DEPARTMENT OF EPIDEMIOLOGY
ANNUAL REPORT
July 1, 1970 - June 30, 1971

I. Major Developments and Trends

The Evans County Study

During the previous year several of the faculty and staff members have devoted considerable effort and time in the analysis of the data of the Evans County Study. This study has been the result of combined efforts of the Department, the Evans County Georgia Health Department and several individuals from Duke University Medical School and elsewhere. Briefly the study includes a community wide surveillance (1960-62) and prospective (incidence) study (1967-69) of Cerebo- and Cardiovascular Disease. The data has been rigorously analyzed and seventeen papers have been prepared which will be published in a special issue of the Archives of Internal Medicine. While the monograph itself has not been published, it is important that the work on this project which was completed during this year be recognized.

Psychological Correlates of Coronary Heart Disease Risk Factors

The proposed project is the continuation of a program of research whose goals are to identify, objectify, and quantify those behavioral factors which influence risk of developing coronary heart disease (CHD). This project acts as a behavioral science satellite to ongoing medical research, and hence does not maintain its own study populations or conduct its own medical surveillance. This behavioral science team presently consults or collaborates with the study directors of 13 projects involving about 5800 men in longitudinal studies of CHD and cross-sectional studies involving CHD risk factors. All these men have taken the Jenkins Activity Scale (JAS), the self-administered, computer-scored test questionnaire which measures the coronary-prone behavior pattern of Friedman & Rosenman. Many have also taken other psychological tests and reported sociological data. Objectives of the project are (1) to develop and refine instruments predictive of those components of CHD risk not predictable through biological measures; and (2) to identify and quantify those behavioral variables which are related to the various traditional risk factors to CHD, such as serum lipids, blood pressure, smoking habits, etc.

These procedures should yield two kinds of benefits: (1) Increased ability to detect the coronary-prone man in mass epidemiologic screening programs. This preventive effort would have a much more favorable cost-benefit

Psychological Correlates of Coronary Heart Disease Risk Factors - Continued

ratio than, for example, the establishment of coronary care units. (2) Increased understanding of the behavioral dynamics underlying atherosclerosis and its damaging complications. This may permit increasing the comprehensiveness and effectiveness of CHD-prevention programs, most of which are now limited to dealing with diet and exercise.

Trace Element Concentrations in Autopsy Tissues of Exposed Population Groups

This study is designed to determine human tissue concentrations of cadmium, copper, iron, lead, lithium, mercury, selenium, and zinc in the appropriate organ tissues of deceased residents from areas in North Carolina having contrasting cardiovascular mortality rates.

A number of previous studies have been shown varying relationships between coronary risk factors and certain trace elements. The significance of this study will be to provide a new category of data to support various environmental theories.

A high excess of cardiovascular mortality has been persistently found in the rural counties of eastern North Carolina. The possibility that for instance cadmium exposure, through fertilizer and pesticide applications in the agricultural eastern counties, accounts for this excess has been hypothesized. Such a situation may be aggravated by the leaching of essential trace elements from the soil of the eastern counties, which may promote trace metal imbalance in the biosphere, reflected in the human intake via local foods and drinking water. These disparities should be manifested in the organ tissues of residents from each area. An association between the excess cardiovascular mortality and high concentrations of certain trace elements in deceased residents of this area would provide evidence for a casual relationship and could provide important clues to environmental health monitoring.

ANNUAL REPORT

DEPARTMENT OF EPIDEMIOLOGY

July 1, 1970 - June 30, 1971

II. ORGANIZATION

A. FULL-TIME FACULTY

John C. Cassel, M.B.B.Ch., M.P.H., Professor and Chairman
Caroline Becker, M.D., Assistant Professor
Frank Cordle, M.P.H., Ph.D., Assistant Professor
Joan C. Cornoni, M.P.H., Ph.D., Assistant Professor
John T. Fulton, D.D.S., Professor
Barbara S. Hulka, M.S., M.D., M.P.H., Assistant Professor
C. David Jenkins, M.A., Ph.D., Professor
Berton H. Kaplan, M.S., Ph.D., Associate Professor
David Kleinbaum, Ph.D., Assistant Professor
Abdel R. Omran, M.D., D.P.H., M.P.H., Dr.P.H., Associate Professor
Ralph C. Patrick, Jr., A.M., Ph.D., Associate Professor
Philip S. Spiers, Ph.D., Assistant Professor
Cecil Slome, M.B., Ch.B., D.P.H., Associate Professor
Herman A. Tyroler, M.D., Professor
A. Wouter Voors, M.D., M.P.H., Dr. P.H., Assistant Professor
Stephen J. Zyzanski, M.S., Ph.D., Assistant Professor

B. PART-TIME FACULTY

Felix J. Gruber, M.D., Instructor (Sept. 1970-May, 1971)

C. VISITING FACULTY

Robert W. Buechley, M.A., M.P.H., Ph.D., Adjunct Assistant Professor
John F. Finklea, M.D., Cert. in Trop. Med., Dr.P.H., Adjunct Associate Professor
Curtis G. Hames, M.D., Visiting Associate Professor
Douglas I. Hammer, M.D., M.P.H., Adjunct Assistant Professor
Carl G. Hayes, M.P.H., Ph.D., Adjunct Assistant Professor
Siegfried Heyden, M.D., Priv. Docent, Adjunct Associate Professor
Michel A. Ibrahim, M.B.B.Ch., M.P.H., Ph.D., Adjunct Associate Professor
Charles V. Mercer, Ph.D., Adjunct Associate Professor
Vaun A. Newill, M.D., Adjunct Associate Professor
Ian A. M. Prior, M.D., Professor
Mark S. Shuman, Ph.D., Visiting Assistant Professor
Carl M. Shy, M.D., Dr.P.H., Adjunct Assistant Professor
Richard A. Tjalma, D.V.M., M.S., Adjunct Associate Professor
Carolyn A. Williams, M.S., Ph.D., Adjunct Assistant Professor
Joe D. Wray, M.D., M.P.H., Adjunct Associate Professor

D. JOINT APPOINTMENTS

Claude W. Drake, D.D.S., M.P.H., M.S., Assistant Professor
Lawrence L. Kupper, Ph.D., Assistant Professor

E. OTHER ACADEMIC PERSONNEL

Phillip N. Gallagher, B.A., Research Assistant
Carol C. Hogue, R.N., Research Assistant
Jo E. Maready, B.A., Research Associate
Shirley J. Thompson, R.N., Graduate Assistant
Roger L. Ward, Ph.D., Graduate Assistant
Ervin H. Young, M.S., Graduate Assistant

V. INSTRUCTIONAL ACTIVITIES

During the current year, there have been 32 students majoring in the field of epidemiology. One of these students completed the requirements for the Dr.P.H. degree and two for the Ph.D. in August, 1970. One student completed the requirements for the MPH degree in January, 1971. Two students completed the requirements for the MSPH degree and one for the MPH degree in June, 1971. Two students will complete the requirements for the MSPH degree and nine for the MPH degree in August, 1971. Four students have finished all course work for the Ph.D. degree, and are working on their dissertations.

Number of Courses Given. 21
Number of Majors in Department 32
- MSPH 4
- MPH. 11
- Dr.P.H. 4
- Ph.D. 12
- Non-Degree . . . 1

Total Enrollment in Department Courses 521

A. Enrollment of major students:

Fall, 1970 (4MSPH, 11 MPH, 4 Dr.P.H., 12 Ph.D., 1 Non-Degree). 32
Spring, 1971 (4 MSPH, 10 MPH, 4 Dr.P.H., 10 Ph.D., 1 Non-Degree) 29
Summer, 1971 (estimated: 2 MSPH, 8 MPH, 3 Dr.P.H., 14 Ph.D., 1 Non-Degree) 28

Men (1 MSPH, 7 MPH, 2 Dr.P.H., 6 Ph.D.). 16
Women (3 MSPH, 4 MPH, 2 Dr.P.H., 6 Ph.D., 1 Non-Degree). . . . 16

Undergraduate. 0
Graduate (4 MSPH, 11 MPH). 15
Doctoral (4 Dr.P.H., 12 Ph.D.) 16
Non-Degree 1

Place of Residence:

North Carolina. 14
Southern States 6
- Alabama. 1
- Maryland 2
- Missouri 1
- Virginia 2

Other States. 9
- Connecticut. 1
- Illinois 1
- Massachusetts. 1
- New York 3
- Ohio 3

Other Countries 3
- Iran 1
- Thailand 1
- Chile. 1

Courses offered in the Department of Epidemiology and enrollment:

Course Number	Title	Enrollment
140	Problems in Epidemiology	28
141	Problems in Epidemiology	12
160	Principles of Epidemiology	202
161	Epidemiology in Population Dynamics and Family Planning Programs	31
162	Epidemiology in Environmental Health	42
168	Behavioral Science Measurement in Health Programs and Research	18
211	Determinants of Communicable Disease	4
230	Applied Methods in Epidemiology and Health Services Research	12
231	Measurements of Quality in Medical Care	7
260	Epidemiological Foundations for Disease Control Programs	7
261	Dental Epidemiology	3
262	Epidemiology of Program Acceptance	26
264	Culture and Health	11
265	History of Epidemiology	14
266	Epidemiological Investigation	24
287	Statistical Methods in Epidemiology	4
315	Field Training in Epidemiology	10
360	Research in Epidemiology	14
361	Research in Epidemiology	1
393	Masters Thesis	20
394	Doctoral Dissertation	30

B. Degrees estimated through August, 1971:

	Ph.D.	Dr.P.H.	M.S.	MPH	MSPH	TOTAL
January				1		1
June				1	2	3
August				9	2	11

C. Environmental Epidemiology Research Training Program

This program will train doctorates in epidemiology competent to research environmental health problems. The training experience will be individualized for each candidate and will be research problem oriented. It will draw on the professionals, facilities, and research training resources of the University of North Carolina, the National Air Pollution Control Administration, the National Institute of Environmental Health Services, the Division of Occupational Health of the North Carolina State Board of Health and other research workers and field opportunities in Environmental Epidemiology.

The epidemiological inquiries would be of two major types: those concerned with studying the health consequences of exposure to various combinations of environmental agents, and those concerned with identifying the antecedent determinants of various manifestations of ill health. This program will be geared toward new research strategies

which take into account three major concepts (1) the need to conceptualize, identify and measure the health effect of multiple factors acting in synergistic or antagonistic fashions rather than continuing to examine the effects of single agents taken one at a time (2) the need to give greater consideration to the determinants of individual variations of response both within and between populations, particularly to the role of social factors in increasing or decreasing susceptibility to environmental insults (3) the need to develop indicators more sensitive and more subtle than current mortality and morbidity rates.

D. Health Services Research Training Program

This training program is being developed primarily for two types of students, professional health workers and social scientists. Students will have the option of enrolling in a four year Ph.D. or Dr. P.H., a two year master's program, or a residency program directed jointly with the Department of Preventive Medicine at UNC Medical School.

The goals of this program are, broadly, to integrate the social and health sciences in an epidemiological framework particularly emphasizing the application of epidemiological skills in evaluating health services delivery. More specifically there are four areas which have been developed relevant to this program: (1) Community Diagnosis, which includes determining (a) the extent and trends of health and social problems in a community, and (b) the existing attempts to remedy these problems (2) Determinants of Utilization and Compliance (3) The Effectiveness and Efficiency of the Delivery of Health Care, including the impact of the health services on the total community as well as the utilizers and (4) Methodological skills appropriate for these analyses.

The program's opportunities for students are considerable and are based on an educational philosophy of active collaboration between students and faculty. As such, arrangements with the UNC Health Services Research Center, Duke University and the laboratories and Computation Center at the Research Triangle Institute provide collaborative research opportunities for students. In addition, there are ten courses and research seminars offered by the Department of Epidemiology which provide interdisciplinary learning experiences. Particularly valuable to Health Services Research trainees are the additional educational experiences of participation in teaching and assisting in research consultation. The latter experience gives the senior student a chance for direct application by working with a faculty member on evaluating a specific ongoing program of agencies within the state. These program descriptions are brought to Chapel Hill by key staff members of the agencies and with them the students attempt to abstract the information necessary for subsequent evaluation. This process includes specifying the objectives of the program in operational terms, making explicit the conceptual framework upon which the program is based, identifying the indices to be used to assess changes, determination of the types of data to be gathered, the methods by which these data will be gathered, and the methods of

analysis to be used. Following this the staff member returns to the agency and over a period of one year puts the evaluation plan into effect. During this period the student is available to go to the field for consultation and provide guidance should trouble arise.

E. Training Program in Alcohol Studies:

This is a proposal for support of a ~~five~~ three year program for research training on the use of alcohol. This program would be unique from several perspectives. First, the approach will be comprehensive and multidisciplinary with emphasis on the fact that problems related to alcohol use do not exist in mutually exclusive categories, but instead are complex interactions of factors in many different areas. ~~Thus, in addition to the joint sponsorship of this program by the Departments of Mental Health and Epidemiology (both within University of North Carolina School of Public Health),~~ this multidisciplinary approach will include faculty from the Departments of Psychology, Psychiatry, Medicine Pharmacology, Anthropology, Sociology, Health Education Health Administration Education, Law, Nursing and additional interested people participating in work in alcohol related areas.

Secondly, the program itself is unique in that we know of no other total program which offers training on alcohol use and problems, an area of immense social importance and concern. The program will offer an M.P.H. or M.S.P.H. degree. Two other areas of emphasis within this program will be studying individual variability within the subgroups associated with certain drinking behavior and the development of new methodological approaches for obtaining valid answers to questions concerning the use of alcohol. The latter would include development of more precise sociological instruments predictive of alcoholic behavior and consumption, development of quantitative estimates of blood alcohol in relation to the amount consumed, and development of indices for measuring the amount of frequency of alcohol consumption.

Finally, although we expect to examine alcohol use in a variety of social and cultural settings, emphasis will be on American practices and, within that topic, a special emphasis on the Southern United States.

VI. DEPARTMENT ACTIVITIES IN THE GREATER UNIVERSITY

Dr. Cassel

Member of Advisory Board, Institute for Environmental Health Studies, University of North Carolina, 1968-Present.
Chairman, Committee on Group Biology, Medical School Curriculum Review, University of North Carolina, 1968-Present.
Member, Faculty Council.

Dr. Becker

Member, Faculty Council.
Member, Health Sciences Library Committee.

Dr. Cornoni

Member, Executive Committee of the Center for Alcohol Studies.

Dr. Hulka

Member, Faculty Council.

Dr. Kaplan

Member, Chancellor's Consultative Forum.
Director, Department of Mental Health-Law School Seminar Series on Law and Social Ecology.
Member, Governor's Task Force on Aging.

Dr. Tyroler

Principal Investigator, Research Program in Health Consequences of Space Age Activities.
Member, Faculty Council.

VII. DEPARTMENTAL SERVICES

Dr. Cassel

Associate Editor, American Journal of Epidemiology.
Consultant, Division of Environmental Health Sciences, National Environmental Health Sciences Center, 1966-Present.
Consultant, National Institute for Mental Health, 1965-Present.
Consultant, U.S. Public Health Service (Cooperative Drug Study in Hypertensive Disease), 1967-Present.
Consultant, World Health Organization, 1966-Present.

Dr. Cornoni

Membership Committee, North Carolina Public Health Association.

Dr. Fulton

Member, National Public Health Training Council of the National Institute of Health.

Dr. Jenkins

Appointed member of the Editorial Board of Psychosomatic Medicine, the Journal of the American Psychosomatic Society.
Elected Delegate from the AHA Council on Epidemiology to the American Heart Association Assembly.
Epidemiological and Psychological Consultant to the Western Collaborative Group Study (Cardiovascular) and The Harold Brunn Institute, Mount Zion Hospital and Medical Center, San Francisco.
Licensed as a Practicing Psychologist by North Carolina State Board of Examiners of Practicing Psychologists (under new law).

Dr. Kaplan

Member, Research Advisory Committee of the American Nurses' Foundation.

Dr. Omran

Member, Group of Writers in "Consequences of Population Change," for the National Academy of Science.

Dr. Tyroler

Chairman, Epidemiologic Panel of Consultants and Consultant to the National Center for Health Services Research and Development, U.S.P.H.S.
Epidemiologic Consultant, Member of the Board of Directors, Members of the Executive Committee, North Carolina Regional Medical Program.
Task Force on Community Blood Pressure Intervention Studies, National Regional Medical Program.
Member, Research Training Grants Committee, Community Health Services, U.S.P.H.S.
Member, Health Services Research Training Grants Committee, U.S.P.H.S.
Member, Study Section on Records Linkage, National Center for Health Statistics, U.S.P.H.S.
Member, Executive Committee, Society for Epidemiologic Research.
Member, International Epidemiological Association, Incorporated.
Consultant to Health Information System, D.I.H., Sells, Arizona.
Consultant OPSAM, Division Indian Health, U.S.P.H.S.
Consultant to the Director, Division of Occupational Health, N.A.S.A.
Consultant to Occupational Health Director of the New York Times.
Member, Community Service and Education Committee, North Carolina American Heart Association.
Fellow, Council on Epidemiology and Member of Committee on Medical Education, National American Heart Association.
Participant in creating the Orange-Chatham County Community Health Program.

VIII. RESEARCH PROJECTS

Dr. Cassel

Cardiovascular Disease Epidemiology--Evans County.
Health Consequences of Rapid Culture Change.
Health Services Research.
AAGP Study of Primary Care.

Dr. Cordle

Improvement of Primary Medical Care in a Teaching Institution.
AAGP Study of Primary Medical Care.

Dr. Cornoni

Evans County Heart Study.
Nursing Evaluation Program.
Alcoholic Study in Epidemiology.

Dr. Hulka

AAGP Study of Primary Health Care.
Health Services Research.
Cervical Cancer.
Abortion Studies.

Dr. Jenkins

Member, Board of Editors, Psychosomatic Medicine
Chairman, Behavioral Science Group, UNC School of Public Health
Consultant, Western Collaborative Group Study and the Harold Brunn Institute, San Francisco.
Principal Investigator, "Behavioral Factors in Coronary Heart Disease," funded by U.S.P.H.S.
Principal Investigator, "Psychological Factors in Coronary Heart Disease Risk Factors," funded by the American Heart Association and North Carolina Heart Association.
Member, Epidemiology & Disease Control Study Section, National Institute of Health.
Member, Ad Hoc Review Panel for Specialized Centers of Research in Atherosclerosis, National Heart & Lung Institute.
Consultant, World Health Organization Study of Risk Factor Control in Communities.

Dr. Kaplan

Sociologist, Evans County Study of Cardiovascular Diseases.
Study of a Comparison of Blacks and Whites in a Rural Southern Community.

Dr. Kleinbaum

Estimation and Hypothesis Testing for Generalized Multivariate Linear Models.
Statistical Analysis, Evans County Heart Disease Project.
Pregnancy Termination Study.

Dr. Omran

Near East Project. (AID supported)
Community Medicine Project (NIH supported)
Epidemiologic Transition.
Epidemiology of Abortion.
WHO Epidemiology Studies in Human Reproduction.
Radiation Effects and Mental Illness.
International Pregnancy Termination Study.

Dr. Patrick

Culture Change and Blood Pressure Studies in Ponape.

Dr. Slome

Prediction of Dropouts from School of Nursing.
Factors Associated with Chronic Inflammatory Intestinal Disease.
Mental Health of Students.

Dr. Spiers

Birth Interval and Stillbirth Rate.
Sex Ratio by Age in Childhood Malignancies.
The Distribution of Multiple Sclerosis in North Carolina.
The Effects of Birth Order and Mothers' Age on Mortality in the First Year of Life

Dr. Tyroler

Evans County Heart Study.
Epidemiology of Health Services Research.
Health Consequences of Industrialization.
Canton Heart Study.

Dr. Voors

Water Chemistry and Atherosclerotic Heart Disease
Animal experimentation on Trace metals and Atherosclerotic Heart Disease

Dr. Zyzanski

Behavioral Factors in Coronary Heart Disease
AAGP Study, Evaluation of Health Services
Nursing Evaluation

IX. PUBLICATIONS

1. Cassel, J.C., R. Cheradame, J.R. Goldsmith, J.M. Ham, J.J. Harrington, E.J. Holstein, B. Kesic, J.A. Logan, and F. Malz. "The Epidemiological Study of Noncommunicable Diseases." From Part III, The Education and Training of Engineers for Environmental Health, pp. 90-96. World Health Organization, 1970.

2. Cassel, J.C. "Physical Illness in Response to Stress" in Social Stress, Sol Levine and N.A. Scotch (eds.). Aldine Press, 1970, Chapter VII.

3. Hulka, B.S. "The Implication of Punch Biopsy and Conization in Diagnostic Procedures Following Abnormal Cervical Smears," Obstetrics and Gynecology, Vol. 36, No. 1, July 1970, 54-61.

4. Hulka, B.S., S.J. Zyzanski, J.C. Cassel, and S.J. Thompson. "Scale for the Measurement of Attitudes Toward Physicians and Primary Medical Care," Medical Care, Vol. 8, No. 5, Sept. - Oct. 1970, 429-436.

5. Kaplan, B.H. "The Adaptive Sentiments of a Lower Class Religious Group in Appalachia" in Urbanization of Rural Schools, George Henderson (ed.). University of Oklahoma Press, 1970.

6. Kaplan, B.H. "A Non-Weberian Model of Bureaucracy: The Case of Development Bureaucracy" in Social Work Administration: A Source Book. Council on Social Work Education, 1970.

7. Kaplan, B.H. (ed.) (in collaboration with Alexander H. Leighton, Jane M. Murphy, and Nicholas Freydberg). Psychiatric Disorder and the Urban Environment. New York: Behavioral Publications of Columbia University Press, 1970.

8. Ibid. Chapter 1, "Introduction."

9. Ibid. Chapter 6, "Seminar Assessment of the Integration-Disintegration Framework.

10. Ibid. Chapter 7, "Urban Residential Indicators of Integration-Disintegration."

11. Ibid. Chapter 10. "Job-Cultures and Mental Health."

12. Ibid. Chapter 11, "The Community Approach in the Urban Areas."

13. Ibid. Chapter 12, "Concluding Remarks."

14. Kaplan, B.H. Blue Ridge: An Appalachian Community in Transition. Morganton: University of West Virginia Press and Center for Appalachian Studies, 1970.

15. Kaplan, B. H. Social Disorganization and Poverty, Ency. Social Work

16. Roman, Paul and Harrison Price (ed.). Psychiatric Epidemiology, Social Integration Disintegration Hypothesis. Psychiatric Sociology. New York Science House, 1971.

17. Kaplan, B.H. Perspectives on Psychiatric Sociology. New York: Science House, 1970. Chapter on "Psychiatric Sociology."

18. Spiers, P.S. and D. Quade. "On the Question of an Infectious Process in the Origin of Leukemia," Biometrics, 26, 1970 723.

19. Spiers, P.S., L.H. Kuller, et al. "Nationwide Cerebravascular Disease Morbidity Study," Stroke, 1, 1970, 86.

20. Spiers, P.S. Letter to the Editor. "Sex Ratio by Age in Childhood Malignancies." Accepted for publication in J. Chronic Dis. (1970).

21. Tyroler, H.A. "Epidemiologic Studies of Cardiovascular Diseases in Southeastern Communities: Evans County, Georgia, Charleston, South Carolina and the State of North Carolina" in The Community as an Epidemiologic Laboratory: A Casebook of Community Studies, Irving I. Kessler, M.D. and Morton L. Levin, M.D. (eds.). Baltimore, Maryland: Johns Hopkins University Press, 1970.

22. Tyroler, H.A. "Conceptual Issues in the Classification of Disease in the Analysis of Medical Care Utilization Behavior" in Conceptual Issues in the Analysis of Medical Care Utilization Behavior, Merwyn R. Greenlick, Ph.D. (ed.). Rockville, Maryland: NCHSRD, 1970.

23. Voors, A.W. and G.T. Stewart. "Is Disability in Marine Recruits Associated with the Instructing Personnel?" American Journal of Epidemiology, 91, March 1970, 273-277.

24. Voors, A.W. "Lithium in the Drinking Water and Atherosclerotic Heart Death: Epidemiologic Argument for Protective Effect." American Journal of Epidemiology, 92, September 1970, 164-171.

25. Voors, A.W. "Lithium Depletion and Atherosclerotic Heart-Disease," Lancet, July, 1970, 53. Letter to the Editor.

26. Voors, A.W. "Lithium Depletion and Atherosclerotic Heart-Disease." Lancet, September 1970, 670. Letter to the Editor.

27. Voors, A.W., H.S. Anderson, G.M. Botkin, J.B. Hallan, E.L. Hill, R.O.Lyday, and J.N. Pyecha. Alternative Designs for Systems for Providing Postattack Medical Care. Research Triangle Institute Final Report R-OU-407, Volume 1, Research Triangle Park, North Carolina, October 1970.

28. Voors, A.W., B.S.H. Harris. Postattack Communicable Respiratory Diseases. Research Triangle Institute Final Report R-OU-493, Research Triangle Park, North Carolina, November 1970.

29. Zyzanski, S.J. and C.D. Jenkins. "Basic Dimensions Within the Coronary-Prone Behavior Pattern," J. Chronic Dis., 22, 1970, 781-795.

30. Zyzanski, S.J. R.H. Rosenman, M. Friedman, R. Straus, C.D. Jenkins, and M. Wurm. "Coronary Heart Disease in the Western Collaborative Group Study: A Follow-up Experience of 4 1/2 Years," J. Chronic Dis., 23, 1970, 173-190.

. SCIENTIFIC PAPERS PRESENTED.

(Included in list of publications)

XI. FULL-TIME FACULTY APPOINTMENTS AND RESIGNATIONS

Promotions

Joan C. Cornoni, Ph.D., Assistant Professor
Frank Cordle, Ph.D., Assistant Professor
C. David Jenkins, Ph.D., Professor

XII. NEEDS AND DIRECTION OF DEVELOPMENT

As the Department of Epidemiology moves into its 14th year, requests for its unique training program and faculty skills continue to accelerate. This is in part due to published research of faculty members, but to an even greater degree attributable to referrals from departmental alumni, many of whom have now reached positions of professional distinction. The Environmental Epidemiology Program Training Grant provides funds for student stipends and related faculty effort to train a new kind of health worker. As national concern for study and protection of the environment increases, the need for environmental epidemiologists will be multiplied. The major support for this program will have to continue to come from federal funding, but its inevitable growth will aggravate an already pressing space limitation. Study space for students and additional faculty offices are in serious shortage.

The Department has entered into a contract for a training program in "Epidemiological Foundations for Program Evaluation." Departmental faculty will coordinate and instruct members of the faculties of several leading schools of nursing throughout the country, helping them to develop local cooperative relationships with health service agencies such as hospitals and health departments. The great majority of ongoing health programs in the United States have never been evaluated in terms of health benefits accruing to persons treated. This program is a pioneering effort to teach the teachers who will teach students the epidemiological skills necessary for adequate evaluation of health services.

The Department of Epidemiology has been invited by departments in the School of Medicine to participate in teaching 1st and 2nd year medical students. The topics to be covered have not been fully decided as yet, but will no doubt include issues of community medicine, social factors in health facilities usage, psychological factors in disease, scientific design of clinical field trials, and techniques for assessing health of communities, in addition to traditional epidemiology. This teaching input should have the effect of making beginning medical students more knowledgeable and therefore more comfortable in dealing with natural communities of people. This has potentially great value for the state in that it serves to encourage more young physicians to enter general practice in local settings. The Department is also offering an introductory Epidemiology course to employees of the State Board of Health in

Raleigh. This is part of an increased effort in the Department to provide needed services to state of North Carolina. This will enable state employees to accumulate university credits toward the attainment of graduate degrees in Public Health.

The growth of the programs within the Department in the area of Health Services Research is expected to continue during the coming years. The Department has been invited to participate in basic planning and later in teaching and supervising of students who will be providing services at the Community Health Centers to be established in Orange and Chatham counties. The ongoing research work in evaluating patient attitudes toward different types of medical practices serves to prepare the Department to enter the local Community Health Centers with established techniques of community diagnoses and health services evaluation. This Department has been a pioneer in developing these research methods.

The above programs have all dealt with training and service. Basic research is also necessary so that we will know how to serve and in which ways to train. The Department is carrying on an active program of basic research. A study is now proceeding under contract to determine human tissue concentrations of trace elements. Autopsies from various areas in North Carolina are provided for study materials. One of the goals of this study is to explain the high excess of cardiovascular mortality which has been persistently found in the rural counties of eastern North Carolina. It is possible that fertilizers and pesticides containing cadium may be related to this increased risk of death. Then again, the problem may be aggravated by the leaching of essential trace elements from the soil in that part of the state. The present study is designed to test both these possibilities. This work is based on previous research done in this Department which has related presence of these same trace elements to altered lipid concentrations and aggravated depositions of atherosclerosis in animals.

The Department has been one of about six centers in the world conducting intensive studies of the relation of psycho and social factors to risk of coronary heart disease (CHD). This disease is the leading cause of death in North Carolina and the United States. The principle investigator of this project has been asked to have this Department of Epidemiology to serve as a data processing center for the increasing number of United States and international studies now using psychological materials prepared here. These requests have had to be denied because of limitation of space and personnel. Now that the United States Public Health Service, American Health Association, the World Health Organization, International Cardiology Society, and other expert agencies have recognized behavioral factors as important in the etiology of Coronary Heart Disease, it is likely that there will be considerable pressure to expand this research program.

This Department has been far from traditional throughout its history. Its years of preparatory effort in new fields have now put it in the position of receiving more requests for teaching, research, and service than can be accomodated. Although we have been very selective and refused many of these requests, we are still in the position of finding our needs for funds and facilities increasing. The trace elements study is now adequately supplied with wet laboratory space in the laboratory formerly used by the Nutrition

Department. The new Chairman of the Nutrition Department anticipates an active laboratory component in his program and would like to reclaim this space. This creates a severe problem for the trace metal study as well as for those graduate students in Epidemiology needing wet laboratory facilities. The new Chairman of Nutrition is being most cooperative but in order not to impede his progress, it is essential that we obtain new facilities by October 1971.

The shortage of faculty office space is acute. We now have two senior faculty members at the Associate Professor level sharing the same office. Another faculty member has a small office adjoining a busy secretarial pool. The noise level is such as to interfere with his work. The space for secretaries and other staff is also severely limited. Five and six staff are crowded into space originally designed for three. This crowding reduces the efficiency of the Department.

The recent severe fiscal cutbacks by the Federal Government have seriously reduced the number of student stipends. It is unreasonable to expect physicians, graduate nurses, and other experienced health workers with family responsibilities to become full-time students with no outside financial support. It is important to have the federal funds restored, and in the meanwhile to develop other sources of funds such as through private foundations and revolving loan funds. The increased efforts of the Department to teach in the Medical School, at the State Board of Health, and to provide other training opportunities to residents of North Carolina suggest that it would be appropriate for increased State funds to be made available to this Department. The present system of counting "full-time equivalents" does not thoroughly reflect the kind of individualized attention this Department traditionally gives to its graduate students.

The Department of Epidemiology has experienced substantial growth both in quantity and quality of its work in the past several years. It is now a stated policy of the Department to be more restrictive regarding future growth in size. It is, nevertheless, important that certain of these stated basic needs of the Department be met so that it can continue at its present level of excellence and respond to the most vital of the new demands made upon it by the state and nation.