School Of Medicine,
Dept. of Epidemiology and Public Health,
60 College Street,
New Haven, CT 06510

June 1, 1982.

Dear Wister,

I have attempted to make a start on the proposal to be submitted to the General-Electric Corporation for them to consider assisting in the further investigation of the six former employees identified as having died of malignant mesothelioma.

I have merely outlined the proposed study without going into great detail as I do not believe that G-E will require more than this in the first instance. I am sure that we will have to sit down with them to explain things in depth and to negotiate for funding.

Please make any amendments you think necessary and let me have your suggestions for improving the style and content of the proposal. The final draft should be presented in a more professional manner and typed on a better machine by proper typist!

I would be happy to come and discuss this matter with tou whenever it is convenient for you to do so.

kind regards,

sincerely,

Hilton.

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Epidemiologic Study of Mesothelioma Risk Factors in Selected Cases Employed by the General-Electric Corporation ; A Case-Control Study Utilizing Corporate Records and the Files of the Connecticut Cancer Epidemiology Unit.

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PROPOSAL TO BE SUBMITTED TO THE GENERAL-ELECTRIC CORPORATION

Submitted by: Yale University School of Medicine,
333 Cedar Street,
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Date:

J.Wister Meigs, M.D.,
Clinical Professor of Epidemiology,
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INTRODUCTION.

A study of the incidence of malignant mesothelioma of the pleura or peritoneum in the State of Connecticut has been made utilizing the records of the Connecticut Tumor Registry. The study outline has been described by Lewinsohn et al. (1). A further report was recently presented to the International Conference on Occupational Lung Disease sponsored by the American College of Chest Physicians in Chicago, IL in March, 1982.(2)

As the result of the work done to date, it would appear that mesothelioma incidence in the state is attributable to occupational exposure to asbestos in eighty-five per cent of cases. Environmental exposure has not been shown to be associated with this disease in Connecticut by this investigation, although there is some evidence to suggest domestic contact in three cases linked to an asbestos plant.

Certain job titles and certain industries appear to carry a higher risk for the persons employed in them. Job titles which are in the higher risk categories are indicated in Table I and the industries in which significant risks exist are shown in Table II.

In scrutinizing employment data available from death certificates, case records on file in the Connecticut Tumor Registry (CTR) and Price and Lee City Directories for cases and controls, an unusual cluster of six cases was identified as former General-Electric Corporation employees. In the rubber industry, where a significant risk was found, three companies account for the cases in the CTR files.

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PROPOSAL.

The Connecticut Cancer Epidemiology Unit (CCEU) wishes to be permitted to conduct a case-control epidemiologic study to determine whether it can identify an etiologic agent or occupation associated with the cluster of six cases of malignant mesothelioma known to be recorded in the files of the CTR. It is proposed that such an investigation be conducted with the assistance of the General-Electric Corporation's Epidemiologist and staff. It is further requested that the Corporation assist in the funding of the contemplated study in an amount mutually acceptable to all concerned. A cost estimate is attached to this proposal.

OBJECTIVES.

(a) To refine the employment data in the six cases known to have been employed by G-E and attempt to determine their job titles and descriptions of their duties with greater precision.

(b) To investigate any known exposure to asbestos at G-E and determine whether any one fiber variety was used predominantly.

(c) To determine if possible the levels of any exposure to asbestos discovered to have been present in the work-place and attempt to quantify such exposure.

(d) To compare the six cases with an adequate number of control subjects matched for age , sex, geographic area and employment at G-E, to be derived from the lists of decedents on file in records of the CCEU.

METHODS.

(a) G-E records will be reviewed. The records of most interest are likely to be personnel records, industrial hygiene records, manufacturing details for the time periods of employment of the cases and controls and any available medical records and radiographs.

(b) Death certificates of cases and controls will be reviewed as part of the matching procedure. If G-E appears on the Death Certificate as the employer then matched controls will be selected from the CCEU files of Connecticut decedents which are available for the relevant time periods. In those cases where G-E is not mentioned on the Death Certificates but where G-E was identified as the employer by means of City Directories or hospital records on file in the CTR, then for the sake of insuring a good match in all respects , an attempt will be made to obtain matched controls by utilizing similar sources.

(c) The relevant data assembled will be reviewed and an attempt made to reconstruct detailed work histories for cases and controls. All jobs performed by each individual will be itemized and an effort will be made to catalogue the site, division, geographic area, department, period of employment in each job, chemicals and other raw materials handled and used, the products manufactured, the wastes generated and the methods of waste disposal in use. Interviews of co-workers and supervisors and other knowledgable persons will be conducted when the record review does not yield sufficient information about any of the abovementioned variables. If interviews are conducted only fully trained interviewers will be used and standardized techniques will be employed to avoid observer bias. All such interviews will be conducted in person and no indirect methods such as mailed questionnaires or telephone interviews will be used.

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PERSONNEL.

Principal Investigator : J. Wister Meigs, MD.

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Yale University School of Medicine,
135 College Street,
New Haven, CT 06510

Project Director :

Consultant : Hilton C. Lewinsohn, MB BCh., FCCP..
Lecturer, Department of Epidemiology,
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135 College Street,
New Haven, CT 06510

It is proposed that the number of personnel directly involved with this project be limited to those listed above. Support will be drawn from the staff of CCEU and G-E.

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REFERENCES.

(1) Lewinsohn, H.C., Meigs, J.W., Teta, M.J.: The influence of occupational and environmental asbestos exposure on the incidence of malignant mesothelioma in Connecticut. In Biological Effects of Mineral Fibres, J.C.Wagner, Editor, IARC Scientific Publications, Vol 2, No.30, pp. 655-660, 1980. Lyon, France.

(2) Teta,M.J.,Lewinsohn,H.C., Meigs, J.W., Vidone, R.A.: Occupational asbestos exposure and mesothelioma in Connecticut. Presented International Conference on Occupational Lung Disease, March 24-27, 1982, Chicago, Illinois. Abstract to be published in "Chest", the Journal of the American College of Chest Physicians.

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Table I

Relative Risk of Mesothelioma Associated with Selected Job Categories

Job Title	RR	95% CI	N[1]
Engineers	2.72	(.85, 8.68)	11
Brickmasons & Stonemasons	2.15	(.37, 12.50)	5
Cabinetmakers & Carpenters	2.25*	(1.13, 4.48)	35
Electricians	1.29	(.39, 4.24)	14
Foremen	1.57	(.84, 2.94)	50
Painters, Construction, & maintenance	1.39	(.52, 3.71)	20
Plumbers & Pipefitters	3.87*	(1.38, 10.82)	13

*$p < .05$

[1]N = number of male cases and controls over 30 years old at death or diagnosis, born after 1875, who 'ever worked' in the category. Total N for each independently calculated RR was 611 (147 cases, 464 controls).

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Table II

Relative Risk of Mesothelioma Associated with Selected Industry Categories

Industry Title	RR	95% CI	N[1]
Construction	1.21	(.60, 2.45)	45
Misc. non-metallic mineral & stone products	1.64	(.15, 18.06)	3
Electrical machinery equipment, & supplies	2.79	(.86, 6.67)	20
Aircraft & parts	1.03	(.43, 2.49)	25
Ship & boatbuilding	1.09	(.35, 3.42)	16
Yarn, thread & fabric mills	.57	(.17, 1.92)	20
Rubber Product	5.08**	(1.60, 16.11)	10
Automobile repair & related service	.65	(.08, 5.53)	6

**$p < .01$

[1]N = number of male cases and controls over 30 years old at death or diagnosis, born after 1875, who 'ever worked' in the category. Total N for each independently calculated RR was 611 (147 cases, 464 controls).

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