

MEDICAL AND EPIDEMIOLOGICAL STUDY
OF LUNG CANCER OCCURRENCE IN CHEMICAL WORKERS

- I. Object: to determine if there is a causal relationship between the reported increased occurrence of lung cancer in vinyl chloride chemical workers and the various chemicals used in their work environment.

II. Background Data:

1. There has been reported an increased occurrence of lung cancer among chemical workers.
2. The increased lung cancer appears to be associated with exposure to chlorinated hydrocarbons, especially vinyl chloride and polyvinyl chloride.
3. The increased lung cancer occurrence may be of a specific cellular subtype, i.e., large clear cell cancer.

III. Methods and Data Base:

The method of study involves the medical and epidemiological investigation of a cohort of vinyl monomer chemical workers of approximately 1,200 active workers and up to an additional ~5,000 prior workers of the Louisville, Kentucky, B.F. Goodrich Chemical Plant.

This cohort has been under evaluation via a medical surveillance program (MSP) since 1974. The MSP has the plant's present work force, i.e., each worker, categorized to varying degrees in the following areas:

- (a) work history
- (b) work exposure history for 22 chemicals
- (c) medical screening evaluation
- (d) hospitalization and medical data
- (e) cause of death data

This data base, however, is not complete in all necessary areas, and would require completion, verification and expansion in order to provide the most scientifically accurate basis for analysis.

In addition, further work is needed on the occurrence and relationship of lung cancer for the local geographic population. This will allow for a more accurate comparison of observed and expected occurrence of lung cancer deaths.

IV. Results to be Obtained - Data Permitting:

1. Is the reported increased occurrence of lung cancer (before 1974 - all types) among this cohort of chemical workers at BFG Louisville Plant demonstrable for the lung cancer which occurred after 1974.

URL 13754

1/16/81

- a) Using the national rate for Standardized Mortality Ratio (SMR) (age, sex and race match) for comparison.
- b) Is the increased lung cancer also demonstrable when making a similar comparison with the local (Jefferson County) occurrence of lung cancer to that occurring in this cohort after 1974?
- 2. Do the lung cancer cases (or occurrence) have any statistical association or relationship with the synthetic rubber chemical worker vs the plastic chemical worker?
- 3. Do the lung cancer cases demonstrate any relationship to the workers' exposure to any of the 22 chemicals studies for their exposure effect on this cohort of workers?
- 4. Is there any relationship between the various cell subtypes of lung cancer and the 22 chemicals' exposure studies in this cohort of workers (i.e., for the combined group, before 1974)?
- 5. Is there any relationship between the lung cancer cases (all types or subtypes) and their smoking history, dietary intakes or alcohol consumption (i.e., only for those cases occurring after 1974)?

V. Work Required and Necessary for this Study:

- 1. The continued complete cooperation of B.F. Goodrich Company and its Louisville Plant for:
 - a) update of work exposure histories for all active employees
 - b) update of work exposure histories for prior employees from 1974 to present
 - c) construction of work exposure histories for prior to 1974 lung cancer cases and their matched controls
 - d) -update of all hospitalization and medical data related to present active employees (since 1974) and prior 1974 lung cancer cases and their controls
 - e) completions of local geographic data for all lung cancer in index and control cases by control double blind investigation.
- 2. Investigative Work and Analysis by University Research Group:
 - a) Personnel - provide all personnel needed for completion of study in an expeditious fashion maintaining all required scientific safeguards and data security and privacy,

URL 13755

- b) provide computer facilities for data acquisition, entry, storage, programming and analysis
- c) obtaining all needed scientific expertise for all investigate activities
- d) conduct all analysis for data and prepare report.

VI. Cost and Time:

Personnel costs:	52,000
Computer costs:	18,000
Analysis and Consult costs:	9,500
Overhead cost:	7,500
	<u>\$87,000</u>

Schedule: From starting date

	<u>MPT*</u>	<u>RWT**</u>	
V, 1, a	:30-35 days	40-50 days	MPT*-minimum possible time- this presumes that all parties involved, company, university, and regulating agency will give this high priority and full cooperation.
V, 1, b	:30-35 days	40-50 days	
V, 1, c	:35-50 days	45-60 days	
V, 1, d	:35-55 days	45-65 days	
V, 1, e	:50-60 days	60-70 days	
V, 1, f	:30-60 days	40-70 days	
			RWT**-reasonable working time- provides for some delays but will require a high degree of cooperation and first priority by parties involved.
V, 2, a	: 0-25 days	0-35 days	
V, 2, b	: 0-55 days	0-65 days	
V, 2, c	: 0-10 days	0-20 days	
V, 2, d	:10-80 days	20-120 days	

TOTAL TIME MPT ~90 days (3 months)

RWT ~120 days (3 3/4 - 4 months)