

EPIDEMIOLOGY

ANNUAL REPORT

July 1, 1972 - June 30, 1973

I. MAJOR DEVELOPMENTS AND TRENDS

TEACHING

The increasing scope of the department's activities has necessitated organizing the department into five program areas. In addition to general epidemiology, these include

1. Health Services Research
2. Environmental Epidemiology
3. Family Planning and Population Control
4. Clinical Epidemiology
5. Alcohol and Drug Abuse

Appropriate research is being developed in each of these areas to support the teaching program, and students have the option of concentrating in any one area. All the areas have in common an attempt to integrate the social and biological sciences as well as an emphasis on the basic methods of epidemiology and biostatistics.

These expanded activities have led to increasing working relationships with the departments of medicine, pediatrics, psychiatry, and family and community medicine in the Medical School, the UNC Health Services Research Center, Population Center, Alcohol Center, the School of Pharmacy, and Social Work, as well as the Departments of Environmental Sciences and Biostatistics in this school.

Student applications have continued to increase, and the caliber of the applications improve. This year we have had over 70 applications (for a quota of 14 new admissions) and have had to close applications by the end of April.

RESEARCH

The number and variety of research projects continue to expand (see section VIII) and form an invaluable data-base and experience opportunities for our students. Student dissertations also are beginning to form another extra-ordinarily useful source of information for the department and are being widely used by current students and faculty. In April 1973, four of our alumni were invited back to present papers based upon their dissertations or theses to the whole department in a

symposium entitled "Family Health". This method of making knowledge cumulative, showing the inter-relationships between different approaches to a similar topic, and providing ideas for subsequent research was judged highly successful.

CONSULTATION

The department continues to provide consultation services to faculty and students engaged in research in the Medical School, School of Nursing, Duke Medical School and School of Nursing at Duke. In addition, this year these consultative activities have expanded into the School of Pharmacy, N. C. State Board of Health, Appalachian Regional Commission, and a number of universities and organizations outside of this state.

Increasing efforts are now being made to provide ongoing consultative services to local health agencies and hospitals in this state.

II. ORGANIZATION

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 Emeritus
Felix J. Gruber, M.D., Dr.P.H., Assistant Professor
Barbara S. Hulka, M.S., M.D., M.P.H., Associate Professor
Michel A. Ibrahim, M.D., M.P.H., Ph.D., Associate Professor
Berton H. Kaplan, M.S., Ph.D, Professor
Anthony J. McMichael, M.D., Ph.D., Assistant Professor
Abdel R. Omran, M.D., D.P.H., M.P.H., Dr. P.H., Professor
Ralph C. Patrick, Jr., A.M., Ph.D., Associate 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., Associate Professor

Visiting Faculty

Michael A. Hamilton, M.D., Adjunct Assistant Professor
Douglas I. Hammer, M.D., M.P.H., Adjunct Assistant Professor
Carl G. Hayes, M.P.H., Ph.D., Adjunct Assistant Professor
G. J. Love, M.P.H., D. Sc., Adjunct Assistant Professor
Vaun A. Newill, M.D., S.M. Hyg., Adjunct Associate Professor
Carl M. Shy, M.D., Dr. P.H., Adjunct Assistant Professor
Richard A. Tjalma, D.V.M., M.S., Adjunct Associate Professor

Joint Appointments

David Kleinbaum, Ph. D., Assistant Professor
Lawrence L. Kupper, Ph.D., Assistant Professor
Eugene S. Mayer, M.D., Assistant Professor
Richard P. McDonagh, Jr., M.A., Ph.D., Assistant Professor
Samuel M. Putnam, M.D., Assistant Professor
Carolyn A. Williams, Ph.D., Assistant Professor
Edward H. Wagner, M.D., M.P.H., Assistant Professor

Other Academic Personnel

Frank Jones, M.D., Research Associate
Jo E. Maready, B.A., Research Associate
James E. Schwankl, M.D., Research Associate
Geraldine Talarczyk, R.N., Research Associate
H. Pennington Whiteside, M.A., Research Assistant
Susanne Wolf, M.P.H., Research Associate

V. INSTRUCTIONAL ACTIVITIES

During the current year, there have been 38 registered students in the field of Epidemiology. One student will complete the requirements for the MPH degree by May 1973. Six students will complete the requirements for the MPH degree by August 1973. One student received the Ph.D. degree in the December commencement. In addition, four doctoral candidates plan to receive their Ph.D. at the August 1973 commencement.

Number of Courses Given.	28
Number of Majors in Department.	36
MPH.	16
MSPH	0
Dr.P.H..	3
Ph.D..	17
Non-Degree	5
Total Enrollment in Department Courses.	567

A. Enrollment of major students:

Fall, 1972 (MSPH, 16 MPH, 3 Dr.P.H., 17 Ph.D., 5 non-degree)	41
Spring, 1973(MSPH, 16 MPH, 3 Dr.P.H., 18 Ph.D., 5 non-degree)	42
Summer, 1973(Estimated) (MSPH, 11 MPH, 2 Dr.P.H., 12 Ph.D., 5 non-degree)	29
Men: (MSPH, 10 MPH, 3 Dr.P.H., 4 Ph.D., 5 non- degree).	22
Women: (MSPH, 7 MPH, Dr.P.H., 14 Ph.D.)	21
Undergraduate.	0
Graduate. . MPH 16, MSPH 0	16
Doctoral. . Dr.P.H. 3, Ph.D. 17	20
Non-Degree.	5

Place of Residence:

North Carolina.	18
Southern States	4
Maryland.	2
Missouri.	1
Texas	1
Other States	12
New York.	4
Connecticut	1
California.	1
Pennsylvania.	1
Ohio.	3
Minnesota	1
Utah.	1

Other Countries.	7
New Zealand.	1
Venezuela.	1
Yugoslavia	1
Turkey	1
Chile.	1
Brazil	1
Bolivia.	1

Courses Offered in the Department of Epidemiology, and enrollment:

<u>Course Number</u>	<u>Title</u>	<u>Enrollment</u>
140	Problems in Epidemiology	35
141	Problems in Epidemiology	21
160	Principles of Epidemicology	194
161	Epidemiology in Population Dy- namics and Family Planning Programs	47
162	Epidemiology in Environmental Health	72
168	Behavioral Science in Health Pro- grams and Research	
211	Determinants of Communicable Di- sease	
230	Applied Methods in Epidemiology and Health Services Research	7
231	Epidemiologic Research in Personal Health Services	13
240	Alcohol Behavior and Health	8
241	Research Methodology in Alcohol Usage	3
260	Epidemiological Foundations for Di- sease Control Programs	7
261	Dental Epidemiology	4
262	Epidemiology of Program Acceptance	9
264	Culture and Health	24
266	Epidemiological Investigation	21
265	History of Epidemiology	17
287	Statistical Methods in Epidemiology	
315	Field Training in Epidemiology	12
360	Research in Epidemiology	23
361	Research in Epidemiology	19
362	Environmental Epidemiology Seminar	
368	Evaluative Research Methods	16
393	Masters Thesis	9
394	Doctoral Dissertation	6
	TOTAL	567

B. Degrees estimated through August, 1973:

	Ph.D.	Dr.P.H.	MSPH	MPH	TOTAL
December 1972	1			2	3
May 1973	4			1	5
August 1973	4			6	10

C. Students receiving less than one semester's instruction from faculty:

Name of Course	Hours of Instruction	Number of Students
Environmental Epidemiology Luncheon Seminar	6	12
Special Seminar in Selected Topics in Statistics	8	20
Coronary Disease	2	40
Clinical Epidemiology	15	20

D. Students outside the Department of Epidemiology taking courses especially set up for them by our faculty:

Name of Course	Hours of Instruction	Number of Students
Epidemiology for 1st Year Medical Students (Group Biology)	155	122
Epidemiology for 2nd Year Medical Students	4	103
Epidemiology for 4th Year Medical Students	18	25
BIOS 105	54	25
BIOS 145	54	26

E. Students from other universities receiving instruction set up for them at those universities:

Name of Institution	Course or Class	Hours of Instruction	Number of Students
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University of Minnesota			
Summer Session 1972	EPID	3	30

E. (cont'd)	Course or Class	Hours of Instruction	Number of Students
University of New York at Buffalo	EPID	4	15
Penn St. University	EPID	2	150
Tulane University	EPID	2	20
Duke University	EPID	2	100

F. Students from other departments and schools in the University enrolled in regular Public Health courses in the School of Public Health.

Course Number	Breakdown of Students	Hours	Total Number of Students	TOTAL
EPID 141	4-Graduate School 2-Undergraduate 1-N.C. State	20	7	140
EPID 160	11-Graduate School 3-Evening College 2-Duke 3-Undergraduate 1-N.C. State 1-Social Work	20	21	420
EPID 161	1-Evening College	20	1	20
EPID 162	2-Graduate School 3-Undergraduate 1-N.C. State	20	6	120
EPID 262	1-Evening College 1-Social Work	20	2	40
EPID 264	2-Graduate School	30	2	60
EPID 266	2-Graduate School	30	2	60
EPID 368	1-Undergraduate	20	1	20
	TOTAL:	180	42	880

E. Research Training Program in Alcohol Abuse

The purpose of this program is to train persons in alcohol research. Alcoholism is one of the leading problems in the field of public health. This program studies this problem through a comprehensive and multidisciplinary approach. It emphasizes 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. This multidisciplinary approach will include faculty from the Departments of Psychology, Psychiatry, Medicine, Pharmacology, Anthropology, Sociology, and Health Education, Health Administration, Education, Law, Nursing, and additional interested people participating in work in alcohol related areas.

Another area of emphasis is the study of individual variability within 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 Southern United States.

The program offers an M.P.H. or an M.S.P.H. degree and is 18 months in duration. Students major in Epidemiology and take courses with special concentration on alcoholism. They develop specific research in a field training situation. Opportunities for field placement are available in and around the University of North Carolina. These include ongoing research activities in the Center for Alcohol Studies, the School of Public Health, and the Highway Safety Research Center. Also, students have access to research already on-going and developing under the directory of Dr. George Maddox and Dr. Dennis Mayfield at the Duke University Medical Centers and the Veterans Administration Hospital in Durham.

Courses developed under this program are open to all students in the School of Public Health and all other Departments in the University.

VI. DEPARTMENT ACTIVITIES IN THE GREATER UNIVERSITY

Dr. Becker

Member, UNC Committee on Standard Six (Library)
Member, Health Sciences Library Committee
Chairman, School of Public Health Library and Reading Room Committee

Dr. Cassel

Teaching responsibilities at the Medical School
Member, Administrative Board of the School of Nursing
Member, Steering Committee on Consortium for Evaluation of Community
Mental Health Center Programs
Member, Steering Committee, HSMHA Evaluation Project
Member, Faculty Council
Member, Task Force on Goals, Function, Instruction and Organization
of the Development of Family Medicine
Member, Academic Program Council of the Carolina Population Center
Member, Administrative Board of the Institute for Research in
Social Sciences
Member, Administrative Board of the Training Program for Health
Planners
Member, Advisory Group, Delphi Study
Member, Committee to establish organization and utilization of a
Computerized Medical examiner's Record System
Member, Minorities Relations Committee
Member, Search Committee for a Director of the Division of
Community Medicine

Dr. Cordle

Chairman, Epidemiology Advisory Group to the Office of the Chief
Medical Examiner, State of North Carolina

Dr. Cornoni

Member, Faculty Council
Member, Executive Committee of the Center for Alcohol Studies

Dr. Gruber

Presented session of an international seminar on Family Planning
programs for nurses
Member, Latin American Programs Advisory Committee of the Carolina
Population Center

Dr. Hulka

Lectures to Medical students
Member, Human Research Review Committee
Research Associate for International Fertility Research Program - UNC
Member, School of Public Health - Medical School Liason Committee
Member, Technical Assistance Panel, Health Services Research
Participant, Principles of Public Health Practice Program
Research Associate for Health Services Research
Lectures to graduate students on medical sociology

Dr. Ibrahim

Member, Advisory Group on the Family Nurse Practitioner Program of
the School of Nursing
Member, Group Biology Committee, Medical School
Member, Community Mental Health Center Evaluation Project
Member, Evaluation Panel for the Orange-Chatham Comprehensive
Health Service

Dr. Kleinbaum

Member, Chancellor's Committee on Status of Minorities and Dis-
advantaged; Designed, implemented and analyzed data for
"Survey of UNC's Minority Students", completed October 1972

Dr. Omran

Participant, Conference-"The Epidemiologic Transition in North Carolina
During the last fifty to ninety years: The Mortality Transition"
UNC Intercampus Workshop on Population Studies, held Oct. 21,
1972
Participant, Intercampus group for development of a population curriculum
for undergraduates
Director, WHO International Reference Centre for Epidemiological
Studies of Human Reproduction
Chairman, Egypt Study Group, a multidisciplinary group concerned with
population issues in Egypt
Chairman, Abortion Study Group, multidisciplinary group studying the
implications of legalization of abortion
Member, doctoral committees for students in Maternal and Child Health
and Economics

Dr. Patrick

Member, Human Research Review Committee, School of Public Health
Member, Minority Relations Committee, School of Public Health
Member, Minority Advisory Committee, School of Public Health
Senior Faculty Associate, Department of Anthropology
Teaching responsibilities in Anthropology Department

Dr. Tyroler

Program Director, Environmental Epidemiology Research Training Program, School of Public Health, National Institute of Environmental Health Sciences

Program Director, Cardiovascular Undergraduate Training Grant

Co-Director, Preventive Medicine - Epidemiology Residency Program, School of Medicine and School of Public Health

Member, Faculty Council

Member, Curriculum Committee

Member, Academic Affairs Committee

Member, Cancer Committee, School of Medicine and School of Public Health

Coordinating Epidemiologist, Member, of Advisory Board, Occupational Health Studies Project, School of Public Health

Dr. Voors

Research for Occupational Health Studies Project, School of Public Health
Environmental Training Program activities

VII. DEPARTMENTAL SERVICES

Dr. Becker

Member, School of Public Health Self-Study Committee

Chairman, UNC Health and Behavioral Sciences Group

Coordinator, Department of Epidemiology, Self-Study

Dr. Cassel

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

Member, Study Section of Therapeutic Evaluation, Committee of National Heart and Lung Institute

Member, Ad Hoc Review Committee, National Center for Health Services Research and Demonstration, National Center for Health Statistics

Chairman, Ad Hoc Review Committee, Heart Disease Multiple Risk Factor Intervention Study

Board of Overseers, American Journal of Epidemiology

Member, Editorial Board, Preventive Medicine

Chairman, Policy Advisory Board, Multiple Risk Factor Intervention Trial, NHLI, 1972-present

Member, Society for Epidemiological Research

Member, International Epidemiological Association

Consultant, American Health Foundation

Fellow, American Public Health Association

Chairman, International Epidemiological Association, Middle East Schools of Public Health

Dr. Cordle

Departmental Seminar Series
Departmental teaching responsibilities

Dr. Cornoni

Chairman, Membership Committee, North Carolina Public Health Association
Chairman, Statistics and Epidemiology section of North Carolina
Public Health Association
Member, Governing Council of North Carolina Public Health Association

Dr. Gruber

Department teaching responsibilities
Presentation for Dr. Hulka's course
Chairman, Epidemiological Seminar Committee
Member, Advisory Board for Medical Examiner's Office

Dr. Hulka

Chairman, Admissions Committee of Department of Epidemiology

Dr. Ibrahim

Associate Editor, American Journal of Epidemiology
Editorial Board, American Journal of Public Health
Consultant, National Center for Disease Control, USPHS, Atlanta, Ga.
Consultant, National Heart and Lung Institute
Consultant, National Cancer Institute, NIH, Bethesda, Md.
Member, Advisory Committee for a National Program on Carcinoma of the
Bowel and rectum
Chairman, Health Manpower Committee, APHA Epidemiology Section
Chairman, Finance and Personnel Committee of the UNC School of
Public Health
Director, Niagra County Air Pollution Board of Directors, Niagra, N.Y.
Member, (Elected), Administrative Board of the UNC School of Public
Health

Dr. McDonagh

Advisor, Evans County Study
Advisor, Coronary Heart Disease Project

Dr. Patrick

Participant, WHO Seminar on Human Ecology, Geneva, August 1972
Member, Continental Army Command Advisory Committee to U.S. Army
Institute for Military Assistance

Dr. Tyroler

Member, Health Services Research Study Section, NCHSRD, HEW
Member, Task Force on Community Blood Pressure Intervention Studies
Member, International Epidemiological Association
Vice President, Board of Directors, Orange-Chatham Counties
Comprehensive Health Services, Inc.
Chairman, Scope of Services Committee, Orange-Chatham Counties
Comprehensive Health Services, Inc.
Chairman, Epidemiology Advisory Committee, National Lipoprotein
Research Center Project, NHLI, NIH
Consultant, The Upjohn Corporation

VIII. RESEARCH PROJECTS

Dr. Becker

Evaluation of Family Planning and Health Services in 5 Communities
of Guatemala
Characteristics of Faculty Users of the Health Sciences Library
Prospective Study of Cord Blood Cholesterol to Predict Level of
Cholesterol and Type II Hyperlipoproteinemia in Adolescence
Ag Typing: Relationship to Lipoprotein Patterns

Dr. Cassel

Effects of Rapid Culture Change on Health (Ponape)
Study of the Effectiveness and Efficiency of Primary Health Care
Cardiovascular Disease Epidemiology Project
Evaluation of the Clinical Competence of Nurse Practitioners
Occupational Health Research Project

Dr. Cordle

An Assessment of the Delivery of Primary Medical Care in Ft. Wayne, Ind.
The development of Computerized Prognostic Models Using the Mayo
Clinic Record System.
The Automation of Clinical Medical Records
The Use of Hospital Medical Records for Epidemiologic Research
The Use of Medical Examiner Records for Epidemiologic Research
The Validation of Ecologic Information to Determine Social Class
Using the Hollingshead Index of Social Class

Dr. Cornoni

Evans County Health Study
Adverse Drug Reaction Study
Alcohol Studies
Life Table Methodology in Cardiovascular Epidemiology

Dr. Gruber

Occupational Health Studies Group: Rubber Industry Environmental
Epidemiology

Dr. Hulka

American Academy of Family Physicians Project: Field Study on
Delivery of Health Services and primary medical care
Cervical Cancer Research
Abortion Research

Dr. Ibrahim

Group Therapy in Prognosis of Myocardial Infarction
Evaluation of the Family Nurse Practitioner Programs
Epidemiologic Foundations of Program Evaluation for Nurses
Analysis of Data on Patterns of Medical Care and Epidemiology for
Stroke Patients

Dr. Kaplan

Evans County Study
Duke Stroke Study

Dr. Kleinbaum

Occupational Health Studies Project
Ponape Project
Survey of UNC's Minority Students

Dr. McDonagh

Blood Coagulation Factor XIII Levels of High and Low Risk CHD
Subjects, Evans County Study

Dr. McMichael

Occupational Health Studies Group: Rubber Industry Environmental
Epidemiology

Dr. Omran

Coordinator, International Collaborative Studies of Family Formation
and Family Health, WHO
Analysis of Wake County Fertility and Health Survey Data

Dr. Patrick

Culture Change and Blood Pressure and Heart Disease (Ponape)
Health Consequences of Rapid Cultural Change (Papago Indians)

Dr. Slome

Project: Guided Learning Manual

Dr. Tyroler

Epidemiological Co-Director, Occupational Health Studies Project
Chairman, Epidemiologic Advisory Committee, Lipoprotein Research
Centers Project, NHLI, NIH (Cardiovascular Epidemiology)
Co-Principal Investigator, Evans County Cardiovascular Survey

Dr. Voors

Selenium Deficiency in Alcoholic Fatty Degeneration of the Liver

IX. PUBLICATIONS

Dr. Cassel

"Psychiatric Epidemiology", American Handbook of Psychiatry, Gerald
Caplan, ed., Basic Books.

(With B.S. Hulka, L.L. Kupper) "Determinants of Physician Utilization:
Approach to a Service-Oriented Classification of Symptoms",
Medical Care.

(With K.B. Nuckolls, B.H. Kaplan) "Psychosocial Aspects, Life Crisis
and the Prognosis of Pregnancy", American Journal of
Epidemiology, 95:5, pp. 431-441.

(With J.D. Beck) "Role Inconsistency and Health Status", Social
Science and Medicine, 6, pp. 737-751.

"Information for Epidemiologic and Health Services Research".
Presented at Conference on Ambulatory Medical Care Records,
Chicago, April 1972. Medical Care, II: No. 2,
supplement, pp. 76-80, 1973.

"Relation of the Urban Environment to Health: Implications for
Prevention", George James Memorial Issue, Mt. Sinai Journal,
1973.

Dr. Cordle

"The Automation of Clinical Records: An Overview with Special
Emphasis on the Automation of Office Records in the Primary
Care Setting". Medical Care, 10, No. 6 1972, pp.470-480.

Dr. Hulka

Review of Family Planning and Abortion in the Socialist Countries of Central and Eastern Europe - A Compendium of Observations and Readings by Henry P. David. American Journal of Public Health, 63:9, September 1972, p. 1262.

(With L.L. Kupper, J.C. Cassel) "Determinants of Physician Utilization: Approach to a Service Oriented Classification of Symptoms." Medical Care, 10:4, July, August, 1972, pp. 300-309.

(With J.C. Cassel) "The AAFP-UNC Study of the Organization, Utilization and Assessment of Primary Medical Care." American Journal of Public Health.

Dr. Ibrahim

(With R.B. Wallace, P. Libert, P. Isacson) "Joint Symptoms Following an Area-Wide Rubella Immunization Campaign - Report of a Survey." American Journal of Public Health, 62:658, 1972.

"Venereal Disease Today". OB/GYN Digest, 14:24, 1972.

"The Psychotherapeutic Management of Acute Myocardial Infarction: A Controlled Trial of the Effect of Group Therapy Upon Prognosis". Circulation.

Dr. Kaplan

(With K. Nuckolls, J. Cassel) "Psychosocial Assests, Life Crises and the Prognosis of Pregnancy", American Journal of Epidemiology, 95:5, 1972, pp.431-441.

"Psychiatric Sociology: Social Factors and Working Through," chapter in Perspectives on Psychiatric Sociology, P. Roman and Harrison Trice, eds., Science House, N.Y., 1973.

Dr. Kleinbaum

"A Generalization of the Growth Curve Model which Allows Missing Data", Journal of Multivariate Analysis, 3, March 1973.

Dr. McDonagh

(With H. Messel, J. McDonagh, G. Murano, B. Blombäck) "Molecular Weight Analysis of fibrinogen and fibrin chains by an improved sodium dodecyl sulfate gel electrophoresis method". Biochim, Biophys. Acta., 257:135-142.

- (With J. McDonagh, B. Blombäck). "Polypeptide chains of human fibrin: Molecular Organization in Crosslinking". Annals N.Y. Academy of Sciences, 202: 335-340.
- (With J. McDonagh) "Factor XIII from Human platelets: Effect on fibrin crosslinking". Thrombosis Research, 1:147-170.
- (With J. McDonagh, B. Blombäck) "Isolation and characterization of the S-carboxymeth; derivatives of crosslinked human fibrin." Proc. National Academy of Sciences 69:3648-3652.
- (With J. McDonagh) Crosslinking of human fibrin by platelet factor VIII." Circulation, 46: Suppl.II, 32 (Abstract), 1972.

Dr. Omran

- (With B. Loughlin) "An Epidemiologic Study of Accidents Among the Navajo Indians, Arizona," Journal of the Egyptian Medical Association, LV:1, 1972.
- "A Resume of Islams Position on Family Planning and Abortion", I.R. Nazer, ed., Induced Abortion: A Hazard to Public Health? International Planned Parenthood Federation (Beirut, 1972), pp.348-355.
- "Epidemiological and Sociological Aspects of Abortion," I.R. Nazer, ed., Induced Abortion: A Hazard to Public Health? International Planned Parenthood Federation (Beirut, 1972), pp. 20-59.
- "Health Benefits of Family Planning," World Health Organization, (Geneva, 1971; translated into French and Spanish, 1972.
- "Epidemiologic Transition: A Theory of the Epidemiology of Population Change," The Milbank Memorial Quarterly, 49:1971; translated into Spansih, 1972 and published in Atention Medica, 1:2, September 1972, Centro Latino Americano de Administration Medica, PAHO.
- (With others) Human Development and Public Health: Report of a WHO Scientific Group. Technical Report Series No. 485, Geneva: World Health Organization, 1972.
- (With C.B. Arnold, S.J. Slagle) "An Epidemiological Study of Timing Failure Type Pregnancies," American Journal of Public Health, LXII (December 1972), 1658-1663.
- Egypt: Population Problems and Prospects. Published 1973 by the Carolina Population Center, Chapel Hill, N.C.

Dr. Patrick

"Papago Indian Modernization: A Community Scale for Health Research," Human Organization, 31:2, 127-136, Summer 1972. (With H.A. Tyroler).

(With H.A. Tyroler) "Epidemiologic Studies of Papago Indian Mortality," Human Organization, 31:2, 163-170, Summer 1972.

Dr. Tyroler

(With R. Patrick) "Epidemiologic Studies of Mortality Using the Papago Indian Population Register". Human Organization, 31:2 (Summer 1972), 163-169.

(With R. Patrick) "Papago Indian Modernization: A Community Scale for Health Research." Human Organization, 31:2 (Summer 1972), 127-135.

(With S. Heyden) "One Year Follow-Up of the Evans County Obese Hypertensive Weight Reduction Experiment." Clinical Science.

(With S. Heyden, H. Karp, A. Heyden, A. Bartel, J. Cassel, J. Cornoni, C. Hames, and W. Stuart) "Cerebrovascular Disease in the Bi-Racial Population of Evans County, Georgia." Stroke, 2:509-518, 1971.

(With M. Daly) "Cornell Medical Index Response as a Predictor of Mortality." British Journal of Preventive and Social Medicine, 26:3:159-164, 1972.

(With F.D. Fisher) "The Relationship between Ventricular Premature Contractions on Routine Electrocardiography and Subsequent Sudden Death from Coronary Heart Disease." Circulation.

Dr. Voors

(With M.S. Shuman, P. Gallagher) "Atherosclerosis and hypertension in relation to some trace elements in tissues." World Review of Nutrition and Dietetics, 19 1973.

"Drinking water lithium and mental hospital admission in North Carolina." North Carolina Medical Journal, 33:597-602, 1972.

"Can dental development be used for assessing age in under-developed communities?" Journal of Tropical Pediatrics and Environmental Health, 19, 1973.

X. SCIENTIFIC PAPERS PRESENTED

Dr. Cassel

"Limitations of the Current Cardiovascular Risk Factors".
Presented at Society for Study of Diseases of Civilization, Monte Carlo, May-June 1972.

"Limitations of the Current Cardiovascular Risk Factors".
Presented at the III Congress of the International Society on Thrombosis and Haemostasis in Washington, D.C., August 1972.

"The AAFP-UNC Study of the Organization, Utilization and Assessment of Primary Medical Care" (with Barbara Hulka).
Presented at the meeting of the American Public Health Association, Epidemiology Section, Atlantic City, N.J., November 15, 1972.

"The AAFP-UNC Study of the Effectiveness and Efficiency of Primary Health Care" (with Barbara Hulka). Presented at The Conference on Family Medicine, Tel-Aviv, Israel, August 1972.

"Epidemiological Contributions to Program Evaluation". Presented at Erie County Regional Medical Program, Buffalo, N.Y., November 1972.

"The Evaluation of Primary Medical Care". Presented at seminar for Staff of National Center for Health Services Research and Development, Bethesda, December 1972.

"Psycho-Social Factors and Disease Prevention". Presented at School of Nursing, Vanderbilt University, Nashville, Tenn., February 1973.

"Housing, Health, and the Environment". Presented to Massachusetts Medical Society and League of Women Voters, Medford, Massachusetts, April 4, 1973.

"Cardiovascular Disease Epidemiology". Presented at Association of Directors of Chronic Disease Programs, Center for Disease Control, Atlanta, Ga., April 9, 1973.

Dr. Hulka

"The AAFP-UNC Study of the Organization, Utilization and Assessment of Primary Medical Care" (with John C. Cassel). Presented at the meeting of the American Public Health Association, Epidemiology Section, Atlantic City, N.J., November 15, 1972.

"The AAFP-UNC Study of the Effectiveness and Efficiency of Primary Health Care" (with John C. Cassel). Presented at Conference on Family Medicine, Tel-Aviv, Israel, August 1972.

Dr. Ibrahim

"The Management of Acute Myocardial Infarction". Presented at the American Heart Association Council on Cardiovascular Disease Epidemiology, Tampa, Fla., Feb. 28, 1972.

"Evaluation of the Clinical Competence of Family Nurse Practitioners" (with C. Williams). Presented at the APHA Convention, Atlantic City, N.J., November 14, 1972.

Dr. McDonagh

"Crosslinking of Human Fibrin by Platelet Factor XIII". Presented at American Heart Association, Dallas, Texas, November 1972.

Dr. Omran

Human Development and Public Health: Report of a WHO Scientific Group. Technical Report Series No. 485, Geneva: WHO, 1972.
(With others)

"The Epidemiologic Transition in North Carolina During the Last Fifty to Ninety Years: The Mortality Transition". Paper prepared for the University of North Carolina Intercampus Workshop on Population Studies (Chapel Hill), 1972.

Dr. Tyroler

"One-Year Follow-Up of the Evans County Obese Hypertensive Weight Reduction Experiment". Presented at the Second International Congress on Hypertension, Milan, Italy, September 21, 1972.

"Effect of Social Class on Family Aggregation of Serum Cholesterol Values, Evans County Cardiovascular Disease Epidemiology, New Orleans, Louisiana, March 13, 1973.

Dr. Voors

"Zinc and Cadmium Autopsy Levels for Cardiovascular Disease in Geographical Context". (with M.S. Shuman and P.N. Gallagher). Presented at Sixth Annual Conference on Trace Substances in Environmental Health, University of Missouri at Columbia, June 14, 1972.

"Arterial Lead Levels and Cardiac Death: An Hypothesis" (with M.S. Shuman and G.P. Woodward). Presented at Conference on Heavy Metals in the Environment/National Institute of Environmental Health Sciences, Research Triangle Park, N.C., March 8, 1973.

XI. FULL TIME FACULTY APPOINTMENTS AND RESIGNATIONS

Full-time Appointments

Edward H. Wagner, M.D., M.P.H., Assistant Professor
Anthony J. McMichael, M.D., Ph.D, Assistant Professor

Promotions

Felix J. Gruber, M.D., Dr. P.H., Assistant Professor
Berton H. Kaplan, M.S., Ph.D., Professor

Resignations

C. David Jenkins, M.S., Ph.D., Professor
Philip S. Spiers, Ph.D., Associate Professor
Stephen J. Zyzanski, M.S., Ph.D., Associate Professor

XII. NEEDS AND DIRECTION OF DEVELOPMENT

It is very difficult, if not impossible, to predict future directions at this time of financial crisis. Until we have some indication as to the amount and source of our future funds and the numbers and characteristics of future student applicants, any speculation in this area is likely to be futile.

