

INTERIM REPORT

A CONTINUING CRITICAL REVIEW OF MAJOR FACTORS IN STATISTICAL
STUDIES IN THE AREA OF SMOKING AND HEALTH

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We have continued to direct our effort to clarify key problems that lie at the heart of smoking and health studies. Some of this work has directly involved us in active epidemiological investigations of the health effects of relevant conditions in the environment. We briefly review here our recent work and work in progress.

A number of our studies are yielding important results in line with the expectations with which we began this research. These results point to important additional areas of investigation, which we are in the continuing process of exploring. In order to be able to fully investigate and extend our work, we are asking for a continuation of our present special grant for the two years 1982-1984 and include budgets of anticipated expenditures for the grant years 1982-1983 and 1983-1984.

Review of Work Done and Work in Progress - Grant Year 1981-1982

One firm foundation of our work continues to be the thorough reviews of the scientific merits of methods and claims of investigations in key areas of smoking and health.

We finished our review of the available reports and data for some 70 published studies which explored indoor pollutant levels in the presence of cigarette smoking under realistic and under experimental conditions of ventilation, smoking, and ongoing activity. Many of these studies also obtained measurements under controlled conditions where smokers were not present. The summary of these investigations furnishes an important baseline for evaluating the contribution of smoking to measures of indoor pollution. These studies form a factual base of what actually happens when cigarette smoke is added to other conditions that

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determine indoor atmosphere. Our extensive paper has been accepted for publication by the Journal of the Air Pollution Control Association and should appear early in 1982. We are immediately exploring the consequences of having this factual base (of the contribution of smoking to indoor atmosphere) on record for further evaluation of standards recommended by ASHRAE and of the report published as a result of investigations of the Committee on Indoor Air Pollution of the National Academy of Sciences.

We have started and are continuing a review of approximately 80 reports by NIOSH, CDC and other agencies, of buildings in which high incidents of building related illnesses brought about a study of the internal conditions of ventilation, lighting, smoking and other factors. (There are a number of additional ongoing investigations with which we are in touch.) We intend to produce an authoritative summary of sources of various building related illnesses and building characteristics which may be related to an increased prevalence of building illness.

We have started an extensive review of the work environment in the home that may affect women's health. We were led to that review by a number of reports, especially from Japan and from Greece, that linked respiratory disease among women to smoking habits of their husbands. However, these reports appear to have ignored the exposure of women to respiratory irritants from cooking and heating chores (especially from kerosene and charcoal flames). We have also been led to this study because of our own work that has shown that dusts

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brought home by husbands on skin, hair and clothing, contributes to illnesses of wives and children. (In fact, a paper based on our analysis of health effects of dusts brought home by husbands or parents on health of nonsmoking women and children has been submitted for publication and our analysis of some of the Japanese data relating kerosene use, smoking, and social class has been published as a contribution to the letter section of the British Medical Journal.)

We are engaged in a series of studies on the epidemiology of indoor pollution. With Elia Sterling, we examined the effect of lighting and ventilation on the incidence of eye irritation, headaches, fatigue and other office building syndromes. A report of our work was presented to the recent International Symposium on Indoor Air Pollution at Amherst. We are continuing this evaluation (of the joint effect of lighting and ventilation) in cooperation with the Office Professional Employee International Union in New York. We are in the process of examining health questionnaires returned by 5,000 employees in 15 buildings in New York City. The first report of our findings should be ready early in 1982.

We finished our study on the use of the gas range for cooking and as supplementary heater in New York City. That study was done with the cooperation of Consolidated Edison and two daycare centers in the Bronx. A paper summarizing our results was published by the Journal of the Air Pollution Control Association. The work, both at Vancouver and at New York, has led us to develop a simulation model in which we evaluate ventilation rates required to deal with various sources of

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indoor pollution. At present we examine the effect of the gas range. Our preliminary results were presented to the International Symposium on Air Pollution at Amherst last year.

We have finished the statistical study of the epidemiology of restricted activity days and bed days due to the effect of possible exposures to dust brought home by husbands of nonsmoking wives and among children. This work was given special impetus after the publication by Drs. Bonham and Wilson of their study of the effect of smoking in the presence of children based on the 1970 National Health Interview Survey. Using the same data, and simultaneously evaluating the effects of all the variables considered by Drs. Bonham and Wilson and, in addition, occupation of members of the family, we were able to show that when occupation is introduced, the statistical effect of smoking is eliminated. A manuscript describing our findings has been submitted for publication.

Our statistical work has centered on the simultaneous evaluation of occupation and smoking and of other environmental factors for data produced in our joint investigation with Drs. Perry, Helfrick and Rubenfire in Detroit, and Dr. Glicksman in Rhode Island. We completed two complex mathematical and statistical analytic techniques which were based on current approaches to the evaluation of relative risks. Using these two approaches, we find that the relative risk of occupation is five times that of smoking for head, neck and oral cancer and equals that of smoking for lung cancer. We believe these preliminary findings to be extremely important because they demonstrate what

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we had long maintained - that by avoiding or ignoring crucial variables, many epidemiological studies on smoking actually mask the effects of variables such as occupation and environmental events. Also, our work contributed to the understanding of the computation of relative risks. Relative risks will vary with the number of variables simultaneously evaluated. At present we are looking only at exposures to industrial dusts and fumes, smoking and age. However, our work demonstrates that the assessment of relative risk will vary with the number of variables that are being simultaneously considered. Our findings for the Sinai data have been submitted for presentation for the meetings of the Society for Preventive Oncology and of the American Association for Cancer Research.

Preliminary discussion on relative risks have also been presented to the 1981 Park City meeting of the Rocky Mountain Institute for Occupational and Environmental Health on Ethical Problems in Occupational Health Research. Our paper discussing relative risks and discrimination among smokers is now being published. We have also contributed to the discussion of relative risks due to smoking at a recent meeting at the Conference of Perceived vs Actual Risks by the Risk Evaluation Society in Washington, D.C., in 1981.

Our paper on the problems created by the use of magnetometric measurement techniques for human subjects who have breathed in metallic dusts has now been published in the Journal of Applied Physics along with the paper by Drs. Reinstein, Robinson and Glicksman of Brown University. While we believe it would be important to continue work

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on this topic, no such work is presently being contemplated.

We expect to continue with our review of smoking and reproductive system and smoking and sputum cytology.

Expenditures

Accounting expenditures incurred during the preceding grant year, from January through December, 1981, were prepared by Goodison and Company and are included. The next accounting will be prepared for the end of 1982, if our grant is extended. If not, we will render final accounting by the end of the present grant year.

We hope that our present project can be extended for another two years - May 1, 1982, to April 30, 1984 - and include two separate budgets to cover expenditures during those years. Estimated expenditures are based on our experience this and the past year. Increases reflect inflationary pressures which we take as 14% per year. We will account for all expenditures as is customary and return any unexpended amounts.

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