

DEPARTMENT OF EPIDEMIOLOGY

ANNUAL REPORT

1979 - 1980

I. DEPARTMENT ORGANIZATION AND ADMINISTRATION

The department is administered by the Chairman, assisted by the following committees:

Admission Committee, made up of directors of programs within the department, or their representatives. The Admission Committee screens all applicants, evaluates the strengths and weaknesses of each, and ranks applicants who are acceptable in order of priority. The Committee submits recommendation to the Chairman, who makes the final recommendation to the Graduate School for their approval.

The Committee of Full Professors meets at regular intervals to review all faculty in the department. Recruitments and promotions are discussed in this committee which functions as advisory to the Chairman. Other matters of extreme importance to the department are also taken up by this committee.

The Recruitment Committee has been established in 1978 as the means for complying with the Equal Employment Opportunity and Affirmative Action regulations. The standing committee members include two regular faculty members (one being the Department's Equal Employment Opportunity Officer) and the Assistant to the Chairman. The "Floating" members are those faculty or administrative personnel directly involved in the recruitment process of the particular position.

Seminar Committee, chaired by a faculty member, invites suggestions for speakers from all faculty and students. The chairman of the committee invites these speakers and organizes the seminar schedule for each semester. Seminar activities are evaluated at the end of each semester by the entire faculty, with participation from students.

General Faculty Meetings. The entire departmental faculty meets at regular intervals (about once a month) to discuss curriculum, research, and other matters of importance to the department. These meetings are open to all students in the department, and are usually attended by a representative.

The general faculty meets once a year for at least one day, away from the University premises, to discuss curriculum, research, service activities, and all matters related to faculty development and career plans.

The Administrative Staff meets monthly with the Chairman to review support services and staffing for the department, and to discuss future plans. The Administrative Staff consists of the Registrar, the Computer Services Manager, the Fiscal Manager, and the Assistant responsible for personnel and facilities.

## II. INSTRUCTIONAL PROGRAMS

## A. Courses and Curricula

## 1. Major changes during the year

New Courses

EPID 165: ANALYSIS OF CATEGORICAL DATA (Biostatistics 165) (3). Prerequisites, Bios 105 and Epid 160 or equivalents. Analysis of categorized data, with special emphasis on the methods of use in epidemiology: contingency tables, rates and relative risk, survivorship and life table methods, linear models for categorical data. Three hours a week, spring. Symons.

EPID 170: EPIDEMIOLOGY OF PROGRAM ACCEPTANCE (3) Prerequisites, Epid 160 or equivalent. Use of epidemiological method to consider problems of social, cultural and psychological determinants of health programs. Concepts and methods useful in predicting patterns of acceptance or rejection. Three lecture hours a week, spring. Patrick.

EPID 257: TEACHING EXPERIENCE IN EPIDEMIOLOGY(4) Prerequisites, Epid Major, second year or above. Provides Epidemiology majors with supervised experience in teaching and course preparation. Students act as assistants in Departmental courses. Fall, Spring, and Summer. Faculty.

EPID 258: WOMEN'S HEALTH: AN EPIDEMIOLOGICAL ANALYSIS (3). Prerequisite, Epid 160. Permission required for non-majors. Critical exploration and research on factors associated with selected health states in women and health service utilization by women. Emphasizes examination of hypotheses on health correlates of women's role changes. Three lecture hours a week, spring. Williams.

EPID 267: OCCUPATIONAL EPIDEMIOLOGY (3). Prerequisites, Epid 160, Bios 105. Review of methods of investigation and epidemiologic evidence of diseases associated with the work environment. Three lecture hours a week, spring. Tyroler, Shy, Checkoway, Andjelkovich.

Major Changes

EPID 168, FUNDAMENTALS OF EPIDEMIOLOGY, has been created and designed for Epidemiology majors and other School of Public Health students who satisfy certain criteria. It is taken in lieu of EPID 160. Ibrahim, Shy, Faculty.

Deleted Courses

EPID 262, "Epidemiology of Program Acceptance," has been replaced by EPID 170 to allow enrollment by undergraduates.

EPID 275, "Social Psychology of Work."

2. New Programs being planned or deletions made, including reasons for adding or dropping programs.

The department has been collaborating with the School of Medicine in offering a joint M.D./M.P.H. program. We are currently planning to expand this collaboration by offering a joint M.D./Ph.D. program.

3. Honors programs or special courses.

Occupational seminar for physicians, sponsored by NHLBI, February 12 - 15, 1980, Cypress Gardens, Florida (Drs. Tyroler, Shy).

4. Participation in interdepartmental or interinstitutional programs.

Environmental Health Program, in collaboration with the Department of Environmental Sciences and Engineering (Tyroler, Shy).

Mental Health Program, in collaboration with the Department of Biostatistics (Kaplan, James).

Cardiovascular Disease Epidemiology Program, in collaboration with the Department of Biostatistics (Tyroler, Heiss).

Occupational Health Program, in collaboration with the Occupational Health Studies Group of the School of Public Health (Tyroler, Andjelkovich, Checkoway).

M.D./M.P.H. Program, in collaboration with the School of Medicine (Dr. Wagner is the department's liaison).

Off-Campus Program, Fayetteville, through a Master's Program HADM course (Patrick).

Continuing Education Program: "Principles of Public Health" offered twice a year (Ibrahim).

Toxicology curriculum, in collaboration with the School of Medicine, School of Pharmacy (Shy).

Summer Academic Advancement Program of the N.C. Health Manpower Office (Seminar presentation by Dr. James).

In addition to these specific programs, a number of our faculty hold joint academic appointments in the School of Medicine or School of Arts and Sciences, and participate in programs and activities of their secondary department.

## B. Enrollment

### 1. Number of graduate students by:

	<u>Fall 1979</u>	<u>Spring 1980</u>
a. <u>Degree</u>		
Ph.D	26	25
M.P.H.	13	14
M.S.P.H.	<u>14</u>	<u>11</u>
Total	53	50
b. <u>Race/minority classification</u>		
Black male	4	3
Black female	1	1
White male	27	25
White female	17	15
Foreign male	1	2
Foreign female	3	4
c. In-state residency	29	25
d. Out-of-state residency (But within the U.S.)	20	19
e. Foreign students	4	6

### 2. Number of degrees awarded

	<u>Ph.D.</u>	<u>M.P.H.</u>	<u>M.S.P.H.</u>
August 1979	1	4	3
December 1979	3	0	2
May 1980	<u>1</u>	<u>3</u>	<u>0</u>
Total	5	7	5

3. Comments on the quality of students, their career plans and special achievements.

The quality of students in the department is extremely high. Many of them are professional people who have had successful careers before coming to the department for further study. All have demonstrated their exceptional ability in both study and research before coming to the department, and they maintain that standard throughout their enrollment. GRE quantitative scores are above the 80 percentile for those with advanced degrees and above the 65 percentile for those without.

4. Apparent trends in job placement of graduates.

From the calls and letters we receive, our students are in particular demand, and the opportunities are many. In most instances, our graduates can choose the setting they desire, be it postdoctoral study or a career.

Recent graduates from the department have taken positions with the National Cancer Institute, National Institute of Occupational Safety and Health, National Center for Health Statistics, other Departments of Epidemiology and with private research organizations.

5. Minority student enrollment efforts.

We continue to encourage minority individuals to apply for consideration for admission to the Department. By word of mouth and at specific meetings, we acquaint prospective students with the field of epidemiology and with the process and criteria of admission. We have been moderately successful this year in offering admission to 4 minority students who possess good credentials for becoming future epidemiologists.

6. List several of the most significant achievements of majors.

Thomas L. Haney is Guest Reviewer for the Journal of Behavioral Medicine, 1979-80.

Frank J. Hielema was appointed to the Governor's Council on Physical Fitness and Health (1980).

## PUBLICATIONS BY STUDENTS:

Hielema, F.J.: "Epidemiology of the Hip Fracture : A Review with Implications for the Physical Therapist." Physical Therapy, 59 (10): 1221-1225, 1979.

Ewing, J.S., Rouse, B.A. and Aderhold, R.M.: "Studies of the Mechanism of Oriental Hypersensitivity to Alcohol," in Currents in Alcoholism, V, Marc Galanter (Ed.), Grune and Stratton, Inc., N.Y., 45-52, 1979.

Silver, D.F., Ewing, J.A., Rouse, B.A., and Mueller, R.A.: "Responses to Disulfiram in Healthy Young Men : A Double-Blind Study", Journal of Studies on Alcohol, 40 : 1003-1013, 1979.

Ewing, J.A. and Rouse, B.A.: "Corneal Arcus as a Sign of Possible Alcoholism," Alcoholism: Clinical and Experimental Research, 4: 104-106, 1980.

Schmidt, M.I., Hodji-Georgopoulos, A., Rendel, M., Margolis, S., Kowarski, D. and Kowarski, A.: "Fasting Hyperglycemia and Associated Free Insulin and Cortisol Levels in Somogyi-like Patients." Diabetes Care, 2 : 457-464, 1979.

Hodji-Georgopoulos, A., Schmidt, M.I., Margolis, S., and Kowarski, A.: "Elevated Hypoglycemic Index and Late Hyperinsulin in Symptomatic Post Prandial Hypoglycemia." J. Clin. End. Met., 50 : 371-376, 1980.

Blumenthal, J.A., McKee, D.C., Haney, T.L., and Williams, R.V.: "Task incentives Type A Behavior and Verbal Problem Solving Performance," Journal of Applied and Social Psychology. In Press, 1980.

Blumenthal, J.A., McKee, D.C., Williams, R.V., and Haney, T.L.: "Assessment of Conceptual Tempo in the Type A (Coronary-Prone) Behavior Patterns." Journal of Personality Assessment. In Press, 1980.

Williams, R.V., Haney, T.L., Blumenthal, J.A., and Whalen, R.E.: "Type A Behavior, Hostility and Atherosclerosis." Journal of Psychosomatic Medicine. In Press, 1980.

C. Teaching Load of Faculty

First Summer Session 1979:

<u>Instructor</u>	<u>Course Number</u>	<u>Course Name</u>	<u>Total Enrolled</u>	<u>PHO</u>	<u>HU</u>	<u>EC</u>	<u>AS</u>	<u>GRO</u>	<u>Med</u>	<u>Other</u>	<u>Credit Hours</u>
Andjelkovich	EPID 140	Problems in Epidemiology	1	1							2
	EPID 394	Dissertation	1	1							3
Heiss	EPID 392	Major Paper	1	1							3
Ibrahim	EPID 394	Dissertation	1	1							0
James	EPID 140	Problems in Epidemiology	1	1							3
Kaplan	EPID 360	Research in Epidemiology	1	1							3
	EPID 392	Major Paper	1	1							3
	EPID 394	Dissertation	2	2							3
Shy	EPID 140	Problems in Epidemiology	3	2						1	3
	EPID 392	Major Paper	3	2			1				3
	EPID 394	Dissertation	2	2							0
Tyroler	EPID 140	Problems in Epidemiology	2	2							Varies
	EPID 315	Fld. Training in Epid.	10	10							3
	EPID 392	Major Paper	1	1							3
	EPID 394	Dissertation	1	1							Varies
Wagner	EPID 392	Major Paper	1	1							3
	EPID 394	Dissertation	3	3							Varies
Rudnick	EPID 140	Problems in Epidemiology	1	1							3



Second Summer 1979:

<u>Instructor</u>	<u>Course Number</u>	<u>Course Name</u>	<u>Total Enrolled</u>	<u>PHO</u>	<u>HU</u>	<u>EC</u>	<u>AS</u>	<u>GRO</u>	<u>Med</u>	<u>Other</u>	<u>Credit Hours</u>
Andjelkovich	EPID 141	Problems in Epidemiology	2	2							3
	EPID 394	Dissertation	1	1							3
Beaglehole	EPID 141	Problems in Epidemiology	1	1							3
Heiss	EPID 392	Major Paper	1	1							3
Ibrahim	EPID 141	Problems in Epidemiology	2	2							3
	EPID 392	Major Paper	1	1							6
	EPID 394	Dissertation	1	1							0
James	EPID 141	Problems in Epidemiology	2	2							1
	EPID 392	Major Paper	1	1							3
Kaplan	EPID 141	Problems in Epidemiology	2	2							1
	EPID 361	Research in Epidemiology	1	1							3
	EPID 394	Dissertation	1	1							3
Rudnick	EPID 141	Problems in Epidemiology	1	1							3
Shy	EPID 141	Problems in Epidemiology	3	2					1		Varies
	EPID 361	Research in Epidemiology	1	1							3
	EPID 392	Major Paper	1				1				3
	EPID 394	Dissertation	4	4							Varies
Slome	EPID 392	Major Paper	1	1							3

Fall 1979:

<u>Instructor</u>	<u>Course Number</u>	<u>Course Name</u>	<u>Total Enrolled</u>	<u>PHO</u>	<u>HU</u>	<u>EC</u>	<u>AS</u>	<u>GRO</u>	<u>Med</u>	<u>Other</u>	<u>Credit Hours</u>
Andjelkovich	EPID 140	Problems in Epidemiology	1	1							2
Becker	EPID 140	Problems in Epidemiology	1	1							3
	EPID 211	Determinants of Communicable Disease	3	3							2
Heiss	EPID 256 (shared)	Cardiovascular Disease Epid.	17	15			1	1			3
Hulka	EPID 231	Epid. Research in Personal Health Services	14	13			1				3
	EPID 394	Dissertation	1	1							3
Ibrahim	EPID 160 (shared)	Principles of Epid.	39	35	3		1				3
	EPID 394	Dissertation	1	1							0
James	EPID 140	Problems in Epidemiology	1	1							0
	EPID 394	Dissertation	1	1							0
Kaplan	EPID 140	Problems in Epidemiology	2	2							Varies
	EPID 360	Research in Epidemiology	10	10							Varies
	EPID 394	Dissertation	1	1							6
Omran	EPID 140	Problems in Epidemiology	8	7			1				4
	EPID 160	Principles of Epidemiology	218	142	56	2	1	12	5		3
	EPID 161	Population Dynamics/Family Planning Programs	17	17							1
	EPID 234	Research Design	19	18	1						2

Fall 1979 (continued):

<u>Instructor</u>	<u>Course Number</u>	<u>Course Name</u>	<u>Total Enrolled</u>	<u>PHO</u>	<u>HU</u>	<u>EC</u>	<u>AS</u>	<u>GRO</u>	<u>Med</u>	<u>Other</u>	<u>Credit Hours</u>
Patrick	EPID 140	Problems in Epidemiology	1	1							3
Rudnick	EPID 140	Problems in Epidemiology	1	1							4
	EPID 360	Research in Epidemiology	1	1							5
Shy	EPID 160	Principles of Epidemiology	39	35	3		1				3
	(Shared)										
	EPID 276	Advanced Environmental and Occupational Epidemiology	19	18	1						3
	EPID 360	Research in Epidemiology	2	2							3
	EPID 394	Dissertation	5	5							Varies
Slome	EPID 256	Cardiovascular Disease Epid.	17	15			1		1		3
	(Shared)										
Tyroler	EPID 140	Problems in Epidemiology	3	3							Varies
	EPID 256	Cardiovascular Disease Epid.	17	15			1		1		3
	(Shared)										
	EPID 392	Major Paper	1	1							6
	EPID 394	Dissertation	1	1							0
Wagner	EPID 392	Major Paper	1	1							3
	EPID 394	Dissertation	3	3							Varies



Spring 1980 (continued):

<u>Instructor</u>	<u>Course Number</u>	<u>Course Name</u>	<u>Total Enrolled</u>	<u>PHO</u>	<u>HU</u>	<u>EC</u>	<u>AS</u>	<u>GRO</u>	<u>Med</u>	<u>Other</u>	<u>Credit Hours</u>
Checkoway	EPID 267 (Shared)	Occupational Epidemiology	13	13							3
Omran	EPID 141	Problems in Epidemiology	2	2							Varies
Patrick	EPID 141	Problems in Epidemiology	1	1							3
	EPID 170	Epid. of Program Acceptance	3	3							3
Shy	EPID 162	Epid. of Environmental and Occupational Health	61	49	5			1		6	3
	EPID 267 (Shared)	Occupational Epidemiology	13	13							3
	EPID 257	Teaching Experience in Epid.	3	3							4
	EPID 361	Research in Epidemiology	1	1							3
	EPID 394	Dissertation	4	4							Varies
Slome	EPID 164	Epidemiology for Clinicians	2	2							3
Tyroler	EPID 141	Problems in Epidemiology	1	1							3
	EPID 267 (Shared)	Occupational Epidemiology	13	13							3
	EPID 394	Dissertation	1	1							7
	EPID 162	Epid of Envr. & Occup. Health	6					6			3
Wagner	EPID 394	Dissertation	4	4							Varies
Williams	EPID 258	Epid. of Women's Health	5	3				1			3
	EPID 141	Problems in Epidemiology	2	2							Varies

TEACHING LOAD OF FACULTY (Non-Epidemiology Courses)

<u>Instructor</u>	<u>Course Number</u>	<u>Course Name</u>	<u>Total Enrolled</u>	<u>PHO</u>	<u>HU</u>	<u>EC</u>	<u>AS</u>	<u>GRO</u>	<u>Med</u>	<u>Other</u>	<u>Credit Hours</u>	<u>Lecture Hours</u>
S.A. James	SOC 52	Family and Society	65				65				3	2
B.H. Kaplan	SOC 52	Family and Society	65				65				3	2
C.M. Shy	ENVR 133	Environmental Health & the Aquatic Environment	15	15							3	4

## III. RESEARCH PROGRAMS

A. Most important research projects during the year.

CANCER

Effects of Occupational Exposure and Reproduction Functions Among Female Workers. General Health status and reproductive patterns information, on about 250 female production workers in a small plant in Indiana, was collected and partially analyzed. The study has not yet been completed due to some difficulties in getting permission to interview workers in another plant, selected as the comparison group.

Endometrial Cancer and Use of Exogenous Estrogen.

Epidemiologic and laboratory data suggest that the use of estrogen by women during or after menopause may have a carcinogenic effect. A case-referent study has been designed to determine whether or not this association exists in North Carolina. Cases and referent women have been identified from medical records at North Carolina Memorial Hospital. A third set of referent women was obtained from a community sample. Interviews with the patients and record abstracting from their physicians' offices supplied additional data. Preliminary data suggest an overall two-fold excess risk of endometrial cancer with estrogen use. The risk ratios vary greatly for different patient subsets. We are still finishing up and furthering analysis on the Estrogen Project and looking at oral contraceptive use and developing, with Duke University, a project on breast cancer and hormone use.

Initiation of Water Quality and Colon Cancer Case Control.

This project will initiate a case-control epidemiological investigation of the relationship between drinking water quality and colon cancer in North Carolina by identifying and recruiting 300 colon cancer cases and an equal number of control persons from hospital records in North Carolina. In order to do this, a number of approaches to such case findings will be evaluated and discussed in a final report.

Lung Cancer Among Rubber Workers. In order to evaluate the relationship between lung cancer mortality and specific occupational exposure, a case-control study was initiated at eight rubber manufacturing plants. Four controls per case will be selected, two of which will be matched on age, race, sex and plant; while the other two will be matched on these variables and on duration of employment as well. The analysis will involve examination of detailed employment records to determine whether cases were more likely to have worked in specific areas within the industry which may have contained respiratory system carcinogens in the past.

Lymphosarcoma Among Rubber Workers. An excess of lymphosarcoma death rates in Rubber Industry Workers was investigated using a detailed case control analysis of work histories. Workers who had died of either lymphosarcoma or chronic lymphatic leukemia had histories of working in areas with greater potential for exposure to solvents than did the controls. This important work sheds new light on the occupational correlates of these diseases and offers the possibility of prevention of some future cases by environmental control measures.

Mortality of Female Workers, 1964-1973. In an earlier study of female production workers in a rubber manufacturing plant, the all-causes standardized mortality ratio was 103 for the entire cohort of over 1600 workers, based on the age-sex-race comparable U.S. population as a standard. Cause specific analysis showed excesses of deaths due to lung cancer and myocardial infarction, while deficit of deaths from breast cancer was observed in the same cohort. An attempt was made to replicate this study in some other rubber manufacturing plants. Proportional mortality analysis was carried out in 9 other plants and it was found that lung cancer was not in excess in the other plants while deaths from breast cancer was consistent in other plants.

Mortality Surveillance in the Rubber Industry. Annual mortality experience of production workers in 48 plants within four rubber manufacturing companies was analyzed for 1977. A total of 1406 deaths known to have occurred in 1977 among 94,575 active and retired workers was included in this study. All causes and cause specific mortality was analyzed in terms of standardized mortality ratios (SMR's) separately for each sex. Elevated SMR's were observed among males for deaths attributed to cancers of the digestive and respiratory systems. In contrast to our earlier reported findings from retrospective cohort mortality analyses, statistically significant excesses for deaths from lung cancer among males were found in several tire manufacturing plants.

#### CARDIOVASCULAR DISEASE EPIDEMIOLOGY

Effects of Contraceptive Steroids on Blood Pressure.  
National Institute of Child Health and Human Development.  
One thousand women attending Family Planning Clinics in six counties of southeastern Georgia have been enrolled in an incidence study to determine the effect of oral contraceptives on blood pressure. More than sixty percent have been followed at least once during the first 2 years and there is no indication of a rise in the mean diastolic blood pressure.



Evans County Cardiovascular Studies. The Evans County Study is a biracial epidemiologic study of cardiovascular disease in a total community. Initiated in 1960, attempts were made to enroll all of the residents over 40 years of age and a random sample of those between 15 and 39 years of age in a longitudinal study which would span two decades. The study was designed to test an observation made by a primary care physician in his practice, i.e. the rarity of manifestations of coronary heart disease (CHD) in black patients, particularly males, despite markedly elevated blood pressure levels. The major result of the study was the delineation of risk factors for CHD. Numerous publications, dissertations and theses have resulted from analyses of data derived from this study. Current analyses are still being conducted including studies of the relationship of total lipids, lipoprotein cholesterol and lipoprotein apo-proteins to mortality. An issue of the Journal of Chronic Diseases has been elevated to recent findings in this continuing study and is presented as a John C. Cassel Memorial Symposium;

LRC Program. An international study of the epidemiology of lipoproteins and coronary heart disease involving prevalence, family studies, follow-up mortality studies, and a large collaborative coronary prevention trial. Study results to date include population based distributions of lipids and lipoprotein-cholesterol fractions, and the effect of ethnicity, education, occupation, and sex-hormone usage on the population levels of these parameters, (publications in press). Examination of additional determinants of lipid and lipoprotein levels is currently underway (analysis stage). A detailed comprehensive monograph on the population correlates of HDL cholesterol has been completed and will be published shortly.

Pilot Evaluation Studies of High Blood Pressure Control.

Household surveys combined with intervention trials are the only basis for a study of hypertension and its treatment in a rural community. The household survey, started in the winter of 1980, is designed to determine the prevalence of hypertension in the community, current knowledge, attitudes and beliefs about hypertension, and the hypertension medication practices of the population. Randomized intervention trials of mild, moderate and severe hypertensives have been designed to measure efficacy of a variety of modalities which promote adherence to therapeutic regimens. A randomized trial in an industrial sub-population is also planned to test the effectiveness of methods of hypertension control in an occupational setting. A second household survey will be conducted in five years to assess the impact for the various efforts of hypertension control on the community. Data from the original Prospect Hill Health Study will be used for control purposes. A second survey will be conducted in Prospect Hill to determine time trends which cannot be attributed to systematic intervention efforts.

The Prospect Hill Health Study. The Prospect Hill Health Study was an examination of hypertension and antihypertensive drug use with attention focused upon side effects and interactions. Data was gathered by survey techniques from a rural central North Carolina community. Analyses focused on hypertension prevalence, beliefs about hypertension and treatment patterns. Analyses have shown that in the Prospect Hill rural community, there is considerable life style modification being carried out by hypertensives. In particular, there are considerable attempts by known hypertensives to restrict their salt intake, to lose weight, and to reduce their diet.

Secular Trends in Mortality in North Carolina. Recent major decreases in total and cardiovascular mortality in adults is being experienced by all segments of the North Carolina population, blacks as well as whites. This exciting trend of approximately two to three percent reduction per year will be further investigated to distinguish among its possible causes, which include diffusion of risk factor reduction, increased efficiency of medical care, and environmental changes.

#### ENVIRONMENTAL EPIDEMIOLOGY

Analysis of Epidemiological Studies of Air Pollution--Health Effects. Sponsored by the U.S. Environmental Protection Agency, initiated in September 1977, this project has been examining the association between prevalence of chronic disease in adults, incidence of acute respiratory disease in children, and area differences in lung function of children in relation to neighborhood air pollution concentration. Results show a consistent but relatively weak effect of community air pollution of respiratory disease risks.

CHES Studies. CHES, an acronym for the Community Health and Environmental Surveillance System, is a national program which relates community health to changing environmental quality. A series of epidemiologic studies measure simultaneously environmental quality and sensitive health indicators in gradients to common air pollutants. The CHES program seeks to evaluate existing environmental standards, to obtain health data for new standards, and to document health benefits of air pollution control.

The program was initiated by the Environmental Protection Agency (EPA) during the early 1970s. The Institute for Environmental Studies at UNC, through a contractual agreement with EPA, is responsible for the analysis of a large subset of the CHES data. Faculty and staff from the Department of Epidemiology are collaborating with members of the Institute staff in the study.

Health indicators presently under study include pulmonary function in school children, lower respiratory disease in children, acute respiratory disease incidence in families and chronic respiratory disease prevalence in adults.

Cancer Risks in U.S. Atomic Workers. The main objective of this study is to identify the long term effects of low-dose occupational radiation exposures to determine whether occupational radiation exposure standards have allowed the accumulation of detrimental effects of radiation. Sponsored by the U.S. Department of Energy, this study is being conducted in collaboration with the Oak Ridge Associated Universities (Oak Ridge, Tennessee) and with other participating faculty from the Departments of Biostatistics and Environmental Science and Engineering in UNC's School of Public Health. The research design involves mortality studies of large cohorts of workers employed in nuclear facilities and also case-control studies designed to determine the effect of confounding variables, including sources of medical radiation and chemical carcinogens.

Research support services to Clinical Studies Branch, U.S. EPA. Continuing service contract to recruit and provide human subjects for physiologic research.

#### MEDICAL CARE

Comprehensive Stroke Center Program. All hospitalized stroke patients are being followed in 15 counties of eastern North Carolina. The effect of introducing a comprehensive stroke team to provide total care is being measured by length of hospital stay, activity level at discharge, and percentage of patients discharged to home settings.

Development of an Outpatient Functional Status Measure. Multidisciplinary work begun in the fall of 1977 to develop a multi-dimensional health status index, the Duke-UNC Profile (DUHP), was concluded in the spring of 1980. The DUHP is a 74 item index with 4 conceptually distinct health dimensions: (1) symptom status (28 items), (2) physical functioning (15 items), (3) emotional functioning (26 items) and social functioning (5 items). Developmental work was completed on a random sample of approximately 400 patients who visited the Duke Family Medicine Outpatient Clinic over a 6 week period in the fall of 1978. The sample represented both males and females, blacks and whites, and persons of all ages and socioeconomic backgrounds. The research objective was to develop a functional health status measure of high reliability and validity for this (and presumably similar) populations of ambulatory patients. The empirical results of this 2 1/2 year study are currently being summarized and will be submitted for publication in May, 1980.

Evaluation of Rural Primary Health Care Programs. Faculty members in the Department of Epidemiology, in conjunction with the UNC Health Services Research Center, are conducting a national evaluation of different models of rural primary care delivery. The study, which is supported by the Robert Wood Johnson Foundation, is tied to household survey research being conducted by the Department of Health, Education and Welfare. Information helpful in health policy formation is being developed by establishing relationships between the characteristics of services in each type of model and the degree of the model's success in meeting specific social and health goals. The study is examining such outcome variables as service cost, service accessibility, consumer perceptions of care and practice stability, as well as several health indicators.

The Health Hazard Appraisal Study. Health Hazard Appraisal (HHA) is a widely used strategy in health promotion and disease prevention. National mortality data and epidemiologic findings are applied to the individual characteristics of a subject in order to estimate the potential impact of those characteristics (e.g. smoking habits, alcohol intake, exercise patterns) on the individual's life expectancy. The risks and benefits of this approach to motivation are being studied in a randomized clinical trial in conjunction with faculty and staff at the University of Arizona and the UNC Health Services Research Center. In addition, program faculty are involved with colleagues at HSRC in a contract from the National Center for Health Services. Research to assess the scientific basis of HHA, its application around the country and its potential role in health promotion policy.

The Organization, Utilization and Assessment of Primary Medical Care. A collaborative study conducted in Fort Wayne, Indiana with the American Academy of Family Physicians assessed the relative effectiveness of various systems for delivering primary medical care. Two research strategies were used: a household survey which determined the factors which influence entry into the health care system and an indicator case model which measured the impact of medical care on the patient who has entered the system. The entire community of primary care physicians and their patients in Fort Wayne participated in the case model portion of the study which looked at four indicator conditions: pregnancy, infancy, diabetes mellitus and congestive heart failure. Methods of assessment were developed for various cure and care components of medical care including utilization, cost and convenience, physician performance, communication, patient compliance, physician awareness of patient concerns, patient attitudes towards physicians, and functional, symptomatic and disease status outcomes of care.

POPULATION STUDIES

The Arab Populations. Commissioned by the United Nations Fund for Population Activities (U.N.F.P.A.), this project includes the production of a monograph on population problems and prospects in twenty North African and Middle Eastern countries. Using survey materials and data collected from several international sources, the determinants and consequences of fertility trends are being examined. Demographic, social, economic and health profiles already have been formulated, and current population policies of Arab countries are being documented. Long range objectives of the project are to enhance appreciation of the many dimensions of population issues and to encourage population planning.

An Epidemiologic Case for Family Planning in Africa.

Using African demographic and health parameters, this study is examining the health risks associated with unplanned fertility, teenage pregnancy, pregnancy after 35, short birth intervals, multiparity, pregnancy while breastfeeding another child and illegal abortion. The project will clarify the basis for a health rationale in favor of family planning in both Moslem and Christian countries.

Epidemiologic Transition: North Carolina, the U.S. and Several Foreign Countries. Population dynamics and health factors in various communities were described and analyzed in this study. Data collected on infant mortality, life expectancy, fertility, mortality and causes of death in populations were used to identify communities as either classical, accelerated or delayed models of epidemiologic transition. The classical model has been found to be representative of the West, the accelerated model is typically observed in Japan and Eastern Europe and the delayed model encompasses most of the lesser developed countries.

Health Consequences of High Risk Pregnancies in Muslim Women: A Cross-National Maternity Center Study. This study, done in collaboration with the International Fertility Research Program, examined data from maternity records at twelve maternity centers in five Muslim countries as well as similar data from centers in non-Muslim countries in Africa, Asia and Europe. The results of the study, which were presented at the Pan Islamic Conference on Motherhood in Cairo in December 1978, showed that Muslim women are at a high risk of complications before, during, and after labor and that their children bear an equally high risk of mortality.

Reassessment of Fertility Decline Prospects in Egypt. This project, funded by AID, is designed to characterize the population problems in Egypt and their impact on the economic development of the country and to assess the relative role of "Development" versus "family planning" as measures to reduce fertility and slow population growth.

Relative Merits of Family Planning and Development in Reducing Fertility. In this research project the contribution of development and family planning to the direct and immediate reduction of fertility is assessed. A statistical analysis of demographic and social data being collected in 15 countries throughout the world will test the significance of the interaction between mortality, fertility, socioeconomic development indicators and family planning.

WHO Collaborative Study in Nine Countries. This is an ongoing project studying the relationship between family formation patterns and health. The project is being conducted by the WHO International Reference Center for Epidemiologic Studies of Human Reproduction which is located in the Department of Epidemiology. Data being analyzed were collected in India, Lebanon, Iran, the Philippines, Turkey, Syria, Pakistan, Colombia and Taiwan.

#### PSYCHOSOCIAL EPIDEMIOLOGY

Development of an Index to Measure Family Routines. One hundred and four "Family Routines" were rated on an eleven point Thurstone Equal Appearing Interval Scale by a sample (N=260) of Black and White lower and upper income families to determine degree of consensus for a subset of 30-40 routines judged to be important in "keeping families strong." The Family Routines Index will be used in clinical and field based studies as a measure of "social supports" in health research.

In March, 1980 we completed analyses of a 2 year research project to develop an inventory to measure "family routines" - those activities that families engage in over and over on a day to day or week to week basis and which lend a patterning, coherence and predictability to family life. Reliability analyses provided evidence that the 28 item family routines index is quite stable over a 30 day period ( $\rho = +.82$ ,  $p < .001$ ,  $N = 270$ ). Our work on the validity of the instrument shows that index (total) scores are not significantly correlated with the race and income of the family but are somewhat affected by family size, age of oldest child and education of mother. Other analyses suggest that the higher the family routines score, the higher the family's score on the "cohesion" and "organization" subscales of the MOOS Family Environment Scale (FES) and the lower the score on the MOOS "Conflict" Subscale. Collectively, these data suggest that family routine scores may serve as an important behavioral index of the social supports available to family members and may, in essence, be one way families moderate the influences of "Environmental stressors." This research will be presented at the 1980 meetings of the American Psychological Association in Montreal, Canada.

Geriatrics Program. This program has recently evolved in our department in conjunction with the School of Medicine, and is interested in promoting functional capacity, successful aging, and the primary prevention of major ailments of the elderly, as well as the care of the elderly. Many aspects of the above-mentioned programs will be relevant in this area.

The Health of Women and Blacks. Two program faculty (Drs. Williams and James) are currently involved in active research and teaching related to the psychosocial environment of women (Williams) and Blacks (James) as it influences health and health behavior. Their work emphasizes both the potential determinants of disease etiology among these groups and the factors associated with health-relevant behaviors.

Perceptions of Weight and the Socio-cultural Correlates of Obesity. A semi-projective weight perception questionnaire has been developed and pretested on clinically obese patients. Preliminary results suggest that race, education and early childhood experiences predict perceptions of "ideal" body weight and "most healthy" body weight for obese patients. Future data analysis will assess the predictive power of some of the above socio-cultural variables for percent overweight and weight loss over 3-6 months following enrollment in a weight reduction program.

Ponape Study of Health Consequences of Rapid Cultural Change. The development of a Gutterman-type scale of individual modernity among Ponapeans was completed. This measure is associated with deleterious health indicies, such as elevated blood pressure and blood lipids, and obesity, particularly among males in the most modern zone of Ponape.

Replication of the Socio-ecologic Stressor and Hypertension Related Mortality Relationship among North Carolina Non-white Men, 45-54 years old for the 1970 time period. Analysis completed by the author reveal that, contrary to expectation, the James-Kleinbaum Socio-ecologic Stress model for N.C. does not predict excess black mortality from a wide variety of leading causes of death in early and middle adulthood. Whereas the model appears to be especially sensitive to hypertension related mortality, it is much less "sensitive" to deaths attributable to homicide, alcoholism and cancer (all sites combined). Since much of the epidemiologic literature concerning these causes of ill health implicates "urbanization as a potentially key explanatory variable, analysis to be conducted this summer will focus on this factor. To this end, N.C. counties have been categorized by an index of urbanization and, controlling for "% blacks living below poverty levels" (or alternatively, "per capita income of blacks") will assess the association between "urbanization" and mortality among N.C. Blacks from hypertension and stroke, all heart disease, homicide, alcoholism and suicide.

The Social Psychological Aspects of a Controlled Clinical Trial to See the Mortality/Morbidity Effectiveness of Behavior Modification on Type A Behavior in Post-MI Patients. In collaboration with the Harold Brunn Institute of Cardiology, Mt. Zion Hospital, San Francisco, CA. A group at Stanford University is also involved.

OTHER

Clinical Evaluation of Licensed Multiple Puncture Devices for the Administration of Tuberculin. Under a subcontract from the University of Kentucky, this project involves the simultaneous comparison of six multiple puncture devices (MPD) for the administration of tuberculin in an attempt to determine the product with greatest efficiency in the clinical evaluation of tuberculosis. Three subpopulations will be tested, approximately 10,000 people, drawn from schools, health clinics, and hospitals. The Department of Epidemiology will provide consultation concerning the research design, and to provide the data management services. We will also monitor the randomization process of the study populations and analyze and interpret the data. To date, more than half of the proposed 10,000 participants in the study have received dual tuberculin tests.

Hematology Study Among Workers in a Synthetic Rubber Industry. Hematology findings are being correlated with measured levels of chemical exposures. The data are being analyzed now.

Incidence and Severity of Trauma in North Carolina. The feasibility study for a randomized sample of trauma patients entering one community and one referral hospital during 1978 was completed. Plans are underway to conduct the study for all of North Carolina.

Initiation of an Industry-wide Study of Mortality and Relation to Job Experience in the Florida Phosphate Industry. Data are still being collected and processed.

Problems of Epileptics in North Carolina, England and New Zealand. As yet incomplete, the findings raise the problems that epileptics have with the effects from the medications and how they influence their acceptance in society. This includes obtaining employment and the stigmatization by society. It appears this is a constant in all three countries mentioned regardless of the type of health services available in the countries.

The Simulation of Influenza Diffusion. Patterns of influenza transmission through populations of the U.S. are being studied in three past epidemics.



## B. Research or Training Funds Received During the Year.

<u>Title</u>	<u>Completion Date</u>	<u>Funding Agency</u>
Biomed Scientific Research Support	11/30/80	NIH, DRR
Cancer Risk Among Atomic Workers	09/30/80	Oak Ridge Assoc. Univ.
Cardiovascular Epidemiology and Statistics	06/30/80	NHLBI, NIH
Clinical Environmental Research Support Services	2/12/81	EPA
Drinking Water Quality and Colon Cancer	01/31/81	NIH, EHS
Effect of Contraceptive Steroids on Blood Pressure	06/30/80	Hames Clinic
Environmental Epidemiology	06/30/82	NIEHS, NIH
Family Formation and Family Health	ongoing	WHO
Pilot Evaluation Studies of High Blood Pressure Control	05/31/80	NIH, HLBI
Pilot Study of Solar Exposure	03/30/80	EPA
Public Health Special Purpose Traineeship	06/30/80	Bureau of Health Manpower, HRA
Epidemiology Applied to Health Care	06/30/80	HRA, DHEW
Community Health and Air Pollution	08/31/80	EPA
Occupational Safety and Health Education (Epidemiology Section)	06/30/80	Inst. of Occupational Health and Safety
Capitation Funds	09/30/80	PHS, Bureau of Health Manpower, HRA
Clinical Evaluation of Licensed Multiple Puncture Devices for the Administration of Tuberculin	09/28/80	Univ. of Kentucky

Risk of Colon/Rectal Cancer from Polluted Chlorinated Water Sources in N.C.	03/31/80	Biomed Sciences Research Support (BSRG)
Environmental Quality and Birth Defects	03/31/80	BSRG

## C. NOTABLE PUBLICATIONS OF FACULTY

Caroline Becker

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D. Special Major Items of Equipment Obtained During the Year.

During the 1979-80 year, the Department acquired overhead funds for the renovation of 4 trailers on Cameron Avenue and for the purchase of furniture and equipment for the research staff located at the trailers. Funds for equipment were also obtained through the Oakridge Radiation study. The major pieces of equipment obtained are:

Computer Equipment

- 1 Printronix Medium Speed Printer
- 1 Telray CRT
- 1 Tetronix 4052 Plotting CRT
- 1 DEC Writer III (Hardcopy terminal)
- 2 Gandolf LDS 125 Modems
- 2 Gandolf 329 Modems
- 1 TUC acoustical coupler

Microfilm Equipment

We have proposed the purchase of a Cannon 161 G Planetary Camera and a 3M500CR Microfilm reader. Purchase of these pieces is expected by June 1980, pending approval by the University Budget Office and Purchasing Office.

Other Equipment

- TI Programmable Calculator with Statistical Package.

IV. Public Service

A. List of activities by faculty member participating and/or name of program.

Caroline Becker

School of Public Health Activities:

- Member, Administrative Board of the School of Public Health, September 1978 - August 1983.
- Member, Committee to Evaluate the BSPH Program, December 1978 - 1980.
- Member, Program Committee, School of Public Health Alumni Association, 1976 -
- Member, Division of Community Health Service Advisory Committee, 1979 -
- Member, SPH Institutional Review Board on Research Involving Human Subjects, 1979 - 1982.
- Member, Service Task Force, Self-Study Committee, 1979 - 1980.
- Member, Search Committee for Chairman of Department of Parasitology and Laboratory Practice, 1980.

Greater University Activities:

- Elected Secretary-Treasurer, Elisha Mitchell Scientific Society, April 1979 -
- Member, Board of UNC-CH Faculty Club, 1979 - 1982.

Activities at the State Level:

- Consultant, American Heart Association - North Carolina Affiliate, in various research projects and standing committees.
- President, Board of Home Health Agency of Chapel Hill, Inc., 1979 - 1982.

Activities at the National Level:

- Member, the Johns Hopkins University National Alumni Schools Committee, 1979 -
- Coordinator, Joint Center for Disease Control/Association of Schools of Public Health Epidemic Field Investigations, 1980 -

Harvey Checkoway

School of Public Health Activities:

- Served on Self-Study Committee.

Gerardo Heiss

School of Public Health Activities:

- Participant at a School of Public Health Seminar on the Lipid Research Clinics Program.

Activities at the State Level:

- Interaction with the Division of Human Resources on incorporation of lipoprotein cholesterol measurements in a risk profile.

Activities at the National Level:

Staff to the NHLBI Atherosclerosis, Hypertension and Lipid Metabolism Advisory Committee, for the review of certain research proposals.

Barbara S. Hulka

Department Activities:

January 16th presentation at Epidemiology Seminar Series on "The Workings of an NIH Consensus Conference Illustrated by the Conference on Estrogen Use and Postmenopausal Women." Member, Qualifying Examination Committee.

School of Public Health Activities:

Member, Search Committee for faculty position in medical care in Department of Health Administration.

Greater University Activities:

Member, Cancer Data Base Advisory Committee.

Epidemiology participant on Cancer Control Research Grant with UNC Cancer Center.

Epidemiology participant on Verbal Interactions and Health Outcomes by Age Groups grant with UNC Department of Medicine. Presentation at Health Services Research Center on "Methods for Evaluation of Ambulatory Care."

Lecture to 2nd year Medical Students in Medicine and Society in Clinical Epidemiology Section.

Lecture to 1st year Medical Students on "Cancer Epidemiology" in Neoplasia Course.

Lecture to Clinical Scholars on "Communication and Compliance in Taking Prescribed Medications" at UNC Medical School.

Activities at the State Level:

Consultant with Blue Shield/Blue Cross on their utilization study.

Participated in American Cancer Society program for medical students at Duke University on screening for cancer.

Presentation on "Cancer Risk and Non-Risk from Postmenopausal Estrogen Use" at meeting of N.C. Academy of Preventive Medicine at Carolina Inn on 12/7/79.

Activities at the National Level:

Consultant for Sherman Williams on Study of United Mine Workers.

Key consultant for National Institute of Child Health and Human Development on 5-year Research Plan for Contraceptive Evaluation Branch.

Member of Epidemiology and Disease Control Study Section of National Institutes of Health.

Member and President of Delta Omega, the National Honorary Society.

Member, American Epidemiologic Society.

Member, National Academy of Sciences Committee on Epidemiology and Veterans Follow-up Studies.

Member, Society for Epidemiologic Research.

Member, Editorial Board of Health Services Research.  
 Reviewer, Journal of Archives of Internal Medicine; Journal of Annals of Internal Medicine; Journal of American Journal of Public Health; Journal of Community Health; Journal of Medical Care.  
 Presentation on "Estrogens and Endometrial Adenocarcinoma" at Continuing Education Program at University of Tennessee, Memphis, Tennessee on 4/20/79.  
 Presentation at Society for Epidemiologic Research on "Alternative Controls in a Case-Control Study of Endometrial Cancer and Exogenous Estrogen" in New Haven, CT on 6/15/79.  
 Presentation on "Effect of Exogenous Estrogen on Postmenopausal Women: The Epidemiologic Evidence" at the Consensus Conference on Estrogen Use and Postmenopausal Women," National Institute on Aging in Bethesda, Maryland on 9/13/79.  
 Discussant for paper on "Quality of Care Issues in HMOs" at conference sponsored by Abt Associates on "The Performance of Prepaid Health Care in the United States" in Cambridge, Massachusetts on 11/1/79.  
 Presentation on Endometrial Cancer and Exogenous Estrogen in North Carolina at APHA meeting in New York City, November 4-8, 1979.  
 Presentation at Society for Study of Breast Diseases in Philadelphia on 4/19/80.  
 Presentation at University of Maryland on "Effect of Exogenous Estrogen on Postmenopausal Women: The Epidemiologic Evidence" on 5/2/80.  
 Presentation on Methodologic Issues at Sydenham Society in Washington, D.C. on 5/9/80.  
 Presentation on Issues on Quality of Care Assessment at George Washington University in Washington, D.C. on 5/16/80.  
 Presentation at local meeting of the Delta Omega Society on March 21, 1980.  
 Presentation on "Clinical Epidemiology Applied to Pediatric Care" to pediatric residents in Rochester, New York, May 22 and 23, 1980.

Activities at the International Level:

Participant in and presentation on "Quality Assessment of Ambulatory Care" at International Working Conference of the Robert-Bosch Foundation for German researchers in HSR at Ludwigsburg, Germany on 10/4/79.

Michel A. Ibrahim

School of Public Health Activities:

Chairman, Ad Hoc Committee for Self-Study.

Greater University Activities:

Member, Administrative Board, UNC School of Medicine.  
 Member, Occupational Health Studies Group Policy Board.

Activities at the State Level:

Member, Board of Directors, North Carolina Heart Association.  
Member, Board of Directors, North Carolina Public Health Fund.

Activities at the National Level:

Consultant, National Cancer Institute.  
Consultant, National Institute for Aging.  
Editorial Consultant, Journal of Chronic Disease.  
Chairman, Editorial Board, American Journal of Public Health.  
Member, American College of Epidemiology Board of Directors.  
Member, Editorial Advisory Board on the Family Medicine Review.

Activities at the International Level:

Member, U.S. - Egypt Joint Working Group on Health Cooperation, DHEW Development of Health Services Subcommittee.  
Consultant, WHO, Ben Gurion University, Beersheva, Israel.

Sherman A. James

Short Courses

Presentation to Summer Academic Advancement Program,  
July 17, 1979 (an honors program for junior/senior  
college students).

Department Activities:

Member, Department Admission Committee.  
Member, Doctoral Qualifying Examination Committee.  
Coordinator, Departmental Seminar Series, January 1978 -  
January 1979.

School of Public Health Activities:

Self Study Committee Member (Chaired subcommittee which  
conducted two special surveys of the attitudes of minority  
faculty and students toward their experiences in the UNC  
School of Public Health).

Greater University Activities:

Member, Faculty Council, 1978-81.  
Member, Committee on the Status of Black Faculty, 1978-81.

Activities at the National Level:

Member, Editorial Board, Journal of Community Psychology,  
1976-80.  
Member, Editorial Board, Medical Care, 1979-82.  
Editorial Consultant, American Journal of Public Health, 1976 -  
Member, Extramural Training and Orientation Ad Hoc Advisory  
Panel for the Civil Rights Plan for the National Center for  
Health Services Research, 1977-79.  
Consultant, Institute for Urban Affairs and Research (Mental  
Health Research and Development Center), 1977 -  
Member, Action Board, American Public Health Association, 1977-79.  
Member, Advisory Panel for the National Study of Black Mental  
Health, Survey Research Center, University of Michigan, 1978 -

Member at Large, Division 27, American Psychological Association, 1978-79.  
Co-Chair, Membership Involvement Committee, Division 27, American Psychological Association, 1979-81.  
Member, Epidemiology and Quantitative Methods Study Section, National Institute of Mental Health, 1979-81.

Berton H. Kaplan

Department Activities:

Member, Admissions Committee.  
Member, Qualifying Exam Committee.

School of Public Health Activities:

Member, Academic Programs Committee.

Greater University Activities:

Co-coordinator, in Developing a Joint Program in Aging and Medical Care between the Departments of Medicine and Epidemiology.

Activities at the National Level:

Member, Behavioral Medicine Study Section, National Institutes of Health.  
Member, National Advisory Panel on Biobehavioral Issues in the Care of Diabetics, Hypertension, and Depression, Institute of Medicine, National Academy of Sciences.  
Member, Research Advisory Committee, the Psychosocial Issues in the Care of Cancer Patients.  
Ad Hoc Committee on Social Epidemiology and Cancer Control, National Cancer Institute.

Abdel Omran

Department Activities:

Member, Admissions Committee.  
Director, Population Epidemiology Program.

School of Public Health Activities:

Member, Research Committee.

Greater University Activities:

Member, I.P.O.  
Member, CPC Fellow.  
Member, Impact Study Group.  
Member, Collaborated with School of Social Work in application for grant for S.W. Project in Egypt.  
Member, Collaboration with Infra.

Activities at the International Level:

Director, WHO Reference Center for Epidemiologic Studies in Human Reproduction.  
Consultant, World Bank, UNFPA, IFRP.

Member, WHO Expert Panel in Human Reproduction to the Director General.

Conducted a workshop for WHO on Research Design in Human Reproduction, March 1980.

Presented Paper at the Pan Islamic Conference on Motherhood, Cairo, Egypt, December 1978. Health Consequences of High Risk Pregnancies in Muslim Women: A Cross-National Maternity Center Study.

Delivered Keynote Speech at the Fourth International Conference on Voluntary Sterilization, Seoul, Korea, May 1979. Acceptability Dynamics of Male and Female Sterilization.

Member, WHO Steering Committee for Research in Human Reproduction.

Chairman of Scientific Council, International Federation of Family Health.

Member, Scientific Council, International Association for Maternal and Neonatal Health.

#### Ralph Patrick

##### School of Public Health Activities:

Member, Bachelor of Science in Public Health Advisory Committee.

Member, Mental Health Statistics Training Program Advisory Committee.

Member, Committee on Aging.

#### Carl M. Shy

##### Short Courses:

Participated as faculty member in a 4-day short course on occupational epidemiology for industrial physicians, sponsored by the National Heart, Lung and Blood Institute and the American Medical Occupational Association, Cypress Gardens, Florida, February 12-16, 1980.

Presented a one-week course in occupational epidemiology, jointly with Dr. H.A. Tyroler, at the Summer Institute in Occupational Health, sponsored by the UNC Occupational Safety and Health Educational Resource Center, Boone, N.C., July 1979.

##### Department Activities:

Chairman, Admissions Committee.

Department's Equal Employment Opportunity Officer.

##### Greater University Activities:

Chairman, Radiation Safety Advisory Committee.

Member, UNC Environmental Studies Council.

Member, Preventive Medicine Residency Advisory Board.

Member, Advisory Board to the UNC/EPA Cooperative Agreement.

##### Activities at the State Level:

Member, Byssinosis Committee, North Carolina Lung Association.



Activities at the National Level:

Editorial Consultant, Archives of Environmental Health and Journal of Chronic Diseases.  
Member, Toxicology Committee, National Research Council/  
National Academy of Sciences.  
Member, Advisory Committee on Health Effects Research,  
Electric Power Research Institute.  
Cochairman, Health Effects Working Group on Coal Technologies,  
Federal Interagency Committee on Health and Environmental  
Effects of Energy Technologies.  
Chairman, Ad Hoc Panel to Review the U.S. Air Force Proposal  
on an Epidemiologic Study of Agent Orange, Toxicology  
Committee, National Research Council/National Academy of  
Sciences.  
Consultant to Committee on Federal Research on the Effects  
of Ionizing Radiation, National Research Council/National  
Academy of Sciences.

Activities at the International Level:

Consultant to World Health Organization, Environmental  
Pollution Program.

Cecil Slome

Department Activities:

Chairman, Qualifying Examination Committee.

Activities at the State Level:

Member, Planning Committee for Annual Institute of the  
North Carolina Lung Association.  
Member, Professional Advisory Board of the Epilepsy  
Association of North Carolina.

Activities at the National Level:

Presentation at Virginia Medical School in Norfolk, Virginia  
on Cancer Epidemiology.  
Presentation at conference on "Southern Africa: the Year of  
the Child" at the University of Michigan Center for Afro-  
American and African Studies in Ann Arbor, Michigan.

H.A. Tyroler

Short Courses:

Cardiovascular Disease Epidemiology, Graduate Summer Session  
in Epidemiology, University of Minnesota, June-July, 1980.  
Epidemiology Seminar for Occupational Health Physicians,  
NHLBI, DHEW (Health Education Branch), February, 1980.  
Presented a short course on Occupational Epidemiology for  
OHSERC.

Department Activities:

Program Director, Environmental Epidemiology Research Training Grant.  
Program Director, Cardiovascular Disease Epidemiology Research Training Grant.  
Member, Admissions Committee.

School of Public Health Activities:

Epidemiologic Coordinator, Occupational Health Studies Group Policy Board.  
Member, McGavran Award Committee, 1982.

Greater University Activities:

Member, Cancer Center Advisory Committee.

Activities at the State Level:

North Carolina Heart Association.  
North Carolina Department of Human Resources, Division of Health Services, Occupational Health Branch.

Activities at the National Level:

Member, Research Committee, American Heart Association.  
Chairman, Behavioral Aspects Subcommittee, Hypertension Detection Follow-Up Program.  
Member, Medical Care Subcommittee, Hypertension Detection and Follow-Up Program.  
Chairman, Epidemiology Committee, Lipid Research Clinics Program, NHLBI.  
Chairman, Epidemiology Executive Committee, Lipid Research Clinics Program, NHLBI.  
Chairman, Family Studies Committee, Lipid Research Clinics Program, NHLBI.  
Chairman, Family Studies Executive Committee, Lipid Research Clinics Program, NHLBI.  
Chairman, Prevalence Committee, Lipid Research Clinics Program, NHLBI.  
Chairman, Prevalence Executive Committee, Lipid Research Clinics Program, NHLBI.  
Member, Advisory Council, Lipid Research Clinics Program, NHLBI.  
Member, Safety and Data Monitoring Board, Epidemiology Branch, Lipid Research Clinics Program, NHLBI.  
Chairman, Follow-Up Study Executive Committee, Lipid Research Clinics Program, NHLBI.  
Chairman, Follow-Up Study Committee, Lipid Research Clinics Program, NHLBI.  
Member, Chemical Industry Institute of Toxicology Scientific Advisory Panel.  
Member, Policy Advisory Board, Multiple Risk Factor Intervention Trial, NIH.  
Member, Special Panel on Hypertension Clinical Trials, NHLBI, NIH.  
Member, Institute of Medicine, National Academy of Sciences.  
Member, Institute of Medicine, Environment Planning Study Committee.

Activities at the International Level:

- Member, International Agency for Research on Cancer (IRAC).
- Member, US/USSR Steering Committee for Problem Area 1: The Pathogenesis of Atherosclerosis.
- Member, US/Israel Steering Committee, Lipid Research Clinics Program, NHLBI.
- Member, US/Poland Collaboration of CVD, NHLBI.
- Member, International Symposium on Occupational Health in the Rubber Industry, Milan, Italy.

Edward H. Wagner

Department Activities:

- Admissions Committee, Member.

School of Public Health Activities:

- Advisor, M.D.-M.P.H. Program.

Activities at the National Level:

- Consultant, Vanderbilt University Rural Evaluation Project.
- Consultant, W. Kellogg Foundation Health Promotion Disease Prevention.

Carolyn A. Williams

Department Activities:

- In charge of arranging Departmental Seminars.

School of Public Health Activities:

- Member, Institutional Review Board.
- Member, Faculty Search Committee, Department of Public Health Nursing.

Activities at the National Level:

- Member, Publications Board of the American Public Health Association.
- Vice Chairperson, Commission on Research, American Nurses Association.
- Chairperson, Research Advisory Committee, American Nurses Foundation.
- Served on several HEW Research Grant Review Committees and Site Visits: Member (October 1979) Site Visit Team for Comprehensive Cancer Center Application, Division of Cancer Research, Resources and Centers Review and Referral Branch, National Cancer Institute, NIH.
- Member (November, 1979) Ad Hoc Review Panel for Research Projects, Division of Cancer Control and Rehabilitation, National Cancer Institute, NIH.
- Member (November, 1979) Ad Hoc Review Panel for Multipurpose Arthritis Center Applications, National Institute of Arthritis, Metabolism and Digestive Diseases, NIH.
- Member (March, 1980) Review Panel for Nursing Research Emphasis Grants, Division of Nursing, Bureau of Health Manpower, Health Resources Administration, HEW.
- Member, Research Advisory Council, Chronic Disease Care Program, Robert Wood Johnson Foundation.

B. Anticipated Goals or Increases in Public Service Programs in the Future.

A primary function of the faculty of this department is public service from the local to the international level. We expect to continue and expand our current services in response to the public's need for consultations and technical assistance in the health care field. For example, an increased emphasis will be placed on service activities and consultations in the area of occupational epidemiology among North Carolina residents. We have also responded to State needs in offering assistance in infectious disease epidemiology on a small scale, through the efforts of one of our faculty, and the appointment of an adjunct faculty member who specializes in this area.

## V. FACULTY

## A. List of Faculty

## 1. Full-time (\*Joint, Primary appointment in Epidemiology)

Dragana A. Andjelkovich, M.D., M.P.H., Research  
Associate Professor

Caroline Becker, M.D., Associate Professor

Harvey Checkoway, Ph.D., Research Assistant Professor

John T. Fulton, D.D.S., Professor Emeritus

Gerardo Heiss, M.D., Ph.D., Research Assistant  
Professor

Barbara S. Hulka, M.D., M.P.H., Professor

Michel A. Ibrahim, M.D., Ph.D., Professor and Chairman

Sherman A. James, Ph.D., Associate Professor

Berton H. Kaplan, Ph.D., Professor

Abdel R. Omran, M.D., D.P.H., M.P.H., Professor

Ralph C. Patrick, Ph.D., Associate Professor

\*Carl M. Shy, M.D., Dr. P.H., Professor of Epidemiology  
& Director of Institute of Environmental Studies

Cecil Slome, M.B.Ch.B., D.P.H., Professor

Herman A. Tyroler, M.D., Alumni Distinguished Professor

\*Carolyn Williams, Ph.D., Assistant Professor of  
Epidemiology and Associate Professor of Nursing.

## 2. Part-time

Gory J. Love, D.Sc., M.P.H., Research Associate  
Professor

## 3. Visiting

None

## 4. Joint

Edward H. Wagner, M.D., M.P.H., Associate Professor  
of Medicine and Associate Professor of Epidemiology

David G. Kleinbaum, Ph.D., Associate Professor of  
Biostatistics.

## 5. Adjunct and Clinical

James W. Begun, Ph.D., Adjunct Assistant Professor

Steven B. Blum, Ph.D., Adjunct Assistant Professor

Stephen N. Brown, M.D., M.P.H., Adjunct Associate  
Professor

Lawrence M. Cutchin, M.D., Clinical Associate Professor

Gordon DeFriese, Ph.D., Clinical Associate Professor

Robert H. Fletcher, M.D., Clinical Associate Professor

Suzanne W. Fletcher, M.D., Clinical Associate Professor

H. Hugh Fundenberg, M.D., Adjunct Professor

Stephen H. Gehlbach, M.D., M.P.H., Adjunct Assistant Professor  
Kathryn M. Habib, Ph.D., Adjunct Assistant Professor  
Curtis G. Hames, M.D., Clinical Professor  
Carl G. Hayes, Ph.D., Adjunct Associate Professor  
Siegfried H. Heyden, M.D., Ph.D., Adjunct Professor  
Michael D. Hogan, Ph.D., Adjunct Assistant Professor  
Joan C. Huntley, Ph.D., Adjunct Associate Professor  
Eugene S. Mayer, M.D., M.P.H., Adjunct Associate Professor  
J. Newton MacCormack, M.D., M.P.H., Adjunct Associate Professor  
Melinda S. Meade, Ph.D., Adjunct Assistant Professor  
George R. Parkerson, M.D., M.P.H., Adjunct Assistant Professor  
Samuel M. Putnam, M.D., Adjunct Assistant Professor  
Walter J. Rogan, M.D., M.P.H., Adjunct Assistant Professor  
Fredric J. Romm, M.D., M.P.H., Adjunct Assistant Professor  
Seth A. Rudnick, M.D., Clinical Assistant Professor  
Michael R. Swift, M.D., Clinical Professor  
Allen J. Wilcox, M.D., Ph.D., Adjunct Assistant Professor  
Gregg S. Wilkinson, Ph.D., Adjunct Associate Professor

B. Changes during the year

1. Additions

Steven B. Blum, Ph.D., Adjunct Assistant Professor  
Lawrence M. Cutchin, M.D., Clinical Associate Professor  
Gordon DeFriese, Ph.D., Clinical Associate Professor  
Kathryn M. Habib, Ph.D., Adjunct Assistant Professor  
J. Newton MacCormack, M.D., M.P.H., Adjunct Associate Professor  
Allen J. Wilcox, M.D., Ph.D., Adjunct Assistant Professor

2. Promotions

Dragana A. Andjelkovich, M.D., M.P.H., Research Associate Professor  
Caroline Becker, M.D., Associate Professor  
Sherman A. James, Ph.D., Associate Professor  
Herman A. Tyroler, M.D., Alumni Distinguished Professor

3. Miscellaneous Changes

None

4. Leaves

None

5. Losses

Robert Beaglehole, M.Sc., M.R.C.P., M.B.,Ch.B.,  
Visiting Assistant Professor (Resignation)

C. Proposed Additions to Faculty by:

1. Number: 5
2. Rank: Research Assistant Professor (2)  
Adjunct Professor (1)  
Adjunct Associate Professor (1)  
Assistant Professor\* (1)
3. Specialization: Cardiovascular Epidemiology (2)  
Environmental Epidemiology (2)  
Clinical Epidemiology\* (1)

\*Effective July 1, 1980, Dr. Seth Rudnick's appointment will change from Clinical Assistant Professor to Assistant Professor held jointly with the Department of Medicine as the primary appointment base.

D. Special Achievements of Faculty

Caroline Becker

Received the Founder's Award from the American Heart Association, North Carolina Affiliate (1979).  
Selected for membership in Delta Omega, Theta Chapter (1980).

Sherman A. James

Elected to membership in the Epidemiology and Quantitative Services Study Section, National Institute on Mental Health (1979-1981).  
Awarded a Pogue Leave for the next fiscal year (1980-81).

Michel A. Ibrahim

Re-elected to the ~~AHA~~-NC Affiliate Board of Directors (1979-1982).  
In conjunction with the WHO, requested to consult with members of the Medical School faculty of Ben Gurion University in Israel on developing the curriculum in Epidemiology.

Abdel Omran

Received the Medal of Recognition for meritorious contribution to the work and direction of the World Health Organization over the last 10 years by a scientist who is not on the regular staff of the WHO (March 1980, Geneva).  
Developed the theory of epidemiologic transition.  
Introduced the health theme in family planning.  
Led the World Health Organization studies of family formation patterns and health.

H.A. Tyroler

Elected to membership of the Institute of Medicine, National Academy of Sciences.  
Named Alumni Distinguished Professor of the University of North Carolina.



E. Special Assignments of Faculty

Michel A. Ibrahim

Chairman of the Review Committee of the Graduate Epidemiology Program at the University of Pennsylvania.

H.A. Tyroler

Editor of the Journal of Chronic Diseases for a special issue devoted to recent findings in the Evans County Cardiovascular Study, which is presented as a John C. Cassel Memorial Symposium.

Editor of Circulation for a detailed comprehensive monograph on the population correlates of HDL cholesterol in the Lipid Research Clinics program, which will be published shortly.

VI. SPECIAL PLANS, PROBLEMS, DEPARTMENTAL DISTINCTIONS, DEVELOPING TRENDS AND OTHER MATTERS OF IMPORTANCE.

The Department continues to enjoy its National and International reputation as one of the leading institutions in the field of Epidemiology. We can only admit a small fraction of the large number of applicants to our graduate program. A high percentage of those offered admission accept our offer. Our department is the only Department of Epidemiology in the country which has an organized program in Health Services Research and Clinical Epidemiology. We have expanded the area of investigation in Cancer Epidemiology by studying health effects of exposure to low-level ionized radiation, and applied for a training grant to support 4-5 postdoctoral students. In collaboration with State and local governments, the Department is embarking on a systematic program for the control of hypertension in rural areas, and subsequently in the state as a whole. The Department is developing a Quantitative Group made up of biostatisticians and epidemiologists who will strengthen the department's offerings in epidemiologic research methods. In response to the needs of the State we are beginning to break into the area of infectious disease epidemiology through the appointment of J. Newton MacCormack of the Communicable Disease Control Branch of the North Carolina Division of Human Resources and appointment of a faculty representative to coordinate the public service activities (Dr. Becker).